ANADOLU UNIVERSITY

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5. Uluslararası Açık ve Uzaktan Öğrenme Konferansı Bildiri Kitabı

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5. Uluslararası Açık ve Uzaktan Öğrenme Konferansı

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Prof. Dr. Fuat ERDAL
Rector of Anadolu University
Conference President

I would like to start my speech by saying "welcome to the 5th International Open and Distance Learning Conference" organized by Anadolu University Open Education Faculty under the theme of "Disruptive Change in Education".

We are proud to continue our educational journey, which started in 1982, when Anadolu University was given the task of providing open and distance education in order to expand higher education services in our country, today in its 40th year, as a global university operating in 39 countries on 4 continents.

Distance education, as a technology-based education model, is a process open to continuous development and innovation. Today, technological developments and the changing expectations of students reveal the need for radical change and transformation in distance education institutions. In particular global events, such as the Covid-19 pandemic, which are experienced on a mass scale and affect every aspect of daily life, cause disruptive changes in education and learning. The acceleration of the digitalization movement in education after the pandemic has caused a change and transformation process, in which,

Sözlerime, Anadolu Üniversitesi Açıköğretim Fakültesi tarafından "Eğitimde Yıkıcı Değişim" teması ile düzenlenen 5. Uluslararası Açık ve Uzaktan Öğrenme Konferansı'na hoş geldiniz diyerek başlamak istiyorum.

1982 yılında ülkemizdeki yükseköğretim hizmetlerini yaygınlaştırmak için açık ve uzaktan eğitim yapma görevinin Anadolu Üniversitesine verilmesi ile başladığımız eğitim yolculuğumuzu bugün 40. yılında, 4 kıta, 39 ülkede var olan bir dünya üniversitesi olarak sürdürmenin haklı gururunu yaşıyoruz.

Uzaktan eğitim, teknoloji tabanlı bir eğitim modeli olarak sürekli gelişim ve yeniliğe açık bir süreçtir. Günümüzde teknolojik gelişmeler ve öğrencilerin değişen beklentileri uzaktan eğitim kurumlarında köklü değişim ve dönüşüm ihtiyacını ortaya çıkarmaktadır. Özellikle Kovid-19 pandemisi gibi küresel ölçekte yaşanan ve gündelik hayatın her alanına etki eden olaylar, eğitim-öğretim süreçlerinde yıkıcı değişikliklere neden olmaktadır. Pandemi sonrasında eğitimde dijitalleşme hareketlerinin hızlanması, önümüzdeki birkaç yıl içerisinde dünyada yükseköğretim kurumlarının açık ve uzaktan öğrenme uygulamalarının daha fazla yer

in the next few years, higher education institutions in the world will have more open and distance learning applications. In this context, the IODL 2022 event is held to provide a fruitful ground for discussing the current developments in open and distance learning at international and national level and to offer solutions to possible problems. With these thoughts, I hope that IODL 2022 will bring new horizons to the studies in the field of open and distance education and reveal enlightening solutions for the transformation processes in higher education institutions.

Our university, which bases its vision on being a global university focused on lifelong learning, is implementing a new practice today with its understanding of high-quality education for everyone. As you know, in the information age we live in, education must have functions beyond just being a process that prepares individuals for their profession. Education should be able to provide individuals with constantly updated and qualified information, prepare them for new forms of production and give them self-learning skills. At this point, our university implements the Digital Course Platform application in order to provide open access to the knowledge created by our academic units over the years, especially our Open Education System, to ensure equality of opportunity in education and to enable individuals of all ages to access high-quality education services. With the Digital Course Platform, individuals will have free access to more than 30,000 educational materials, including more than 1000 books, presentations, summaries, and course videos. Considering disabled users, we also offer audio summaries of educational materials on the Digital Course Platform.

I would like to take this opportunity to thank all the participants and those who contributed both to the organization of IODL 2022 and to the launch of our Digital Course Platform application.

alacağı yıkıcı bir değişim ve dönüşüm sürecini başlatmıştır. Bu kapsamda, gerçekleştirilecek olan IODL 2022 etkinliği ile uluslararası ve ulusal düzeyde açık ve uzaktan öğrenme ortamlarında yaşanan güncel gelişmelerin ele alınmasına, yaşanan sorunların tartışılmasına ve bu sorunlara dair çözüm önerileri sunulmasına verimli bir zemin kazandıracaktır. Bu düşüncelerle IODL 2022'nin açık ve uzaktan eğitim alanındaki çalışmalara yeni ufuklar kazandırmasını ve yükseköğretim kurumlarında yaşanan dönüşüm süreçleri için aydınlatıcı çözüm önerileri ortaya koymasını temenni ediyorum.

Vizyonunu "Yaşamboyu öğrenme odaklı bir dünya üniversitesi" olmak üzerine temellendiren Üniversitemiz, herkes için nitelikli eğitim anlayışıyla bugün yeni bir uygulamayı daha hayata geçiriyor. Bildiğiniz gibi içinde yaşadığımız bilgi çağında eğitim, bireyleri sadece mesleğe hazırlayan bir süreç olmanın ötesinde işlevlere sahip olmak zorundadır. Eğitim bireylere sürekli güncellenen nitelikli bilgiyi sunabilmeli, onları yeni üretim biçimlerine hazırlamalı ve onlara kendi kendine öğrenme becerisi kazandırmalıdır. Bu noktada Üniversitemiz, başta Açıköğretim Sistemimiz olmak üzere akademik birimlerimizin yıllar içerisinde oluşturduğu bilgi birikimi açık erişime sunarak eğitimde fırsat eşitliğinin sağlanması ve her yaştan bireyin nitelikli eğitim hizmetlerine ulaşabilmesi için Dijital Ders Platformu uygulamasını hayata geçiriyor. Dijital Ders Platformu ile bireyler, 1000'den fazla kitap, sunu, özet ve ders videosunun yer aldığı 30.000'den fazla eğitim materyaline ücretsiz olarak erişim sağlayabilecek. Dijital Ders Platformu'nda engelli kullanıcıları da düşünerek eğitim materyallerinin sesli özetlerini de kullanıma sunuyoruz.

Bu vesileyle hem IODL 2022 hem de Dijital Ders Platformu uygulamamızın hayata geçmesinde emeği geçenlere ve tüm katılımcılara teşekkür ediyorum.



Prof. Dr. İbrahim KAYA
Dean of Open Education Faculty, Anadolu University
Conference Chair

Welcome to the IODL 2022 International Open and Distance Learning Conference and the launch event of the Digital Course Platform! We are hosting this conference in the 40th anniversary of our Open Education System, which has become an important education brand all over the world and in our country.

We have determined the title of our conference as "disruptive change" this year. It has become clear during the pandemic that the traditional understanding of university needs to change. While change takes place in all fields, we cannot think that universities are spared from this change. Let's remember, towards the end of the Covid19 pandemic, we started to use the phrase "new normal". This phrase shows us that nothing will be the same as it was before the pandemic. As in every field, it is inevitable to adopt new approaches, methods, procedures and principles in the field of higher education.

Tüm dünyada ve ülkemizde önemli bir eğitim markası haline gelmiş olan Açıköğretim Sistemimizin 40. kuruluş yılında düzenlediğimiz IODL 2022 Uluslararası Açık ve Uzaktan Öğrenme Konferansımıza ve Dijital Ders Platformu lansmanımıza hoş geldiniz!

Konferansımızın başlığını bozucu yada yıkıcı değişim olarak çevirebileceğimiz "disruptive change" olarak belirledik. Geleneksel üniversite anlayışının değişmesi gerektiği pandemi döneminde iyice ortaya çıktı. Tüm alanlarda değişim gerçekleşirken, her alan dijitalleşirken üniversitelerin değişmemesi asla düşünülemez. Hatırlayalım, Kovid'in sonuna doğru "yeni normal" tabirini kullanmaya başladık. Bu tabir artık hiçbir şeyin pandemi öncesi gibi olmayacağını bize gösteriyor. Her alanda olduğu gibi yükseköğrenim alanında da yeni yaklaşımların, metodların, usul ve esasların benimsenmesi kaçınılmaz.

We are pleased to welcome some of the world-renowned scholars in the field of open and distance learning: Prof. Ojat Darojat, Prof. Mark Brown, Prof. Asha Singh Kanwar, Prof. Olaf Zawacki-Richter, Prof. Som Naidu and Prof. Chih-Hsiung Tu, as invited speakers at our event. At the event, a total of 236 papers, 86 of which are online and 150 of which are face-to-face, will be presented. In addition, various panels and workshops will take place throughout the event.

As Anadolu University, which is among the mega universities of the world with more than 1 million students and approximately 4 million graduates, we celebrate the 40th anniversary of our Open Education System with activities that will continue throughout the year.

The Open Education System is proud of putting many firsts and innovations into practice in Turkish Higher Education System and being among the mega universities of the world, with its open and distance learning system that constantly develops itself.

The Anadolu University Open Education System, whose roots are based on television and distance education broadcasts under the name of Educational Television (ETV) during the Eskişehir Academy of Economics and Commercial Sciences in 1972, was established on the 20th of July 1982 with the opening of the Open Education Faculty within our University. In the Open Education System, where 29,500 students enrolled in Economics and Business Administration undergraduate programs in its first year, more than one million students are actively studying in more than 60 associate and undergraduate programs today. To date, the number of graduates has approached 4 million.

Etkinliğimizde davetli konuşmacı olarak açık ve uzaktan öğrenme alanının dünya çapında tanınmış isimleri olan Prof. Ojat Darojat, Prof. Mark Brown, Prof. Asha Singh Kanwar, Prof. Olaf Zawacki-Richter, Prof. Som Naidu ve Prof. Chih-Hsiung Tu'yu ağırlamaktan büyük mutluluk duyuyoruz. Yine etkinliğimizde 86'sı çevrimiçi ve 150'si yüz yüze olmak üzere toplam 236 bildiri sunulacak; ayrıca, etkinlik boyunca çeşitli paneller ve workshoplar da yer alacak.

1 milyondan fazla öğrencisi ile dünyanın mega üniversiteleri arasında yer alan Anadolu Üniversitesi olarak Açıköğretim Sistemimizin 40. kuruluş yıl dönümünü yıl boyunca sürecek etkinliklerle kutluyoruz.

Açıköğretim Sistemi, kendini sürekli yenileyerek uyguladığı açık ve uzaktan öğrenme yöntemi ile Türk Yükseköğretim Sisteminde ülkemizde birçok ilkleri ve yenilikleri uygulamaya koymanın ve dünyanın mega üniversiteleri arasında yer almanın haklı gururunu yaşamaktadır.

Kökleri 1972 yılında Eskişehir İktisadi ve Ticari İlimler Akademisi döneminde Eğitim Televizyonu (ETV) adı altında yapılan televizyonla uzaktan eğitim yayınlarına dayanan Anadolu Üniversitesi Açıköğretim Sistemi, 20 Temmuz 1982 tarihinde Üniversitemiz bünyesinde Açıköğretim Fakültesinin açılmasıyla kurulmuştur. İlk yılında İktisat ve İş İdaresi lisans programlarına 29 bin 500 öğrencinin kaydolduğu Açıköğretim Sisteminde bugün 60'tan fazla ön lisans ve lisans programında bir milyondan fazla öğrenci aktif olarak öğrenim görmektedir. Bugüne kadar verilen mezun sayısı da 4 milyona yaklaşmıştır.

The Anadolu University Open Education System includes the Faculty of Economics and the Faculty of Business Administration, which were established in 1993, as well as the Open Education Faculty. In addition to the classes in Turkish, courses are also offered in English in the undergraduate programs of Economics, Business Administration, International Relations and in Political Science and Public Administration, and in Arabic in the associate degree program of Theology.

Anadolu Üniversitesi Açıköğretim Sisteminde, Açıköğretim Fakültesinin yanı sıra 1993 yılında kurulan İktisat ve İşletme Fakülteleri yer almaktadır. Sistemde Türkçenin yanı sıra İktisat, İşletme, Uluslararası İlişkiler ile Siyaset Bilimi ve Kamu Yönetimi lisans programlarında İngilizce, İlahiyat ön lisans programında da Arapça dillerinde öğretim yapılmaktadır.

The Open Education System is an education system that provides education not only in Türkiye but also in different parts of the world. The Open Education System, which has been continuously expanding the geography it serves in line with the demands since 1987, when it started to implement undergraduate and associate degree programs for Turkish citizens living in various countries of Europe under the name of the Western Europe Programs, continues its activities in 4 continents, 39 countries and 56 exam centers as of this year.

Açıköğretim Sistemi sadece Türkiye'de değil Yurt Dışı Programları ile dünyanın farklı coğrafyalarında da eğitim-öğretim faaliyetinde bulunan bir eğitim sistemidir. Batı Avrupa Programları adı altında 1987 yılından itibaren Avrupa'nın çeşitli ülkelerinde yaşayan Türk vatandaşlarına yönelik lisans ve ön lisans programları uygulamaya başlamasından itibaren, gelen talepler doğrultusunda hizmet verdiği coğrafyayı sürekli genişleten Açıköğretim Sistemi, bu yıl itibariyle 4 kıta 39 ülke ve 56 sınav merkezinde faaliyetlerini sürdürmektedir.

With these feelings and thoughts, I believe that the International Open and Distance Learning Conference IODL 2022, the 5th of which we are organizing this year, will be productive and successful for the field of open and distance learning.

Bu duygu ve düşüncelerle bu yıl 5.'sini düzenlediğimiz Uluslararası Açık ve Uzaktan Öğrenme Konferansı IODL 2022'nin açık ve uzaktan öğrenme alanı için verimli ve başarılı geçeceğine inanıyorum.

At the end of my speech, I would like to express my gratitude to all my colleagues, especially our esteemed rector, vice-rectors, the dean and the vice deans of the Anadolu University Open Education System academics unit managers and staff. I feel privileged and lucky to be a member of their team. Finally, I would like to thank all of you who participated in this conference both online and face-to-face. Without you this event would not have been possible.

Konuşmamın sonunda müsadenizle, sayın rektörümüz, rektör yardımcılarımız, açıköğretim sistemi dekan ve dekan yardımcıları, akademisyenler, birim yönetici ve personelleri başta olmak üzere tüm çalışma arkadaşlarıma şükranlarımı sunuyorum. Kendimi onların ekibinin bir ferdi olduğumdan dolayı imtiyazlı ve şanslı hissediyorum. Son olarak gerek yüzyüze gerek online olarak bu konferansa iştirak eden sizlere de teşekkür ediyorum. Sizler olmasaydınız bu etkinlik gerçekleşemezdi.

Welcome to Eskişehir and Anadolu University once again!

Eskişehir'e ve Anadolu Üniversitesine bir kez daha hoş geldiniz!

Keynote Speakers



Ojat Darojat is a professor at the Faculty of Education and Teacher Training of Universitas Terbuka (UT) Indonesia who has more than thirty years of experience working for a distance teaching university. He pursued his Bachelor of Commerce Education from the Indonesia University of Education Bandung, Indonesia in 1990. He received both Graduate Diploma in Management (1998) and a Master of Business Management (2000) from La Trobe University, Australia. In 2013, he pursued his Ph.D. in Curriculum Theory and Implementation from Simon Fraser University, Canada. His main area of research interest is curriculum and quality assurance systems for distance higher education. Professor Darojat started his career journey in 2001 as the Head of Social Studies Department, Vice-Dean for Student Affairs at the Faculty of Education and Teacher Training of UT, the Head of UT Regional Center of Bogor, West Java, the Head of the Center for Quality Assurance of UT, and the Head of the Institute for the Development of Learning Materials, Examination, and Information System of UT. Since 2017 he has been elected as Rector of Universitas Terbuka Indonesia. Currently, he also serves as the President of the Asian Association of Open Universities (AAOU) and ICDE Focal Point on Quality for Asia Region.



Professor Asha Singh Kanwar, one of the world's leading advocates of learning for sustainable development, is the President and Chief Executive Officer of the Commonwealth of Learning. Throughout a career spanning over 35 years, she has made outstanding contributions in the areas of teaching, research and international development. Professor Kanwar received her undergraduate, Master's and MPhil degrees from the Panjab University in India and a DPhil from the University of Sussex, UK. Her areas of expertise include open distance and technology-enabled learning, open educational resources, quality assurance, gender and organizational development. Professor Kanwar has written and edited a dozen books, published over 100 papers and articles, and delivered numerous keynotes at prestigious international conferences.

For more information: https://www.col.org/members/professor-asha-s-kanwar/



Professor Mark Brown is Ireland's first Chair of Digital Learning and Director of the National Institute for Digital Learning (NIDL) at Dublin City University. Mark is an EDEN Fellow and serves on the Management Board of EDEN Digital Learning Europe. He also serves on the Supervisory Board of the European Association of Distance Teaching Universities (EADTU). Originally from New Zealand, Mark continues to maintain strong links "down under" and is Vice-President of the Open and Distance Learning Association of Australia (ODLAA). In 2017, the Commonwealth of Learning recognised Mark as a world leader in the field of Open and Distance Education and he Chaired the 2019 ICDE World Conference on Online Learning in Dublin. In 2020, Mark contributed to the European Commission's Higher Education Consultation Group on developing a EU-wide policy response to micro-credentials. In 2021, Mark led a state-of-the-art literature review on the growth of micro-credentials on contract to the European Commission and he is currently a member of the research team studying the impact and transformative potential of the European Universities Initiative.

For more information: https://www.dcu.ie/nidl/director-nidl



Dr. Olaf Zawacki-Richter is Professor of Educational Technology at the University of Oldenburg (Germany) and the Dean of the Faculty of Education and Social Sciences. He is Associate Editor of the journal "Distance Education" (Australia) and the "Online Learning Journal" (USA). Dr. Zawacki-Richter has authored over 160 publications and served as invited keynote speaker, chair and reviewer at many international conferences. Together with Terry Anderson, he edited the book "Online Distance Education - towards a research agenda" published by Athabasca University Press (open access). Professor Zawacki-Richter is the founding Director of the Center for Open Education Research (COER) at Oldenburg University. His publications are available on ResearchGate and GoogleScholar.



Professor Som Naidu is former Pro Vice-Chancellor (Flexible Learning), and Director of the Centre for Flexible Learning at the University of the South Pacific, and currently Principal Associate of *Technology, Education and Design Associates*—a Melbourne based educational technology consultancy service. Dr. Naidu has spent most of his professional life in the higher education sector in a variety of roles to do with enhancing learning and teaching in open, flexible, distance, online learning and distributed learning, and education more generally in a variety of jurisdictions. He possesses undergraduate qualifications in Education from the University of Waikato in New Zealand and graduate qualifications in Educational Technology from Concordia University in Montreal, Canada. A former president of the *Open and Distance Learning Association of Australia*, Som has served as Executive Editor of the journal Distance Education (https://www.tandfonline.com/toc/cdie20/current) (since 1997). In May 2014 the Open University of Sri Lanka awarded Dr. Naidu a *D.Litt. (Honoris Causa)*, in recognition of his extensive contribution to the field of *open, flexible, distance and e-learning* both regionally and internationally. And in July 2020, Advance Higher Education, UK, admitted Dr. Naidu as Principal Fellow of the Higher Education Academy for his commitment, contribution and strategic leadership in the scholarship of learning and teaching globally.

Chih-Hsiung Tu is a Professor at Northern Arizona University, USA. His research interests include social presence, networked community, social learning analytics, data-driven and data-informed instruction, Learning Analytics, and Educational Data Mining. He has authored many articles, books, book chapters, and presented as keynote speaker, professional development, conference presentations, and others.



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Technology in the Time of Disruption-A Study on KKHSOU

Smritishikha CHOUDHURY[1]

ABSTRACT

Purpose: The educational scenario for the last two years have changed drastically from brick and mortar to click and porter because of the COVID 19 pandemic. The schools and colleges remain closed physically from March 2020 to December 2021 in India (with little variation for higher classes and less affected places). Open and distance learning was the only ray of hope during that period. The purpose of this study is to analyse the teaching learning mechanism that took place in Krishna Kanta Handiqui State Open University (KKHSOU) during COVID 19 crisis and to provide a road map for blended learning.

Methodology: The study uses both primary and secondary data. Primary data is collected through structured questionnaires from the graduate and undergraduate learners of KKHSOU from various study centres. Sample size is 100 and data is analysed through SPSS software. Sampling technique adopted is nonrandom purposive sampling. Secondary data are collected from different journals, newspapers, website of KKHSOU and books which helped in understanding the global scenario of education during COVID 19 pandemic.

Findings: The study finds that learners at all levels become more user friendly with digital devices. The extensive use of open educational resources has widened their scope of learning. Online learning was the compulsion during COVID 19 pandemic, but preference for blended learning is on rise. E- learning can be enjoyable to those who can have access to it. But there are many learners who cannot have the access to it because of financial constraint and because of scarcity of resources in vernacular medium (assamese medium). KKHSOU adopted both synchronous and asynchronous methods of online learning during the time of pandemic. The University adopted various mechanisms like YouTube, Facebook live, mobile app, zoom meeting, Google meet, WebEx, telegram app, WhatsApp etc. to keep in touch with the learner and they succeed to a great extent. Thus, the day is not far away when e-learning will become the future popular method of education throughout the world.

Originality/implications: The study will help in understanding the present open educational scenario in Assam specially for ODL institutions and how it went through during the time of pandemic COVID 19. This paper reflects various strategies adopted by KKHSOU during the time of disruption, which can be adopted by other educational institutions also. Through this paper a new approach for blended learning has been suggested.

Keywords: *COVID 19 pandemic, Online learning, blended learning, Open Educational Resources, KKHSOU*

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INTRODUCTION

Since March 2020, billions of students across the globe were out of school due to the closure of pandemic COVID 19. To slow down and prevent its spread, many countries including India followed strict protocols. The Government of India issued many regulations to stop the viral outbreak such as working from homes, or closing many institutions where people could infect one another with COVID19 (Bozkurt, Sharma, 2020). This situation forced all levels of educational institutions to operate online or remotely maintaining social distance. Because of this situation the e- learning initiatives have been undertaken in Assam. As stated by Goel S. (2012) e-learning can best be defined as the science of learning without using paper printed instructional material. With the progress of information and communication technology development, e-learning is emerging as the paradigm of modern education. The advantages of e-learning include liberating interactions between learners and instructors, from limitations of time and space through the asynchronous and synchronous learning network model (Pei-Chen Sun et al., 2008). Studies show that e-learning can be at least as effective as conventional classroom learning under certain situations, but it is also dependent on the situation and e-learning cannot replace traditional classroom learning under certain circumstances. Not every student will find e-learning suitable for his or her learning style. Some students are not used to this technology and some get bored of using it. With proper training to the teachers and the students, e-learning can substitute the classroom learning to some extent. Efforts should be given on how to create more appealing and effective online-learning environments. One way to achieve this is to integrate appropriate pedagogical methods, to enhance system interactivity and personalization, and to better engage learners (Zhang et al., 2004).

Rationale of the study:

During this pandemic time, e-learning is the only option in the delivery of educational opportunities to the learner. The first case of COVID 19 pandemic in Assam was reported on 31st March 2020 and as of now third wave of COVID is going on. Almost all the educational institutions remain physically closed for one and a half years. After the second wave of COVI19, most of the educational institutions are open in India. This study desires to see the teaching learning mechanism adopted by KKHSOU during pandemic and how a blended approach can be implemented for the benefit of the learners.

Governmental measures:

India had 37.4 million students enrolled in higher education in 2018-19. The country has become the second largest market for e-learning after the US (www.ibef.org). The government of India has taken many measures in this field focusing on new education techniques such as e- learning and mobile learning etc. Swayam platform has emerged as the largest online platform in the world today. Other MHRD initiatives like e- PG Pathsala, National Digital library, Vidwan, e- Shodh Sindhu, etc. have benefited many students and teachers.

Teaching learning tools used by different institutions during the crisis:

It has been observed from the study that most of the schools and colleges are using e-learning techniques for disseminating regular classes in urban and semi urban areas and few in rural areas. The total population of Assam is 3.5 crore (www.populationu.com). And out of this 86% live in the village area (https://des.assam.gov.in). Though all the institutions are providing online education, the quality and pace varies from institute to institute. In this situation, open and distance universities have less damages of COVID 19 than traditional universities. Krishna Kanta Handiqui State Open University (KKHSOU), is providing education to its' learner during this COVID 19 pandemic time in following ways: different multimedia tools like CDs, DVDs of the learning materials are distributed to the learners on regular basis for facilitating better understanding among the learners. University also conducts counselling sessions through KKHSOU YouTube channel with nearly twenty thousand subscribers. KKHSOU has a full-fledged official website (www.kkhsou.in) for its learners and general public. The Website provides all relevant information to its stakeholders. An e-learning portal by the name of e-SLM (http://eslm.kkhsou.in/) has been launched by the university and all the study materials of the programmes can be assessed in this portal. To provide easy access to various open access journals across the world, KKHSOU has developed the Open Access Journals Search Engine (OAJSE) which is available for the users from the URL www.kkhsou.in/library/oajse. The university has its own mobile application to help the learners to connect 24x7 with the university (www.kkhsou.in). Recently the University also initiated MOOCs (in 2022) and LMS services for the learners of selected disciplines.

METHOD

Today, e-learning is still in an early stage in Assam. The data collected from the learner belongs to UG (undergraduate) and PG (postgraduate) programmes of KKHSOU. The sampling technique used for this study is judgmental sampling study covering rural, semi urban and urban areas of Assam. The study covers a selective area of lower Assam, which represents only a small portion of entire Assam. The learning institutions considered in this study includes five selected study centres of KKHSOU and 20 numbers of respondents are selected from each study centre. Total sample size is 100. Survey data is collected from study centres. Secondary data have been collected from the university website and annual report of KKHSOU and different journals and websites.

FINDINGS

The primary study has been conducted among the 100 learners of KKHSOU study centres.

1. Types of study material learners prefer

Table 1. *Learners' response related to types of study material*

Preference of study material	Percentage
Printed form	89
e-SLM form	11
Other	0

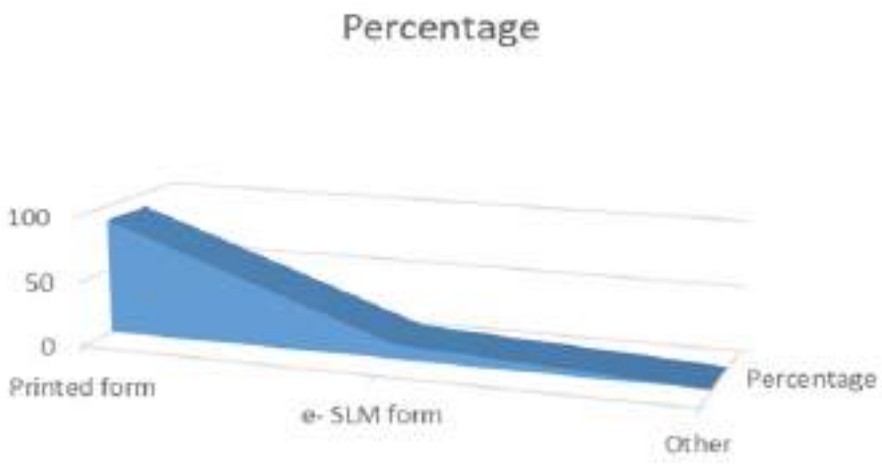


Figure 1: *Learners' preferred form of study material*

This reflects that most of the learners prefer the printed form of SLM (89%) as their instructional tool.

2. When asked the learners whether they are exposed to any video-based instructional materials from KKHSOU, the response are as follows:

Table 2. *Learners' response for exposure to any video-based instructional materials*

Response	Percentage
Yes	72
No	27

This shows that most of the learners got exposure to video based instructional materials.

3. When asked the learners whether the audio/video materials are related to their course, the response are as follows:

Table 3. *Videos related to the study material*

Response	Percentage
Yes	91
No	09

From table 3, we can say that the learners receive video/ audio materials as per their study material.

4. When asked the learners to state the effectiveness of the audio visual material, the response are as follows:

Table 4. *Effectiveness of audio visual material*

Effectiveness of study material	Percentage
Very effective	35.4
effective	26.3
neither effective nor ineffective	23.1
Not effective	15.2
Very un effective	0

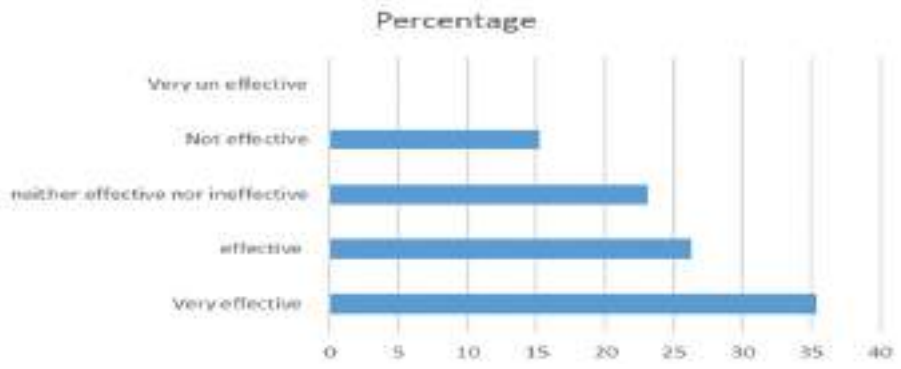


Figure 2. *Effectiveness of audio visual material*

From table 4, we can conclude that the audio/ visual materials are very effective for learners which is a very positive sign for the University. For online learning, effectiveness of video materials is very important.

5. When asked the learners to comment on the different attributes of Self Learning Materials, the responses in percentage (%) are as follows:

Table 5. *Different attributes of Self Learning Materials*

Items	Excellent	Very Good	Good	Poor	Very Poor
Presentation Quality	22.2	33.6	31.2	12	1
Language and Style	25.4	31.3	32.2	11.1	0
Illustrations Used (Diagram, tables etc.)	20.3	33	32.2	12.1	2.4
Conceptual clarity	24.2	32.2	31.5	11.1	1
Check Your Progress	22.3	32.2	31.2	12.2	2.1

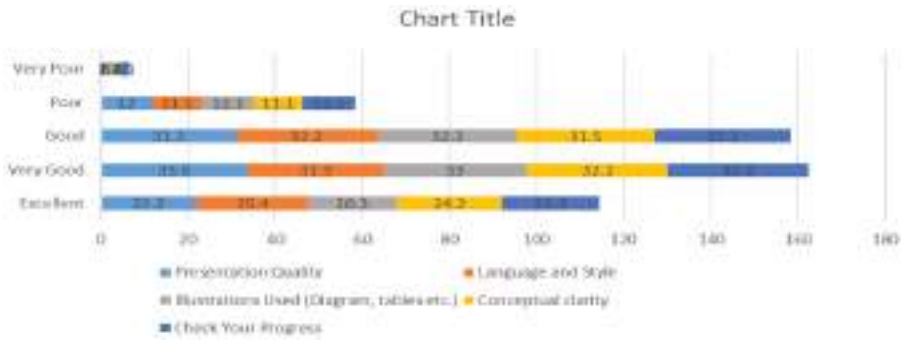


Figure 3. *Different attributes of Self Learning Materials*

From table 5, we can conclude that learners prefer all the attributes of the study materials, but almost 12% of the learners did not like the study materials provided by the university.

6. When asked the learners to mention the digital device used by them during online counselling sessions, the responses are as follows:

Table 6. *Use of digital device*

Use of digital device	Percentage
Laptop	42.6 %
Desktop	11.3%
Android Mobile phone	91.3%
Phone with only SMS facility	1.4%
Other	Nil

Table 6 reflects that most of the learners use android mobile phones, whereas some of the learners use more than one device for online counselling.

Choudhury S & Senapati C (2021) has mentioned that University delivers counselling sessions through KKHSOU YouTube channel and it has more than 18 K subscribers. During this period of pandemic, the faculty members of the university are using Facebook (KKHSOU FB Official Group) also to conduct live counselling sessions for its learners and for interaction among the learners, faculty members and stakeholders. KKHSOU has different official WhatsApp group discipline wise which are intensively used for information dissemination and counselling. The mobile application of "KKHSOU" is developed to help the learners to connect 24x7 with the university. The app has been installed by more than 10,000+ users.

Strategies for e- learning implementation:

Though different schools and colleges are providing e- learning classes to the students, the credibility of the classes is at stake. After two years of online classes, many students have problems with their eyes. Some students are even suffering from depression and loneliness. So we cannot conclude that e-learning is the best alternative for physical learning. As the students and teachers both are not trained in this system, proper training and strategy is needed in future for successful implementation of e- learning. It is a complex process and requires careful planning, designing and determination of aims to create an effective learning ecology (Bozkurt, Sharma, 2020).

Government can also think of a blended learning approach for future implementation of e- learning courses in the long run. The grasping power of learners varies depending on the age and environmental factors. So, there should be a strategic plan as per the requirements of the learner of each segment. Once the analysis of the learner is done, specific objectives need to be set for each category of learners. There will be different methods, media and material needed for different segments of learners. Learners can use different Open Educational Resources available on the internet or materials can be prepared for learners depending on their requirements. There should be two-way communication between the learner and the instructor, so learners; participation is also very important. Then at the end of this process things need to be evaluated and revised to measure the effectiveness.

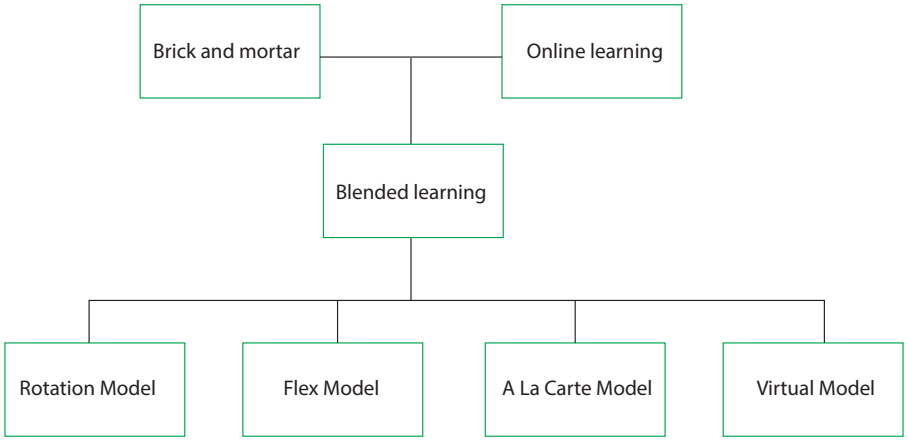


Figure 4. *Model for blended learning:*

Source: *blended-learning-taxonomy1.jpg (686×722) (christenseninstitute.org)*

As shown in the figure 4, blended learning model is a combination of both traditional pen and paper model and online learning. Blended learning can be of four types, rotation model, flex model, A La Carte model and virtual model. Many educational institutions adopt more than one blended learning approach. KKHSOU is also adopting some mixed blended mode of teaching –learning.

Rotation Model:

In a rotation model, the students within a single class rotate between a number of different learning activities. In a blended learning Rotation model, different rotation activities might include one-on-one time with the teacher, peer group interactions, teacher-led lessons, online learning or independent study time.

Flex model:

Students in the Flex model benefit from both learning at their own pace online, as well as from direct teacher guidance in their classroom. As students spend more time learning basic content online, this allows teachers to spend more of their time helping students in challenging areas or going deeper in content areas a student has mastered. Teachers might facilitate this learning time with small group activities, project-based learning, or one-on-one tutoring support.

À La Carte model:

À La Carte model combines face to face interaction with an online elective course chosen by the learner according to their interest. As the name suggests, this model provides a personalized learning path. This model is different from the full-time virtual model as it does not make up the entire course online or off campus. While some courses are online, others are taken in institutions so students still benefit from interaction with teachers and peers.

The Enriched Virtual model:

The Enriched Virtual model allows students to spend most of their time completing coursework online remotely, supplemented by required in-person learning sessions with their teacher.

To enhance the blended learning approach, KKHSOU has adopted many measures starting from online classes, providing links to OER materials, providing MOOCs and LMS service, YouTube video lectures on relevant topics etc. to mention a few. In KKHSOU, teachers also adopt the concept of flipped classroom method, where the learners are given the study material and after going through the study materials learners can discuss their queries in counselling sessions.

DISCUSSION AND CONCLUSION

The world is changing and the educational system is also changing because of this pandemic COVID 19. During this pandemic time, more than 300 million students worldwide are having their education disrupted. As stated by Lynch (2020), global pandemics require highly motivated, highly educated bureaucrats; schools that train students to think both deeply and flexibly; and teachers that can model critical thinking and problem-solving. As the situation emerged all of a sudden, the institutions need to cope up with the situation as well as they need to prepare for future educational system. Many educational institutions are developing online materials to provide helping hand to reach this learner in different way. The entire educational system should collaborate with different stakeholders to come up with better way of teaching learning. Government of India is providing free educational learning material through SWYAM platform. E- learning is the need of the hour. KKHSOU has also initiated online teaching learning system. Most of the learners are happy with the audio visual materials provided by the university. Many learners regularly use the mobile apps of the University for e-SLM and other study related information. It can be enjoyable to those who can have access to it. The state government of Assam is also trying its best to provide e-learning facilities to the learners to overcome this situation. Thus, the day is not far away when e-learning will become the future popular method of education throughout the world.

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Revisiting Theories of Student Retention in Open, Distance, and Digital Education

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Abstract

Purpose: The pandemic has introduced digital learning to the mainstream, not only its advantages but also its disadvantages. Student attrition, being a bigger problem in open, distance, and digital education (ODDE) compared with conventional on-campus education, is one of the deeply rooted, highly discussed, and widely theorized problematic issues in the field. There is a long history of ODDE, in which proliferated literature and theories address the dropout problem. As the abundant ODDE literature is inclined to be ignored in the mainstream, instead of reinventing the wheel, it is high time we revisit the theories on student retention and dropout, accumulated throughout the decades based on the long-established ODDE literature.

Methodology: This paper is a theoretical paper revisiting and reporting the existing models of dropout with a focus on describing and synthesizing the models. This paper takes a synthesis approach, one of the four methods in conceptual papers (Jaakkola, 2020). The main aim is to aggregate the main literature streams on the dropout phenomenon to highlight the accumulated evidence and create an integrative view of the key concepts for student retention in digital higher education (Jaakkola, 2020). In the first part of the paper, a systematic review was carried out on three databases (EBSCO, Scopus, and Web of Science) to assess whether the theories that have been developed since the 1970s were applied to the studies that were published during the pandemic (from 2020 to 2022). Based on this review, the theories on student retention were described.

Findings: Based on the development of the theories and the systematic review, we synthesize the key factors of theories to discuss the key components of student retention with reference to *third space theory*. It is clear that the theories are rarely visited in the publications on dropout. Also, the key components of the theories need a reformation and reinterpretation to create a new discourse converging the pre-Covid-19 conventional education (brick-and-mortar) and post-Covid-19 conventional (digital) education approaches.

Originality/implications: This paper argues for an effective and supported means of communication to facilitate both formal and informal communication between multiple stakeholders and to construct new digital spaces in digital education. It is important that the ODDE literature and theories on dropout are revisited in current literature to shed light on the current barriers to student retention in online education in the time of disruption.

Keywords: *drop-out, student retention, student attrition, online education, digital education.*

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INTRODUCTION

Higher education has been heralded as a means to achieving economic growth and reducing poverty in all income levels in the world; thus, demand for higher education is increasing worldwide and the significance of it continues to grow (Arnold & Bassett, 2021). According to the numbers in UNESCO Institute for Statistics database (2022), in the last 20 years, enrolment rates increased by 24% in Europe and Northern America, by 268% in Central and Southern Asia. Besides the tremendous ongoing increase in higher education enrolment, online higher education has also witnessed significant growth (Seeman et al., 2018). However, despite online education being highly advantageous for removing time and place barriers for learners, along with it comes the problem of dropout or student attrition. Dropout comes at a cost not only for the student but also for the society. Non-completion or dropout is reported to be a higher problem in online education. Compared to completely on-campus degree programs, student retention is 10% lower in online education (Burrus et al., 2019; Rockinson-Szapkiw, 2019). Given that, dropout seems to remain a major discussion in higher education even more due to the disruption caused by COVID-19. Figure 1 (Arnold & Bassett, 2021, as cited in Tilak & Kumar, 2022) demonstrates at least 93% of the universities in all regions worldwide have been affected by the pandemic.

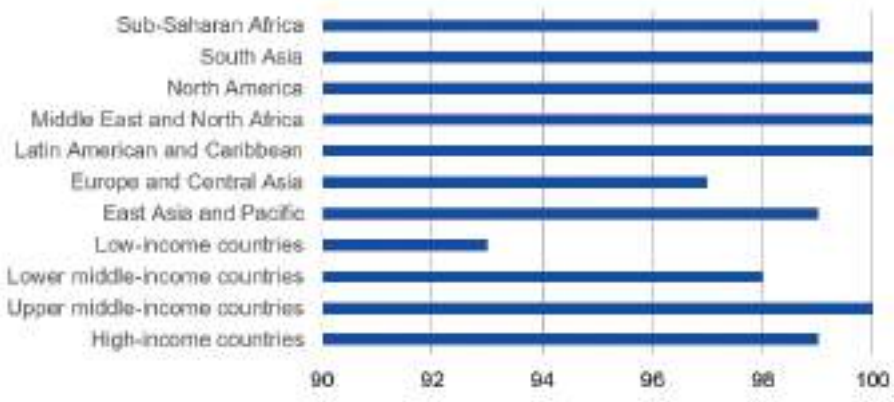


Figure 1. *Percentage of affected students in tertiary education, 2020*

It forced higher education institutions to shift their delivery to online, which poses a higher threat of dropout in the coming years. Not having been prepared for a proper online delivery, which requires careful planning, design and implementation processes, the shift to online delivery is not online learning, but a new form that can only be called *emergency remote teaching – ERT* (Bozkurt et al., 2020; Hodges et al., 2020). Therefore, "students (…) are predicted to suffer – if not already – from the potential effects of pedagogical dislocation and becoming disengaged from their studies and learning communities" (Watermeyer et al., 2020, p. 17). A significant decrease in the number of students applying to study abroad has already been reported. The drop rate

of international students in Germany in 2020-2021 is 20% (Farnell et al., 2021); while the USA recorded a 43% drop in 2020 (Marklein, 2020).

Although ERT cannot be seen as online learning as it is far from being the ideal way, it is also clear that this new reality forced two paradigms of education, on-campus and on-line modes, to coexist and redefine the relationship of students with their academic environment, digital devices, social communities (Tilak & Kumar, 2022). Whilst suggesting that, it cannot be ignored that the distance education literature - the roots of online education - has long been ignored and alienated by the conventional brick-and-mortar education (Xiao, 2019). However, neither the problems in online learning nor dropout phenomenon is new to distance, open, and digital learning literature and rich enough to initiate a new dialogue between two modes of delivery. This cooperation between on-campus and distance education has already begun in the matter of dropout. As will be discussed in the following parts of this paper, one of the most cited dropout models is developed for traditional students by Tinto (1975) and this model has been either challenged or enhanced by authors focusing on both traditional and non-traditional students. As dropout is a problematic phenomenon in ODDE, attempts have been made over the years to establish a theory composing all factors that lead to student attrition. Therefore, the long-established literature is saturated in terms of theories, and it is high time we remembered the wide literature on dropout and revisit the theories that have been dealing with the factors to retain students in the system.

This paper seeks answers to the following questions:

1. To what extent do the studies that were published in the last three disruptive years discuss student retention with reference to student retention or attrition theory?
2. What are the key concepts in theories that address the dropout phenomenon?
3. Within the given literature, what are the common key concepts to be addressed today to increase student retention in digital higher education?

METHOD

The purpose of this theoretical paper is to investigate what can be synthesized from the existing literature by visiting the major theories of student retention/attrition. This synthesis approach is adopted according to one of the four methods in conceptual papers (Jaakkola, 2020). The main aim in this approach is to accumulate the most influential theories on the dropout phenomenon in a chronological order in order to adapt an integrative overview of the key concepts and interpret them with a new perspective of today.

In order to answer whether the studies discussing student retention and published in the last three years address the related theories or not, a systematic review was conducted. This is followed by a chronological presentation of major dropout theories on student retention or attrition to highlight the development of each theory throughout the decades until today.

Systematic Review

To conduct systematic review of literature, researchers should be able to document the steps of their data collection with justification of each decision-making so that the review can be systematic, reproducible and replicable (Fink, 2014; Gough et al., 2017; Zawacki-Richter et al., 2020). Therefore, the search string (see Table 1), final inclusion and exclusion criteria (see Table 2), and the PRISMA chart (Figure 2) are presented below.

Table 1. *Search String*

Topic	Search string
Theme	(dropout OR drop-out OR retention OR persistence OR attrition OR disengage*) N5 student*
AND Digital Context	(online* OR distance* OR blend* OR mobile OR technology-enhance*) N3 (learn* OR teach* OR study* OR studie* OR degree)
AND Education Level	"higher education" OR university* OR college* OR "postsecondary education" OR "tertiary education" OR undergraduate* OR postgraduate*

Table 2. *Final inclusion-exclusion criteria*

Criteria	Inclusion	Exclusion
Publication year	2020 – 2022	Before 2020
Language	In English	Not in English
Education level	Undergraduate, graduate students	Doctoral level students/candidates
Methodology	Empirical, primary research	Non-empirical research, reviews, gray literature, conceptual papers
Publication type	Academic journal articles indexed in Education Source, Scopus, or Web of Science	Not a journal article (e.g., editorial notes, book reviews)
Mode of delivery	Online, distance, blended learning, or ERT	No learning setting in online, distance, blended learning or ERT

With these criteria, the search was conducted on 31.07.2022 on three databases, namely, EBSCO, SCOPUS and Web of Science, all of which are international databases of high repute. As the purpose of this study stemmed from the disruption caused by the COVID-19, the time is limited to 2020-2022. The initial search was carried on the databases based on titles, abstracts, and keywords. The initial search on 31.07.2022 resulted in 610 articles in total and all are retrieved to a free abstract screening database and the abstract screening was completed based on the inclusion and exclusion criteria. Whilst being more sensitive rather than specific for the first screening to include rather than to exclude due to limited perspective based on abstracts and titles (Zawacki-

Richter et al., 2020), I was stricter and totally specific in the full text screening. For instance, if the paper included some results related to student retention but did not address it as a main topic in the study, these papers were included. After the full text screening, 58 papers composed the final corpus and the steps are shown in Figure 2.

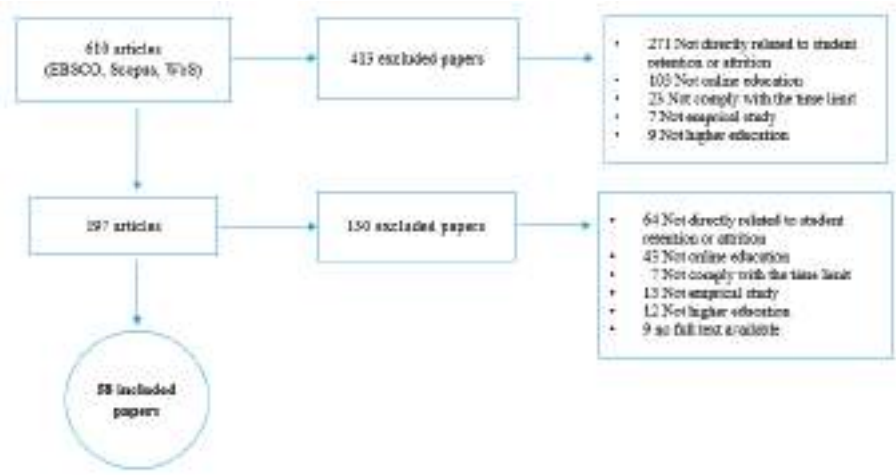


Figure 2. *PRISMA Chart*

As well as full text screening, the coding of the studies was carried out on the EPPI-Reviewer Web (see http://eppi.ioe.ac.uk). As I conducted the systematic review to answer the question of to what extend the theories are applied in the studies on student retention, the coding had two main categories for codies: a) whether any theories on student retention or attrition are applied; b) if applied which theories are discussed; c) if not applied, whether there is a presentation of relevant literature.

Theories on Dropout

Jakkola (2020, p. 21) defines a theory synthesis paper as an intention "to achieve conceptual integration across multiple theories or literature streams". For this reason, after the systematic review, the selected theories were presented in chronological order in order to enable the reader to capture the key changes of development of theories on dropout. As this study aims at synthesizing the key concepts that yield today, the selected theories were presented in accordance with the context they were developed and within the line of their historical development.

FINDINGS

Publications on Dropout Between 2020 – 2022

Across the 58 included studies in the corpus, dropout theories are not widely used in the papers (see Figure 3). Only a third of the papers (n = 19) visit or apply a theory to discuss student retention or attrition in online, distance, or open education context. Not surprisingly, the papers on early warning systems or early prediction of at-risk students focus more on the benefits of such technical aspects rather than relate their instrument or approach to the pedagogical roots and established theories of student retention or attrition (e.g. Gupta, 2021; Raj, 2021).

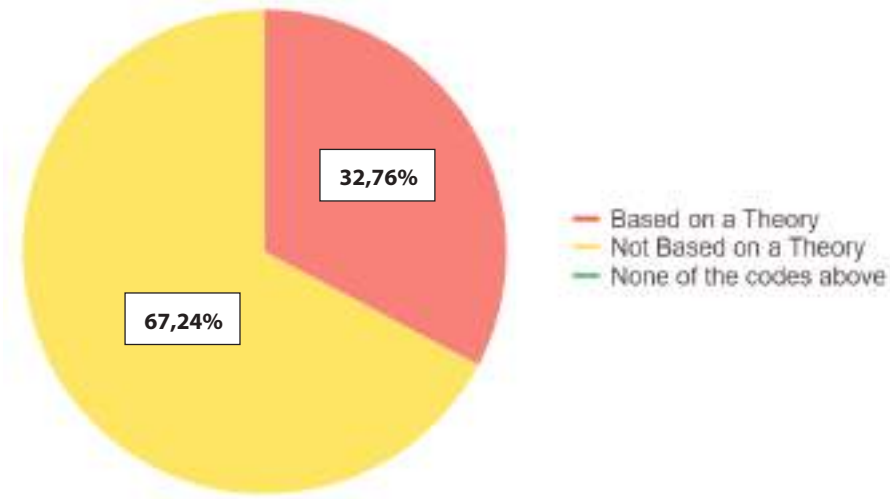


Figure 3. *Publication on Dropout Between 2020 – 2022*

The Theories Addressed in The Publications on Dropout Between 2020 – 2022

Out of the 19 studies that ground their studies and/or discussions on related theories, the most visited theory (n = 11) is found to be Tinto's (1975). The summary of the theories most commonly addressed are given in Table 3.

Table 3. *Most commonly addressed theories and their authors*

Theory	Author (Year)	n
Student Integration Model	Tinto (1975)	11
Composite Persistence Model	Rovai (2003)	7
Student Progress in Distance Education	Kember (1989, 1995)	6
The Revised Model of Dropouts from Distance Learning in Organizations	Park & Choi (2009)	2

In three of the papers (Heilporn & Lakhal, 2021; Lakhal & Khechine, 2021; Xavier, 2022), Lee & Choi (2011) are cited. However, although their work demonstrates a good review of dropout factors based on the literature, as they do not present a theory of their own, it is not included in the list.

Theories on Dropout

The history of dropout in higher education goes back to as far as the 1600s; however, not until 1960s was there a systematic approach to prevent dropout (Berger et al., 2012). As the purpose of higher education has evolved throughout the years and has moved from its more elitist stance to more open and inclusive form, also with the growing need in societies for educated and/or skilled population, dropout phenomenon became a global concern. Berger et al. (2012, p.12) categorizes the eras of the development of student retention studies as follows:

Era	Period
Retention Prehistory	1600s-mid-1800s
Evolving towards retention	Mid-1800s-1900
Early developments	1900-1950
Dealing with expansion	1950s
Preventing dropout	1960s
Building theories	1970s
Managini enrolment	1980s
Broadening horizons	1990s
Early twenty-first century	Current and future trends

Figure 4. *Eras of the development of student retention studies (Berger et al., 2012, p.13)*

Models of Student Retention in the 70s

Many studies in 1960s focused on the dropout phenomenon (Campbell & Fiske, 1959; Panos & Astin, 1968; Summerskill, 1962); however, the very first models concentrates on the shortcomings of the students that are attributed to their personality traits and ignore the social aspect of the learning journey (Berger et al. 2012; Habley et al. 2012; Tinto, 2015). The shift from such student-blamed and de-contextualized understanding starts to change with the "Undergraduate Dropout Process Model" by Spady (1970, 1971) and "Institutional Departure Model" by Tinto (1975). After Durkheim's (1951) *Theory of Suicide,* Spady (1970, 1971) realtes the idea of suicide to attrition in higher education as both terms refer to the departure of the self from the social realm (Alijohani, 2016). These two models are the first models on dropout that visit and transfer sociological theories to a contextually different realm by associating the learning journey of the individual in a different context.

Two other theories affected the development of the theories (Alijohani, 2016): a) a work called *The rites of passage* by Van Gennep (1960) in the field of social anthropology, describing how human functions in tribal societies, b) a work called The Study of Turnover by Price (1977) in the field of human resources, describing how labour has changed and how employee retention is related to organisational structures.

The former inspired Tinto (1975) to associate the integration of students into the academic realm to the functioning of tribal societies.

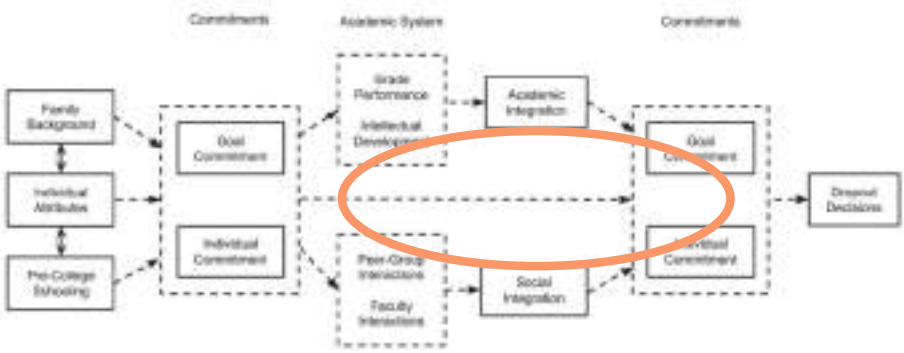


Figure 5. *Student Integration Model*

Although mainly based on Spady's (1970, 1971) approach to social integration, in his model, Tinto (1975) theorizes not only social integration, but also academic integration and sets two separate paths, failure in either of which result in dropout decision. While the model validates the personal background of the learner, the integration to both academic and social realms plays the key figure in the model.

Models of Student Retention / Attrition in the 80s

In the 80s, Bean (1980, 1982) offered The Student Attrition Model (See Figure 6). Despite acknowledging that his model does not contradicts the work of Tinto (1975) or Spady (1971), he suggests adopting Price's (1977) *Turnover model* rather than Durkheim's (1954) *Suicide Theory* and offers adds the organisational factors to his model (Aljohani, 2016).



Figure 6. *The Student Attrition Model (Bean, 1980; 1982)*

To fill a gap in the models for non-traditional students' learning, Bean and Metzner (1985) developed the Non-traditional Undergraduate Student Attrition Model. Despite thriving on the previous theoretical models that are attributed to traditional students, they emphasized the "environment" factor as non-traditional students are more prone to their environmental conditions due to limited or no social integration to the institution in the sense Tinto (1975) describes.

Models of Student Retention / Attrition in the 00s

Rovai (2003) develops his Composite Persistence Model (see Figure 7) with a particular aim of referring to retention and attrition in the online context. Highlighting the fact that the literature until 2000s focus mainly on traditional students (Marko, 2019), Rovai (2003) composes four core categories that leads to student persistence: a) Student Characteristics, b) Student Skills; c) External Factors; d) Internal Factors. Furthermore, the model offers a distinction of the period that the learning journey of the student is affected, either *prior to admission* or *after admission*.

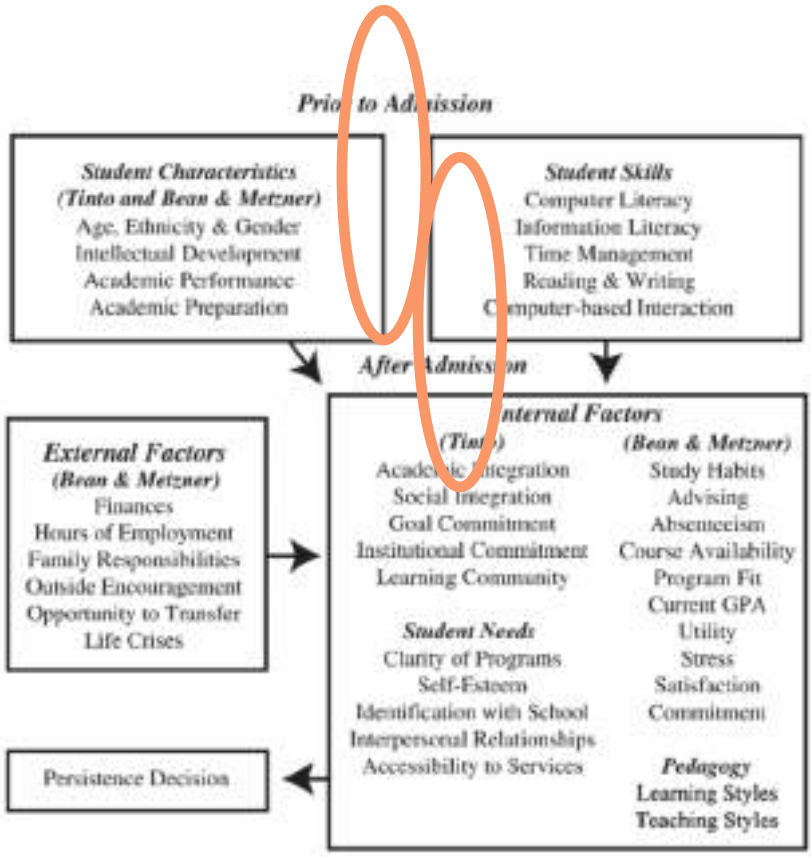


Figure 7. *Composite Persistence Model (Rovai, 2003)*

In 2009, *the Revised Model of Dropouts from Distance Learning in Organisations* (see Figure 8) was proposed by Park & Choi. One of the most important aspects of this revision is that the factors in the Rovai'a model (2003) are empirically tested (Choi & Kim, 2018), thus validating the previous model. Another major change was the removal of learner skills as the sub-categories of this component was not found to be directly related to dropout (Lucey, 2018). Moreover, on contrary to the previous model, the external factors continue having a direct effect during the studies and on the dropout decision.

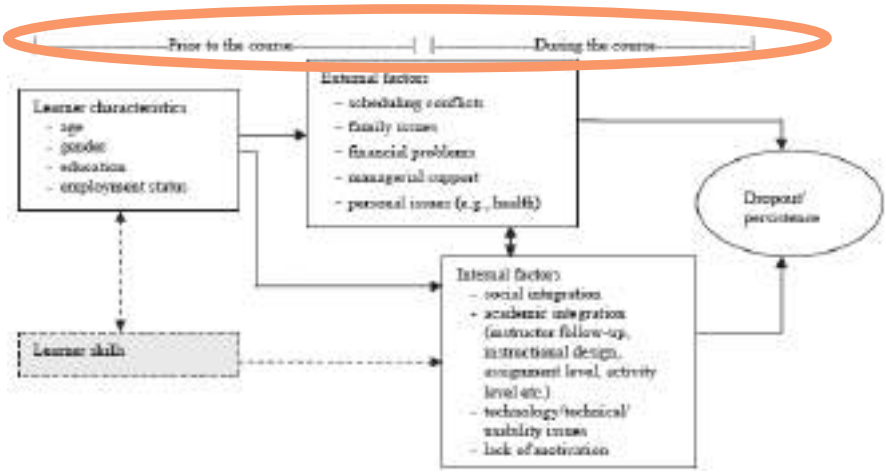


Figure 8. *The Revised Model of Dropouts from Distance Learning in Organizations (Park & Choi, 2009)*

DISCUSSION AND CONCLUSION

Revisiting the three decades of student retention and/or dropout models, it is clear that there is no need and time to reinvent the wheel, as the theories provide us with a comprehensive look into the learning journey of the student to be able retain them in the system. These models are by all means of great importance not only to understand the needs of learners engaging with online modalities, but also to develop proactive solutions to student attrition by providing organic student support systems in online learning.

On the other hand, it is also apparent that the disruption during the pandemic, despite all the misery and damage it caused on a global scale, also signaled a change of perception in the field of education. We do agree that ERT is by no means an ideal way of online education (Bozkurt & Sharma, 2021); however, it can also be an opportunity for future implications (Zawacki-Richter, 2021).

From that perspective, the 2020s are the new decade to interpret the student retention theories with a new sociological theory. Hence, it is clear that the global disruption due to the pandemic has opened a new space for the convergence of on-campus and distance education based on the theory of Thirdspace (Bhabha, 1996; Soja, 1996). Bhabha (1994) challenges the binary position of co-existing cultures and realms and reinterprets the first and second spaces in the realm of third space. This third space is an eclectic or hybrid form of co-existence, formed by juxtaposed paradigms, without acknowledging the superiority of either form on the other

Offering convergence of distance and brick-and-mortar education is not novel in literature. As Xiao (2018, p.2) argues, „for decades, distance educators have not given

up their efforts to mainstream distance education, as can be seen from the research literature". In their book *Distance Education and the Mainstream*, Smith and Kelly (1987) contends how distance education and mainstream education intermix their instructional approaches. However, in either case, the space of distance education and today's digital education literature are trying to be accepted or recognized in the realm of conventional education. However, today it is unclear what is conventional, or what is long-known as unconventional can remain in the mainstream. The focus should be distancing the discourses that challenge each other, but to identify the third identity, in which the social and academic integration of the learner, support for the individual blends in not only on-campus but also on digital spaces.

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Promoting Disruptive Change in Open and Distance Learning Centres in Nigeria

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Abstract

The rapid development in emerging or modern technologies has brought remarkable changes in the 21st Century; their roles are becoming increasingly important in our daily lives and educational system, most especially in the open and distance learning (ODL) system of education. ODL has been considered as one of the most important educational innovations in Nigeria thus providing opportunities for those who could not afford to leave their job or other challenges regardless of age, qualification or ethnic group. It is also observed as means of education provided outside the normal classrooms using media to allow flexibility in teaching and learning. There are 14 approved ODL centres spread across various locations in Nigeria offering diverse programs. The integration of various modern technologies in different ODL centres in Nigeria needs to be seriously attended to by various ODL stakeholders. This paper is theoretical in nature and focuses on popularizing or promoting the use of technologies such as disruptive innovation in Nigeria's ODL Centres. The purpose of the paper among many is to acquaint, equip and increase the horizon of the ODL stakeholders on the roles, rationale, relevance and efficacy of disruptive change and its innovative technologies in ODL. Also, to identify and suggest specific kinds of disruptive technologies that can best be used in ODL centres in Nigeria as well as the basis for its adoption or integration. More so, the paper provides the historical developments, benefits, modes and challenges of distance learning in Nigeria. Other areas of concern in the paper are ODL centres in Nigeria; the concepts, examples, benefits, problems and prospects of disruptive change in Nigeria's ODL. Since the paper is theoretical in nature; its methodology lies in reviewing relevant literature. The study revealed that in spite of potential and glaring advantages of ODL in Nigeria, the following challenges militated its sustenance until the emergence of covid-19 pandemic; change in policy, epileptic power supply, cost, inadequate staff and attitudes. Some of the implications of this study is that the deployment of disruptive technology in Nigeria's ODL would lead to paradigm shift from onsite learning to online, adoption of its technology or innovation will pervade all ODL centres in Nigeria thereby keep pace and at par with global recognition and acceptability. The study concluded and recommended amongst many others; stable policy and electric power supply, positive attitude to global change in the use of new technology. Also, Nigeria Universities Commission (NUC), the National Open University of Nigeria (NOUN), the 14 approved Nigerian Universities offering ODL courses and other universities alike in Nigeria should embrace, support, promote and deploy the disruptive change and its technologies and innovations in Nigeria's ODL centres; as this would facilitate, enhance, improve the quality and provide better services in ODL centres in Nigeria.

Keywords: *Disruptive change, ODL centres, Modern technologies, Innovation, Nigerian Universities*

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INTRODUCTION

Open and distance learning (ODL) is getting more dependent on numerous modern technological innovations; and has been playing important roles in the delivery strategies of ODL programs at several ODL centres or institutions across the globe. With recent technological and, or innovative advancements, the field of ODL in particular and education generally, has introduced a variety of new techniques for learners and several of its stakeholders to enhance knowledge delivery (Ajadi, Salawu & Adeoye, 2014*).*

Any device that helps distance learners to communicate; learner with learner, learner with instructor and learner with materials are essentially needed in ODL. Modern or emerging technological innovations such as 'Disruptive' are replacing direct teacher-learner interaction. Technological and innovative advancements such as Disruptive allow learners and teachers to employ diverse strategies that could actively engage students' interest in ODL. Disruptive innovation is an innovation that creates a new market; values network and eventually disrupts an already existing market and values networks *(Christensen, 1995).* Disruptive change is a non-localized change that affects a portion of an industry occasioned by changes in market trends which can lead to shift in the mode of production to fit customers' demand (http://changewakine.com, 2020).

The earliest offering of ODL in Nigeria was in the 1930s when some Nigerians had to take courses through correspondence from British University (Enukwu & Ojogwu, 2006). Such ODL progressed until the establishment of the first Nigerian University, the University of Ibadan in1948 (http://vtechworks.lib.vt.edu).

THE CONCEPTS AND HISTORICAL DEVELOPMENT OF OPEN & DISTANCE LEARNING (ODL) CENTRES IN NIGERIA

Globally, education plays a significant role in national development. Nations all over the world seem to have accepted the compelling responsibility of developing their citizens through education. The concept of ODL education system focuses on open access to education and training to make the learners free from the constraints of time and place, and offering flexible learning opportunities to individuals and, or groups of learners (https://www.researchgate.net). ODL also connotes education provided outside the normal classrooms using any other media to allow flexibility in teaching and learning (https://www The idea of opening opportunity for education is an old one and has emerged in different ways in different countries, but the particular connection to distance education that can be documented, can be traced to the American visionary, Charles Wedemeyer.

Kabir (2016) explained that Wedemeyer promoted a simple but powerful belief that, access to education could be and should be "open", with his realization that conventional face-to-face instruction would not be sufficient to attain the vision of providing access to education for all, unless the barriers of time and space associated with face-to-face

teaching are removed. Wedemeyer thus popularized the concept "distance education", which he called "independent study".

Al-Shorman and Bawaneh (2018) defined distance education as a method of study where teachers and students do not meet in a classroom for teaching and learning but use the Internet, email, mail, and so on. Distance education has been defined as formal learning in which the learner and facilitators are separated in time and space (Bušelić, 2012). It encompasses part-time courses/studies, open and distance learning, and online education, and especially for post-secondary education, distance learning and digital learning/education. Idowu (2012) stated that Distance education is a process whereby an individual or institution packages information in a learnable way with the view to helping another individual or group of individuals to learn at a distance. In line with the general aim of education, distance education employs all available media, methods and techniques to enable learners access needed information at a distance.

The term Open and Distance Learning (ODL) has been variously described as open and distance education, education for life, life-long learning, life-wide education, adult education, mass education, media-based education, self-learning education, part-time education, and more. NOUN (2014) defined Open and Distance Learning as an approach that focuses on open access to education and training provision, liberating learners from the constraints of time and place, and offering flexible learning opportunities to individuals and groups of learners. Whichever perspectives it may be, Open and Distance Learning is an educational process that significantly conducts its teaching by a person/ media at a remote and distance areas, consisting of the use of print, written correspondence, audio, video, and digital networks including multimedia facilities to communicate with learners (Odili, 2020).

Nigeria's national policy on education (FRN, 2004, 2013) acknowledged the need for a variety of media and technologies. Nigeria is the most populous and the largest economy in Africa (Akinwale & Onwuamaeze, 2020; Naido, 2020; Terwase, Abdul-Talib, & Zengeni, 2014). The country's vast geographical, socio-cultural, and ethno-linguistic diversities make higher education through distance learning desirable and imperative. Distance education creates an opportunity for lifelong learning, life-wide education, mass and media education, self-directed learning, personalized learning, and part-time studies. Distance education programs also allow higher institutions to optimally utilize their facilities.

Historically, the National Teachers Institute (NTI), Kaduna, started the Distance Learning System in Nigeria in 1972; the National Teachers Institute (NTI), Kaduna, which was established to produce qualified teachers that are expected to meet the needs of the defunct Universal Primary Education (UPE). The NTI, was established by Institute Enabling Law Act No. 7 of 1978 which states among other objectives, to provide courses of instruction leading to the development, upgrading and certification of teachers as stipulated in the relevant syllabus using Distance Education Techniques (NOUN Handbook, 2009). When Universal Basic Education (UBE) came on board by Federal Government of Nigeria in 1999, the National Teachers' Institute was further mandated with the task of producing qualified teachers using Distance Learning

System with intent of meeting the new emerging problems emanating from serious shortage of teachers who are expected to implement the program (NOUN Handbook, 2009).

Later, the Correspondence and Open Studies Unit of University of Lagos now called Distance Learning Institute was established in 1974 to produce graduates of universities in various fields of study to meet the manpower needs of the nation. For example, clerical officers, teachers, laboratory technologists, food processors, architects, engineers, builders, journalists and so on; with the success recorded by University of Lagos in 1976, Ahmadu Bello University, Zaria, followed suit by starting a special training program called Correspondence and Teacher-in Service Program (TISEP) to prepare middle level teachers of primary schools in Nigeria who were many at that time (NOUN Handbook, 2009).

Thereafter, precisely in 1988, University of Ibadan External Studies Program (ESP) which later became the Centre for External Centre (CEC) was established by the University of Ibadan Senate under the Nigerian Department of Adult Skills. The history of distance learning system in Nigeria is however not complete without mentioning the coming of the National Open University of Nigeria (NOUN). As far back as early 1960s, there had been a rising commitment to strengthening the delivery system of education in Nigeria. Education was identified as a tool to be used to speed up socio-economic development in Nigeria.

In the process of getting to the 'root' of the education problems of Nigeria, it became clear to government that the colonial education strategy which targeted only a few privileged people in selected regions of the country did not really fit the needs of the newly independent Nigeria, hence, the establishment of National Open University of Nigeria (NOUN) in 1984. The idea of an Open University System for Nigeria as a separate and distinct institution to be organized nation-wide was appropriately reflected in the 1977 National Policy of Education which states emphatically and unambiguously that maximum efforts will be made to enable those who can benefit from other education to be given access to it. Such access may be through universities or correspondence courses, or open universities, or part-time and work-study programs (National Policy on Education, 1977).

The proposal to set up an Open University system was eventually conceived and reflected in the 1977 National Policy on Education. As a follow-up, an Act of Parliament was enacted by the National Assembly in 1983 to establish the Open and Distance Learning across the nation on 22nd July, 1983. However, it was suspended in 1984 by the then military regime (Taiwo & Tajudeen, 2021). Later, National Open University of Nigeria (NOUN) was resuscitated in 2002 as the only dedicated distance learning university in Nigeria (Okonkwo 2012). NOUN was founded in 1983 but did not effectively function until 2002. Obafemi Awolowo University, Ile-Ife, was founded in 1962 one of the institutions that provides university education through traditional and distance education modes (Oyeleke & Apena, 2018).

This comprehensive public institution has aspired to be the technological flagship of the West African sub-region in teaching, research, and community service. Today,

OAU is providing a leadership roles in ICT among other universities in Nigeria, and one of the few accredited dual-mode institutions offering higher education through distance learning in Nigeria (Onwe, 2013; Taiwo & Tajudeen, 2021). It does this through its Centre for Distance Learning (CDL) and the Institute of Education (IED). In 2014, the CDL commenced coordinating the university's online degree programs in various fields of study while the IED coordinated part-time degree programs in education courses.

Despite the enthusiasm for distance education among Nigeria's tertiary institutions, some uncertainties and concerns remain about the type, scope, and nature of distance education provision in Nigeria. There are concerns about infrastructural inadequacy, organizational and operational modes, among others (Idowu, 2012; Ikegulu & Oranusi, 2014; Oyeleke & Apena, 2018). It may be that many prospective distance learners do not have adequate information or sufficient understanding of the operational modes of varied distance learning institutions with regards to their instructional delivery methods, facilities, as well as patterns of learners' and facilitators' activities. It appears these misconceptions make some people assume that distance learning is a second-best option (Gaskell & Mills, 2015).

As of today, the flagship tertiary institution for Open and Distance Learning is the National Open University of Nigeria (NOUN) which is single mode by its operation. Single mode operation means total or absolute dedication and commitment to Open and Distance Learning alone. NOUN offers a total 101 sub-degree certificate, diploma, undergraduate, post graduate and doctoral programs. NOUN has its centers across all state capitals and towns in Nigeria. Second mode of operations of ODL in Nigeria is called Dual Mode. This is a situation where particular universities will engage themselves with both conventional and Open and Distance forms of learning. There are fourteen (14) of such approved ODL centres in Nigeria.

Jegede (2016) noted that there are three major indices that made ODL indispensable for Nigeria namely Demographic Change, Rising Enrolment and Lifelong Learning. At the moment, fourteen universities now have or are working on becoming a dual mode system of utilizing both ODL and face-to-face instructional modes. Prominent among these universities approved for dual mode ODL Centres in Nigeria are University of Ibadan, Ibadan (UI Distance Learning Centre); Obafemi Awolowo University, Ile-Ife (OAU Centre for Distance Learning); University of Lagos, Lagos (Unilag Distance Learning Institute); University of Maiduguri, Maiduguri (Unimaid Centre for Distance Learning); Modibbo Adama University of Technology, Yola (Mautech Centre for Distance Learning); University of Abuja, Abuja (Uniabuja Centre for Distance Learning and Continuing Education); Ladoke Akintola University of Technology, Ogbomoso (Lautech Distance Learning Centre).

Others are, Ahmadu Bello University, Zaria (Distance Learning Centre, ABU, Zaria); Lagos State University, Lagos (Lagos State University Open and Distance Learning Research Institute); Joseph Ayo Babalola University, (JABU, Centre for Distance Learning); University of Nigeria, Nsukka (UNN Centre for Distance and E-Learning); Babcock University, Ilisan (Babcock Centre for Open Distance and E-Learning);

Federal University of Technology, Minna (Futminna Centre for Open Distance and E-Learning); University of Ilorin, Ilorin (Unilorin Centre for Open and E-Learning) and National Open University of Nigeria. More so, certain characteristics of ODL were unique and distinct. Some of these are accessibility, equivalence and integrity, flexibility of its programs, affordability, and individualized instruction for learners, cost of effectiveness and deployment of pedagogy and technological delivery approaches and excellence.

Concepts, Types and Roles of Disruptive Technology in Open and Distance Learning

Disruptive technology can be described as the kind of technology that affects normal operations of a market or an industry. Christensen (2000) developed the concept of "disruptive innovations" which are technological innovations, concepts, services, processes and products that disrupt the status quo. Christensen and Raynor (2003) further developed the concept to be applicable to businesses, where the disruptive innovations could actually under-optimize existing technologies or not be satisfied by the customers, and users or related stakeholders in the mainstream market organization.

More so, disruptive technology is a term that applies to gadgets, electronics, services and concepts that have a major impact on their respective industries, ultimately changing them in reversible ways. Working with disruptive technology, businesses or organizations can often establish themselves in new markets or take the advantages of the opportunity to displace big organizations in an established landscape. Disruptive technology is any innovation that dramatically alters the way consumers, businesses, industries and their related stakeholders operate. Many times, as soon as disruptive technology is integrated in an established market or an organization, the modus operandi, needs, processes and procedures changes almost immediately. The disruptive technologies

However, it did not take long for the term "disruptive technology or innovations" to be applied to education and to a variety of new tools and processes. Several researchers and writers have touted the internet, wikis, blogs, social media, mobile devices, open source tools, open education, social bookmarking, sharing sites such as those for photos, videos, files and music of all kinds , RSS, Google, creative commons, wireless connections, social networks, internet, telephony, instant messaging, cloud computing, social networks, free software, digital cameras and recorders, cheap storage, broadband and virtual worlds as disruptive innovations in education generally and ODL in particular. These appear as powerful and interesting tools. The tendency to see will adopt or integrate disruption in every new tool will soon be embraced and promoted in all endeavors. It is not computer's so use but how computers are used that makes disruptive technology and innovations possible in ODL and higher education.

Types of Disruptive Technology

There are two major types of disruptive innovations or technology based on their uses as presented by Madduz and Johnson (2005) namely Type I and Type II. Type I connotes the automation or replicates of the existing practice. That is, the use of one-way, passive instructional models or technology such as podcasts or streaming video. Type II implies the use of technology that allows students and teachers to engage with things that could not be easily accomplished before. Their approach provides an alternative way to conceive disruption; one technology maintains existing relationships among lecturers and students and contents while another changes these relationships in fundamental ways. Disruptive Technology generally attracts a limited audience, performance issues and unproven practical applications.

Examples of Disruptive Technology

Technology or innovation generally such as disruptive has significant ways of influencing human endeavors.

Harris (n.d.) highlighted the following examples of Disruptive Technologies

1. Artificial Intelligence (AI): This is being used in numerous applications such as fraud protection, video games, and spam detection of emails. AI enhances company operations and individual's lives. Systems such as chat bots for web support, virtual assistants like Google Home or Apple Siri. AI discovers an individual's preferences by collecting data from products purchased, search histories and overhead conversations. Google is building an algorithm that enables AI to learn driving through experience, similar to humans.
2. Block Chain: Block chain was developed through Bitcoin for disrupting the banking system, wherein ledgers are highly centralized. Block chain utilizes the technology of 'distributed ledger' and through its decentralized and cryptographic components. Block chain removes the requirement of third party involvement in financial transactions. The decentralization, transparency and in-built security features of block chain are intended to increase the security of financial transactions while the exorbitant bank charges are reduced. Block chain offers faster, risk-free and unique transactions.
3. Internet of Things (IoT): With the existing expensive and massive network of devices connected to the internet. The IoT assists to reduce the gap between digital and physical spheres. The IoT sees new relationships to develop things and other things, things and people, people and other people. However, the potential to connect other devices to the internet is not really new but a greater number of things are now being connected to the internet than ever before. IOT will provide a transition to Smart cities; and make cities more efficient, cost effective and safe places to live.
4. Web-based Video: Netflix is now well known and continues to revolutionize how people watch television and movies. On demand viewing has scrambled the traditional broadcasting model. Netflix and other similar companies allow viewers to watch annoying commercials and watch shows on their own time schedule or digital transport.

5. Ride-Sharing Services: So there are several new and one- way car sharing systems such as Get around, City Carshare, Relay Rides, Enterprise Carshare, Lyft, and Uber. Uber is a fast growing ride sharing service, and has become the poster child for disruptive technology innovation. The traditional taxi cab business has suddenly been changed forever by a mobile platform connecting consumers who ride and drivers who are ready to provide them. More so, a customer no longer needs to wave down a cab on the street , and a rider with an electronic Uber account does not even need to hand over cash.
6. Virtual Reality: This is not just for mere entertainment or gaming. As such, it could disrupt how people engage in their businesses. Gaming and entertainment will drive much of the growth, but car makers, retailers and interior designers or decors could have a VR Technology.
7. Augmented Reality (AR): is an enhanced version of the real physical world that is achieved through the use of digital visual elements, sound, or other sensory stimuli and delivered via technology. It is a growing trend among companies involved in mobile computing and business applications in particular.
8. Collaborative Commerce (C-Commerce): This integrates technology with physical channels to allow companies to work together. It is a hybrid model that businesses use to work closely with competitors and suppliers. C-Commerce permits exchange of information, such as inventory and product specifications using the web as structural shifts in technology, the confluence of structural shifts in technology, the economy and society has given rise to radical new forms of collaborative commerce based on the democratization of physical and human capital.
9. 3D Printing: 3D printing is an additive process whereby layers of materials are built up to create a 3D part. This is the opposite of the subtractive manufacturing processes, where a final design is cut from a larger block of material. As a result 3D printing creates less material wastages.

Roles of Disruptive Technology

Disruptive Technologies are innovations that come to replace a process, a product or technology that have been already established, giving rise to a new way to operate; be it for consumers, organizations or both. Disruptive technologies completely change and replace solutions because of their better features that allow new possibilities to open up. Disruptive Technology is an innovation that significantly alters the way that consumers, industries, businesses or organizations operate. A disruptive technology sweeps away the system or habits it replaces because it has superior and cognizant attributes.

Modern Disruptive Technologies have changed almost every aspect of human's lives. ODL is not an exception; but the excitement about its roles is a good thing. ODL is a segment that needs disruptive innovations (Gejdran, Aniaa, Vignesh & Kalaimami, 2020) Disruptive Technology prompts a pause in the usual thought patterns, encouraging reflections and eventually leading to the emergence of a new understanding of how learning happens. Disruptive Technology, in ODL, if effectively used would significantly improve teaching and learning. The impact of such technological innovation in ODL and other forms of learning is expected to grow with improvements in hardware and software.

The continuous development of technology has subtle and gradual impact on learning an ODL in particular. Interestingly, Disruptive Technologies affect all sectors positively and suddenly. This is not limited to a large organization alone. One of the greatest possibilities that could be derived from disruptive technology is the opening of new markets. Traditional models would be left behind and new tools or technologies are adopted to improve performance operations, to the benefits of all. In essence, Meyer (2010) stated the following roles

(a) Disruptive Technology must interrupt the existing policies, practices, processes and assumptions.
(b) Disruptive tools will enforce new thinking and new approaches to ensure students' learning.
(c) It gives room for online learning which potentially qualifies as a disruptive innovation in education. This consequently leads to pressures for change, enabling disruptive innovation in online learning, disruptive innovations and online learning.

Justification of Disruptive Technology Innovation in Open and Distance Learning Centres in Nigeria

According to Jegede (2016), it is becoming more important to emphasize the rationale of Disruptive Technology in the delivery of instruction in ODL especially when all the acclaimed modern technologies are being adopted, adapted, integrated or promoted. Several instructional delivery technologies had been perceived as an antidote to the delivery instruction either synchronously or asynchronously. Since the emergence of distance education by correspondence, the range of communication technologies available for education and their use in various instructional environments is quite impressive.

The communication technologies which have been and still being used in Nigeria's ODL include the following.

(a) Audio (Radio, AM/FM, Audiotape, Packet Radio, Compact Disk, Talkback Radio, 2-Way Radio, Mobil Sat, Telephone, Answering Machine, Voice Mail, Audio Conference),
(b) Audio Visual/Video (Slides/Still Video, Video Tapes, Television, Tele Text, Talkback TV, Video Disc, CD TV, VCD, DVD Video Conference, Audiographic),
(c) Image (Electronic Whiteboard, Facsimile, Imaging), Text/Print/ Communications (Cable Network- Local Cable Network Wide Area, Cable Network International Satellite) and
(d) Multimedia (etc DVD, VCD, Satellite technology, Mobile telepathy, Mobile computing, wireless communication) (Jegede, 2016)

From the fore-going, there is a need to shift the paradigm of being the focus of teaching to become a facilitator. Bates (1995) is of the view that developing a plan of capacity building in the use of technologies in ODL Limited Internet penetration in cities, towns and communities has been a major challenge. Briamoh (2015) advocated that many African Nations are not ready in any form to embrace any form of technologies

for educational purposes. Other related challenges are poor government focus, low level of affordability, low or poor bandwith. (http://techcabal.com/2015/04/15/south-africa-mores-to-75th-place-on-the-network-readiness-index. This means concerted efforts should be made for procurement, promoting, capacity building and correct attitudinal disposition on the use of disruptive innovations in ODL in Nigeria.

Benefits and Challenges of Open and Distance Learning in Nigeria

Open and Distance Learning (ODL) system focuses on open access to education and training to make learners free from the constraints of time and places, and offering flexible learning opportunities to individual and group of learners (Ghosh, Nath, Agarwal, Nath & Chaudhury 2012). ODL is characterized by being easy and accessible to all. ODL is a learning distance that can be open or available for anyone regardless of age, location, qualification or ethnic group. The distance to study away from the ODL centre, institution or college and the time of teaching and learning is separated. Other characteristics are; learners access free online content; enrolling on free open learning courses; ability to collaborate on open knowledge building projects (e.g wikis, web sites and so on); and learners' ability to actively maintain study regiment and stay keep to all assignment deadlines.

However, ODL is known for two distinct features; these are

(a) Physical separation of teachers and students during instruction; and
(b) The use of various technologies to facilitate student-teacher and student-student communication (Simonson, 2022).

Four characteristics that distinguishes ODL (Simonson, 2022) namely:

(a) ODL is carried out through institutes; it is not self study or non-academic learning environment;
(b) The geographical separation; place and time may also separate students and teachers;
(c) Interactive telecommunications connects learners (individuals) within a learning group and with the teacher; and
(d) Fourthly, ODL like other forms of learning establishes a learning group otherwise called learning and community which consists of student, teacher and instructional resources.

Lebo Tleane (https://youthvillage.coza.2017/ highlighted benefits of ODL as follows

(a) Self-pacing: When pursuing benefits of ODL as follows own pace of study; learners do not study according to the schedule of a classroom;
(b) Cost Effectiveness: ODL is known to be cost effective;
(c) Classroom sitting and arrangement may be avoids;
(d) Learners can study anywhere in the world;
(e) Scheduling: The schedules for ODL are more open. This accommodates students, parents and professionals to take the classes whenever it fits into their schedule;
(f) Networking: ODL enables students to make connections with a more diverse range of people. It offers more networking opportunities;

(g) Wide opportunity to choose courses: ODL provide opportunity to study more courses and reach out to programs that are not available in the immediate area;
(h) Accessibility: ODL provides accessibility for those living away from the ODL Centres. Learners can pursue studies anywhere be it city, urban or remote areas; and
(i) Risk and Travelling Expenses are avoided: The risk and cost of travelling are drastically avoided.

South Dakota State University (2017) highlighted theses five (5) benefits of ODL

1. Flexibility: ODL allows students without living within or near college campuses.
2. Affordability: Affordable in terms of economic/cost effectiveness.
3. Quality: The quality of knowledge and degree obtained via ODL is the same as those that attended regular institutions.
4. Personal Growth: Knowledge gained through ODL is not limited to academic pursuits; other knowledge that could be acquired are research ability, communication leadership skills, time management, and so on.
5. Networking: Learners can relate within and beyond their geographical locations.

   Jegede (2016) states the following advantages as applicable to Nigeria which includes but not limited to;

   (a) Access and equity for comprehensive development
   (b) Alleviation of illiteracy and poverty impoverishment.
   (c) Capacity building for human resources development.
   (d) Life-long and life wide education in order to build a knowledge-based and learning environment.

Challenges of Open and Distance Learning

In spite of potential and glaring benefits of ODL in Nigeria; there are attendant challenges that need to be fixed. The challenges include but not limited to;

(a) Poor funding: It is common knowledge that education is poorly funded as less than 10% of the annual budget is earmarked for education.
(b) Inadequate provision of modern technology suitable for ODL.
(c) Poor attitude of the learners, facilitators and other ODL stakeholders towards ODL programs as well as on the adoption, interpretation or utilization of modern technology.
(d) Cost of technological innovations such as disruptive or modern technology is on the high side.
(e) Inadequate staff or personnel: Qualified personnel seem inadequate at ODL centres.
(f) Epileptic Power supply is also an important problem. This is greatly associated with faulty national grids in recent times.
(g) Societal or Institutional Recognition of ODL graduates in terms of quality, academic and professional exposure.
(h) Poor Access to the Internet: This is due to low bandwidth in the internet services.

(i) Lack of Motivation: The epileptic power supply and networking challenges are not encouraging.
(j) Poor Economic situation: Apart from poor funding of the program, the poor state of the nation's economy has really affected learners studying via ODL. An average ODL learner could not afford basic disruptive tools, such as a laptop, iphone and so on.
(k) Negative attitudes to the adoption and the use of disruptive technology: Penetration and promotion of disruptive innovation tend to experience setbacks if positive attitudes are not demonstrated adequately.
(l) Others: These include lack of sufficient time to study, ineffective feedback and lack of study materials.

Since ODL lacks the face-to-face contact in conventional education, necessary infrastructure, funds and disruptive tools needs to be provided and made available at ODL centres as ODL can provide needed access to Nigerians who are not opportune to attend the normal conventional educational system.

Problems and Prospects of Disruptive Change in Open and Distance Learning

Disruptive Innovation requires a separate strategy process which must be emergent and focused on unanticipated opportunities, problems and successes, rather than intended and focusing on improved understanding.

Problems and Challenges of disruptive innovations according to Bhalerao and Deshmukh (2019) are;

1. Adaptability: Disruptive technology would take time to prove in ODL centres and environment.
2. Increased competition: New ideas, products, tools and so on have tendency to disrupt the existing and established idea, services, tools or products. This is very challenging to the new idea as the existing and established one may take any course to prevent them from being rejected.
3. Users Acceptance: A reasonable time has to be spent before any innovative idea or product creates and proves its own significant relevance.
4. Gestation period: It will take some time for any innovative idea or product to get itself established in an organization.
5. Unrefined Inventions: New technology is typically untested and unrefined in its early stages; hence struggle to promote such innovative products.
6. Unproven applications: It can take time for a disruptive technology to find its place. The potency of such applications are at first unproven. Users may tend to doubt if the product is capable of replacing the former or the existing.
7. Early performance problems: Nearly all innovations go through a period of problem- solving. Modern consumers are accustomed to experience this with a newly developed app or pieces of software. Updates and patches are necessary to overcome the glitches and other challenges that the technology presents. The same process applies to any disruptive technology and can make early adoption more challenging.

Prospects of Disruptive Change in Open and Distance Learning

New technology can either be sustaining or disruptive. While sustaining technology depends on the incremental improvements in the already existing technology, disruptive technology is completely new hence has a brighter prospect in ODL. To be considered disruptive, technology must be easily accessed by the majority of ODL stakeholders. Revolutionary inventions are often not disruptive as they are too expensive. In many cases, what determine technology being disruptive is not limited to refined it is but the depth or gravity of the changes it made as it emerges at the mainstream (Meryer, 2010; Indeed Editorial Team, 2020)

Christensen (2000) stated these as factors leading to successive disruptive technology which could be applicable to ODL;

(a) Enabling Technology: An innovation that makes a product affordable and accessible for a wider population.
(b) Innovative Organizational Model: An organizational or institutional model that focuses on a set of users.
(c) Coherent Value Network: A kind of network in which suppliers, distributors and other stakeholders are better off when disruptive technology strives.

Disruptive technologies have the potential to impact growth, employment and inequality by creating new product infrastructures and different labour skills (https:// www.2.gwu.edu) docs>papers).

Disruptive technologies can certainly benefit the consumers by providing cheaper, more accessible goods and services. The Mckinsey Global Institute (MGI) has identified 12 areas which exhibit the greatest economic impact and potential to cause disruption by 2025, namely; mobile internet, automation of knowledge work (Artificial Intelligence), the Internet of things, cloud technology, advanced robotics, autonomous and near autonomous vehicles, next generation genomics, energy storage, 3-D printing, advanced materials, renewable energy as well as open and distance learning.

Chiku (2017) explained that the emergence of disruptive technology is not really new in Nigeria, Nigerians have experienced some technological disruptive which have both enhanced the lives of Nigerians though lead to some friction between the disrupting technology and the disrupting markets. These are four major areas of prospect of disruptions in Nigeria namely;

(a) Transportation: The emergence of Uber in big cities such as Ibadan, Lagos , Abuja, Port Harcourt in Nigeria.
(b) Drone Technology: This technology is in the form of Remotely Piloted Aircraft System (RPAS) and Unmanned Aerial Vehicles (UAV).
(c) Trade and E-Commerce: The emergence of online sales and shopping, online goods and services, digital distribution and other e-commerce related activities.
(d) Education: Technology and Innovation have continued to shape learning and change the very old fashioned way to the more refined system of learning. ODL and online learning are gaining a firm ground in tertiary institutions around the world. The expansion of ODL, online learning and learning materials has

affected bookshops and publishers. ODL, online teaching and online classes are disruptors of the traditional teaching model. Learners no longer need to be physically present in a class, neither do teachers have to be physically present before teaching. The exchange of knowledge sessions can be virtually.

(e) Financial Services: The introduction of virtual or crypto-currency is a potential disruptor to banks and the financial industry as a whole. Banks are likely to be stripped off their relevance as this financial disruptor empowers people to be their own banks.
There exist a number of agencies that regulate technology in Nigeria. Notably amongst these are National Office for Technology Acquisition & Promotion (NOTAP) and Nigeria Information Technology Development Agency (NITDA).

CONCLUSION AND RECOMMENDATIONS

Innovation and technological developments lead to remarkable change which ultimately has a strong influence on ODL and education generally. Disruptive innovation as well as its technologies are very powerful tools for impacting the penetration, accessibility and quality of ODL in Nigeria. In essence, disruptive technologies play a pedagogical role to complement the conventional techniques and approaches being used before its emergence. Some of the implications of this study is that the deployment of disruptive technology in Nigeria's ODL would lead to paradigm shift from onsite learning to online, adoption of its technology or innovation will pervade all ODL centres in Nigeria thereby keep pace and at par with global recognition and acceptability. From the foregoing, the study therefore recommended the following;

Firstly, there should be stable governmental policy that would favour the promotion, adoption and the use of disruptive innovation and its technologies. Secondly, erratic electric power supply should be adequately improved in such a way to accommodate the use of modern technological innovations. This if achieved will go a long way in improving the quality of other sectors of the economy aside from ODL and education. More so, all ODL stakeholders should demonstrate a positive attitude to global change in the use, integration, adaptation and adoption of new technology.

Also, Nigeria Universities Commission (NUC), the National Open University of Nigeria (NOUN), the 14 approved Nigerian Universities offering ODL courses and other universities alike in Nigeria should embrace, support, promote and deploy the disruptive change and its technologies and innovations in Nigeria's ODL centres; as this would facilitate, enhance, improve the quality and provide better services in ODL centres in Nigeria. Lastly, the technological research and development institutes that regulate technology in Nigeria such as National Office for Technology Acquisition & Promotion (NOTAP) and Nigeria Information Technology Development Agency (NITDA) should provide proper and adequate leadership roles for all ODL centres across the nation

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Developing Strategic Scenarios for Artificial Intelligence Applications in Higher Education

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Abstract

Artificial intelligence in education (AIEd) is a fast-growing field of research. In a systematic review of the AIEd literature, Zawacki-Richter et al. (2019) noted that very few papers discussed ethical considerations or were led by authors from education. Therefore, the present study aims to explore the possible future of AIEd from the perspective of faculty members in higher education. Towards this end, we developed strategic scenarios (Fink & Siebe, 2011; Gutschow & Jörgens, 2016) that describe hypothetical applications and will serve as the basis for international focus-group discussions and online surveys of faculty members in higher education. The present paper summarises the top-down process of developing strategic scenarios and discusses five key variables that will shape the future of AIEd and their possible outcomes. This research effort aims to contribute to the interdisciplinary and multi-stakeholder discussion on AI and society, in line with the recently released UNESCO (2021) recommendation on the ethics of artificial intelligence.

Keywords: *Artificial intelligence in education, Higher education, AI and society, Strategic scenarios, Future options.*

INTRODUCTION

Artificial intelligence (AI) technologies have been applied widely in our daily lives; for example, in the form of search engines, chat bots, media and shopping recommendations, and virtual assistants. As a general-purpose technology, AI has the potential to transform teaching and learning processes (Facer & Selwyn, 2021; Tuomi, 2018) and efforts have been made to apply AI methods to education. However, despite the seeming omnipresence of AI, a common definition remains elusive because "AI" has been used to encompass a range of different algorithms and methodologies (T. Baker et al., 2019; Popenici & Kerr, 2017; UNESCO, 2021; Zawacki-Richter et al., 2019). A commonly cited definition runs along the lines of 'computers that perform

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tasks usually associated with human intelligence' (e.g., T. Baker et al., 2019; Hu et al., 2019). However, as IEEE (2019) notes, some uses of the term "AI" may contribute to "uncritically attributing classical concepts of anthropomorphic autonomy to machines" (p. 37). Thus, the present paper uses "AI" as an umbrella term for a variety of computational systems that can process complex data to "function appropriately and with foresight in their environment" (Nilsson, 2009, p. xiii; see Tuomi, 2018). In practice, this definition means that the system can learn to recognize patterns from training data and apply them to novel data to complete a variety of tasks (e.g., classification, prediction, decision making, etc.).

In a systematic review of 146 peer-reviewed articles published between 2007 and November 2018, Zawacki-Richter et al. (2019) identified four general areas of AI applications in education (AIEd): 1) profiling and prediction, 2) assessment and evaluation, 3) adaptive systems and personalisation, and 4) intelligent tutoring systems. The authors noted that very few papers were led by faculty from education departments, and very few included a discussion of ethical considerations (see also Bozkurt et al., 2021). Such a finding reveals the gap between recent AIEd research and the goals of multiple AI policy documents (e.g., IEEE, 2019; OECD, 2022; UNESCO, 2021; see Fatima et al., 2020, for a review of national AI strategies). These policy development efforts stress the importance of multi-stakeholder approaches for developing ethical AI applications to achieve equitable outcomes and avoid entrenching and amplifying existing inequalities (Bender et al., 2021; Facer & Selwyn, 2021; Hu et al., 2019; Lee, 2018; Toumi, 2018; Zeide, 2019). Thus, as Zawacki-Richer et al. argue: "The low presence of authors affiliated with Education departments identified in our systematic review is evidence of the need for educational perspectives on these technological developments" (p. 22).

The present project ultimately aims to address the gap between AI policy development and AIEd research by gathering perspectives on AIEd from educators working in higher education. This effort seeks to bring educators to the drawing table, stimulate dialogue between educators and AI developers, and support a multi-stakeholder approach to shaping the future of AIEd. Towards this end, we developed a set of hypothetical scenarios, each describing a potential AIEd application, to serve as the basis for international focus-group discussions and online surveys of faculty members in higher education. The present paper describes the process of developing the scenarios, which follows a top-down approach inspired by Fink and Siebe (2011) and Gutschow and Jörgens (2016, 2019).

Many authors have discussed the possible futures of AI (e.g., C. B. Frey & Osborne, 2013; Lee, 2018) and of AIEd specifically (e.g., M. J. Baker, 2000; T. Baker et al., 2019; Joshi et al., 2021; Pinkwart, 2016; Popenici & Kerr, 2017; Porayska-Pomsta & Rajendran, 2019; Schiff, 2021; Selwyn et al., 2020). The differing visions of possible futures vary in optimism/pessimism and serve to illustrate key issues in AIEd development. For example, Pinkwart (2016) drew on trends in education and technology to compare utopian and dystopian visions of the future. The two visions resulted from different development trajectories of issues such as data privacy; intercultural and global differences; and the roles of, and interactions between, AI, educators, and learners.

Similarly, in their nesta report, T. Baker et al. (2019) describe four possible scenarios developed through combinations of two key variables: 1) the regulation and governance of data (low/high), and 2) the breadth of education (focused/broad). The authors used the four scenarios to explore the potential consequences of AIEd for educational and technological inequality, the roles of government and private companies, and the transformation of the education system. Thus, one function of imagining the future is to explicate the interacting set of driving factors and their possible effects; that is, the risks, opportunities, and challenges that AI presents to education (Pinkwart, 2016).

Much like AI algorithms, human predictions of the future are based on data gathered from the past. Thus, our predictions will be informed by our own subjective experiences, which represent a small subset of all possible experiences. As subjectivity and sampling bias are inherent to imagining possible futures (Selwyn et al., 2020), the goal of the present paper is not to eliminate subjectivity but rather to make explicit the assumptions and reasoning behind different visions of the future. A structured method for such a task can be conveniently found in future management; namely, the scenario technique (Fink & Siebe, 2011).

METHOD

Fink and Siebe (2011) describe the scenario technique as one of numerous methods used by industries to plan for different possible futures. Developing scenarios is a top-down process in which scenarios are created through the combination of key factors (*strategy elements*) and their possible outcomes (*future options*). This process can be summarised in three primary steps: 1) identify strategy elements, 2) describe and evaluate future options, and 3) form and describe strategy alternatives (Gutschow & Jörgens, 2016). Within an education context, this approach has contributed to work towards the recognition of informal learning (Gutschow & Jörgens, 2016, 2019) and shares similarities with T. Baker et al.'s (2019) methodology. The present paper uses a similar approach to identify and discuss five strategy elements and their associated future options.

Based on our readings of the AIEd and general AI literatures, we identified the strategy elements for their potential impact and level of uncertainty (Fink & Siebe, 2011) in shaping the future of AIEd. We then developed the future options through discussions with a team of international collaborators at the Center for Open Education Research (COER). Despite input from multiple team members, the process of developing scenarios inevitably involves a degree of subjectivity. Thus, the rationales for identifying the strategy elements and future options are presented below and readers are invited to read critically.

FINDINGS

Table 1 shows a *morphological box* (Zwicky, 1966; see also Gutschow & Jörgens, 2016) with the strategy elements in the left-most column ordered from those operating at the macro level (i.e., access to data and funding) to those at the meso level (i.e., the roles of developers and teachers, and the scope of applications). Sets of future options

were developed for each strategy element through discussions within the research team and are presented in separate rows. The morphological box allows different strategic scenarios to be developed by drawing zig-zagging lines down the box. This approach to combining key factors allows for an explicit description of the macro and meso conditions that provide the context for possible AIEd applications. Examples of formulating strategic scenarios are presented in the discussion. The present section discusses each of the strategic elements and future options to explain why they were identified.

Table 1. *Morphological box of strategy elements and future options*

Strategy Element	Future Options				
Access to data	Laissez-faire	Heavily regulated	Limited but open	Limited and sporadic	Limited and proprietary
Funding	Primarily market-based	Public-private partnerships	Primarily government-funded	Mixed funding	
Role of developers	Off-the-shelf	Subscription-based	Developers as researchers	Open-access	
Role of teachers	Replacement	Division of labour	Retraining	Mixed-bag	
Scope of applications	Piecemeal		Comprehensive		

Access to Data

High-performance AI algorithms require large datasets for training. However, the collection and use of large sets of learner data carry ethical concerns regarding privacy and data protection (Biernacka & Pinkwart, 2021; du Boulay, 2022; Human Rights Watch, 2022). Therefore, how data is collected, stored, used, and shared will have a large impact on the possible trajectory of AIEd, and these practices will be influenced by the regulations enforced by governing bodies (T. Baker et al., 2019). This section explores the possible balances that might be struck between data protection and access to data.

Laissez-faire

Against the background of AI advances portrayed as a 'race' (Castro et al., 2019; Lee, 2018), some governing bodies may deemphasise data protection to gain a competitive advantage in AI development. For example, H. Roberts et al. (2021) notes that private companies in China may sometimes receive "tacit endorsement" (p. 70) to collect and use personal data. Furthermore, H. Roberts et al. argue that lax data sharing rules combined with "the encouragement of the open sharing of public data between government bodies… promotes the collection and aggregation of health data without the need for individual consent" (p. 71). Other scholars have also commented on the

centrality of self-regulation by the private sector in the USA's regulatory approach to AI, and how the UK's "light-touch" regulations are seen as partly responsible for fostering technology hubs such as London (Cath et al., 2018). While these countries have also developed policies on data protection and AI ethics (see Cath et al., 2018; Fatima et al., 2020; Ministry of Science and Technology, 2021; Sacks, 2018), there are strong drivers towards increasing access to data that would allow for better performing AI algorithms (Castro et al., 2019). However, this push to gather more learner data and adopt AIEd tools can also lead to violations of privacy and the misuse of learner data (Human Rights Watch, 2022; Laird et al., 2022; Russell et al., 2018).

Heavily regulated

In some regions, strict regulations may limit AIEd by restricting the collection and use of learner data. For example, the EU considers some AI systems used in education or vocational training to be "high risk"[4], which may disincentive developers from pursuing certain AIEd tools due to additional compliance costs (see Chapters II and III of the General Data Protection Regulation [GDPR]). Furthermore, Article 22 of the GDPR states: "The data subject shall have the right not to be subject to a decision based solely on automated processing, including profiling", with some exceptions noted in Paragraph 2. The extent to which Article 22 could limit the use of profiling and prediction algorithms in AIEd is uncertain, and it is likely that many AIEd tools will incorporate human-in-the-loop strategies, wherein decisions are made jointly by AI and humans engaging in "hybrid decision-making" (Enarsson et al., 2021). Recital 71 of the GDPR, although nonbinding, could have more restrictive implications for the use of 'black-box' AI algorithms (e.g., neural networks) by giving users the right "to obtain an explanation of the decision reached after such assessment and to challenge the decision" (but see Edwards & Veale, 2018; Wachter et al., 2018, for critical discussions). Research into explainable AI is ongoing (Arrieta et al., 2020; Doshi-Velez & Kim, 2017; Guidotti et al., 2018) and it is uncertain what level of explanation will be sufficient, or how legal challenges to these decisions will be handled. Nevertheless, AIEd developers may need to navigate regulatory environments that restrict the access and use of personal data.

Limited but open

Even strict regulatory environments could allow for sharing of large training datasets if certain technical barriers are overcome. For example, while there are concerns about protecting identifying information across large datasets (e.g., voter registration data; Sweeney, 2002), a range of techniques have been employed to anonymise personal data (e.g., Bayardo & Agrawal, 2005; see Fung et al., 2010, for review). These anonymisation techniques may allow large datasets to be openly and ethically shared to train AI algorithms without compromising privacy. Indeed, numerous datasets are already available on platforms such as Github and Kaggle, including the Automated Student Assessment Prize dataset which has been widely used in research on automated essay scoring (AES; e.g., Kumar & Boulanger, 2021; Mayfield & Black, 2020; see Bai et al., 2022, for a review). Nevertheless, the risk of re-identification remains (Rocher et al., 2019). For example, Yacobson et al. (2021) demonstrated how de-identified student data from an intelligent tutoring system (ITS) could be combined with other publicly available data to re-identify an individual class of 5th grade students in Israel.

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The German AI strategy, jointly authored by various ministries of the Federal Government of Germany (2018), noted another possibility for satisfying both data protection regulations and the need for large training datasets; namely, through the use of simulated or synthetic data (see e.g., Bowen & Liu, 2020; Hittmeir et al., 2019). However, even with feasible solutions for data sharing, AI models trained with synthetic or international data may have limited generalisability across different cultures and contexts (Hu et al., 2019; Mohammed & Watson, 2019; Ogan et al., 2015; Pinkwart, 2016; Zeide, 2019).

Limited and sporadic

Access to data may be limited by differences across regulatory environments as different countries and governing bodies adopt different regulations (Cath et al., 2018; Fatima et al., 2020). Along with national strategies aimed toward establishing a competitive advantage (Ding, 2018), the differing privacy and data protection standards could complicate open sharing of data across borders (Sacks, 2018; UNESCO, 2021). While many smaller countries stand to gain from open sharing of data (Fatima et al., 2020), some authors have noted the tendency for AI industries to gravitate towards monopolies (e.g., Lee, 2018), which may disincentivise larger countries and established AI ecosystems from sharing data (Hu et al., 2019). These disparities in access to data, combined with other disparities (e.g., in infrastructure, training, resources, etc.) could exacerbate inequalities between countries and lead to unrepresentative training data and AI models with limited generalisability (see Bender et al., 2021, for related discussion on large language models).

Limited and proprietary

The commercial value of data could further limit open sharing as the performance of AI algorithms is likely to play an important role in the competition for market share. AIEd tools providing more accurate and specific predications will likely attract more investment and more customers, who in turn provide more, economically valuable user data (Lee, 2018). As the performance of AI depends on the accuracy and reliability of the training data, the datasets themselves may become closely guarded to maintain a competitive advantage. As Hoofnagle et al. (2019) note, some "businesses will use GDPR as an opportunity to more accurately evaluate the value of their data, converting the data to a strategic asset, on the same level as companies view their patent portfolio or copyrights" (p. 67). The economic value of data could lead to an increasingly competitive market for Intellectual Property (IP) and the datasets themselves, resulting in acquisitions of smaller companies by larger corporations (Ding, 2018; Falcón, 2020).

Funding

A range of different models have been used to fund the development of AIEd tools, ranging from corporate research and development (R&D) and private venture capital to private-public partnerships and government funding. While AI tools could provide solutions for a range of complex problems, the problems that are identified and prioritised depend on the goals and motivations of their funders (Tuomi, 2018).

In addition, funders may also have influence over some operational decisions, for example: how data are collected, used, and shared; how algorithms are trained and updated; and which users can access the tool, and at what cost. Furthermore, the type of funding also impacts the scope and timeline for AIEd development; while short-term investments could help launch smaller applications, sustained long-term investment is likely required for establishing larger overarching AIEd systems. The different funding models and their possible effects on AIEd development are discussed below.

Primarily market-based

Technology companies have taken a leading role in AI research by providing machine learning tools and cloud-computing services (e.g., Google's TensorFlow and Kaggle platforms, IBM Watson Studio, Microsoft Azure, etc.) and contributing publications in academic journals and conferences (Bostrom, 2017). While these contributions advance the field overall, there are disincentives for companies to release research or data that might weaken their market position. Thus, research released by companies may not reflect a complete picture of the state-of-the-art.

The distinction between industry's proprietary approach and academia's culture of openness (Bostrom, 2017) is neither new nor specific to AI. As Merton argued in 1942: "The communism of the scientific ethos is incompatible with the definition of technology as 'private property' in a capitalistic economy" (p. 123). However, as Hu et al. (2019) note, these differing approaches take place on uneven ground because of AI's reliance on large datasets: "academic institutions and research centres face challenges in accessing high quality data available to private sector firms" (p. 20). This disparity may become further entrenched as AI researchers move from academia to the private sector for higher pay and more attractive working conditions (Federal Government of Germany, 2018; Kunze, 2019). A culture of openness within the programming community may incentivise some openness by companies hoping to attract talented AI researchers (Bostrom, 2017). However, larger established companies with a "first mover's advantage" (Hu et al., 2019, p. 82; see also Lee, 2018) can also dampen the plurality of markets by using their resources to acquire and merge with smaller start-ups (Ding, 2018; Falcón, 2020; Tuomi, 2018). Furthermore, there is the risk that data and knowledge monopolies could raise the barriers to entry for potential competitors (Federal Government of Germany, 2018; Ministry of Science and Technology, 2021; UNESCO, 2021).

The private sector has provided some opportunities for smaller start-ups to establish and extend their applications through the use of competitions, incubators, and accelerators. Some examples include the Google AI Impact Challenge in 2018[5], and OpenAI's $100 million Startup Fund in 2021[6]. In addition, venture capitalists have invested considerable sums in educational technology, with one estimate of 20.8 billion USD in 2021 alone[7]. While these initiatives may help to introduce new ideas and solutions, a requirement for AI tools to be financially profitable, or attractive to potential funders, might not incentivise development of AIEd tools that are founded

5 https://impactchallenge.withgoogle.com/ai2018

6 OpenAI is a 'capped-profit' AI research company, see: https://openai.com/blog/introducing-openai/

7 https://www.holoniq.com/notes/global-edtech-venture-capital-report-full-year-2021/

on pedagogical theory. As Tuomi (2018) notes "without clear pedagogic principles, it is, however, probable that AI vendors will provide products and services that address key decision-makers' perceived immediate problems, instead of more fundamental social and economic challenges" (p. 32). Therefore, the future of AIEd depends on who decides what educational problems are worth solving and what approaches are worth pursuing.

Public-private partnerships

Public-private partnerships are widespread and can take various forms involving the pooling of funds, expertise, and/or data. For example, the German Research Center for Artificial Intelligence receives funding from the EU and various federal ministries, and lists a number of private companies as shareholders. In the USA, the National AI Research Institutes are jointly funded by the National Science Foundation and various federal agencies and technology companies[8]. China's AI approach also encourages close collaboration between private technology companies and universities (H. Roberts et al., 2021), and the European Commission have funded a number of initiatives through the Horizon 2020 programme[9], including the IMPACT EdTech Incubator-Accelerator which partners with expert mentors from companies like Google, Yahoo, and Microsoft.

While these partnerships encourage collaboration, different stakeholders operate within different incentive systems and can have differing motivations (Lee, 2018; Pinkwart, 2016). As Hu et al. (2019) note, collaboration between institutions and technology companies "depends very much on the perceptions of advantage-accruing to the companies" (p. 101). These differing interests could affect operational decision-making. For example, financial incentives for using AI systems may come with "ends-means justifications for their use" (IEEE, 2019, p. 39). Thus, the challenge for public-private partnerships, as with all multi-stakeholder initiatives, is to weigh fairly the voices of all stakeholders – including those that cannot offer financial or technical contributions but will nevertheless be impacted by the use of AI (Hu et al., 2019; IEEE, 2019; OECD, 2022; Porayska-Pomsta & Rajendran, 2019; UNESCO, 2021).

Primarily government-funded

Public funding has played a large part in developing technologies (Salter & Martin, 2001). Lori et al. (2021) assessed 114,670 AI patents from the US Patent and Trademark Office and mapped the role of US public funding in directing the technological trajectory of AI innovations. They concluded that "government funding is associated with inventions that have a long-term impact" (p. 14) and is especially significant during early phases of development. In addition to direct contributions to basic research, government funding also plays an important role in training researchers who move into industry after graduation (Salter & Martin, 2001). In addition, public funding may prevent monopolies of knowledge by providing an alternative to private funding. As the Federal Government of Germany (2018) noted:

8 https://www.nitrd.gov/pubs/FY2022-NITRD-NAIIO-Supplement.pdf

9 See also: https://ec.europa.eu/programmes/horizon2020/en/area/partnerships-industry-and-member-states

The fact that the companies that are leading the development of AI are becoming ever more powerful must not lead to scientists and civil society becoming ever more dependent on obtaining financing from these companies. The government needs to enable scientists and civil society to provide independent and skills-based contributions to this important public debate. (p. 42)

Thus, government funding can contribute to the plurality of ideas and public trust in AIEd by ensuring a fair and open discussion between stakeholders. As T. Baker et al. (2019) argue: "without government leadership, there are concerns that technology companies will not prioritise education expertise, undermining the quality of tools and trust of AIEd" (p. 28; see also Facer & Selwyn, 2021; Williamson, 2019, for related discussions).

Mixed funding

Different regions and markets are likely to adopt different mixes of funding models, which could maintain a degree of plurality. However, it is also possible that existing disparities between and within different countries become further entrenched and amplified, driven in part by the 'brain drain' between countries (Hu et al., 2019) and from academia to industry (Federal Government of Germany, 2018; Kunze, 2019). An example within AIEd is the Intelligent Essay Assessor, an early AES system that was first developed within academia[10], and later developed further within Pearson's Knowledge Technologies division to be integrated into commercial products (Foltz et al., 2013).

Role of Developers

In addition to funding, AI development also requires substantial work hours to design, code, test, implement, and monitor (IEEE, 2019). How developers approach these tasks will be influenced by variables like the goals of the funders and the duration of funding (Section 3.2), the incentives for the developers themselves, and input from other stakeholders. Moreover, the role of developers can change across phases of an AI product's lifecycle (IEEE, 2019), particularly after release to end-users. On one extreme, project-specific funding and developer support may simply end after this point. Alternatively, developers may continue to provide support by educating users, troubleshooting, maintaining code, and cleaning and integrating data from users. As a JISC (2021) report notes: "Off-the-shelf products and contracts may suit some situations, others may need more specialised support" (p. 9). This section describes some of the possible roles of developers after the release of an AIEd tool.

Off-the-shelf

Some smaller AIEd start-ups might reduce labour costs and avoid long-term commitments by developing applications aimed at 'low-hanging' problems (e.g., classification models for predicting student dropout) which they can sell in one-off transactions. This type of software-as-a-product model (SaaP; Popp, 2011) could minimise ongoing financial

10 http://lsa.colorado.edu/essay_press.html

commitments involved in providing extended support, and free up resources for programmers to move onto other projects. Conversely, from an end-user's perspective, such applications require adequate documentation to ensure appropriate use and it may be difficult for users to assess the application's fit-for-purpose independently (JISC, 2021). Furthermore, from the developer's perspective, one-off transactions may preclude collection of economically valuable user data. Therefore, outside of attracting interest for acquisition by larger companies (Falcón, 2020), there are limited situations in which AIEd start-ups are incentivised to pursue a SaaP model.

Subscription-based

An alternative approach involves AIEd providers adopting a Software-as-a-Service model (SaaS; Popp, 2011), whereby users are charged a subscription fee for the use of the products. A number of existing commercial products in education (e.g., Carnegie Learning's MATHia, Pearson's WriteToLearn) and general-purpose software (e.g., Microsoft 365) are subscription based. According to one estimate, SaaS could account for "80% of the enterprise software market by 2030" (Wang, 2020, p. 11).

A SaaS model has benefits for both AIEd providers and their subscribers (i.e., academic institutions or learners). For providers, SaaS provides ongoing revenue from each client; for clients, it could provide a more reliable product with ongoing support (see Popp, 2011). As Pinkwart (2016) noted, successful deployment of AIEd likely requires "available technical support and troubleshooting, stability and continuous availability." (p. 780). However, issues such as data protection, consent, liability, and accountability need to be addressed in the terms and conditions and closely monitored to prevent misuse (Human Rights Watch, 2022), particularly as some AI tools will produce additional, economically valuable, but potentially sensitive, user interaction data (Laird et al., 2022; Yacobson et al., 2021).

The economic value of user data could serve as a form of compensation for the use of commercial AIEd tools. However, Pinkwart (2016) further notes, such an arrangement "may seem attractive, but clear rules should be defined, implemented, controlled and made transparent" (p. 781). In addition, the costs and benefits will differ for different stakeholders; learners may be the end-users who provide the user-generated data, but the marketing of AIEd tools is often targeted towards academic institutions that decide what tools meet their institutional needs (JISC, 2021; Zeide, 2019). Therefore, multi-stakeholder discussions will need to acknowledge that the value proposition differs for different stakeholders.

Developers as researchers

Tuomi (2018) argues that AI-driven transformation of education could have profound effects on academic institutions, teachers, and even human cognitive development. This raises the question of how such a transformation should be monitored and measured (IEEE, 2019). Computer scientists and AI developers are well situated for this task, with both the access and the technical skills to analyse large datasets. Thus, the integration of AI in education could provide developers and educators opportunities to collaborate and advance both basic and applied research in education (Luckin & Cukurova, 2019).

A number of ethical and practical issues make traditional empirical research within education challenging. Vincent-Lancrin and van der Vlies (2020, p. 13) noted that "education systems rarely have establishments that allow for experimentation" and criticised traditional methods (e.g., randomised control trials) as potentially too slow for a "rapidly evolving technological context." However, AI offers possibilities not only for application but also for basic pedagogic research (M. J. Baker, 2000). Indeed, AI has been a particularly useful research tools in other fields, including in the detection of gravitational waves (Abbott et al., 2020) and the folding of protein structures (Jumper et al., 2021). As Porayska-Pomsta and Rajendran (2019) note:

One of the most exciting aspects of ML [machine learning] is that it can discover new associations in the world and predict future outcomes based on prior data in complex domains which may be hard for the human to grasp and analyse efficiently" (p. 9).

Thus, while conducting large-scale longitudinal studies may continue to be difficult, AI presents opportunities for educators and developers to collaborate on interdisciplinary research programmes to better understand how people teach and learn (M. J. Baker, 2000; Luckin & Cukurova, 2019; Porayska-Pomsta, 2016).

Open-access

The programming community is known for having a strong culture of openness (Bostrom, 2017; von Krogh & Spaeth, 2007). Datasets, software, and even source code have been openly shared through repositories (e.g., Github) and open-access libraries (e.g., Weka[11]). In addition, programmers have written tutorials, shared resources, and volunteered time to answer questions on coding forums like Stack Overflow. This open approach contributes to reducing inequalities in access, promoting the exchange of ideas and solutions, and lowering entry barriers (Hu et al., 2019). Consistent with other open-source software (OSS; see Raja & Barry, 2005), some AIEd tools have also been developed for open access (e.g., LightSIDE; Mayfield & Rose, 2013; see also iTalk2Learn[12]).

Development of open-access AIEd tools depends largely on the incentives and motivations of developers. Bostrom (2017) notes that open sharing can allow programmers to signal their skill and raise their market value, although individuals can often have multiple overlapping motivations (J. A. Roberts et al., 2006). Furthermore, open-source does not necessarily equate to free labour; funding bodies like the European Commission may back projects that are intended to foster accessibility rather than to generate profit (e.g., iTalk2Learn). However, OSS may require ongoing involvement by its developers or a community of trackers to update and maintain the code (Raja & Barry, 2005; Raza et al. 2013). Thus, an open question is whether, and to what extent, this work can be continuously funded.

AIEd tools developed as OSS may face similar challenges as other open educational resources (see Miao et al., 2016). In particular, issues like quality assurance may be even harder to assess with 'black-box' AI algorithms. In addition, AI tools using pretrained models may not generalise well across different cultures and contexts

11 https://www.cs.waikato.ac.nz/ml/weka/

12 https://www.italk2learn.com/italk2learn-platform/

(Mohammed & Watson, 2019). One potential solution is to share source code to allow users to customise AIEd tools for their particular needs; however, this approach could also expose vulnerabilities that could be exploited (Raja & Barry, 2005) and allow end-users and other parties to 'game' the system (R. S. Baker et al., 2004; Hu et al., 2019).

Role of Teachers

The UNESCO (2015) Qingdao declaration notes that: "successful integration of ICT into teaching and learning requires rethinking the role of teachers and reforming their preparation and professional development" (p. 2). However, the specifics of how teaching will change are uncertain. Many authors have noted concerns that teachers may be displaced or replaced by AI (e.g., Facer & Selwyn, 2021; Molenaar, 2021; Pinkwart, 2016; Schiff, 2021; Tuomi, 2018; Zawacki-Richter et al., 2019), and such an outcome could be attractive for underfunded institutions that are pressured to cut costs while increasing student enrolment. The possibility of replacement, independent from the actual probability, could affect the attitudes and behaviours of teachers tasked with using AIEd tools (Zeide, 2019). Therefore, it is important to address these concerns directly before discussing other possible roles for teachers.

Replacement

Part of the discourse on replacement traces back to C. B. Frey and Osborne (2013), who assessed 702 job descriptions and estimated that 47% had a high probability (> .7) of being fully automated. Despite this finding attracting widespread attention and follow-up studies, the replicability and generality of the original study is limited and more recent studies paint a more nuanced picture (Coelli & Borland, 2019; P. Frey, 2021; Nedelkoska & Quintini, 2018). According to C. B. Frey and Osborne's methodology, jobs were deemed automatable if the job's constituent tasks did not match certain engineering bottlenecks. In an educational context, Tuomi (2018) analysed tasks typically assigned to middle-school teachers and noted that "many of the listed tasks seem to be susceptible to automation" (p. 20). However, this analysis contrasts with Nedelkoska and Quintini's (2018) conclusion that, relative to other occupations, "health and teaching professionals [rank] among the occupations with the lowest risk of automation" (p. 104). Indeed, the original C. B. Frey and Osborne study also listed education-related occupations as among those least likely to be automated. Furthermore, Tuomi himself argued that the analysis has limited validity, noting "a more critical view might be that teachers are in the current educational systems burdened with rather mechanical tasks" (p. 21). Thus, rather than focusing on the differing results, C. B. Frey and Osborne's methodological approach could be used to shift the conversation away from replacement and towards fine-grained analyses of the tasks and responsibilities involved in teaching. This perspective provides a critical framework for imagining how the role of teachers might change as AI is integrated into education systems.

Division of labour

A core question in AIEd is how responsibility for different tasks might be shared between humans and AI systems (du Boulay, 2022). Molenaar (2021) offers a useful framework by adapting a six-level model of automation from the self-driving car literature. Across increasing levels, that range from "Teacher only" to "Full automation", more tasks

are assigned to technological tools and fewer to teachers. This framework does not suggest that full automation is the ultimate goal, but rather provides a foundation for assessing how teachers and AI systems might share responsibility for different tasks (e.g., tracking student progress and making pedagogical decisions).

Current AI tools are well-suited for automating time-consuming routine tasks and a widely cited benefit is that time savings would allow teachers to spend more time on direct pedagogical activities (see Facer & Selwyn, 2021; Selwyn et al., 2017, for critical discussions). Likewise, in distance education the role of teachers has shifted away from production-based tasks in earlier industrialisation models (e.g., Peters, 1967) towards service-based tasks in contemporary models (Brindley, 1995; Zawacki-Richter, 2004, 2019). AI could further this trend as current AI systems can automate routine administration tasks but lack the flexibility, cultural understanding, and interpersonal skills for many student-facing activities (Facer & Selwyn, 2021; Tuomi, 2018).

Conversely, some technical limitations may necessitate teacher involvement during the design and development of AIEd tools. For example, Suraweera et al. (2005) note "a major portion of the development effort [for ITS applications] is spent on acquiring the domain knowledge that accounts for the intelligence of the system" (p. 1). Thus, input from experienced subject teachers could aid in developing the content and structure of domain models. Similarly, many classification algorithms in AES applications are prompt-specific (Gierl et al., 2014) and require large sets of pre-scored essays as training data for each prompt. Mayfield and Black (2020) note that "human interrater reliability [in the training data] creates a ceiling for scoring model accuracy" (p. 151). Thus, experienced teachers could help to develop reliable rubrics and sub-scores, and generate reliable training data for AES systems. These AIEd-development challenges could shift the role of some teachers back towards earlier production-based tasks.

Retraining

If decision making is shared between teachers and AI applications, the "devolution of responsibility for teaching from teachers towards computers" (M. J. Baker, 2000, p. 134) requires that teachers are trained to understand the mechanisms of automated decision making. Zeide (2019) argues that "the people using these [AI] systems must know enough to trust—or question—the algorithmic output" (p. 38). Indeed, without proper training human-machine interactions can lead to automation bias; defined as an overreliance on the outputs of automated decision systems over other relevant cues (Skitka, et al., 2000). This concern was noted by the European Commission (1992)[13]:

"the result produced by the machine, using more and more sophisticated software, and even expert systems, has an apparently objective and incontrovertible character to which a human decision-maker may attach too much weight, thus abdicating his own responsibilities" (p. 26).

Therefore, teachers working with AIEd tools need training to understand the basic workings and limitations of the AI tools that they use.

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Education sectors have a mixed history of investment in teacher training (T. Baker et al., 2019; Williamson, 2019). Bond et al. (2019) systematically reviewed literature on educational technology and noted that a common challenge to adopting new technology was the lack of institutional support; in particular, the lack of time and resources for teacher professional development. Thus, the success of AI integration may depend on whether professional development is sufficiently funded and whether teachers understand and participate in the decision-making process for how applications are used (see M. J. Baker, 2000; Facer & Selwyn, 2021; Pinkwart, 2016; Porayska-Pomsta & Rajendran, 2019; Tuomi, 2018, for related discussion).

In addition to funding professional development, institutional policies on hybrid decision-making should acknowledge that not all relevant factors are easily measured or captured by the input variables for automated decision making (Williamson et al., 2020; Zeide, 2019). As Tuomi (2018) argued: "When AI systems predict our acts using historical data averaged over a large number of other persons, AI systems cannot understand people who make true choices or who break out from historical patterns of behaviour." (p. 36). Thus, teachers require institutional support to identify situations in which they can disagree with and override automated decisions. This 'human' component of hybrid decision-making could contribute to preserving learning activities that foster creative thinking and pluralistic learning trajectories.

Mixed-bag

The future roles of teachers depend on the goals and priorities of different state- and institution-level decision makers. However, if the integration of AI is driven largely by economic considerations, the most economically optimal solutions may not be the most pedagogically optimal (Facer & Selwyn, 2021; Porayska-Pomsta & Rajendran, 2019; Williamson, 2019; Willamson et al., 2020). As noted by the IEEE (2019), if AI "development and marketing are controlled by a few select companies…. the benefits would largely accrue to the highly educated and wealthier segment of the population" (p. 141). Thus, unfair application of different AIEd tools in different learning contexts could perpetuate and amplify current inequalities between and within countries (IEEE, 2019; JISC, 2021; UNESCO, 2021), and result in a "multiplier effect on social inequalities" (Hu et al., 2019, p. 25). Facer and Selwyn (2021) summarise this risk concisely: "the increased presence of AI in education… not only risks intensifying existing inequalities in education but introducing new ways to (dis)advantage some groups of students and teachers over others" (p. 13). One component to avoiding such an outcome is ongoing, pluralistic, and multi-stakeholder dialogue (IEEE, 2019; Tuomi, 2018; UNESCO, 2021).

Scope of Application

Many AIEd tools currently address specific educational or institutional needs. Common lines of research in the AIEd literature include: automated scoring, ITS for introductory courses, and classifiers for predicting student dropout or academic achievement (Zawacki-Richter et al., 2019). However, more comprehensive systems could be more attractive to institutions aiming to optimise their academic support and administration

processes (Williamson et al., 2020). The scope of AIEd applications depend on many of the factors discussed above, in particular the regulatory environments that govern data protection and the amount (and duration) of funding required to develop overarching, comprehensive systems. Furthermore, despite advantages for academic institutions, comprehensive AI systems also raise fundamental ethical questions around data privacy and human agency. This section explores some of the practical and ethical challenges involved in piecemeal versus comprehensive AIEd systems.

Piecemeal

Some practical and technical issues often limit current AIEd tools to serving a single, specific function. For example, T. Baker et al. (2019) assessed 69 AIEd companies in the UK and noted that the "majority were micro or small businesses employing one to ten or 11 to 50 people" (p. 20). Efforts to develop AIEd tools with more general capabilities, or integrating multiple tools within a single system, may require more resources than is available to smaller teams of developers. Conversely, larger companies with the resources for larger, more comprehensive AIEd projects can choose to invest those resources in more profitable sectors (e.g., marketing and finance). Likewise, governing bodies have to allocate their resources among competing concerns.

A piecemeal approach to AIEd could have its benefits. For example, single-function tools might limit the data collected from learners (see Article 25 of the GDPR). Distributing smaller packages of learner data among different AIEd tools could help to protect against malicious attempts to de-anonymise students, as data breaches in one application would provide only a limited number of attributes to link with external data (see also work on federated learning by Guo et al., 2020; Labba et al., 2022). Furthermore, relative to comprehensive automated decision-making systems, single-function applications carry less risk of drastically altering the trajectory of a student's life (Hu et al., 2019; JISC, 2021; Vincent-Lancrin & van der Vlies, 2020) [14].

Single-purpose AIEd applications could be integrated within a Learning Management System or a student-facing learning dashboard (Schwendimann et al., 2017). This approach might retain some benefits of specialised AIEd applications, while giving teachers an overall picture of a learner's progress. Developers and institutions nevertheless face both human and technical challenges in safeguarding student data from potential misuse (see Human Rights Watch, 2022; Laird et al., 2022; Russell et al., 2018). However, a centralised system could be a useful platform to implement what the IEEE calls a *Personal Data Artificial Intelligence Agent* (IEEE, 2019) through which individuals could set the terms and conditions for the use of their data and broadcast these preferences to various AIEd tools. However, work on designing such agents is still ongoing[15].

14 See also COM(2021) 206 final

15 https://sagroups.ieee.org/7006/

Comprehensive

In addition to an integrated system of AIEd applications, applications themselves may become more complex to handle ever more data streams and decision making (Molenaar, 2021). For example, in an experimental study on eye fixations during student interactions with an ITS, Taub and Azevedo (2019) used a range of input variables that included electrodermal activity and videos of facial expressions. Similarly, AIEd studies using classification models have used input variables that range from library loans and student meals purchased through a university card (L. Zhao et al., 2020) to measures of students' social activity and likely relationship status (Y. Zhao et al., 2020). While the collection of such diverse data sources may be justified within a research context, applying such an all-encompassing approach in practice would raise a number of ethical and legal questions around the protection and use of sensitive personal data.

Another ethical and legal concern raised by comprehensive AI systems is that of accountability. As Wendehorst and Woopen (2018) note:

As more and more decision-making processes are shifting from humans as the subject of action to AI-driven systems, new questions arise as to who is responsible for the development, programming, introduction, use, steering, monitoring, liability and external review of AI and applications based on it (p. 2)

This is consistent with other discussions that frame accountability as liability for errors and unintended consequences (i.e., 'blameability'). However, Porayska-Pomsta and Rajendran (2019) offer a compelling alternative, arguing that "accountability is fundamentally about giving people the autonomy of action through knowledge" (p. 4); that is, accountability can be framed as an issue of human agency (see related discussions in Hu et al., 2019; IEEE, 2019). Tuomi (2018) argues that "the expression of human agency requires capability to make authentic choices that do not only repeat the past" (p. 4). Thus, learners and teachers, the stakeholders who stand to be most affected by AIEd integration, need to be active participants in multi-stakeholder discussions about how AI is integrated in education.

DISCUSSION AND CONCLUSION

The development and assessment of strategic scenarios provide useful means to stimulate discussion about possible futures (Fink & Siebe, 2011). The present paper aims to promote discussion on the future of AIEd by identifying and describing five key strategic elements and their associated future options. During this process, we received crucial feedback from a team of international researchers at the COER that helped to shape our perspectives on AIEd. These perspectives are reflected in the morphological box (Table 1), which gives us a structured way to define the context for possible futures of AIEd explicitly.

Drawing zig-zagging lines down the morphological box creates sets of macro and meso conditions that afford different possibilities for AIEd. For example, one might imagine a "private property" scenario resulting from limited and proprietary access to data and

primarily market-based funding models, which could set the scene for subscription-based AIEd products aimed at replacing teachers with more comprehensive AI systems. Alternatively, one might imagine a "many kingdoms" scenario resulting from a combination of limited and sporadic access to data and mixed funding models across different regions, which in turn lead to a mix of different roles for developers and teachers working with a host of piecemeal AIEd applications. The goal of developing different sets of conditions is not to predict what is likely to happen, but rather to prompt discussion about the futures we want to avoid and the futures we want to work towards.

The potential for AI technologies to transform education provides an opportunity to re-examine what it means to teach and to learn. A useful framework for conceptualising the human behaviour of teaching is described by Tuomi (2018) in a three-level hierarchy of activities, acts, and operations. While acts and operations can be described in concrete terms, behaviour at the level of activity is "contextual, distributed, embedded in social institutions and technologies, and enacted in practice" (p. 21). Thus, contrary to assumptions that the role of a teacher can be reduced to a list of clearly defined tasks (i.e., acts and operations), teaching can be understood as a set of contextually defined, evolving practices with the goal of facilitating learning. Indeed, learning itself can be viewed as a socially and culturally embedded activity rather than a grouping of individual acts. As Facer and Selwyn (2021) note, learning "requires encounters with others, engagement with different and challenging ideas, and the development of the capacity to learn in and as part of a society" (p. 14). Thus, while the future of education likely involves AIEd applications that constitute larger and more central parts of the context in which teaching and learning take place, the activity of teaching and learning will continue to be defined by the interactions between people and the world they shape.

The present paper draws on diverse literature (ranging from basic research and expert perspectives to regulations and policy documents) to outline the macro and meso contexts for possible futures of AIEd. However, the visions of possible futures presented here are neither complete nor objective. The act of imagining the future is inherently subjective; however, the activities involved in shaping the future are collective and require an ongoing exchange of ideas. Thus, we hope that the morphological box and strategy approach described above will help interested readers develop their own sets of future options and provide further opportunities for discussion. Towards this end, the next phase of the current project will invite educators to a series of international focus-group discussions to assess strategic scenarios and explore the factors that matter the most to them.

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An Online Open Educational Resource for Surface Water Monitoring in Remote Sensing Using Google Earth Engine

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Abstract

An online free source is used to detect changes of water resources. Google earth engine (GEE) as a cloud computing displays a good environment of sharing open educational resources. Satellite images are used for water change monitoring, through an algorithm developed in the GEE environment. The algorithm is translated in an open web-based tool. The normalised difference water index (NDWI) is used to detect the temporal and spatial changes of water pixels and the area of the water resource is computed. The case of the Rietvlei Dam of the Tshwane Municipality in South Africa is illustrated and shows that the web-based tool can be potentially used by learners in an online learning setting. Water managers and practitioners can also use the tool for quick detection and assessment of the extent of change in water surface covering an area.

Keywords: *Satellite image, cloud computing, online learning resource, open education, water management*

INTRODUCTION

The use of open online freely available software packages has increased tremendously in the last decades, in numerous applications. Open resources are considered as open educational resources (OERs) and contribute to training for different users involved in research, teaching and learning, practice, policy making, etc. Access to free web resources constitutes a major advantage particularly for learners since there is no cost involved, except the cost of data for internet connection. In addition, the free web resources may strengthen self-learning. In some situations, guidance in accessing such resources can be offered by the teacher. For example, a web-based application for teaching and learning was developed on a local server to enhance remote sensing application (Li et al., 2020); earth observation as part of remote sensing has been used as a tool to facilitate climate change education (Asimakopoulou et al., 2021); a web-based training program was developed for remote sensing (Koenig, 2000). The development in recent years of Google Earth Engine (GEE) as a web-based cloud computing environment on Google's servers has yielded to the access and processing of numerous and huge amounts of geospatial data and information, in different formats such as raster and shapefile. The literature on the use of open educational

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resources about GEE is scarce, specifically the detection of water bodies in a particular area. The current study uses the GEE as an open educational resource and further presents recent development of remote sensing applications via GEE, with focus on the change detection of water bodies. The land cover change both in space and time of the surface area of water resources such as a dam was assessed as well as the area surrounding the dam. Surface water detection or monitoring based on vegetation indices using satellite image products were documented (Haque, 2020). GEE has its unique feature to process satellite images in the cloud as opposed to traditional applications where the user has limited processing capability on their workstation. Most applications in water resources management (WRM) cover implicitly or explicitly the detection of water bodies at both undergraduate and postgraduate levels in engineering technology programmes. Hence monitoring of water resources is essential for planning, operation and management of water resources. These programmes are offered in South Africa, in universities of technologies and comprehensive universities. Comprehensive universities offer both engineering technology programmes and mainstream/traditional engineering programmes such as Bachelor of Science in Engineering, Honours in Engineering, etc,whereas universities of technology offer engineering technology programmes.

Beyond reducing the computational speed for accessing and processing satellite images, GEE was explored as an open-source tool to stimulate independent learning. The authors presented the potential of GEE from their perspective in open distance and e-learning. The rest of the paper is structured as follows: First an overview on the GEE interface as well as features for remote sensing are presented. Secondly, the delineation of area of interest in GEE is explained and includes the satellite image data specifically for sentinel 2. The justification of using normalised difference water index is covered. Thirdly, the methodology is explained. Fourthly, the results and discussion derived from the application of the methodology are given. Lastly, the conclusion derived from the study is put forward.

ONLINE OPEN WEB CLOUD COMPUTING FOR REMOTE SENSING

The use of google earth engine is popular since it offers an advantage in the sense that the computational burden of downloading and processing remotely sensed data is done via the cloud not on the user's computer. A personal computer has limitations in terms of storage, processing speeds when it comes to the image data which usually takes a lot of storage and processing time. As a result, GEE has reduced the time it takes to process satellite images to a few seconds or even minutes. Hence, this increases the processing capability. The community of developers of code in Java scripts and Python have made freely available their code, i.e., open sources, through GEE. These can be used as OER for students, researchers, practitioners and anyone. OER resources can offer distance students in particular the advantage of improving in-depth self-study.

To access Google Engine User Interface (GUI), users must have a Gmail account prior to registration. It is then possible to navigate to code.earthengine.google.com to have access to the GUI. GEE requires Internet connection to perform computations in the cloud. Figure 1 displays the GEE graphical user interface.

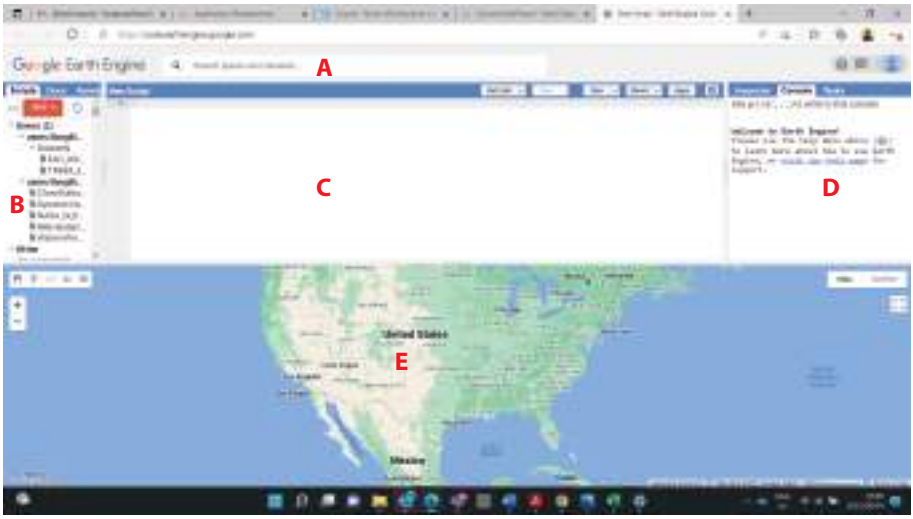


Figure 1. *Graphical user interface of the Google Earth Engine.*

In the above figure, A, B, C, D and E show the search bar, left panel, script editor, right panel and map view respectively. Function and description for GUI in GEE are summarised in Table 1 below. Scripts tab is located under owner and the content of scripts can be opened by simply clicking the Scripts tab. The docs tab helps the user to write scripts or codes. A simple click on a function enables the user to see the function definition and its requirements. The assets tab houses all scripts that the user uploads to GEE. Hence files can be imported, shared, deleted, etc.

Table 1. *Function of main Parts of the graphical user interface of GEE*

Label	Description	Function
A	Search bar	Access geographic places
B	Left panel	Access scripts,docs and assets form tabs
C	Script editor	Used to writes codes in Java script
D	Right panel	Access Inspector ,console and tasks tabs
E	Map view	Access visualised images

The Run tab enables the written code to be executed. The program or script should be saved. The inspector tab enables the user to interact with the Map view part. Clicking on the map enables the user to view the geographical location of that particular point, in terms of latitude and longitude. The console tab helps the user to access information related to the data present in the script editor and is usually the default tab during GEE loading. The console helps the user to view statistical aspects to the script and to locate error messages during coding or programming. The tasks tab helps the user to see the progress of any data that is ready to be exported or downloaded. Map viewer is similar to Google maps, however GEE has extra features such as drawing different shapes and toggling overlain layers to decide on their visibility.

Delineation of open surface water in remote sensing

There are numerous satellites (e.g. Landsat 8, sentinel 2, GRACE and GLDAS-NOAH, MODIS, etc) that provide free access to remote sensed data for several practical applications such that changes are monitored on earth. These changes can be related to floods, land use/cover, forest devastation, evaporation of water bodies, etc. This section was limited only to an overview of Sentinel-2 data since the OER was based on this satellite product.

Overview of Sentinel 2 data

Sentinel-2 data are very popular for remote sensing applications (Solovey, T., 2020). Sentinel-2 data are multi-spectral images obtained from the earth observation mission under the Copernicus programme. These data are optical images at high spatial resolution, varying from 10 m to 60 m. These images cover land areas, soil and water and coastal areas. Two identical sentinel satellites (2A and 2B) work together for the provision of multispectral data. The images comprise 13 bands situated in the visible, near infrared and shortwave, as summarised in Table 2. In this table besides the 13 bands, additional 3 QA's bands are given, making a total of 16 bands. The specific product Sentinel used for the purpose of this study was Level-1C, which represents the Top-of-atmosphere (TOA) reflectance in the combined Universal Transverse Mercator (UTM) coordinated system and WGS84 ellipsoid. Generally, tiles of 100 km x 100 km are generated for Level-1C products and corrected radiometrically and geometrically. Different spatial resolution can be used, but for this study, the 10 m resolution data was used. The data related to the tile are revisited every 10 days under the same viewing angles. These data are freely available from Copernicus and classified as of relatively high resolution.

Table 2. *Bands used for Sentinel-2 data, from Copernicus (ESA, 2015), as used in google earth engine (https://code.earthengine.google.com/)*

Name	Description	Resolution	Wavelength	Scale
B1	Aerosols	60 meters	443.9nm (S2A) / 442.3nm (S2B)	0.0001
B2	Blue	10 meters	496.6nm (S2A) / 492.1nm (S2B)	0.0001
B3	Green	10 meters	560nm (S2A) / 559nm (S2B)	0.0001
B4	Red	10 meters	664.5nm (S2A) / 665nm (S2B)	0.0001
B5	Red Edge 1	20 meters	703.9nm (S2A) / 703.8nm (S2B)	0.0001
B6	Red Edge 2	20 meters	740.2nm (S2A) / 739.1nm (S2B)	0.0001
B7	Red Edge 3	20 meters	782.5nm (S2A) / 779.7nm (S2B)	0.0001
B8	NIR	10 meters	835.1nm (S2A) / 833nm (S2B)	0.0001
B8A	Red Edge 4	20 meters	864.8nm (S2A) / 864nm (S2B)	0.0001
B9	Water vapor	60 meters	945nm (S2A) / 943.2nm (S2B)	0.0001
B10	Cirrus	60 meters	1373.5nm (S2A) / 1376.9nm (S2B)	0.0001
B11	SWIR 1	20 meters	1613.7nm (S2A) / 1610.4nm (S2B)	0.0001
B12	SWIR 2	20 meters	2202.4nm (S2A) / 2185.7nm (S2B)	0.0001
QA10	Always empty	10 meters		0
QA20	Always empty	20 meters		0
QA60	Cloud mask	60 meters		0

Normalised difference water index

The use of various indices to enable both temporal and spatial earth changes are very popular. For instance, these changes can be monitored via the normalised difference vegetation index (NDVI), normalised difference water index (NDWI) (Acharya et al., 2018). The NDVI is believed to be mostly used for the health detection of vegetation and is defined between the green and red bands (Kayastha et al, 2012), since healthy vegetation is known to absorb more red light. It is noted that the detection of water features has been done using vegetation indices (Rokni et al, 2014). In the current section, the discussion will be limited briefly to NDWI. For water body monitoring, the NDWI was formulated and introduced in water resources management (WRM) by McFeeters (1996), since water absorbs more near-infrared (NIR) light. NDWI is a method that helps delineate open water and enhance its presence in remotely sensed images. Hence, it is carried out by using the near-infrared and green spectral bands (Dvorett et al., 2016). The following characteristics of water bodies support the use of NDWI, i.e. their strong absorbability and low radiation from visible infrared bands

(Taloor et al., 2021). On the opposite, vegetation and soil are characterised by high reflectance of NIR (Talor et al., 2021). The mathematical equation in the case of NDWI is defined by Equation (1) as given below:

$$\text{NDWI} = \frac{gr - nir}{gr + nir} \quad (1)$$

Where gr, nir are green and near infra-red bands.

The bands in the above equation depend on the type of satellite images. For instance, gr and nir are B03 and B08 respectively based on Table 1. NDWI values generally range between -1 to 1. Vegetation and soil have negative or lower values while water bodies, flooded lands, soils saturated with water have relatively higher values. Generally, with reference to water, NDWI is positive and non-water it is negative (Ji et al., 2009). Despite the NDWI giving acceptable information on water bodies, it can be sensitive to built-up areas, which may lead to overestimation of the index (Peña, 2022). However, water bodies over built-up areas are not separated when a threshold value is used Xu (2006 & 2007). There are other mathematical expressions for change detection in water bodies, other than NDWI. For instance, the Modified NDWI (MNDWI), and Automated Water Extraction Index (AWEI) have been used to have a good assessment of water resource monitoring (Acharya e t al., 2018). In addition the Normalized Difference Pond Index and Normalized Difference Turbidity Index were used (Solovey, 2020). Usually, the combination of more indices enables one to have a good insight on the ecological status of the area under investigation.

METHODS AND MATERIALS USED

The online freely available code in GEE used in this study was adapted from (Peña, 2022). Based on this OER, it is important to note that positive values will be associated with water, whereas zero or negative values will be related to vegetation and soil. The methodology related to the derivation of NDWI remotely sensed data as well as the extent of the surface water area is conducted as follows:

- Define the area of interest (AOI), by choosing the rectangle (polygon) option as shown in the GEE graphical user interface.
- Extract online Sentinel-2 data from Copernicus/S2 dataset. These are satellite images of AOI defined in a given time that is set by the user.
- Choose the satellite image, which has the smallest cloudy pixel. This cloudiness condition can be expressed in %.
- Use red, green and blue (RGB) bands in the visualization of AOI. These bands are encoded as JPEG.
- Compute the surface area of the AOI.
- Mask NDWI for non-water areas.
- Determine masked areas pixel area.
- Determine proportion of surface water area to the AOI.

The above is translated into an algorithm that is written in Java script under the Script Editor part. The AOI is dominated by the Rietvlei Dam, which was built in the earlier 1930's and impounds the Rietvlei River. The dam as shown in Figure 2 (in the map view) is situated between the R21 freeway and the Delmas Road, in Tshwane (old Pretoria), Gauteng Province of South Africa. It is an earth-fill water infrastructure which contributes to the water supply system in Tshwane Municipality. The dam purpose is mainly dominated by municipal and industrial uses.

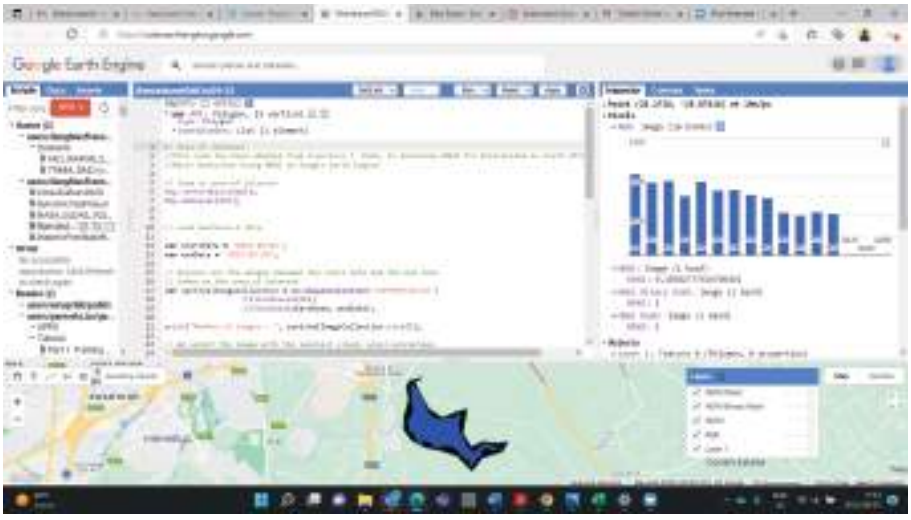


Figure 2. *Rietvlei Dam location as shown in the map view in window scripts*

It is reiterated that the data used was sentinel -2 Level 1C MSI Multispectral Instrument, i.e. Copernicus/S2 as shown in the script editor of the GEE environment. The time periods under consideration of satellite images were February 2022 and June 2022. As a summer rainfall area, the City of Tshwane is usually exposed to more rainfall in February as opposed to April. However, the year 2022 has been exceptional with flooding registered in different places of the country. These 2 months were selected arbitrarily, to assess preliminarily the free online resource.

RESULTS AND DISCUSSION

The area of interest was confined as much as possible to the dam as the main purpose of the study was to evaluate NDWI and the surface water area of the dam. A polygon was used to define the AOI that surrounds the water body in all the figures as presented in the map view.

The RGB image consisted of 16 bands, which could be viewed in a graphical form from the inspector tab, as depicted in Figures 2a and 2b respectively. These figures display the NDWI mask and present similarity in terms of bands, but very small differences were noticed from the computed values. This could explain the values of NDWI being

more or less the same. The NDWI values were 0.106 and 0.182 respectively for the 2 figures and hence positive. These values confirmed the presence of the water body. Mathematically, the user can still perform calculations outside GEE using the specific bands (B03 and B08) to verify the NDWI values.

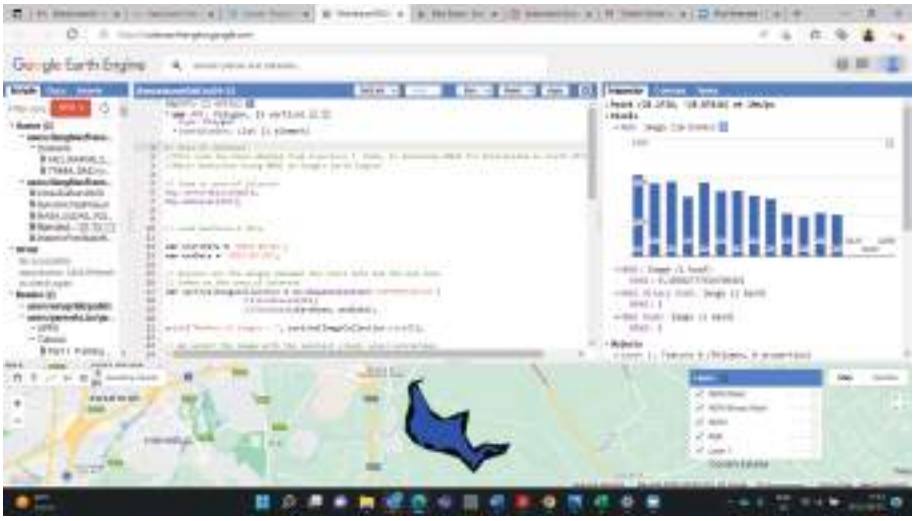


Figure 2a. *Normalised difference water index mask in the inspector Tab for Rietvlei Dam for 20/02/2022*

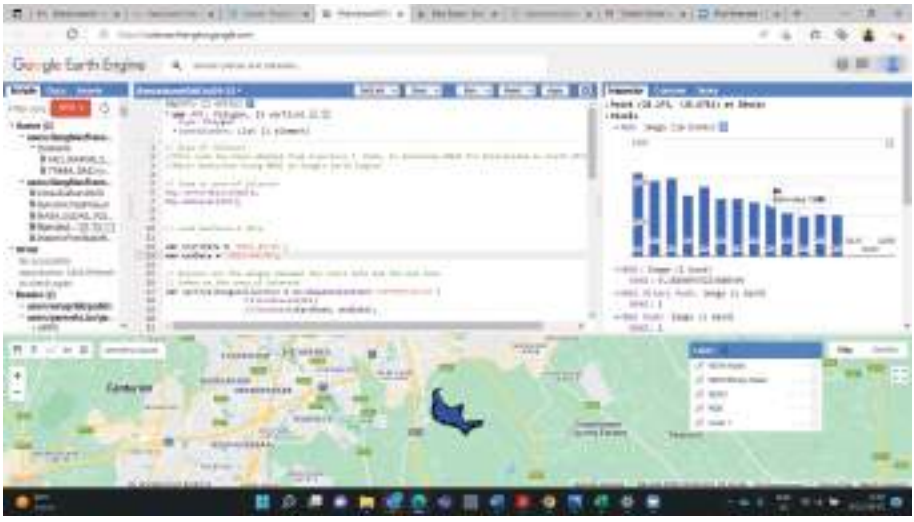


Figure 2b. *NDWI mask, with RGB bands in the inspector Tab for Rietvlei Dam for 01/04/2022*

The first images selected for the months of February and April 2022 were COPERNICUS/S2/20220220T074939_20220220T081056_T35JPM and COPERNICUS/S2/20220401T074609_20220401T081630_T35JPM respectively, since they fulfilled the requirement of cloudiness condition of less than 35%. These images were selected from the monthly images provided by Copernicus as explained in the next section.

Determination of satellite images

In Figure 3a, under the console, the number of Sentinel-2 satellite images provided were 5 for the month of February and the surface water area (i.e. water body pixel) was 1.70 km^2 and the ratio of this area to AOI was 0.62. The month of April scored 6 satellite images while the surface area of the dam was 1.74 km^2 and its ratio to AOI was 0.64. These surface water areas were close as well as the 2 ratios. From the algorithm in the script editor, the image retained was the first that fulfilled the requirement on cloudiness, for each month. The visual inspection between the satellite images generated through the algorithm in GEE were very close to the image from Google based map year 2022 as far as the extent of the water body is concerned. It should be noted the base map did not display the exact date.

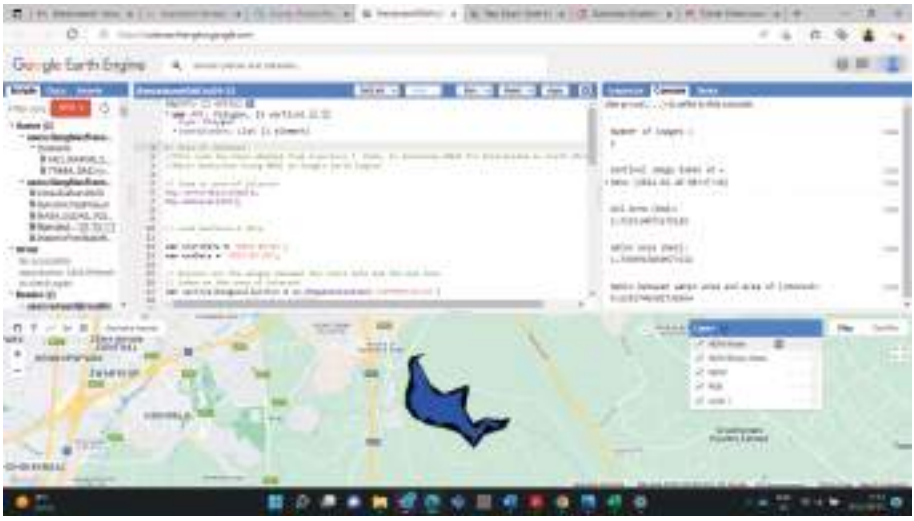


Figure 3a. *Calculation of area of interest area and dam surface water area for February 2022*

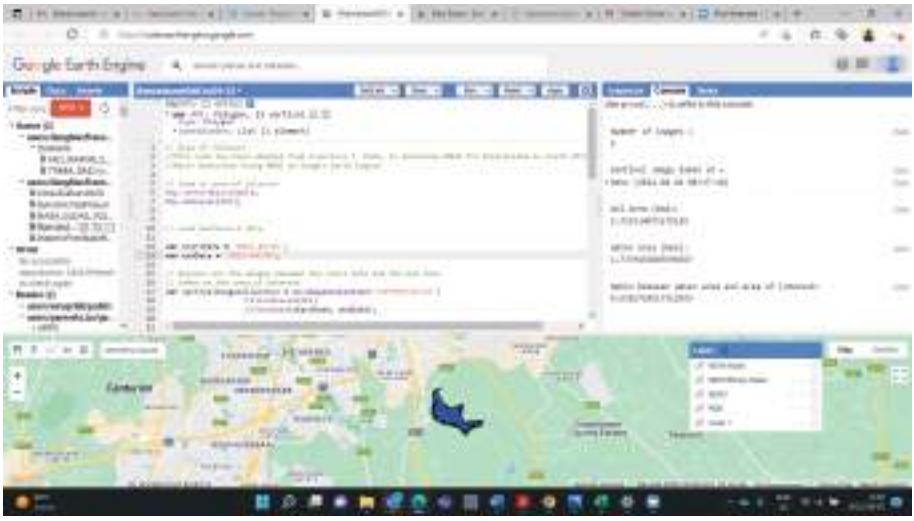


Figure 3b. *Calculation of area of interest area and dam surface water area for April 2022*

There were 5 overlain layers which could be seen to the far right of the map view in each of the figures 3a and 3b. The layers are NDWI mask, NDWI binary mask, NDWI, RGB and Layer 1. By moving the wheel for each layer, the user could change the opacity to visualise change observed in the AOI. NDWI masks perform masking of the rest of the AOI, except the water body. This is seen in blue, and the rest is black. Hence pixels other than water were masked. The water body could be clearly seen in blue while the rest of the AOI was masked as dark. Details of the layers could be viewed under the inspector tab. In the figures above, the NDWI mask was the top layer, hence it overshadows all other layers. However, by enabling only one layer, the user could visualise that specific image in the map view. For illustration purposes, only the remaining 4 layers for February, i.e. the NDWI binary mask, NDWI, RGB and Layer 1 were given in Figures 4a-4c, as shown below.

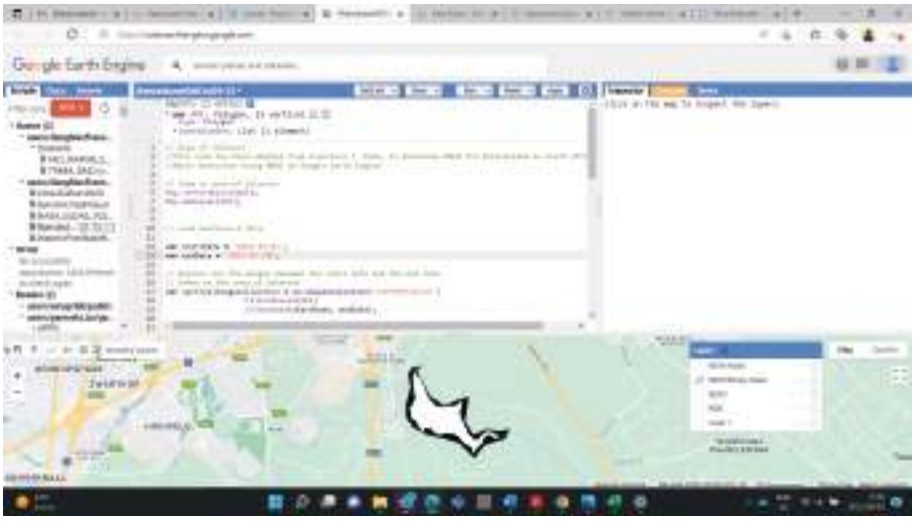


Figure 4a. *Normalised difference water index NDWI mask binary for February 2022*

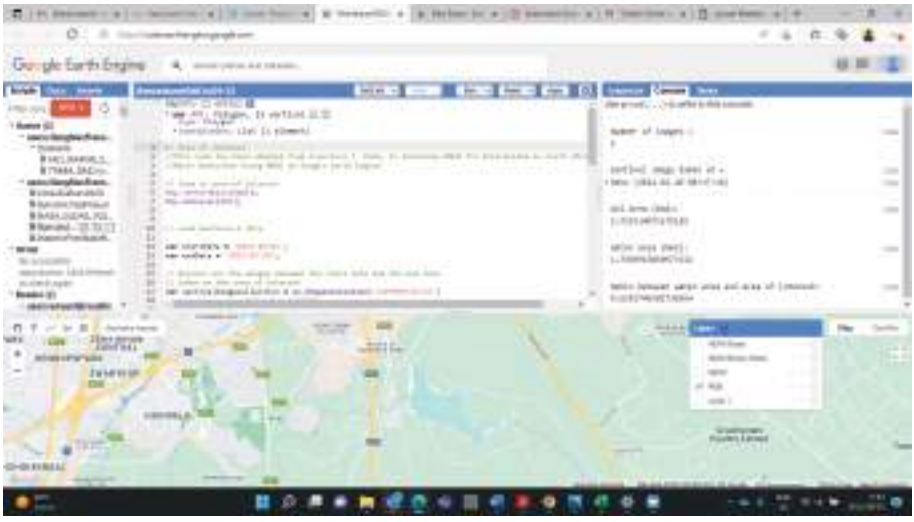


Figure 4b. *RGB layer for Reivtlei dam for February 2022*

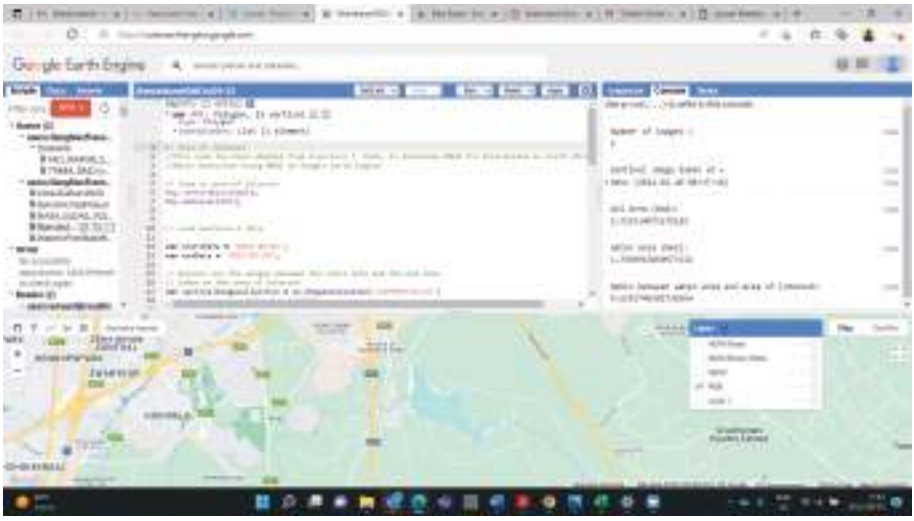


Figure 4c. *Layer 1 showing the delimitation of area of interest of the Rietvlei Dam for February 2022*

The results have shown that GEE is a simple environment since it has an interactive graphical user interface and users have access to codes which are freely available from the community of developers. For this exercise, the user can only change dates in the script and select an AOI of his choice and run the script to obtain the results. Hence, it could be used as a valuable tool for water resources management where the prevalence of remote sensed data is becoming noticeable in recent decades since timely observed/measured data are not always readily available. Satellite images are produced nearly timely. In particular, the open source used here for water change detection can be a valuable instrument for distance learning to illustrate some topics covered in water resources management.

CONCLUSION

This study showed that google earth engine as a cloud-based computing program offers currently one of the best environments for open educational resource development and usage. The computation burden takes place in the cloud, which adequately accommodates satellite images. These take more memory. The spatial and temporal detection of water bodies was possible using the normalised difference water index. A water resource, i.e. the Rietvlei Dam could be used as a case study for rapid assessment of the extent of the dam surface area as well as the water detection pixels. The positive values of NDWI confirmed the presence of water pixels in the dam. While there are many other indices factors that could be used for a deeper assessment, nonetheless the results showed the OER could be used to monitor water pixels. This was at the heart of validating the OER strategy adopted in this study. The user does not have to know more programming, but can insert only the area of interest by simple drawing and the data range for change detection in the area. The user can easily visualise the water

body from non-water pixels, the NDWI value is determined from running the script in GEE. The surface area of the water body is also determined. The user interaction, the navigability and ease of access to the code of the educational resource have been simplified in the GEE. The OER has shown to be a potential tool for learners (especially in distance education) to enhance the learning process in water related modules. There is an intriguing possibility of expanding the application of GEE to monitor changes in time and space in South Africa's dams.

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The Effect of Online Education During Covid-19 Pandemic on Decreasing the Challenges of Teaching English in Rural Areas

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Abstract

It is a commonly experienced fact that teaching English as a foreign language in rural areas is challenging for language teachers all around the world. This study explored the actual challenges that teachers of English face at rural state schools before and during COVID-19. To find out the regarding problems, an open-ended questionnaire was administered to 46 participants working at public schools as teachers of English in different regions of Türkiye. Additionally, to have a deeper understanding of the challenges faced during COVID-19 period, the reports from the focused group discussions held by totally 29 English teachers working in the same rural district have been analyzed using content analysis. The results reveal that teachers have some common difficulties deriving from school facilities, poor infrastructure, inadequate technology, instructional materials, students' language levels, attitudes towards language learning and teacher competencies. The study also shed some light on the positive impacts of online education during COVID-19 pandemic on teaching English as a foreign language in rural areas in relation with the technological challenges and its effect on decreasing the urban-rural divide.

Keywords: *Rural Areas, Teaching English, Challenges, COVID-19, Positive Impacts*

INTRODUCTION

The boundaries between the urban and rural areas have become blurry because of the global economic, social, cultural, and political circumstances affecting these areas. Therefore, it seems difficult to make a clear distinction between urban and rural areas and decide their level or degree. According to Öğdül (2010), Turkiye is dominantly rural, dominantly urban and transitional, and education and all the parameters regarding it are inevitably influenced at all levels. Having a sustainable education at rural schools is one of the parameters that should be mentioned, which remains a problem for many teachers to tackle. It is generally witnessed that schools and teachers as a whole have a lot of problems and challenges in common. Therefore, this study focused on the challenges of the educational system in rural areas in the eyes of the teachers of English.

It is widely accepted that teachers of English face several challenges when they teach it as a foreign language regardless of the geography where the schools are situated.

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In other words, teaching English as a foreign language is stated to be a demanding task when it comes to the places where there is inefficiency in many respects from physical conditions to learning atmosphere (Khan, 2011; Kılıçaslan, 2012). In this sense, Turkiye is a country where English is taught as a foreign language and learners have very limited or no possibility to learn a foreign language as it should be in some rural areas.

Challenges that teachers of English face at rural schools in Turkiye are based on basically three factors: students, teachers, and school facilities. When the COVID-19 pandemic appeared and affected every part of our life, schools have also become one of the most influential places in the world. This unexpected and unavoidable fact, as in the whole world, has brought additional challenges for schools, parents and teachers in rural areas. Research in the field prove that during COVID-19 pandemic English teachers have faced problems in relation with socio-economic conditions of their students, their readiness from the aspects of Technological, Pedagogical, and Content Knowledge (TPACK) to teach online, and effective implementation of the curriculum during this pandemic period both conducted in Türkiye and all around the world (e.g. Eraslan, 2021; Kaygısız & Balçıkanlı, 2021; Sönmez, et al., 2022; Yamamoto & Altun, 2020). In addition to the challenges, online education during this period has also positive effects on language education in rural areas ranging from the access to effective technological devices and learning platforms. Therefore, it can be said that online education had a decreasing effect on the divide between urban and rural divide.

To conclude, the aim of this study is to explore challenges in rural areas and the importance of online education in decreasing the divide between rural-urban and offering equality in education in the disadvantageous areas. To achieve this, more research is needed to investigate the reasons behind the challenges faced in different teaching environments, especially in rural areas, and reinforce the positive impact of the required developments related to COVID-19 pandemic and online education over teaching English in the disadvantageous areas such as rural state elementary and secondary schools. Therefore, the detailed exploration of the challenges faced by teachers of English currently working in rural state schools before and during the Pandemic Era and the positive impact of online and distance education in rural state schools in Turkiye is still a gap waiting to be filled in the literature.

REVIEW OF LITERATURE

There are some basic challenges teachers of English face while teaching English in rural areas. First of all, learners lack adequate exposure to the authentic usage of the target language both aurally and orally within the borders of a non-native surrounding where there is nearly no context of natural use of the target language. Another difficulty faced in relation to teaching and learning English as a foreign language is motivation of the students towards learning and using it. In this context, Khan (2011) argues that lack of English exposure demotivates students to practice and understand English due to students' insufficient background knowledge of English, and thus, it becomes difficult for teachers to encourage students to be enthusiastic to use target language. Students and teachers also cannot reach the educational resources in rural areas because these

areas lack good schools having proper ambiance and affordability which cater to the changing needs and expectations of the class (Mishra, 2015). Moreover, teachers cannot receive proper teaching facilities, including space, books, and teaching aids (Pande, 2013).

The other crucial problem that can be referred to as a challenge is the professional competencies of teachers. Some teachers claim that they are trained to teach English for ordinary classes and students. However, they are not trained enough to teach in rural schools and all practical and theoretical aspects of language teaching do not usually fit the classes in such circumstances (Kızılaslan, 2012). Simply put, inabilities to deal with challenges that take place in teaching context because of the lack of training, poor language ability, inefficiency in teaching the subject are some of the fundamental issues to list for challenges teachers usually have to deal with (Emery, 2012). Mishra (2015) supports this notion by emphasizing that such challenges become inevitable to arise in rural areas because mostly rural areas lack proper and good teaching and learning tools. Therefore, it can be said that learners' exposure to the target language and effective learning and teaching applications might be affected to a great extent by the facilities that their schools provide.

Apart from the issues mentioned above, linguistic problems from correct pronunciation to using correct grammar are the other most important challenges rural teachers face. As Khan (2011) contends, "specific problems connected to pronunciation, stress, and intonation become problems for students" (p.57). Kızıltan and Atlı (2018) further assert that learners may commit errors systematically and non-systematically because of overgeneralization, new category or rule, ignorance of rule restriction, incomplete application of rules, transfer, developmental error types and simplification by omission. They also emphasize that "in second language use, learners' or acquirers' current linguistic competence may affect their language use and, in their production, implicit linguistic knowledge may be displayed by their current linguistic competence" (p.254). Learners also tend to use mother tongue (L1) in the class rather than target language. Fatiloro (2015) confirms the problem of L1 interference by emphasizing that English language learners experience mother tongue interference phenomenon to his second language due to the syntactic (grammatical), phonological (mispronunciation), semantic or morphological factors. As the research (e.g. Fatiloro; 2015; Khan, 2011; Kızıltan & Atlı, 2018; Tekin & Garton, 2020) proves, linguistic problems need to be eradicated carefully in the classroom. However, challenges stemming from school facilities and learners' conditions cannot enable teachers to handle the problems adequately.

When linguistic challenges are considered, it is a generally witnessed fact that both EFL teachers and learners in state schools in Turkiye mostly use their mother tongue in English classes for different purposes. For example, Tekin and Garton (2020) investigated how much, when, how, and why teachers use L1 in their English classrooms. The results of their study showed that, despite some negative attitudes towards L1 use, the teachers used it to different degrees and for various purposes including giving instruction, providing feedback, and asking questions. Additionally, the teachers in their study also identified several practical reasons for their decisions, namely, students' proficiency level, achieving target-curriculum, saving time and

teaching specific language points. Therefore, they conclude that L1 is an inseparable part of the L2 classroom, and each teacher has their own unique way of using it. Similarly, Kayaoğlu (2012) investigated the use of mother tongue in English classes and the findings of his study indicated that a great majority of the teachers were found to take a practical and pragmatic position in the use of L1 instead of adhering to popular beliefs on this topic which support the use of target language. Similarly, in Sali (2014) it is indicated that the Turkish teachers also used L1 for managerial purposes (27%) such as 'Maintaining classroom discipline' and 'Monitoring', as well as for social/ cultural purposes including 'Establishing rapport' and 'Praise' (p. 311). However, the presence of the studies investigating the use of mother tongue in actual English classes in rural state schools is scarce.

Kumar and Malekar (2017) state that in a country like India, classes of mixed ability groups are a feature of every small town or village, and in most of the rural parts of India, learning-teaching process is done in the vernacular language while most of the competitive examinations (higher education and employment) require English as medium of instruction. In the same vein, Dube (2022) identified the challenges faced during teaching in rural areas as lack of socioeconomic amenities such as decent education, adequate health care, adequate transportation, marketing facilities, and even electricity. In relation to English education, it is generally observed that rural areas have minimal funds to hold such education in their districts. According to the results of the study conducted by Hansen-Thomas et al. (2014), rural areas have limited funds to cover the costs of teaching materials and other demands such as full-time English teachers. Therefore, as stated in Febriana et al. (2018), teaching in rural areas is renowned for its lack of quality. The study conducted by Gable et al. (2001) is also in accordance with these findings as it states that academic accomplishment scores, university enrollment averages, and university graduation averages were all lower for children from low-income families than for children from high-income families.

As the educational system all around the world couldn't continue in the way they followed before the COVİD-19 Pandemic Era there had to be a lot of amendments in teaching, using materials, designing school curriculum and course syllabus in line with the needs of the learners. During COVID-19 pandemic, teachers have faced a lot of additional challenges along with the existing ones. Kuehl (2021) categorized these challenges into three groups: (1). Students' socio-economic conditions, (2). the status of English in the school, and (3). COVID-19 pandemic. Of these categories teachers' case is the most significant one as they had to get into online teaching immediately in this period. Kusuma (2022) lists the challenges faced by the EFL teachers working in rural areas during COVID-19 pandemic as follows: (1). their readiness for conducting online teaching, (2). their implementation of online teaching and, (3). the challenges during the implementation of online teaching due to the COVID-19 pandemic. In the Turkish context, it was also observed that teachers couldn't have sufficient time for the preparation to develop their TPACK. All of a sudden, as in most of the parts of the world, teachers in Türkiye as well had to start teaching without receiving any or sufficient in-service training about online and distance education, which was delivered mostly through Educational Information Network (EBA) aided by some private distance teaching platforms such as Zoom.

Teachers of English all around the world had to confront the challenges in relation with rurality and technology more than before starting from the first days of Covid-19 Pandemic. Mokoena (2022) makes the point that the need to ensure continuous educational activities amid the pandemic necessitated many countries to adopt online education. Sönmez et al. (2020) evaluated the distance education process, which is the result of a new type of coronavirus pandemic, through the elementary school classroom teachers' opinions. The findings of their study concluded that distance education carried out during the pandemic was highly affected by the socio-economic situation. Similarly, the researchers in the study also state that the suitability of the content level decreases as they go from cities to rural areas. Additionally, the opinions on EBA contents differed according to the type of school where the teachers work and the location of the school. It is also pointed out that while mothers helped the education of children most during the epidemic process, teachers stated that sustaining the education despite the epidemic process was one of the strengths of distance education. However, it is also highlighted in the study that equal opportunities in education will not be utilized unless adequate studies are conducted for the children of families with low socio-economic status.

COVID-19 pandemic made the "Emergency Remote Teaching" compulsory, and this term is defined as "a temporary shift of instructional delivery to an alternate delivery mode due to crisis circumstances" (Hodges et al., 2020, p. 6). In the Turkish context, Kaygısız and Balçıkanlı (2021) point out that language teachers having little or no experience in distance or online teaching beforehand might have encountered various challenges during this sudden transition since the COVID-19 pandemic was an unexpected phenomenon.

To investigate the challenges related to education during COVID-19 pandemic, several studies have been conducted. For example, Atmojo and Nugroho (2020) analyzed sixteen Indonesian English language teachers' experiences during the pandemic, and they indicated challenges such as, inter alia, technological constraints, students' low digital literacy and lack of motivation, late submission of the assignments, and "teachers' lack of experience and knowledge" (p. 66) as well as their "lack of preparation and readiness" (p. 67) in online learning. In another study, Bailey and Lee (2020) explored English language instructors' perceived challenges and benefits of emergency remote teaching. The findings indicated that novice teachers experienced a lack of preparation for online teaching. The same study further highlighted the importance of developing teachers' online teaching competencies. Similarly, Erarslan (2021) reviewed sixty-nine studies, globally, examining English language teaching during the emergency remote teaching process and the results of his study show that this process brought several challenges such as technological problems like internet connection and access to smartphones or computers and teachers' lack of preparation and "insufficient technological and pedagogical content knowledge" (p. 359) even though it facilitated teachers' development of digital literacy skills.

There are some studies in literature that started to shed some light on the positive aspects of compulsory online education. For example, Telli and Altun (2021) confirmed that in about a year after the COVID-19 Outbreak, online education applications have

evolved from emergency solutions to feasible solutions based on their analysis of the documents through examining the currently conducted online training samples, comparison, and evaluation of findings of academic research conducted in this period. Yamamoto and Altun (2020) highlighted that COVID-19 pandemic and distance education might become an alternative in the future and become the basic ground for education.

In the Turkish context it can be said that schools have adopted and promoted remote learning in response to the COVID-19 pandemic by applying different ways of online learning ranging from synchronous to asynchronous learning tools. However, this situation brought many challenges with itself. Landa et al. (2021) report that people in urban areas have much more significant access to online education than those in rural areas implying that rural areas have a lot of problems in relation with internet connectivity and the lack of the technological devices to reach online education. To this end, this present research also acknowledges the same challenges occurring at state rural schools along with the positive effects of online education on teaching English in Türkiye. Therefore, intended to shed some light over the possible benefits of the compulsory online education on decreasing the previously faced challenges and positive developments in rural areas during and after COVID-19 pandemic thanks to the compulsory online education. This is the gap in literature still waiting to be filled. To reach this purpose, this study intends to answer the following research questions:

1. What are the types and reasons of the challenges teachers of English face in teaching in state schools in the rural areas of Türkiye?
2. What challenges did teachers of English face during online education due to the COVID-19 pandemic in rural areas?
3. What are the contributions of online education during Covid-19 Pandemic in decreasing the urban-rural divide?

METHODOLOGY

In this study Critical Emancipatory Theory (CET) is adopted as a guidance to collect data, which can be traced back to Critical Theory (Creswell & Creswell, 2017) as the researchers acknowledge that "multiple realities" exist when interrogating a phenomenon under study.

This study combined the qualitative and quantitative methods with the purpose of triangulation aided by the analysis of the focused group discussion reports. It was important to have data from focus group discussions because during these meetings participants shared their perceptions about their teaching contexts with each other, they kept on discussing the challenges, problems, and applicable solutions until reaching topic saturation. They were requested to share their actual experience of teaching English in the same neighborhood and offer suggestions to the other members (their colleagues) to use effective teaching methods and practical applications. The decisions were decided in unity and recorded in reports by two reporters.

Data Collection Process and Research Instrument

Data was collected using an open-ended questionnaire and reports of the focus group discussions. The questionnaire consisted of 22 items and written reports from the focused group discussions were analyzed using content analysis. The questionnaire was prepared using a google form to figure out the challenges that English Teachers face while teaching in rural state schools in Turkiye before Covid-19 pandemic. Mostly faced challenges gathered around three main categories: challenges that emerge partly from school facilities (n=5), partly from teachers (n=3), and partly from students (n=7).

The participants were informed that this study would be treated confidentially, and they participated in this study voluntarily, any individual could withdraw at any time in written format. The questionnaire also included demographic information about the participants such as gender, age, employment status, years of experience as a teacher, the level they teach, and the working place in order to have a better picture related to the problems faced by the participants in a specific manner.

Items in the open-ended questionnaire were adapted from the related literature (e.g. Bulter, 2005; Emery, 2012; Endriyati, et.al., 2019; Fatiloro, 2015; Hossain, 2016; Mishra, 2015; Kızılaslan, 2012; Littlewood, 2007; Pande, 2013; Songbatumis, 2017). Before implementing the questionnaire two experts were required to check it and offer their opinions about the items for the validity of the instrument (Dörnyei, 2007). Based on the feedback received from the experts the questionnaire was redesigned. Data collection related to the Open-ended Questionnaire started in May 2020 and took approximately one month.

The second part of data was obtained from the reports of the focused group discussions. According to Merton, Fiske, & Kendall (1990) a "focused group interview" is a qualitative method in which researchers interactively question a group of participants to test theory-driven hypotheses. The Focused Group Discussions were conducted between the dates of 2020 and 2021 by 29 (14 teachers in average in each meeting) teachers in total coming from 16 different state primary and secondary schools. Four of the meetings were face-to-face while one was online. The average participation in the meetings is 14, and each session lasted for about 90 minutes. Details of the focused group discussions are presented in the table below:

Table 1. Order, date, number of participants, duration, and type of the focused group discussions.

Order	Date	Number of Participants	Duration	Type
First	06.02.2020	14	1.5 hours	Face to face
Second	27.08.2020	15	1.5 hours	Face to face
Third	18.02.2021	13	1 hour	Online
Fourth	23.06.2021	12	1.5 hours	Face to face
Fifth	10.02.2022	16	1.5 hours	Face to face

Participants

This study was conducted with two sample groups consisting of EFL teachers working in rural state schools using a survey and a focus group discussion technique. The survey was administered to the first sample group composed of 46 teachers. The second group included 29 participants who attended the focused group discussions.

The survey was administered to the first group, 46 EFL teachers working at public schools in different regions of Türkiye. Convenience sampling techniques were used during the data collection period because of the practicality concerns and challenging conditions caused by Coronavirus and precautions related to health. The reason for choosing this technique to collect data is that it is used in many studies with the available participants when it is not possible to reach all members of the entire population (Fred & Perry, 2005).

Out of 46 participants, 11 participants are male and 30 of them are female and the remaining 5 participants did not answer the gender question. The ages ranged from 25 to 60, and 26 of the participants have working experience between 1 and 5 years while 10 of them have 6-10 years. 70 % of the participants teach English at secondary schools and the rest of them work at primary schools.

The second sample group of this study is composed of 29 participants working in the rural state schools of the same neighborhood. They met two times during an education year and talked about the problems, challenges, experiences and suggested possible solutions to obtain data for the second and third research questions.

Data Analysis

The data was subjected to both quantitative and qualitative data analysis techniques. The findings are presented in detail using tables, charts, graphs, frequencies, and ratios. For the analysis of the qualitative data, conventional content analysis was applied and the common themes and categories were formed and presented in tables and bar charts with ratios and frequencies. Krippendorff (1989) defines content analysis as one of the most important research techniques, in social sciences, which seeks to analyze data within a specific context in view of the meanings someone- a group or a culture – attributes to them.

The categorization of the results was checked by two experts in the field as an external auditor (Creswell, 2002) to ensure the validity of data. It is believed that categorizing the themes for content analysis serves a great help for the researcher so that he can make valid inferences from text (Weber, 1990). Therefore, this study categorized the themes for content analysis to make valid inferences from the data. While deciding these categories, other relevant previous studies were consulted in order to form the categories and the themes. Therefore, it can be said that both Conventional and Directed Content Analysis approaches helped the researchers to make valid inferences from the written documents (the reports) and this made the data analysis more practical for the researchers and gave them the chance to compare the present results with the already existing literature.

FINDINGS AND DISCUSSION

Results of the study gathered around 3 main categories. The first category included the responses to the first research question about the challenges faced by EFL teachers in rural areas before Covid-19 Pandemic and 3 subcategories emerged during the analysis of the data. The second category included responses to the second research question about the challenges faced during Covid-19 Pandemic. The third category showed the reflections of the participants on the third research question about the effect of Online Education on decreasing the challenges that were expressed by the participants in their responses to the Open-ended Questionnaire related to the period right before Covid-19 Pandemic.

Challenges Faced by EFL Teachers at Rural State Schools Before Covid-19 Pandemic

Challenges Related to Schools, Learners, Classroom Management and Use of Technology

When the participants were required to mark the related challenges they faced about the physical conditions of the schools, most of them (n=20) stated that school canteens and the school buildings were not satisfactory. Heating system (n=19) was the other problem which was mentioned along with challenges regarding the meals (n=17) and transportation (n=17) facilities. The results (n=15) also indicate that some schools do not provide students with playgrounds.

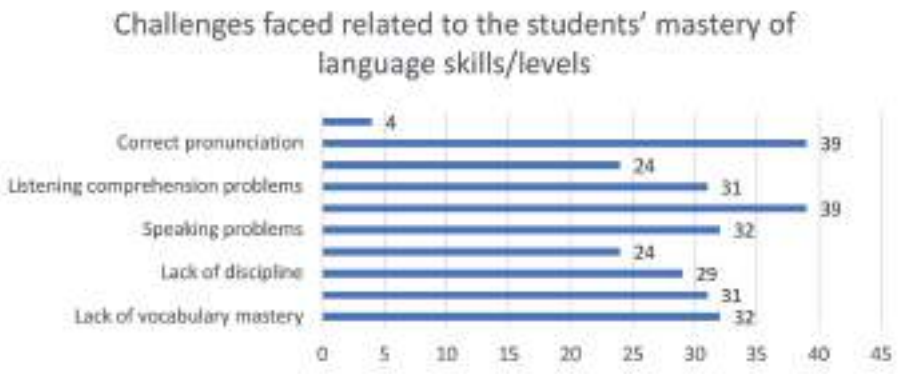


Figure 1. *Challenges in relation with the students' mastery of language skills/levels*

As shown in Figure 1, participants express themselves to be facing different types of challenges in relation with the mastery ol language skills or levels of their students. Students having difficulty to produce the correct pronunciation (n=39), problems in writing (n=39) and speaking problems (n=32) and lack of vocabulary mastery (n=32) standed out as the main challanges faced by most of the participants.



Figure 2. *Challenges in relation with classroom management problems*

It is clearly depicted in Figure 2 that participants stated to be facing different challenges with respect to classroom management problems at high numbers. Based on the results, students lack motivation to learn English (n=27) and they have a negative attitude towards learning English (n=26). It is also seen that they have no plan for further education (n=21). Another significant finding is that they thought speaking in target language in a nonnative setting is artificial (n=17), which also demotivates them to learn it.

As a follow-up question, participants were asked the reasons for the classroom management specified above. One of the participants stated the following:

Students don't really believe they will need English in their life as they mostly don't know about the real world because of the level of the family consciousness on education. They are also not good enough at Turkish lessons. So it affects their understanding and success in a foreign language. (Informant 12)

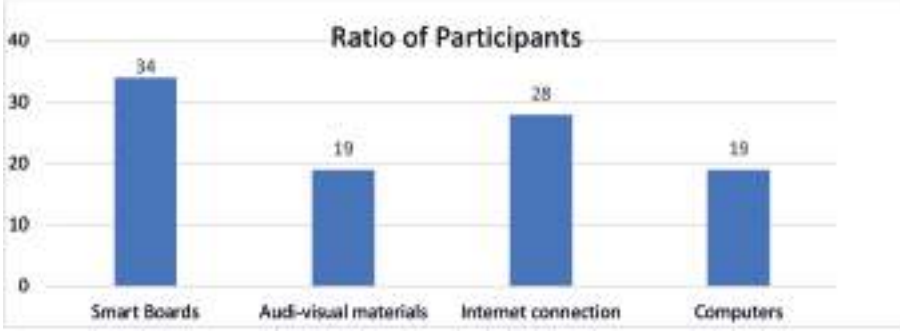


Figure 3. *The provision ratio of the technological devices and access to internet*

Figure 3 shows the ratio of the provision of the technological devices and internet access based on the question about the type of the technical equipment they are provided with to support their teaching before Covid-19 Pandemic. The results showed that only 34% of the participants were provided with the smart boards in their schools and 66% of the

participants did not. The case seemed to be even worse with the provision ratio of the internet connection (28%), audio visual materials (19%), and computers (19%).

When the results of the challenges in relation to use of different types of teaching methods at rural schools were investigated, it was seen that participants with the highest ratio (65 %) stated that they face difficulties in using the target language, English. When their responses were analyzed in detail, they mostly stated that their students tend to use their mother tongue during English classes. They stressed that students do not understand the content of the lesson when L2 is always used during instruction. It is followed by the scarcity of educational resources with the ratio of 40 %, teaching aids with the ratio of 24 % and teaching space with the ratio of 20 %. These findings are in line with the findings of the research conducted by Sarıçoban (2010) in that it was also found that most of the students are trying to understand their teachers by using their mother tongue. So, over-use of mother tongue and less use of the target language is regarded among the important challenges in rural areas by most of the participants in the study.

The participants were asked what sort of challenges they faced related to technology. The item related with the internet connection (n=18) had the highest ratio. The other challenge that was commonly faced was lack of course materials (n=14). Four of the participants stated that they don't even have a projection device in their classes. Lack of technological equipment (n=3) and outdated technological devices (n=9) were the other challenges faced before Covid-19 Pandemic.

The participants who face challenges related to the technological equipment were requested to express the problems they faced while using them. 36 of the participants responded to this open-ended questionnaire item. When the responses were analyzed, it was found that 50 % (n=18) of the respondents had problems with the internet connection such as low internet or sometimes not being accessible, etc. When the number of the respondents who expressed that they did not have any internet connection in their schools (n=5) is added to the problems with internet connection, the total number of the participants facing these problems went up to 23 and similarly their ratio reached up to 64 %.

Another high ratio in the responses is related to the inadequacy of the technological equipment such as not having enough computers, speakers, projectors, smart boards, etc. The number of the respondents who faced such problems is 14 which means that 40 % of the respondents did not have the adequate technological devices for their teaching. When the number of the respondents who stated to have no computers, smart boards, projectors, etc. in their schools are added to this number, the total number of the teachers suffering from the inadequate technological devices in their schools went up to 23 which means that 64 % of the participants did not have the necessary technological devices to use in their classrooms or in the neighborhood they're working. Expression of one of the participants can be given as an example to reflect the actual picture as follows:

We don't have a technological assistant at school. Students mostly don't have an internet connection at home or they have but they can't use it properly. So reaching the sources

by using the internet is hard for them. Making them use some helping technological applications is nearly impossible. We always have problems with photocopy machines. (Informant 14)

The number of the participants and the types of the challenges faced in relation with the technological equipment vary. These numbers can be considered by the authorities for the provision of these necessary equipment and solutions related to these problems stated by the teachers, who are active practitioners of the curriculum within real classrooms, for the instructional designs to reach their objectives. Additionally, one attention-gathering point that needs to be considered as for challenges while using technological equipment in the classrooms is expressed by one of the teachers sincerely as follows:

I don't have enough knowledge to use technology at school. I'm sure there are lots of benefits of using technology in teaching but l have some deficiency and limited knowledge about it. It would be very useful to inform teachers how to use those devices in class. (Informant 17)

This excerpt proves that some participants needed some assistance to use technology in the class efficiently before Covid-19 Pandemic. Thus, professional development programs need to be provided by curriculum developers, in-service training planners and the professional development planning units within the Ministry of National Education more frequently and not only for the newly started teachers but also for the experienced ones.

Participants were also asked to reply if the school they work at has computer laboratories. When the responses were analyzed, it is seen that among the respondents (n=36) who expressed that there was a computer laboratory in their school (n=16), 12 of them said that they faced different challenges such as insufficient number of the computers for the students to be able to work on, outdated computers, no internet connection to search for information. Therefore, it can be concluded that having a computer laboratory in the rural areas might not be enough for an effective application of technology in teaching English due to the problems (challenges) expressed above.

Their way of solving the technological problems that participants confront in the class was also investigated. In such cases, out of 33 responses 16 participants expressed that technological problems were mostly solved by the administrative staff or IT teachers in schools, or they prefered to use their own GSM internet, laptop, and speakers etc. to solve the problem and keep the class going (n=9).

Challenges Related to Parents and Socio-economic Conditions and Educational Backgrounds

When the teachers were required to state parents-oriented challenges, the responses proved that five teachers (31 %) did not have any problems with parents. Two of the participants stated that they did but they didn't want to explain what the problems were. 25% of them agreed that parents had a low education level and negative attitude

towards education considering that teachers were responsible for the whole education process. One sincere expression of the related challenge from one of the participants is as follows:

Some of the parents simply don't care about their children's educational progress. This attitude makes it hard for us to cope with the problems because students feel that they are not forced or encouraged by their parents to fulfill their responsibilities both at school and at home. (Informant 23)

The participants were also asked to express the challenges stemming from the social and economic conditions of the students, which was replied by 11 participants. Among the responses, two of the most attention gathering facts are the low economic conditions of the students, which makes it difficult for their parents to afford some supplementary materials required to enhance learning. Low economic conditions might also be leading the students and their parents to think that English is an unnecessary subject for them and some unfamiliar topics such as travel, some of the sport activities and the internet related terminology, which can also be linked to their economic and social conditions. Only three respondents stated that they had no problems in teaching certain topics in relation with the social and the economic conditions of their students. One sincere expression about the challenges related to socio-economic conditions of the learners is as follows:

For example, Travel Units are mostly disappointing for the students. The places in the units such as Paris/ New York, are very distant for them. They think they will not even get a chance to visit Istanbul. These topics can be discouraging for them. (Informant 5)

The responses to the question related to challenges faced in teaching some topics in English because of the educational and cultural backgrounds of the students reveal that teachers (N=24) had difficulties creating a positive teaching atmosphere in the class. When the responses were analyzed, it was seen that the following themes emerged: Teaching tenses in English (n=8), negative attitudes towards learning English (n=4), resistance to learn a foreign language and culture (n=6), incorrect pronunciation (n=3), mixed language levels (n=6). It can be concluded that the reasons behind these challenges are mostly related to their students' insufficient educational and cultural background which might also be leading them to grow negative attitudes towards learning English, being closed to learning a new language and its culture and some of the words, topics, and some language structures. One sincere expression related to the learners' educational and cultural background is as follows:

Some students do not understand scientific topics (e.g. Planets, natural forces), tourism (tourist attractions, geography, different cultures), parties and celebrations (different important dates from all around the worlds, different beliefs etc.) clearly. (Informant 29)

Challenges Related to Received Education and Current Teaching Context

The responses (N=42) given to the question related to the gap between the training received and the current educational context showed that the participants are not satisfied with the education they received before becoming language teachers. The results of the data analysis related to this discrepancy gathered around three subcategories as follows: Gaps between the theory and practice (n=9), Scarcity of the teaching equipment (n=8), Profile of the students in relation with their low level of motivation and language (n=7).

One of the most stated gaps among the respondents is related to teaching and learning approaches and the challenge of their applications in real educational context (n=3) due to the lack of practical applications related to methodologies and the technological equipment to be used effectively in actual classrooms during their pre-service training and internship period. These participants mostly stated that they should have received more practice-based education at university, and in their internship as well. In other words, the first most important gap expressed by the respondents is between the theory-based education and their actual applications in their current educational context. Two sincere expressions about the theory-practice discrepancy are as follows:

We were prepared like everything will be perfect in a teaching-learning setting. In fact, class atmosphere is more different than we thought. It is very hard to communicate with students with different language levels and individual differences. Besides, all the paperwork takes so much time, which I haven't imagined before. All in all, in the class for 40 minutes, I can find the way that my students and I walk together but outside of the class is harder for me. (Informant 42)

In my current educational context, I try hard for my teaching to be inductive, but the way we were taught how to teach was not inductive... I have so many questions in my mind about teaching life that it feels as if I have not learned anything about teaching at university. I usually need advice from an experienced teacher or teacher trainer on many issues such as behavior management, students' emotions and their real life problems, interactions with colleagues and admins, etc. It apparently needs real practice and time for me to gain experience as I start to ask questions when I start to teach. (Informant 22)

The second most important challenge about theory-practice discrepancy is related to the scarcity of the teaching equipment. Most of the respondents stated that they have been trained with technologically equipped classrooms and their internship training also included developed technology. However, they suffer from the lack or insufficiency of technical and technological equipment and other educational materials in their actual teaching contexts. One expression about this situation from one of the participant reflects the real picture as follows:

It really differs. Reality is full of challenges. I mean the scarcity of materials and the educational background of the students is a huge setback. Apart from working conditions at school, living in a remote area caused the biggest challenge. Transportation for instance is a huge problem. (Informant 13)

The third most important challenge is related to the profile of the students in relation to their low level of motivation and language. All through the data, one of the mostly expressed challenges is the unmotivated students (n=6). The reasons behind this might depend on different variables such as social and economic conditions of their families, physical facilities of the school, these students' not having further plans to go on their education at high school or university, etc. These in combination might also be affecting their language level and proficiency negatively.

Last but not the least, it seems that classroom management (n=5) can be regarded as an umbrella term which is affected by most of the challenges expressed in the three main gaps such as the lack of the practical training during these participants' pre-service trainings, scarcity of the technical and technological equipment and low level of students' motivation and language. Additionally, their insufficient background education can also be added to the problems related to classroom management challenges such as teachers facing difficulty in using the target language or applying different types of teaching methods and activities they were trained during their faculty years.

The training I received doesn't work for class management in my classes. I try to behave friendly, and sincerely and we all have fun during games or talking about anything but this makes me more tired while I teach my class because the students go on talking and don't listen to me. I still couldn't get the right balance even if I read many books about "how to behave during the class". (Informant 29)

To conclude, the findings of this study in relation with the first research question showed some similarities with the previous studies in literature. For example, the results of this study are parallel with the findings that Yarrow et al. (1999) found in the studies he reviewed which examined the preparation and support of teachers working in rural areas and remote schools that face different challenges in their teaching applications. However, the findings of the study showed that despite the large body of research that has emphasized the need for specialized pre-service teacher education which accommodates the social and professional challenges associated with working in rural and remote areas, the implementation of such programs by teacher training institutions has been sparse or non-existent in some cases.

Challenges Related to Online Education during COVID-19 Pandemic

This part includes the answers to the second research question based on investigation of the challenges of teaching English during the COVID-19 pandemic in rural areas. The analysis of the qualitative data, from the 5 written reports, was conducted with the help of the Directed Content Analysis. Findings were depicted in the table below.

Table 2. Problems and challenges faced during online education during COVID-19 Pandemic

Themes	1st Report (Before COVID-19)	2nd Report (During COVID-19)	3rd Report (During COVID-19)	4th Report (During COVID-19)	5th Report (After COVID-19)
Internet Connection	✓	✓			
Non-attendance		✓	✓		
Active participation of the students	✓	✓	✓		
Inadequate technological devices	✓	✓			
Lack of course materials (Books)	✓	✓			
Lack of additional materials to prepare for The Test for High School Entrance)	✓	✓	✓		
Lack of the desired dictionary usage ratio	✓	✓	✓	✓	✓
Difficulties in using the target language (Low language level of the students)	✓	✓	✓	✓	
Challenges related to testing and assessment	✓	✓	✓	✓	✓

As displayed in Table 2, in all of the focused group discussions, participants mentioned difficulties in using the target language (low language level of the students and lack of speaking and communicative abilities in all meetings (n=5). The findings seemed to be aligned with findings of Mukattash's (1983) study, which also indicated that most of the students have problems in expressing themselves when using English, although nearly four decades have passed. It is clear that teachers' views about the use of language in these focused group discussions are also consistent with the findings of the survey administered to the teachers in rural areas in this study prior to the last four focused group discussions.

The first reports of this study are also in accordance with the results of the previous studies in the literature. In this respect, Mishra (2015) emphasizes that mostly rural areas lack proper and good teaching and learning tools. Therefore, it can be said that learners' exposure to the target language and effective learning and teaching applications might be affected negatively to a great extent by the facilities that their schools provide. Similarly, the results of Directed Content Analysis can be interpreted as the challenges related to the lack of technological devices, inadequate paper, and digital materials, maintaining active participation and motivation of the students still exist in some of the reports analyzed for this study.

One striking result reflected in these reports is that the frequency of the challenges related to the internet connectivity (n=2), lack of technological devices and course materials (n=2) seemed to lessen towards the recent reports. The decrease in the number of the challenges can be explained by different reasons which are reflected both by the participants in the reports of the focused group discussions and the observations of the positive improvements in rural areas to lessen the challenges faced before the pandemic and difficulties related to online education during pandemic.

First of all, parents themselves bought computers or tablets for their children to help them reach online education and complete related homework and they also started to get internet access at their homes.

Second reason is the provision and fixing of technological devices by the related units of the Ministry of National Education in the state schools in rural areas to make online education possible and more effective. Thereby, even the students who still didn't have necessary technological devices in their homes or internet connectivity problems could access the online education.

Third reason is the official requirements and voluntary participation incentives by the teachers of English to provide videos and other possible digital materials in relation with the course content for the learners.

Last but not the least, the necessary and important support to the online education in rural areas came from nation-wide charity organizations and benevolent companies, which distributed tablets, computers, and other necessary technological devices both to the students and to the schools to make the access to the education possible and fair also in rural areas. When we take the struggles of these nation-wide charity companies, parents, teachers and Ministry of National Education and the observations about positive improvements into account, it can be said that the results of the Directed Content Analysis (also) yielded some different and interesting findings from the previous studies in literature emphasizing the positive impacts of COVID-19 in rural areas as presented in the following section of this research.

Positive Effects of Online Education after COVID-19 Pandemic on Teachers

This part of the study answers the third research question about the positive impacts of Online Education during Covid-19 Pandemic in lessening the number of the challenges faced by EFL teachers especially before and partly during compulsory online education and its effect on decreasing the divide between urban and rural schools. Results of the Directed Content Analysis based on the written reports of the focused group discussions were presented below in Table 3.

Table 3. Positive effects of Online Education on teaching English in rural areas

Themes	2nd Meeting	3rd Meeting	4th Meeting	5th Meeting
Continue using EBA Platform and other online learning tools during the normalization period after the COVID-19 pandemic	✓	✓	✓	✓
Directing students into the effective use of digital dictionaries and engaging them in speaking tasks and thereby developing their communicative abilities	✓	✓		✓
Continue using effective online education tools in the face-to-face education	✓	✓	✓	✓
Access to visuals and videos related to course content and digital testing tools to improve language level	✓	✓	✓	✓
Searching information online for their classes and assignments	✓		✓	✓

Based on the findings obtained from focused group discussions three main themes emerged. Participants confirmed that they had some crucial benefits from the online education and the use of technology intensively during COVID-19 pandemic. In the four meetings out of five, they stated in agreement that they would continue using EBA Platform and other online learning tools to assist language teaching and they were able to access visuals and videos related to course content and digital testing tools to improve language level of learners. As depicted in Table 2, teachers are dedicated to using online education tools in face-to-face education, which was also supported with the fifth item in that teachers became more skillful and aware of utilizing digital tools for instructional purposes thanks to online education during the pandemic.

It can be asserted that this study yielded some significant and interesting results when compared to the previous studies. For teachers, to have Technological Pedagogical Content Knowledge (TPACK), a knowledge of teaching content using technology, is necessary for all teachers including those teaching in rural areas (Koehler & Mishra, 2005). In this respect, findings of this study align with Koehler and Mishra (2005) who presented the experiences of teachers related to gaining TPACK. As teachers working all around Turkiye directly started to teach online, some of the participants in this study expressed that they took the advantage of their previous trainings during their faculty education before Covid-19 Pandemic and others expressed to benefit from compulsory online education, emergency remote teaching, during which they found chances to improve themselves in the effective use of technology and digital learning tools which can be related to their TPACK.

Another interesting finding is that one of the 29 participants in the discussion groups mentioned experiencing difficulties in relation with the application of technology in their online classes or in other words TPACK in any of the five reports. They all agreed that some of the online learning platforms were enjoyable and motivating for their students with the activity-based visuals, audios, videos, and games. Moreover, the reports showed that they are willing to continue to make use of the online education tools and applications in their face-to-face classes and out of classroom activities such as homework and self-study tasks at home in the upcoming education years to improve their teaching and students' learning.

The results of this study also showed some similarities with the other studies in literature before and during COVID-19 such as the lack of technological devices, internet connection and students' willingness for learning. For example, in the study conducted by Adnan and Anwar (2020), it is highlighted that online learning could not produce desired results in underdeveloped countries like Pakistan, where a vast majority of students were unable to access the internet due to technical as well as monetary issues. Additionally, their study also reveals that the lack of face-to-face interaction with the instructor, response time and absence of traditional classroom socialization were among some other issues highlighted by higher education students. Therefore, the results of this study related to the period right before the Covid-19 outbreak, which were achieved from the Open-ended Questionnaire in 2020, seemed to support their findings but it differed significantly from their results as it shed lights on the positive improvements in teaching English in rural areas from the aspects of access to internet and provision of the adequate technology necessary for online learning.

The results of this study showed some striking differences from the other current literature. For example, Erarslan (2021) reviewed sixty-nine studies, which were conducted globally, examining English language teaching during the emergency remote teaching process and the results of his study showed that this process brought several challenges such as technological problems like internet connection and access to smartphones or computers and teachers' lack of preparation and "insufficient technological and pedagogical content knowledge" (p. 359) even though it facilitated teachers' development of digital literacy skills. Therefore, the findings of this study showed that the situation in rural areas in Türkiye showed differences from the studies conducted in different countries

CONCLUSION

The present study intended to investigate the problems and challenges faced by English teachers currently (right before, during and right after COVID-19) working at state primary and secondary schools in rural areas of Turkiye. First part of the data analysis (right before COVID-19) revealed that one of the most stated challenges is the unfavorable physical facilities of the schools which lack technological devices, technical equipment, educational materials, and internet connection.

Another important challenge is related to the students' low level of language proficiency, which has been stated to be caused by the lack of exposure to the authentic language and use of the target language. Additionally, it was also found that this might also be leading them to grow negative attitudes towards learning English or regarding learning English as useless.

The other mostly stated challenge is related to the gap between theory-based university education and practice-based teaching. They all wished that their pre-service education at university prepared them for these types of real challenges they face in their current teaching context with more practice-based applications.

Furthermore, during the period right before COVID-19, the participants experienced many classroom management problems such as lack of motivation, negative attitude towards learning English and having no plan for further education have the highest frequencies. One of the reasons for this problem is learners' and parents' perceptions about language learning considering that learning English is not necessary, and it will not have a crucial role in their careers.

This study also attempted to identify the current challenges teachers of English face while implementing the English curriculum effectively in their classrooms including COVID-19 pandemic period and right after that period. In this regard, findings shed some light over the possible benefits of the compulsory online education and positive developments during and after online education in rural areas in Türkiye which is still the gap in literature waiting to be filled.

This study pointed out the positive effects of online education on the challenges faced before and during Covid-19 Pandemic. It is seen in the findings that although some challenges continued to exist, online education had a lot of positive impacts over English teaching in rural areas as stated by teachers of English in the reports of the focused group discussions ranging from taking the advantage of the educationally effective and enjoyable digital learning tools experienced during online education to continuing using online learning platforms such as EBA, and/or taking English learning outside the classroom with the help of the fairly adequate technology. All in all, access to the internet and provision of adequate technological devices have been achieved by all the stakeholders of education ranging from the parents to charity organizations accompanied by the help and struggles of the educational authorities and devoted teachers working in these disadvantageous areas. It would not be a wrong interpretation if the reflections of these movements are referred to as "the positive effect of online education due to Covid-19 Pandemic on decreasing the urban-rural divide" in rural state schools in Turkiye.

To conclude, the results of this study related to the Covid-19 Pandemic showed some similarities with the recent research, which depicts the general challenging picture of teaching in rural areas. However, this study highlighted the positive effects of online education on teaching English in rural areas towards the end of the compulsory online education due to COVID-19 and the period right after COVID-19 from the aspect of its positive impacts in language teaching in rural areas. It emphasized the effect of online education on decreasing the number of the challenges expressed to be faced by EFL teachers working in rural areas before online education.

IMPLICATIONS FOR FURTHER RESEARCH

This study aimed to investigate the types and reasons of the problems faced in teaching English by the teachers of English working at state schools in rural areas in Turkiye. It also aimed to inform the authorities and the program planners about the actual challenges stated by the teachers themselves and consider these challenges while designing the instruction at a nation-wide level for effective teaching and learning.

The data collection processes did not aim to gather data based on the suggestions or possible solutions offered by the teachers in detail. Therefore, following studies can elaborate more on the suggestions and possible practical solutions suggested by the teachers to overcome the problems related to the implementation of the English curriculum. They can also focus on the practice-based training both with the pre-service and in-service English teachers specifically focusing on the real working conditions in the rural areas and possible solutions that can be implemented.

Moreover, action research that combines the English teachers currently working in rural areas with the teacher candidates that might work in rural areas can be conducted to give them a chance to see and experience the real teaching environment in different rural areas. Thereby, some of the possible problems or the already existing problems or challenges in relation with the implementation of the English teaching curriculum might be solved or lessened to some extent. Apart from researchers, authorities and program developers in teacher training programs, the Ministry of National Education might also take the results of this study into account while implementing English Curriculum in rural state schools.

The research instrument included both closed and open-ended questions to be able to collect as much data as possible. However, as the data was collected through google docs and online platforms, elaboration over the results such as conducting focused group discussions was not possible for the Teachers' Questionnaire. Gathering data on the challenges faced in rural state schools was only possible through mobile phone and WhatsApp platform. Therefore, if there were no limitations related to the Coronavirus and health risks, a data collection phase related to the teachers' questionnaire could also be conducted face to face and more detailed interviews and gathering more detailed data could be possible.

Last but not the least, the positive impact of online education in rural areas is still a gap in literature that needs to be filled and examined thoroughly. Therefore, the following

studies might focus on the benefits of Online Education and application of the digital education tools and platforms in relation with their effectiveness in teaching, learning, motivation, and job satisfaction among teachers of English working in rural areas. More research related to the challenging conditions of the rural schools can enlighten not only the pre-service teachers but also the in-service teachers who might also teach in these areas at some point of their teaching career about the real picture of these areas. It might also lead the future researchers and the practitioners of language teaching in these areas into searching for alternative and effective solutions such as distance(online) education applications and effective use of different technological devices and thereby the rural-urban education disparity and imbalanced development in education can be eradicated.

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Instructional Design in the Digital Era: The Case of Turkish Higher Education[1]

Elif Tuğçe GÜLER[2]

Abstract

Today, higher education has grown more digitized than ever before, which has benefited from and quickened the shift to hybrid learning methods. In addition to the attributed responsibility of eliminating the issues brought by the crisis, idealistic roles such as educational reform are attributed to digital transformation, such as finding solutions to deep-rooted academic problems. However, practical repercussions show that digital transformation cannot be treated independently of its interactional dimensions, including the influence of various dependencies and actors. This study explores the dynamics of the two primary transformation processes, namely the digital transformation and the need for reform in the higher education system, with the dynamics of interactional dimensions in Türkiye. The researcher gathered comprehensive insights into the higher education processes to explore both top-down and bottom-up implementations using two independent data sets, which were analyzed via the MAXQDA Plus 2022 software. On the one hand, the researcher utilized document analysis to explore themes in strategic documents concerning the years between 2019 and 2023 published by the Turkish Republic (11th Strategic Development Plan) and Turkish Council of Higher Education (Strategic Plan) to explore the themes on digital transformation. On the other hand, field experts (n=5) were interviewed in-depth to reach their de facto experiences. Moreover, the researcher explored the role of Covid-19, which occurred after strategic plan documents were published to explore the role of the crisis on both transformation processes. The results revealed the importance of Covid-19 in transition processes and the primary function of instructional design. Three major sub-themes within the instructional design theme were identified as "*Digital Transformation*," "*Changing Roles & Responsibilities*" of all stakeholders, and lastly, industry-informed "*Qualifications & Skills*" for the 21st century. Technology is suggested as a component of an educational design, while the instructional design is at the core of all transformation processes. As a result, even though there is comparatively less emphasis on the designing processes than other aspects in strategic plan documents, the digital transformation process in higher education may be considered a sub-component of education reform.

Both data sets clarified the need to reevaluate and modify the assessment and evaluation system that meets the learning outcomes. The most mentioned skills, "green skills" and "digital skills," are found to be related to the theme of "micro-credentials."Overall analysis revealed that to meet the criteria of the 21st century, all stakeholders have specific duties and responsibilities. The urgent need to strengthen local and global university collaboration and partnerships must also be met. This study provides further insight into focus areas such as the digital divide and digital ethics, experimental

1 This study is the product of my thesis in Interdisciplinary Studies at the College of Europe (please see the Acknowledgement section).

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investigation guided by learning science. According to the study's findings, Turkish Higher Education could more easily achieve the desired sustainable enhancement if both quality and the advancement of technology-based infrastructure through instructional design. Moreover, it may be beneficial for researchers and instructors to get further insight into learning science-based action research to improve instructional design implementations.

Keywords: *Instructional Design, digital transformation,skills and responsibilities, learning science, micro-credentials.*

INTRODUCTION

The central administrators set specific goals and publish them in plans periodically for the education systems to reach the desired levels in Türkiye. Similarly, the European Commission annually publishes the Türkiye Report, including the Education and Culture chapter, which recommends that Türkiye make education inclusive and available to everyone (European Commission, 2021). EC also published *Digital Education Action Plan* that aims to provide a clear vision regarding instruction planning through digitization in education (European Commission, 2022). Nevertheless, meeting targets and achieving the desired outcomes in education is more demanding in crisis times. The COVID-19 pandemic has caused many disruptions in the functioning of the education system worldwide for over two years. Besides, its damage brings old systemic education-related problems to the surface even more.

Digitalization has the leading role in educational planning for the future and has emerged with different applications due to sudden need. While the crisis exacerbates ongoing educational issues, emergency remote education (ERE) has been implemented worldwide (Bozkurt and Sharma, 2020: 1-6). Even though education was sometimes interrupted in the ERE process, educators and students were encouraged to keep up with the online implementations (Yavuz et al., 2020: 129-154). However, educators have had difficulties adapting their teaching activities, instructional design processes, and measurement (Green et al., 2020: 906-922). Besides, conducting courses online requires both educators and students to have solid hardware, high-bandwidth internet, various software, and an appropriate environment. Universities frequently admitted students from upper-middle- or high-income nations during the outbreak. Some lower-income countries have stated that they must strengthen infrastructure services to increase the quality of education. Comparatively, high-income nations, such as Europe and North America, are better able to manage this disruption (UNESCO, 2022). Those issues exacerbated the inequality in education, low participation in education, digital gap, lack of qualifications in education, and privacy in education, among the problems (Oktavia et al., 2021).

The European Commission's Curriculum Report strongly emphasizes the need for a new way of thinking and innovative leadership in the new industrial age (European Commission, 2021). New short-term goals and practices have come to the agenda to cope with these setbacks with the perception of "managing" the pandemic process with minor damage. However, the short-term measures were seen as temporary

practices, and all stakeholders experienced various difficulties during the digitization phase (Bond, 2021: 191).

However, the pandemic's effects on education made it harder to deal with long-standing issues and showed the need for transformation in education. Nevertheless, higher levels of digitization in education have hastened and positively impacted the shift (UNESCO, 2022). Indeed, the pandemic has sped the transition to online or hybrid learning/teaching methods (European University Association, 2021). Nearly all the sixty-five nations in the UN Policy Brief acknowledged that pandemics had caused substantial changes in teaching and learning (United Nations, 2020).

Nevertheless, the tendencies of educators following traditional teaching methods in digital environments brought up the problems of participation and quality in education in online teaching and learning. According to the Digital Education Plan, teaching and training should put effort into high-performance inputs to increase the learning content's quality. It is recommended to give importance to in-service personnel training (European University Association, 2021). In addition, stakeholders should be encouraged to improve their skills for 21st-century benefits and to continue their lifelong learning activities. Some of these skills are digital literacy, green and digital skills, digital equipment, disinformation awareness, and artificial intelligence (AI)-based applications (European Commission, 2022).

On the one hand, digital transformation is considered the way of future education by educational ministries and supranational institutes; on the other hand, stakeholders who were exposed to rapid digitalization have had negative experiences in educational outcomes (Bond, 2021: 191-247). Thus, it is recommended to adapt to the transformation by considering the reassessment of design and innovative approaches by learning science-informed practices when it comes to conventional methods. Moreover, top-down policies are shown to infrequently address field staff's expectations and requirements (Valeeva and Kalimullin, 2021). Therefore, creating and monitoring this process with academics and government representatives active in the area is crucial.

Critical policy sociology, more commonly referred to as "policy sociology," has gained popularity as a study tool for educational policy analysts in recent years. Educational policy analysts might have an "inadequate grasp of how education policy is produced inside nations" without a careful evaluation of the impact of these actors on national policy changes (Rawolle and Lingard 2008: 736). Furthermore, several academics have indicated a rising need for a more critical approach to the analysis of educational policy (Gale, 2003; Paley, 2008), who have seen the increased neoliberal impact on educational policy. As a result, in recent decades, analysis of educational policies has increasingly turned to the "policy sociology" tradition. Thus, this study adopts digital critical policy sociology with its Positivist post-Westphalian tradition as a lens for the study. Therefore, this study accepts that different discourses incorporated into policy texts in education are driven by the national context and informed by supranational institutions such as OECD and the EU (Regmi, 2019).

Regarding a more comprehensive framework, Bloom's revised taxonomy was chosen as the basis for this study. The "Bloom's Digital Taxonomy" concept created by Andrew Churches serves as the overarching basis for this study. Bloom's taxonomy is a hierarchical classification system for human learning, cognition, thinking, and comprehending processes (Krathwohl, 2002). The creation of curriculum has traditionally utilized this categorization. Three lower and three higher levels of cognition are emphasized in the original taxonomy when discussing the learning process. Based on the original theory and modification in 2010, "Bloom's Digital Taxonomy," created by Andrew Churches, outlines learning procedures in the digital era by including 21st-century abilities. Once again, it highlights the digitalization which promotes active learning processes by taking into account the inputs and outputs of learning (Churches, 2010). Informed by the lens and framework, this research aims to explore (a) at what level top-down policies find their place in the crisis. (b) How do field experts envision the design of the higher educational process for improving educational outcomes?

METHODS

By considering the crises, the researcher attempted to provide a nuanced picture of the transformation via a diverse range of perspectives in higher education in this qualitative study to reach a holistic composition. It should be noted that this bigger picture is more like a model of several elements interacting than a linear model of cause and effect. As a result, the research's fundamental transformation process was attempted to be managed to accurately depict how it functions in the actual world, given its dynamic and changing character (Creswell and Poth, 2016).

This study aims to understand the dynamics of digital transformation and educational reform processes of higher education in Türkiye. In doing so, the researcher adopted a constructivist methodology to explore how and in which ways strategic plan documents on Turkish Higher Education reflect on digital transformation and educational reform processes and what are the phenomenological understandings of field experts on those processes. The researcher gathered data in a two-step procedure by conducting a document analysis of two strategic policy plans entitled (1) 100th Anniversary Türkiye Plan (11th Strategic Development Plan) and (2) Higher Education Board Strategic Plan published by the Turkish Republic and Higher Education Council covering the period between 2019-2023.

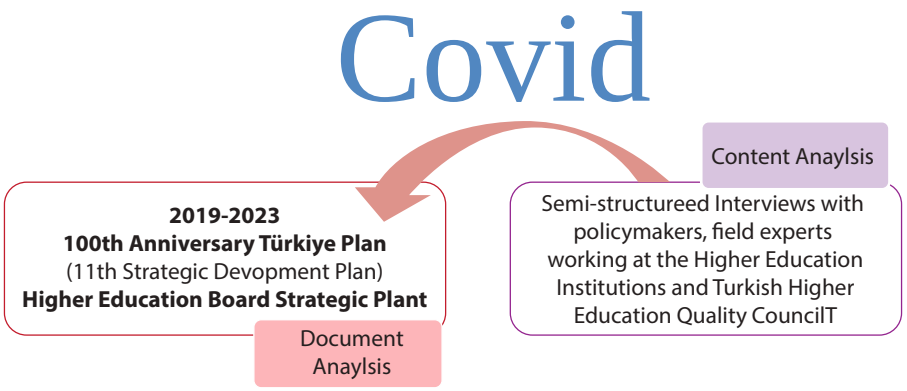


Figure 1. *Process-oriented research data resources*

It should be emphasized that these two strategic strategy documents were released before the pandemic started. Thus, the researcher conducted semi-structured online interviews with field experts (n=5) working at the Higher Education Quality Council and various public/ private universities to further explore the (a) effects of pandemics on digital transformation and education reform and (b) phenomenological understandings on instructional design in higher education. Further, the researcher explores the higher educational themes, such as evolving educational paradigms, the impact of technology in the advancement of higher education, the administrative side of the transition, the accessibility of resources and the utilization of activities, and the responsibilities of stakeholders throughout that phase.

Participants

The researcher purposefully selected participants among the list of field experts whose fields of work are an educational transformation. All participants were invited to the study by e-mail. Interviews were held with the volunteered experts, and the researcher collected data until data reached saturation (Thomberg and Charmaz, 2014). In qualitative research procedures, participant profiles are crucial. Therefore, the participant's demographic data includes their occupations, academic specialties, research interests, and experiences related to the study revealed on the matter of relevance. The researcher used pseudonyms in place of participants' names to protect their identities throughout the study. Without any misgivings or peer pressure, the study was disclosed. The following are the participant profiles.

Table 1. *Participant Profiles*

Participant Codes	Occupation /Position, Gender	Research and Study fields
P1	Assistant Professor Ph.D. & Turkish Higher Education Quality Council's Academic Expert, Male	Economics in Higher Education Quality Assurance and Accreditation, International Quality Assurance Agencies and accreditation Institutions, Higher Education Policies
P2	Head of Departmental Chair / Associate Professor Ph.D. at Computer and Teaching Technologies Education Department, Male	Education, Teaching Design, Critical Thinking, Problem Solving, Informatics Technologies, Teaching Technologies, Applied Statistics, Educational Agents, 3D, and Robotics
P3	Research Assistant and Academic Advisor at Computer and Teaching Technologies Education Department, Female	Teaching Design, Teaching Technologies, Education Technology, Informatics Systems, Digital Citizenship, Creativity and Educational Applications, Web 2.0 Technologies and Educational Applications, Media Literacy, Teacher Education
P4	Teaching Assistant (Ph.D.) at Open and Distance Learning Department, Female	Afar Teaching Design and Management, Remote Teaching Technologies, Material Development, Online Learning, Open, and Afar Learning, Teacher Education
P5	Associate professor Ph.D. at Computer and Teaching Technologies Education Department & Member of Turkish Higher Education Quality Council - Academic Expert, Male	IT And Education Integration, Technology -Learner-Teacher Interaction, Sociocultural Learning Theory, Socio-Cultural Components of Online Learning, IT Ethics, Education Technology & Institutionalization, Teacher Education

Data Collection Tools and Analysis

In the first step of the research, the researcher conducted a document analysis of two strategic documents (11th Strategic Development Plan covering 2019-2023, published by the Republic of Türkiye Strategy and Budget Presidency, and Higher Education Board's 2019-2023 Strategic Plan) considering the educational themes specifically "digital transformation and education reform" in higher education. Initially, the researcher scanned the related sections of those strategic plans to transcribe relevant sections for consecutive document analysis.

Later, the researcher conducted semi-structured online interviews with field experts (n=5) in April 2022 to explore the transformation processes further on evolving educational paradigms, the role of technology in the advancement of higher education, the top-down policies reflection on the field, the accessibility of resources, the teaching/learning performances, and the responsibilities of stakeholders in transition. These interviews took place online via the Zoom platform and lasted, on average, 45 minutes. Instead of making a video call, one participant (P3) requested to complete the question protocol.

In this research, the researcher addressed education reform and digital transformation in higher education by analyzing different qualitative data and using Andrew Churches' holistic "Digital Taxonomy of Bloom's framework. All the data was encrypted in a file and analyzed using content analysis via MAXQDA Plus 2022 qualitative data analysis program right after the interviews. First, the first data set of the research was analyzed, and then the interview protocol was prepared to include the themes obtained from the document analysis. After the content analysis of the semi-structured interview, the study is reviewed by two other independent experts for the overall analysis.

Limitation

Qualitative research is interpretive research, as stated in the list of characteristics. The researcher is often considered an instrument as they engage in a prolonged and extensive encounter with participants (Creswell and Poth, 2016). Nevertheless, the researcher took measures to strengthen the study's scientific foundation. Specifically, the researcher utilizes the peer debriefing process as it pertains to an interpretation of a person other than the researcher and gives an analysis more credibility.

The researcher provided detailed profiles of the participants and testimonials to enhance transferability, rephrased the query when the participants' answers were unclear and ensured the codes related to that analysis section to enhance dependability. The researcher used the critical perspective, especially for reliability through the digital policy sociology paradigm, while analyzing (Williamson, 2021: 354-370).

The researcher utilized data triangulation with many data sources, such as documents and discourses acquired from the Turkish Higher Education Council's (YÖK) official website between March 11, 2020, and May 1, 2022, to increase the relevance of this study (Maxwell, 2002). The study's objective is not to support any group or authority.

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The researcher completed this research in the Advances Master's Program within the College of Europe, under the supervision of Professor Kerry Longhurst, as a scholarship holder (26,000 €) of the Republic of Türkiye.

RESULTS

The researcher used themes, sub-themes, and codes to reach results. The findings demonstrated the significance of Covid-19 in transition processes and the essential function of instructional design. Within the instructional design, "Digital Transformation," "Changing Roles & Responsibilities" of all stakeholders, and lastly, "Qualifications & Skills" for the 21st century informed by industry were selected as three primary sub-themes. The participants' responses show that technology should be included in educational designs, while the instructional design is what drives all transformation processes. Consequently, even though designing processes are stressed less than other components in strategic plan statements, the digital transformation process in higher education may be seen as an aspect of reform. Both data sets made it clear that an assessment and evaluation system that supports learning outcomes needs to be reviewed and modified.

The most often referenced competencies connected to the topic of "micro-credentials" are "green skills" and "digital skill sets." Overall, research showed that each stakeholder has specific responsibilities and duties to reach the demands of the 21st century. In this section, document and content analysis are handled holistically, and the analysis of all data sets is presented under a single roof. The research results suggest that instructional design should be used to change education. The data indicated areas on how and how educational change should be sustainable and were decided to be the sub-themes. "Digital Transformation," "Changing Roles and Responsibilities," and necessary "Qualifications and Skills' ' are these categories, in that order. Below is a detailed list of the sub-themes that fall under these topics (see Figure 3).

According to the results of document analysis, it is seen that the targets bring digitalization to the fore and the design processes are not adequately addressed. Within the scope of digitalization, targets were set for the infrastructure area (including establishing network infrastructure and interactive whiteboards in schools to provide access to technology) and the software area (including the development of the processing of educational data with artificial intelligence). According to the Council's Strategic Plan, in order to improve educational outcomes, the organizational structure and human resources need to be advanced. Yet, again the YÖK 100/2000 project, which has been presented as a solution to this problem, is not related to instructional design in education. Instead, there is a general emphasis on improving the tools, infrastructure, and software countrywide. However, the practitioner's reflections revealed that digitization does not necessarily improve learning outcomes, which should be the main focus. Moreover, all participants endorsed following the European Union's suggestions in the education field to hasten Türkiye 's ongoing integration into the European Education Area.

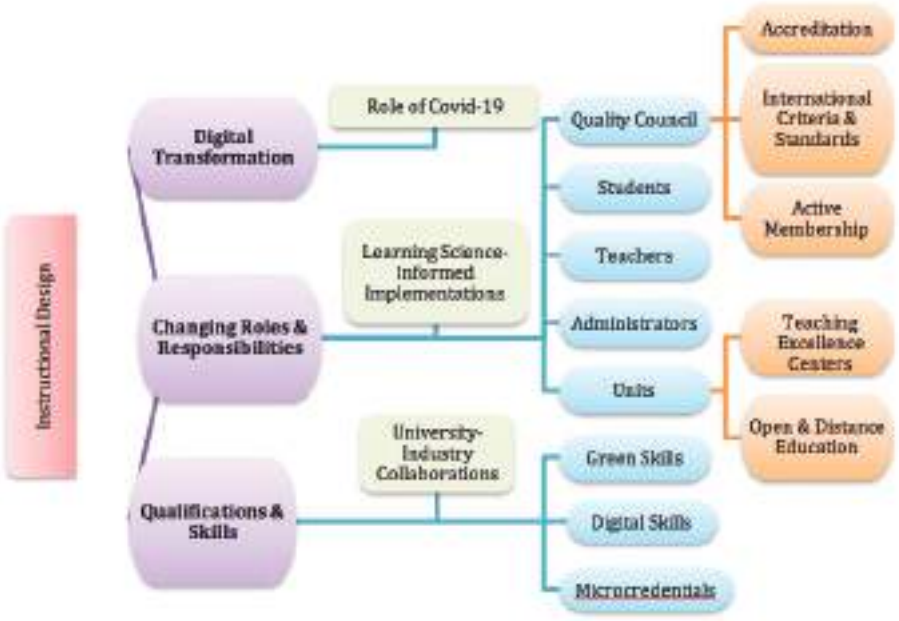


Figure 2. *Themes and sub-themes belonged to the overall results*

The codes assigned to the people (e.g., P1; Participant 1) in the technique section were used to identify the participants' profiles while displaying the participants' statements. P1, P2, P3, P4, and P5 are therefore supplied for participants' names.

A Matter of Design

The research findings were first discussed in the context of the overarching instructional design theme, and then sub-themes covered digital transformation, changing roles and responsibilities, and competence and skill. Participants drew attention to the changes in the roles and responsibilities of stakeholders in response to the changing and differentiating industrial needs in the 21st century. In addition, they emphasized the importance of the supervision of some qualifications and accreditation processes in higher education in both individual and institutional contexts. They underlined that it is essential for all stakeholders to acquire specific skills for these new competencies and emphasized the importance of various collaborations within and around the world for all processes to achieve successful outputs. They drew attention to processes that need to be improved, such as the Bologna system.



Figure 3. *The most frequently used words in data*

Participants stressed the role of educational design in successfully managing the digital transformation process in education. Therefore, digital transformation should be seen as a sub-component of education reform in a holistic context.

> *"The answer to the popular question of how technology can solve our existing problems is fundamentally wrong. Instead, we should be working on a matter of design. We need to accept technology as a philosophy. Instead of searching for easier implementation of existing methods, we should work on our teaching approach where our students are more active with that technology."* (P5)

Similarly, they stated that digitization is insufficient for educational outcomes to reach the desired levels determined in strategic documents. Participants emphasized the need to make the education process student-centered and stated that presenting pluralistic methods to students and bringing participatory models to the fore would benefit educational outcomes. In addition, they stated that it is necessary to work on the dimensions of educational design.

> *"Has this quick digitization helped us or not? How are we going to measure this? Whereas if we had looked at it on a method basis, we would have been able to measure the outcomes right now."* (P5)

Digital Transformation & Pandemics

Türkiye is considered a resilient state that has managed various crises, including economic, humanitarian, refugee, and other security-related crises by participants. According to *P1*, during pandemics, the country could swiftly generate solutions. Some participants stressed that the higher education system in Türkiye followed a successful

roadmap in the digital transformation and educational reform processes (*P1, P2*). Through the establishment of commissioners and coordinators, the transformation process progressed. At the same time, seminars with specialists were held to address any flaws that had been identified. Similarly, research on the improvement and ongoing evaluation of academic outputs have also been gathered in higher education.

Although the quick transition to emergency distance education took the stakeholders off guard, the instructors' ability to adjust quickly and their dedication were highly appreciated. Moreover, Türkiye has managed a crisis during the pandemic with more than two hundred universities with experience and expertise in distance education.

> *"Türkiye is a country with much experience in distance education. For example, Anadolu University's Open Education Faculty currently has the second-largest student body globally and is one of Türkiye 's 3-4 largest institutions with a significant source of income."* (P4)

Thanks to its mentioned assets, it has managed the crisis much more successfully than many countries. However, it could not benefit from all of these assets due to some disruptions.

> *"We had distance education centers and research centers. But these centers were not in a position to fully perform during the transition... we (faculty members) had seriously challenging tasks during the pandemic"* (P2)

Participants underlined that the digital transformation process in higher education has accelerated due to the pandemic. In this process, necessary resources were created, cooperation between universities was developed, and education was tried to progress remotely. Participants mentioned the resistance factors in front of digital transformation, such as lack of resources, difficulties in keeping up with developments and following the standard, psychological resistance, and skill deficiencies shown by stakeholders.

> *"My colleagues were saying "I would never utilize digital in my class", but they are using it on a daily basis now… so we saw adoption of digital tools could be possible when requested and necessary."* (P4)

When asked about the effectiveness and supportiveness of published policy documents, and decisions given during the crisis, participants stated that the challenges brought by the digital methods and the rules taken by the central government that concern all stakeholders have facilitated digitalization yet had drawn backlash.

> *"While designing learning processes, a bottom-up approach should be followed, not top-down. In this sense, I am speaking for general education in Türkiye; all the top-down compulsory policies and practices have caused more confusion each time."* (P4)

> *"In the transformation processes, people should be included in the decision-making process. But we encounter problems when we compulsorily switch all students to online education."* (P2)

In addition, the participants also mentioned the lack of resources and time that exacerbated the processes of starting, maintaining, supervising, and terminating the emergency distance education demanded by the management. The urgent nature of the change with the crisis made it difficult for educators to properly fulfill the open and distance education processes and resulted in the educational quality and outputs emphasized in the strategic documents being below the desired level.

> *"Can we say, theoretically, did our work comply with distance education? It was not. This version was just a process turned around to save the day."* (P2)

> *"Emergency remote education was not distance education. Because the teaching processes here were not designed properly."* (P5)

According to participants, ethical issues also need to be considered in the digitalization process.

> *"In Türkiye, student records have already been kept online for years. So, if a deficit in data privacy is to be mentioned, it has already existed for many years. Records began to enter computers in 97-98; they have always been kept as computer records. In this sense, we should consider cyber threats."* (P4)

Many universities had difficulty keeping up with the rapid transformation, and institutions with unequal distribution of resources had to draw their roadmaps. This situation prevented many students from the same curriculum from receiving equivalent education worldwide.

> *"We have seen that four Asian tigers (Taiwan, Singapore, Hong Kong, and South Korea) as well as Japan, Singapore, and Malaysia, in particular, have made enormous strides… we just passed the 4th Industrial Revolution, but now China, Japan, Korea, and Malaysia are shaping 6G"* (P1)

> *"It would be a great deal if some online applications were accessible to us. But the licenses are pretty expensive per student "* (P2)

> *"Until July, some universities in Türkiye did not teach at all. There is a severe 6-month loss and a lack of control over how the courses were taught. Hard to say, but some measures remained ostensible, unfortunately."* (P4)

Every participant also mentioned the digital divide and its numerous adverse effects. One of the participants claimed that the dean requested him to ensure that all student webcams were turned on throughout his session. The participant invited the dean to his class to demonstrate why many students had trouble turning on their microphones or cameras because of connectivity issues (*P1*). Similarly, participants stated that the educational management was unaware of the workplace issues, which made the educators feel alone. The participants drew attention to the fact that some administrative decisions could not find their counterparts in the field and some aspects that hinder educational functioning.

> *"Students who are just two steps away are having trouble participating in my online class in a crowded dormitory while I am in my office having the same problem. However, none could explain this nonsense to the administration."* (P2)

The participants (*P4, P2*) reported that 40% to 50% of the learners lacked digital devices. There is a difference between those who live in cities and small towns, girls and boys, the wealthy and the poor. There are significant disparities in access to educational opportunities and resources between those who can afford the technology and those who cannot.

Changing Roles and Responsibilities

Experts mentioned the issue of youth unemployment and a lack of qualified candidates for empty positions in companies. To solve these discrepancies determining the changing roles and the responsibilities of stakeholders in higher education informed by 21st-century qualifications are needed. Thus, education needs to be updated by considering "learning-science" supported applications and reconstructing instructional design with a critical and experimental eye.

> *"Even if the student listened to me online, not making eye contact with their peers and the teacher is difficult. I asked 20 students to connect with sound, yet only one was able to connect with sound. It is not known if the others are in the course. Maybe the student attends the class via their mobile phone and puts it in his pocket."* (P2)

While the participants emphasized that the way new generations learn knowledge has changed in meaningful ways, they emphasized that sometimes a long university lecture is less instructive than a YouTube video of fewer than ten minutes. Similarly, they emphasized that students have difficulties focusing on the lesson while teaching it via online platforms, and the outcomes of the lesson are not achieved due to this situation. Therefore, participants were informed that teachers and students have new responsibilities to increase the student's motivation for the lesson.

In addition, considering that regional and national development positively affects investments in education, the responsibilities of all stakeholders are mentioned. According to the participants, some of the responsibilities of the stakeholders in order for the educational outputs to reach the targeted levels in the strategic documents are increasing national and international cooperation between universities, strengthening in-service training on qualitative and contextual issues (for example, online teaching), increasing and adopting the audit activities of independent public institutions. Participants underlined that when the elements mentioned above are compared with some European countries (for example, Romania, Ukraine, and Bulgaria), these elements work well in the higher education system in Türkiye, but they need improvement and encouragement.

> *"YÖKAK (Higher Education Quality Council) is completely independent in determining its methodology, setting standards for its criteria in modifying and developing further. Whereas higher education institutions in Romania are highly dependent on the ministry, institutions, institutions and, of course, the authorities."* (P1)

> "*We need to be critical so that our institutions can do better."* (P5)

In addition, it was emphasized that accreditation processes and International Criteria and Standards are essential in education improvement processes. In addition, the implementation of the Bologna process in Türkiye has been mentioned with some criticisms. Participants pointed out that the fact that universities follow different methods in the implementation process of the Bologna system is not tied to a certain standard and procedures, in this sense, could not carry the desired European integration process to the desired levels. Despite the excellent university-industry cooperation, the decline in research funding, the transfer of control over it to the private sector, and the reduction in state or institutional funding of research paved the way for higher education to become dependent on the private sector and inevitably led to limitations in scientific research in Europe.

> *"The support given in historical studies has almost been removed and considerably decreased in European countries. This, of course, was a process that negatively affected scientific freedom and academic research freedom. It can be said that such a process took place after Bologna."* (P1)

Qualifications & Skills

Participants stated that the higher education system's foundations in Türkiye were shaped due to the industrial revolution. However, industry-university collaborations are progressing at very average levels, and today's education has difficulties raising sufficient human resources for the industry's needs. This issue was similarly mentioned in the strategic planning of the Higher Education Council. According to the Council's Strategic Plan, the organizational structure and human resources must be improved to improve educational outcomes. Once more, the proposed answer to this issue is that the YÖK 100/2000 Ph.D project is not associated with educational instructional design.

> *"Renewable energy companies and digital companies that employ green jobs in the field of sustainable development should guide us researchers."* (P1)

While talking about the skills students should acquire, the participants often emphasized digital skills and the educational responsibility of addressing climate change and drew attention to "green skills." Participants explained that measures to reduce carbon dioxide emissions should not be separated from digital transformation in education and that social awareness should be raised among all stakeholders (*P1*).

> *"We see the effects of the climatic problem right now, not in the distant future, but this issue is quite new in the education community."* (P1)

> *"In 6 months to a year, the Project on digital transformation we had been working on will be outdated. Indeed, it will be especially outdated in software."* (P5)

The participants emphasized that the efforts of the stakeholders should not be forgotten when they consider the impact of the humanitarian crisis's psychological dimensions, which necessitate the sudden transformation of the functioning of the process, as well as the structural and skill deficiencies in online education. One of the attendees highlighted the importance of presence in the proceedings of remote education (*P5*). Social, cognitive, and teaching presence are all essential in this way.

The participant claims that the students are sometimes more capable than the teacher in terms of social presence and need to bring their cognitive presence to the online environment. In this case, the teacher should ensure the student has the idea that "*if I do not participate fully, the teacher cannot successfully process the course*." Cultural presence is another latent presence component that should not be overlooked.

> *"Distance education was not an unsuccessful attempt, but what about resources? The sufficient technological devices and connection need to be combined with competence and motivation."* (P2)

Participants mentioned careful adjustment of micro-credentials into the educational system to needed skill acquisition. Participants addressed the needs of the 21st-century business world within the scope of learning based on modules of micro-competences. This subject is also mentioned in the document published by the Presidency on the modular learning theme. Identifying the needs of the participants and equipping the education system for deficiencies may serve national development in the long run.

> *"In the 21st century, students need to know up-to-date information. However, some knowledge taught now has no equivalent in the business world today."* (P1)

> *"It is not very realistic and consistent for me to gather students and explain something conventionally when there is much more information to be given by Google."* (P5)

It has been said that determining a common strategy for acquiring digital skills and their widespread use will alleviate the workload on the students by the education systems. One of the participants said that the significant differences in the digital skills of the students between the two different classes in which he teaches significantly differentiate the course learning outcomes in these two classes, and then he emphasized that the universities' support of students in skill acquisition can eliminate the skill differences between students (*P2*),

> *"The 4th-grade student has never used his corporate e-mail before; what does that mean? The student has never benefited from places such as libraries or other digital platforms."* (P2)

DISCUSSION

According to research, all transformation processes in higher education revolve around instructional design (Gagne et al., 2005; OECD, 2021). Research findings revealed the difficulty of achieving the desired educational outputs through only one channel and revealed that in addition to the digital transformation processes, the changing roles and responsibilities of stakeholders, skill, and competence areas should also be taken into account for the outputs (Wilms et al., 2017). The concept of online education and how it operates are different from the philosophy used in traditional teaching methods. All participants acknowledged that they were unsure of the viability of digitalization in the conventional approach. The finding supports the literature that if philosophy is adopted that adheres to the classical concept, technology instruments, and equipment in the higher education system may not be promising (OpenupEd, 2022).

Participants emphasized that it is challenging to follow the student's participation process in online education, as they have more control in classroom management with the feedback they receive from the student during the face-to-face education process. In addition, they stated that the difficulties brought by the process adversely affected the teaching process and they preferred face-to-face education. At this point, some participants said it might be helpful to examine whether emergency remote education fulfills the requirements of online education processes and other systemic deficiencies. According to a recent study by Clark and Brennan, there should be coordinated coordination on what is done to establish a shared understanding of the same topic in bilateral relationships and to improve learning outcomes. Participants frequently mentioned the absence of "presence" in the classroom. Some of those assessments might be helpful, including participation concerns and technological tools in e-learning studies (Clark and Brennan, 1991).

Nevertheless, it should be specified that digitalization does not necessarily inhibit interaction; it provides various learning alternatives and ways for all parties. Dr. Schneider, a professor at Harvard University, revealed that social interaction does not depend on parties' physical presence via multimodal data. Results indicated that the notion of staring at the same coordinate point at the exact moment favors the learning processes (Schneider et al., 2017).

Moreover, the social constructivist theory of "joint attention" combines both Piaget's and Vygotsky's ideas on internalizing learning settings and supports the notion that learning starts at a socio-cultural level before cognitive reconstructions (Piaget, 1998). Data regarding the strategic documents on improving the infrastructure for developing learning environments may facilitate instructional design procedures (Gagner et al.,2005). Consequently, using technology to build adequate learning settings in e-learning may improve educational outcomes (Duke et al., 2013).

In this regard, as the results of this study suggested, the data security and privacy aspect are crucial, yet there are not many implementations in this aspect. While this aspect could not find enough ground in the Higher Education Strategic Plan, it is stressed by stating, "relevant measures will be made to guarantee that ethical awareness in public is formed, and ethical practices are strengthened" in the 11th Development Plan. Previously conducted experimental studies that utilized various tools to collect data to enhance the outcomes of education via tools such as Tobii glasses (for eye tracking), leap motion (for hand tracking), Empatica e4 (for physiological data collection), and Kinect Azure (motion tracking). In those research's limitations, the ethical risk of students becoming the data is also mentioned. However, lots of data is already being gathered to improve educational outcomes, including information on how pupils respond to certain stimuli, their feelings throughout processes, a span of attention, and various manipulations to increase their motivation and engagement. In this regard, ethics and human rights committees should oversee the development of research plans. Concepts and strategies of the sociology of digital policy may serve as guidance in this regard. Parallel to literature, it is underlined that changes in ethical practices may be informed by the process's shortcomings (Holmes, 2021). While it is

essential to form committees that oversee human rights and ethical behavior and fund academic research in this area, scientific investigations on this process are welcomed and encouraged (YÖKAK, 2019).

While making policy on training scenarios, it is necessary to focus on the duties and responsibilities of all stakeholders that should be open to change and development (Natow et al., 2022). Results revealed the importance of increasing cooperation between national and international universities while appreciating the level reached in higher education quality supervision and accreditation in this process. As the European Commissioner underlined, a resilient society is formed mainly by forming more vital collaboration amongst educational institutions following the pandemic, regardless of boundaries, cultures, and fields of study. Different European institutions must collaborate, irrespective of their differences, to develop their curriculum and equip students with the knowledge and abilities needed for the green and digital revolution (European Commission, 2022).

The importance of updating measurement and evaluation systems in education has also been emphasized in the digital age. Participants provided examples from performance-based assessment criteria to demonstrate why new measurement techniques should be implemented to assess students' learning levels (Ercan and Nasır, 2021). Therefore, there is a severe need for field experts' field studies that inform top-down policies. Future educational reforms may need to be innovative in assessing instruction and learning outcomes. Moreover, it was stressed that the results of standardized tests should be updated by considering students' prior learning processes and capacities (Sánchez Ruiz et al., 2021). Determining the changing responsibilities of each stakeholder should be based on scientific methods. The supportive and exploratory research can enrich these processes carried out by the teaching excellence centers and the contribution of the open and distance education units within the higher education institutions (Natow et al., 2022).

Another important finding is that the duties and responsibilities of quality councils are auxiliary support channels that function as informative of educational design. YÖKAK, which works independently in Turkey, provided a report on the importance of a quality assurance system, education and training, social contribution, research and development, and management system processes for corporate internal and external audit processes. In this report, it has been revealed that higher education institutions with a robust internal quality assurance system are more successful in managing change and turning crises into opportunities. The areas open to improvement mentioned in the findings of this study are in parallel with the YÖKAK report. When the KIDRs for 2019 were examined, only 60% of the institutions stated that they were relatively successful in their internal evaluations with legislation such as the design and approval of the programs, student admission and development, and learning resources. However, they state that monitoring and improvement mechanisms have not yet been established for student-centered learning and teaching, recognition of prior knowledge, and monitoring and updating of programs (Turkish Higher Education Quality Council, 2021).

Similarly, the cooperation of the units and collaboration for a common aim may benefit graduates to be relevant on international platforms (Wilms et al., 2017). It has been discovered that the participants have various thoughts about the Bologna process. Similarly, the supportive and advancing stance of the strategic documents on this process is noteworthy. Parallel to the results, past studies mentioned both successes and failures of the Bologna process. On the one hand, it is appreciated that the Bologna process provides flexibility to the national higher education institutions. On the other hand, as a shortcoming of flexibility, universities set different goals and engaged in various levels depending on their readiness which delayed reaching a common European viewpoint in the national context (Veiga et al., 2015).

The document analysis and interview data collection outcomes gave different Bologna process information. The Bologna system reflects the arguments in the literature and is confirmed by strategy papers, but participants question it. Although the Bologna system's goals are worthwhile, the process (particularly after the 2020 Rome Declaration) has not emphasized the quality of learning and teaching processes (European University Association, 2021). Thus, as participants recommended having a critical approach while being open to possible memberships and collaborations and taking responsibility for change for advancement, it is essential to adapt and modify the scheme based on its unique nature and socio-cultural and economic dynamics.

The Bologna Process has drawbacks, including administrative disparities, an inability to come to a consensus on values, and restricted mobility. Despite these drawbacks, the European Universities Initiative (EUI) established a project to enhance market integration through the governance architecture framework in Europe. According to the findings of one research, it has been argued that, unlike the Bologna process, many universities from single market member nations joined together to establish hybrid solidarity despite their value differences because of the EUI. Additionally, it has been shown that the European higher education region can facilitate market integration which is the main working area (Pagliarello, 2022).

Similarly, research findings reveal the importance of acquiring qualifications and skills in higher education by industrial needs may both support graduates in their job-hunting processes and may increase their success in career journeys. The research results revealed that the skills are not only limited to digital skills but also organized in a way that reminds students of their social and life responsibilities. Thus, green skills and climate change awareness are essential components that need to be included in study programs (Figuerido et al., 2017).

Similarly, the necessity of dealing with micro-credentials more in higher education processes was mentioned both in strategic plans, and their importance was revealed by the participants. According to the literature, it was emphasized that universities within the scope of micro-skills should support the students and may be influential in strengthening industry-university collaborations that ultimately enhance employment-related issues (European Commission, 2022).

The research revealed two consistent themes: the importance of building an open learning system through micro-credentials and skill acquisition. In a similar vein, Tuomi contends that for people to adapt and participate in society, they should possess technical knowledge and abilities (Tuomi, 2018). Mark Brown, however, highlighted that if some details are overlooked while integrating micro-credentials into the system, it might result in a systemic failure in his paper "A Wolf in Sheep's Clothing." The hazards of forgoing the traditional educational process, particularly when pursuing autonomous, short-term courses financed by for-profit businesses, should be considered in this situation (Brown, 2021). Therefore, as the study's participants stressed, micro-credentials are delivered while taking into account the concerns of educational issues (Serdyukov, 2017).

CONCLUSION

Through interviews, the impact of Covid-19 on the digital transformation process was identified. Since the materials were released before the pandemic, they do not contain information. All participants noted how the Covid-19 process, in some way or another, assisted the digital transformation of education. Overall, higher education institutions in Türkiye are focused on putting forth their best efforts in crises while continuing the development process in the main themes determined in the strategic documents. In this focusing process, the areas that need improvement in the ongoing systemic education became more evident and were revealed as the areas that should be prioritized. Future studies may include technological interventions on possible improvement areas of instructional design by considering digital ethics and gap.

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An Overview of the Distance Education and Research Centers at the Universities in Turkey

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Abstract

Purpose: Although the history of distance education in higher education in Turkey is not very old, many universities have been applying distance learning in their curriculum. The distance education structure, which provides education opportunities independent of place and time and provides access to many people at low costs, has been preferred by learners, universities, and stakeholders in our country and in the world. In the 21st century, universities have already started to convert their traditional face-to-face courses into online courses or supplement them with online opportunities for various reasons. However, staff readiness, confidence, student accessibility, and motivation all play a role in this kind of a technology integrated learning. In this study, activities and services offered by the public universities in Turkey are examined based on the information shared on the websites of the Distance Education and Research Centers and the current situation of these centers is investigated in the context of training which are provided to faculty members and students, research and development activities, and dissemination activities that were carried out by the distance education centers.

Keywords: *Distance education, Distance Education and Research Centers, Higher education.*

INTRODUCTION

Countries affected by the Covid-19 epidemic have transferred their course contents and materials to digital media in order to ensure the continuity of educational activities (Kocoglu & Tekdal, 2020). The process of distance education is a versatile structure consisting of technology infrastructure, distance education platform, faculty members and students, and research and development. The report published by the OECD (2020) revealed that educators and administrators of educational institutions had inadequacies in areas such as distance education, designing online classes, and supporting students during the COVID-19 pandemic. In addition, higher education institutions and their stakeholders all over the world had been one of the groups most affected by the COVID-19 pandemic (Crawford et al., 2020). Thus, in higher education institutions, the distance education research and application centers have

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undertaken many responsibilities to support their own students and faculty members in several areas including training, research, and development. Based on this situation for the purpose of minimizing the impact of the Covid-19 pandemic on education, the Turkish Higher Education Institution managed the implemented education policy changes (Karademir, 2020). In order to comply with this policy, universities informed the distance education instructors and the information policy.

There are many essential benefits of distance education in order to maintain educational activities such as to allow the students to learn at their own learning pace (Bruder, 1989; Chow & Wong, 2005; Hebebci et al., 2020; Seage & Türegün, 2020). Emergency distance education can be used temporarily, but if this situation is made permanent and called a new reality, its rules, theories and techniques should be re-evaluated and adapted to online education (Bakhov et al., 2021). Distance education centers are very important for the establishment of this point of view. To adapt to the new situation, help can be provided to both instructors and students by distance education centers.

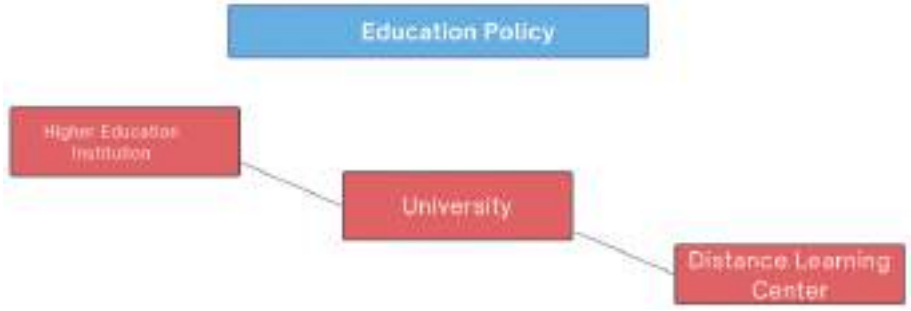


Figure 1. *Implementation of distance education policy in Turkey*

One of the most important priorities of countries with the Coronavirus (Covid-19) pandemic has been to ensure the continuation of education without interruption. In this extraordinary situation, all educational institutions generally tried to use their existing distance education opportunities. As in the whole world, Turkey had to apply distance education in higher education due to the COVID-19 pandemic. In Turkey, there were universities which had distance education and research and application centers. However, with the COVID-19 pandemic, the universities have accelerated the establishment of distance education research centers in order to benefit from the advantages of distance education. Currently, there are more than one hundred and thirty-four distance education research and application centers in universities in Turkey.

The aim of this study is to examine the activities conducted by the distance education centers at the universities during the COVID-19 pandemic. The goal is to investigate the current situation of these centers by analyzing them in the context of training which are provided to faculty members and students, research and development activities, and dissemination activities that were carried out by the distance education centers. In this context, the purpose is to present a realistic picture by evaluating the distance education and research centers at the universities during the COVID-19 pandemic within the aforementioned framework.

METHOD

Content analysis method, one of the qualitative research methods, was used in the study. Descriptive analysis was conducted to determine the current situation of distance education centers. In the examination of the activities carried out by the centers, the information shared on the web page of the relevant distance education center is used.

FINDINGS

Findings from the DEARCs websites categorized under eight main headings: Supportive documents and materials for the learning management system use, online tutorials, frequently asked questions, online support system, seminar/ workshop/ conference, reports, research and development and others in this section.

Table 1. *Frequencies of number of universities by services provided*

Instructor			Student			Online Support System	Seminar/ Workshop/ Conference	Reports	R & D
SUM	Online Tutorials	FAQs	SUM	Online Tutorials	FAQs				
86	33	22	79	18	30	16	23	38	12

SUM: Supportive Documents and Materials

R & D: Research and Development

Supportive Documents and Materials for System Use

One of the areas of activity of DEARC is to provide training, consultancy and technical support services related to the use of the system to the instructors working in distance education programs and the students registered in the program. As each DEARC uses different kinds of systems, it is especially important to provide educational information and tools to facilitate the use of learning management systems. Without having basic information about the LMS, instructors would have difficulty designing and developing their online courses. In this regard, DEARC websites have been analyzed to understand if the centers have relevant information to ensure the operation and management of the learning management system software in which distance education is carried out.

In this regard, 133 universities' DEARC websites were analyzed and the findings are reported in Table 1. Out of 133 universities 86 provided documents and materials, 79 of them specifically for students, about the use of their learning management system in which their own distance education is carried out. The way of delivering educational information about the LMS varies between DEARCs. While some of them deliver it only by educational videos, others use user manuals. In addition, there are DEARCs that use both of these delivery methods. While 86 universities were found to have documents and materials about the use of learning management systems, some of the links to that information were not working. For instance, even though the university had a webpage about the LMS usage on their website, the links were broken or the page was empty.

Online Tutorials

The other area of activity of DEARC is to give online tutorials to increase the use of technology in the courses opened at their own universities and to support their instructors in this regard. In order to support the courses given at the university with technologies based on e-learning, DEARCs provide online tutorials to their faculty members and students. Findings of this study present that out of 133 universities 33 DEARCs have conducted online tutorials for faculty members and 18 of them for students based on the information shared on their websites. The tutorials usually provided academic and technical support to all stages of distance education applications. The aim of having online tutorials is to organize training for instructors participating in distance education activities to use distance education tools effectively and efficiently and provide a knowledge base for students in terms of distance education in general.

While all of these tutorials consist of some kind of educational videos, some DEARCs also have templates for syllabus, presentations, and etc. The online tutorials are generally shared to support faculty members in the design and development of their own courses. For instance, some of the tutorials include the use of recording and video editing programs and introduction of Web 2.0 tools. A few of the DEARC have tutorials about different instructional strategies, such as flipped learning.

Different from the instructors, tutorials for the students were mostly orientation records. Some universities conducted real time orientations to inform students about procedures during the pandemic, while some of them also inform students and raise awareness about distance learning in general. There were also a couple of universities that conducted real time orientations to instructors and shared the video recordings through their websites.

Frequently Asked Questions

Frequently Asked Questions page was considered as important in this study as they enable DEARC to deal with specific queries that their instructors and students have about their system and mechanism. FAQs also represent another way for DEARCs to reach out and connect with their target audience. FAQs also allow DEARCs to answer the questions that are most commonly asked surrounding their product or service. Based on the findings of this study, out of 133 universities 22 DEARCs have a Frequently Asked Questions page for their faculty members and 30 of them for students on their websites. While 2 of the DEARC have a FAQ webpage, the links were broken. For some universities, Frequently Asked Questions page or document include information for both faculty and students, not separated.

Online Support System

Online Support System is an innovative support service created for those who want to get information from DEARCs. It aims to respond and inform students and faculty members effectively. It allows DEARC to present a web portal to their audience to create, track, and respond to support requests. While online support systems seem to be important especially during the COVID-19 pandemic, according to the findings of this study, out of 133 universities only 16 DEARCs have online support systems on their websites targeted for faculty members and students.

Seminar/ Workshop / Conference and Reporting

Other than the materials, documents and online tutorials prepared and conducted within the universities, especially during the pandemic, many universities invited expert researchers and academicians to make presentations, give seminars, conferences, or organized workshops with participation of several educators. These organizations mostly carried out through the video conferencing tools such as Zoom. Findings of this study posit that 23 out of 133 universities organized this type of academic activities. Usually, DEARCs recorded these activities and shared video recordings through their website, while some of them only shared information about these organizations on their 'news' or other pages and did not provide access to the recordings.

Several universities presented statistics about system use during the pandemic. However, usually this data is located in different places on the website. Thus, it is not well organized and easy to reach. Annual or quarterly reports would be more informative and accessible in terms of what is done. Findings of this study reveal that 38 out of 133 universities' DEARCs have shared reports on their websites.

Research and Development

The name DEARC includes both application and research and development in it. Thus, research and development is an essential component in DEARCs' responsibilities. However, according to the findings of this study, only 12 universities provide information and research activities they conduct.

DISCUSSION AND CONCLUSION

In this study, activities of Distance Education Centers (DEARCs) were reviewed, particularly during the pandemic. It was concluded that although some DEARCs were very active in providing supportive materials, and technical support to instructors and students, some of them did not put much effort on these. This study aimed at reviewing only activities made by DEARCs, but it is obvious that some universities carried on the distance education process through other centers or departments instead of a DEARC such as Informatics. Those activities are not included in this study. The review also shows that some universities established a DEARC during the pandemic, and these centers were very active during the process, while some more experienced DEARC could not adapt the process well.

Management support, incentives, and training are a few organizational traits that were found to be important to employees' satisfaction with LMS in the context of distance education (Al-Busaidi & Al-Shihi, 2012). Thus, it is important to support both instructors and students with the documents and materials for LMS use. On the other hand, with the increased use of technology in education, the transition from traditional to modernized instruction places an even greater need on instructors to acquire new skills and undergo rigorous, ongoing training. Therefore, instructors need substantial training in using new technology and modifying their teaching techniques for the distance learning setting (Valentine, 2002). Similarly, it is important to support students with online tutorials that can be useful to their own content (Simpson, 2018).

Another significant factor for effective distance learning is technical support (Street, 2010). To provide technical support several universities employed office phones and e-mail. FAQs were among the ways universities used to provide quick solutions to the most faced technical problems. On the other hand, some universities developed specific software/applications to track the supporting process of DEARC. However, the number of universities' additional support systems such as FAQs and online support systems is not high. Earlier studies claim that deficiencies in providing technical support in distance education are mostly related to shortages in terms of competent and well-educated staff (etc. Durak, 2017)

Reporting is another important activity that should have been conducted by DEARC, especially during the pandemic. It is important not only to record what has been done, but also to be able to consult for improvement for the future. These reports are also important for the Quality Processes that have been given an increasing importance in Turkey. Research is a gate that ensures the fulfillment of universities, their liability to the public and their mission. As a part of a university, DEARCs has a vision to keep up the up-to-date development in academics and technology. Thus, research activities should be given more importance.

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Information Technology Teachers, Evaluation of the Trend and Frequency of Coding Activities in Course, According to Different Parameters

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Abstract

This study was carried out in order to determine which coding applications are used by information technology teachers and how often they opt to use them while arranging the learning environment. The data collected throughout the research was gathered from information technology teachers reached through social media and online settings in 2019. Questionnaires have been applied to 100 randomly chosen teachers within the context of the study group. Statistical tests have been utilized while determining whether the teachers prefer coding as a problem-solving tool and their frequency of the use of coding tools in their lessons. On assessing the teacher qualifications, descriptive statistical methods (average, standard deviation, frequency, t-test as well as parametric and nonparametric tests) have been used. The content validity of the research has been ensured by consulting the experts. The analysis of the data has been compiled on SPSS 23 and the following findings have been obtained.

According to the collected data, 63% of the teachers feel confident about writing an algorithm for a given problem while 62% can come up with logically correct coding and 60% can write correct code blocks for any given problem. On the other hand, it has been found out that the teachers, out of the 10 suggested coding tools, use Small Basic (53%), Scratch (49%), Mblock (49%) and EV3 Lego Mindstorm (49%) on a regular basis. The rate of IT teachers not really using the java-based software, Alice, is indicated as 69% and that of HTML as 50%. The fact that MIT App Inventor application is rarely or occasionally used with a rate of 78% is another outstanding figure. The IT teachers that don't feel the need to use any coding activities in their lessons have answered as 'sometimes' at a rate of 57%.

The sense of self-efficacy and application frequency of IT teachers have been examined, in general, based on certain variables and significant differences have been observed. Regarding the variable of gender, significant differences have been observed in the use of Scratch and EV3. On the other hand, significant differences have been found in the tendencies of coding related to the teachers aged between 21 and 30. A significant difference related to the frequency of using MIT App Inventor application has been observed among the majority of teachers with an experience of 1 to 10 years. While there is a significant difference in utilizing coding activities in writing algorithms

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and problem-solving among teachers working in public schools, the rate of enriching the activities with real life examples and the use of Mblock mostly by teachers with a bachelor's degree is also significantly different.
On the other hand, teachers taking part in in-service training related to their field of study, feel better in this area and significant differences have been observed in many items. These items are as follows; "I write an algorithm for a given problem situation; I create a suitable flowchart for a given problem situation; I write logical code blocks; I code suitably for a given problem situation; I enrich coding activities through examples from real life; I collaborate with my students in order to develop various coding projects; I try to improve the skills of my students by using Mblock platform, which is a tool that helps learning; I try to improve the skills of my students by using EV3 Lego Mindstorm, which is a tool that helps learning; I try to improve the skills of my students by using MIT App Inventor, which is a tool that helps learning; I try to improve the skills of my students by using Alice, which is a tool that helps learning. I try to improve the skills of my students by using HTML, which is a tool that helps learning; I feel the need for a coding tool in my lessons."
Upon examining significant differences, the fact that some programs aren't really preferred stands out.
This situation may indicate that teachers have second thoughts. Therefore, in-service training, peer education, distance education portals may be used to contribute positively to the self-improvement of the teachers in their field. Via distance education, presentations that will inspire the teachers in terms of content and some examples can be shared and the curriculum of the departments at universities can be updated based on the needs. Examples can be introduced through activities organized for teachers, namely, conferences, seminars and symposiums. The content may be enriched with workshops within the context of these activities. The findings of this research will not only be a guide for Information Technology teachers, but also will be a resource in the curriculum of CEIT (Computer Education and Instructional Technology) Department.

Keywords: *Coding, Information Technology Teachers, Coding Activities in Lessons, using Coding Activities.*

INTRODUCTION

When the history of it is examined, it will be seen that coding, which has been quite popular recently at primary, secondary and high school levels, isn't such a new concept. To begin with, the education of computational thinking skills at k12 level provided by Seymour Papert (1980) was admired in those years and the idea was put into practice. "Coding" activities, which have drawn attention, from those years to these years, have been integrated into Information Technology and Software Courses by the Ministry of Education (MEB, 2018). The idea that this skill, argued to be a 21st century skill, will be presented through information technology and software courses has been adopted. Although there are some differences between public and private schools, "Information Technology and Software" lessons, starting as of grade 4 in primary school, are in practice as a compulsory subject in 5th and 6th grades for two hours a week. This lesson, which is an elective lesson in 7th and 8th grade, takes part in curriculum under the name of "Computer Science" in preparatory class and 9th grade in high school as a compulsory subject for four hours a week (MEB, 2019).

According to Omen and Varol, the language of coding, taking fast and confident steps towards becoming a language that today's Z and Alpha generation understand, use and communicate with, is also attached importance by teachers, administrators and parents as well. Integrating coding education into our lives can only be possible when information technology teachers can apply coding activities in the lessons, projects and other activities and feel themselves proficient in this field (Prensky, 2005). Therefore, what guided this study was the hypothesis that Information Technology (IT) teachers' feeling themselves confident in this field is directly proportional to how often they integrate coding activities in their lessons. Information Technology teachers, having graduated from CEIT (Computer Education and Instructional Technology) Department, haven't introduced coding activities at primary, secondary and high school level until 2015(Gundogan, Akay, Uzun, Yolk, Çağıltay, Toyran, 2016). That's why, the adaptation of teachers having graduated from the Computer Education and Instructional Technology Department to this issue is a matter of curiosity. With this study, Information Technology (IT) teachers' adaptation processes to coding activities taking place in Information Technology and Software/ Computer Science lessons at primary, secondary and high school level have been researched.

Statement of Problem

The purpose of this study is to determine information technology teachers' adequacy of using coding activities for problem-solving and coding activities' frequency of use. In short, the topic of the study is to what extent they enrich lessons by using "coding" and "robotic coding" activities and to what degree they use these activities in their lessons. While considering these qualifications, the standards of ISTE, CSTA K–12 and NETS-A have been taken into consideration.

Research questions;

- Based on their gender, is there a significant statistical difference in the perception of self-efficacy regarding how often information technology teachers use coding activities in their lessons?
- Based on the age variable, is there a significant statistical difference in the perception of self-efficacy regarding how often information technology teachers use coding activities in their lessons?
- Based on the variable of professional experience, is there a significant statistical difference in the perception of self-efficacy regarding how often information technology teachers use coding activities in their lessons?
- Based on their education status (bachelor's degree, master's degree), is there a significant statistical difference in the perception of self-efficacy regarding how often information technology teachers use coding activities in their lessons?
- Based on their institution (public or private), is there a significant statistical difference in the perception of self-efficacy regarding how often information technology teachers use coding activities in their lessons?
- Based on whether information technology teachers have attended a coding course or not, is there a significant statistical difference in the perception of self-efficacy regarding how often information technology teachers use coding activities in their lessons?

The Importance of the Study

The learner profile required in this century is an individual that can think critically, question, create and come up with innovative ideas (Canbulat,Yüce, 2016). It is essential that individuals should be able to think in depth regarding the circumstances that are put forward and develop critical thinking skills by adopting a different perspective (Jones, 2013). It is necessary that students participate in the lessons under the guidance of the teacher in classroom environments, be able to link the knowledge they gain to previously learned one, prioritizing higher order thinking skills and include learned information into the process (Copley, Ziviani, 2004). According to Dewey, learning environments should be ones where students can express their dreams and ideas without any hesitation whereas Piaget defines this situation as a process which is made up of mental stages such as perception, thinking, choosing, forming relations and making decisions, all of which are shaped by critical thinking (Wu, Lee, 2004).

Based on all these ideas, it has been argued that new generation learning environments should be designed as problem-based and collaborative environments in which knowledge and skills could easily be acquired and students can actively come up with ideas (Noor-Ul-Amin, 2013). These learning environments should be regarded as platforms in which technology is in the foreground, learners can advance at their individual pace through self-management and they can express themselves in an interactive way (Kester, Kirschner, Corbalan, 2007).

Within the context of 21 st century skills, crucial points have been emphasized such as the fact that the new generation should be producers rather than consumers and they should be technologically literate (Grout, Houlden, 2014). Coding activities in information technologies and software lessons play a key role in students' internalizing 21st century skills, becoming producers and an effective technologically literate individual (Gander, 2013). According to the research, coding activities can be claimed to improve the computational thinking skills, algorithmic thinking skills and problem-solving skills (Wachenchauzer, 2004).Besides, it is also observed that coding activities have a positive impact on students' academic success, diversify their ways of thinking and improve their attitude towards programming and computers (Calder, 2010; Goldenson, 1996; Kaucic, Asic, 2011). Moreover, again according to the research, combining activities of different disciplines with coding practices, that is to say, studying in an interdisciplinary way boosts the active participation in and out of the class (Çetin, 2012; Özdinç, Altun, 2014).

Within the context of these activities, there is a wide range of coding platforms that IT teachers can use such as www.code.org, https://blockly-games.appspot.com, www.codecademy.com, codeavengers, gameblox.org/editor, thimble.mozilla, codecombat, playcodemonkey, tynker, www.crunchzilla.com/code-monster, lightbot, www.techrocket,codehs,www.codewars,tekkieuni.com/courses,teachingkidsprogramming.org/courses/, appinventor.mit.edu, appinventor, khanacademy.org/computing/computer-programming, www.codeavengers, scratch.mit, pluralsight.com/kids-courses, csedweek.org/learn, Minecraft Education Edition, Alice, Kodu Game Lab, Scratch, Mblock, Python, Small Basic, Idea (O-Bot), Tiny Basic. However, day after day, a new coding platform comes to the fore (Demirer, Nurcan, 2015). The majority of

these platforms teach through a block-based visual programming. The main purpose of the ready code blocks used in visual programming is to support younger students so that they won't have any difficulties with remembering the code sequence or the rules in text coding (Yecan, Özçınar, Tanyeri, 2017). Code writers, programmers are supposed to know the forms and rules regarding the language of the text-based programming they work on, in short, the syntax. We come across several possible mistakes in block-based programming such as forgetting to put semicolon, curly brackets or closing parenthesis. Thanks to visual programming, students can spend more time on the logic of the project rather than trying to remember the rules of coding (Resnick, 2005). In this sense, they may be the most appropriate coding training materials for the age group.

To sum up, through this study, information has been gathered on the information technology teachers' adaptation processes regarding the frequency of the use of coding activities in information technology and software lessons in order to create student-centered learning environments in which students learn by doing, which is one of the main principles of structuralist approach according to the 21 st century skills. The main idea of this study is the perspective of the IT(Information Technology) teachers who have currently popular "coding", "robotic coding" and "visual coding" activities in their lessons, how they perceive the topic, their current level of knowledge and how often they resort to these activities.

THEORY FRAMEWORK

Special Field Competencies of Information and Communication Technology (ICT) Teachers

The teachers who meet ISTE standards ("ISTE Releases New Standards for Educators to Maximize Learning for All Students Using Technology," 2017) are the ones that use technology effectively in their lessons, lead their students to use technology, are capable of choosing the tools to use in the class purposefully and collaborate with the other teachers in their department or school based on technology. Along with ISTE standards, MEB, the Ministry of Education in Turkey, has carried out studies in this area and dealt with technology in the context of teacher competencies. Below is the summary of special field competencies of information technology teachers (MEB, 2017);

- S/he uses application software designed for specific purposes.
- S/he is aware of the impact of new technologies on society and adapts to these technologies.
- S/he prepares web-supported instructional materials by using various coding systems effectively.
- S/he enriches learning activities by using improved programs particularly designed to prepare animation, graphics, web design and instructional software.
- S/he determines and uses special technological applications and resources that boost the learning level of the learners, take individual needs into consideration and present their differences.
- S/he designs a learning environment by using suitable technologies.

- S/he designs and develops instructional software that is consistent with the program and learning content and appropriate for the level and learning styles of the students.

MEB standards emphasize the fact that the knowledge of the field must be sufficient and at the same time they should be able to keep up with the current innovations with rich content. Based on the items above, it can be concluded that IT teachers should both try to keep up with the rapid pace of technological progress and integrate these innovations into the curriculum.

In addition to the MEB standards, ISTE, NETS-A VE CSTA K12 CS standards are given below (Baumann, 2016) .

National Educational Technology Standards and Performance Indicators Developed by ISTE for ICT Teachers

1. Making the learning process easier for the students and encouraging their creativity
2. Designing and developing learning processes and assessment activities in line with the information (digital) age
3. Serving as a model in study and learning in information (digital) age
4. Encouraging individuals in terms of the responsibilities they should have as a member of the information (digital) age and serving as a model for them.
5. Taking part in professional development and leadership activities (Greene, 2019).

Table 1. *Performance Indicators*

Explanation	ISTE-CSE	CSTA K–12	NETS*T
Competencies of using information technology	• Knowledge of the field • Effective teaching and learning strategies • Effective learning environments • Effective professional knowledge and skills	• Computer systems • Networks and the Internet • Data and analysis • Algorithms and Programming • Impacts of informatics	• Knowledge of Technological Operations and Concepts • Designing and developing learning processes and assessment activities in line with the digital age • Teaching, learning and curriculum • Efficiency and professional practices • Social, Ethical, Legal and Humanistic Issues

METHOD

Research Design

In this study, a descriptive research model has been used in order to determine how much the coding activities, which have recently become a part of the curriculum both in our country and the world, are applied by IT teachers in our country. So as to determine and evaluate the frequency of the use of coding activities by information technology teachers "Frequency Questionnaire regarding the Use of Coding Activities by Information Technology Teachers" that has been devised to find out the opinions of the teachers taking part in this research. As a result of the preliminary investigation, programs like Scratch, Kodu Game Lab, and Small Basic, which are commonly used in coding activities at schools and are mentioned in coursebooks, have been selected as the main programs.

Participants

The scope of the research includes the IT teachers working in public (MEB) and private educational institutions. Within the context of the research, the teachers to represent the population have been chosen as appropriate for the facilities of the researcher. Convenience sampling method establishes the proximodistal relationship during the process of data collection (Büyüköztürk, Kılıç Çakmak, Akgün, Karadeniz, Demirel, 2008). IT teachers have been contacted via online platforms (Whatsapp, Facebook, Twitter, emails etc.). By this way, 100 primary, secondary and high school IT teachers have been contacted throughout the country.

Data Collection

The method of data collection is as follows: 5-point Likert scale questionnaire which includes 17 items in total. While preparing the questions, previous studies have been predicated on (Kalelioğlu ve Gülbahar, 2014; Yükseltürk ve Altıok, 2016). In the first part, demographic information (gender, age, professional experience, graduation status, institution, whether the teacher has participated in a coding course) has been stated. In the second part, knowledge and skills related to basic coding activities (algorithms, flow charts and problem solving) are questioned and in the third part there are questions of frequency; Never (1) Rarely(2), Sometimes(3), Often(4), Always(5). Overall, there are three parts.

Data Analysis

The research has been carried out based on the variables of gender, age, professional experience, graduation status, whether having participated in a coding course or not, institution and data has been recorded in the SPSS program. According to the input of these variables, the frequency of the use of coding activities by information technology teachers has been analyzed through descriptive statistics. Within this context, firstly, a literature review has been carried out. Then, scientific research on similar topics have been examined and a body of literature has been utilized. In the research, the frequency of the use of coding activities by information technology teachers have

been compared based on different parameters like gender, age range, graduation status, working in public or private sector, whether having participated in a coding course or not. All the data have been recorded in the SPSS program, working via t-test, parametric, nonparametric tests and 0.05 has been taken as the significance level while interpreting the findings.

Reliability and Validity

The researcher has consulted to the experts, received approval about the questionnaire for the sake of validity and reliability. The self-efficacy questionnaire regarding the coding activities of information technology teachers has been devised by the researcher. Literature has been reviewed in relation to the questionnaire and previous studies have been examined. The prepared questionnaire has been examined by an assessment and evaluation expert, academicians specialized in this field and information technology teachers and the scale has been finalized. Based on the comments and the pilot scheme a few items have been removed and some have been edited.

FINDINGS

The purpose of this research is to examine how often information technology teachers use coding activities in their lessons based on different variables.

Descriptive Statistics of Sampling Group

In this table, it is indicated that the majority of the information technology teachers taking part in this research is male and teachers who hold a bachelor's degree. Besides, the majority is at the age range of 36-45 and have 11-20 years of experience in the profession (Table-1).

Table 1. *Demographic information of the sample group*

Variables	Values	Frequency	Percentage
Defining statistics in terms of the variable of gender	Female	44	44
	Male	55	55
Defining statistics in terms of the variable of education status	Graduate	77	77
	Postgraduate	22	22
Defining statistics in terms of the variable of age range	25-35	17	17
	36-45	46	46
	46-55	26	26
	56-65	10	10
Defining statistics in terms of the variable of institution	Private Sector	55	55
	Public Sector	44	44
Defining statistics in terms of the variable of professional experience	10 years	32	32
	11-20 years	49	49
	21-30 years	14	14
	31-40 years	5	5
Defining statistics in terms of the variable of whether having participated in a coding course or not	Yes	86	86
	No	13	13

According to this, 44% of the people taking part in this research are female and 55% is male. As can be seen in the table, the rate of female teachers is lower than that of male teachers. 77% of the people taking part in this research are teachers who hold a bachelor's degree whereas 22% hold a master's degree. 17% is at the age range of 25 – 35, 46% is 36 – 45, 26% is 46 – 55, 10% is at the age range of 56 – 65. 55% of the people taking part in this research work in private schools whereas 44% work in state schools. 32% have 10 years, 49% have 11 – 20 years, 14% have 31 – 40 years and 5% have 31 – 40 years of professional experience. Moreover, 86% of the information technology teachers taking part in this research have answered "Yes" to the question of whether they have participated in a coding course or not, 13% have answered "No".

Coding Skills Findings by Information and Communication Technology (ICT) Teachers in Learning Activities

There are 6 questions regarding coding skills. This part includes skills of algorithms, flow charts, being able to write logical code blocks for any given problem situation, relating these activities to real life and involving the students in the processes through different projects. In the second part, there are questions regarding the frequency of the use of current tools that can be used.

Table 2. *Coding trend of participants*

Variables	Total		
Part 1	**X**	**SS**	**N**
I write an algorithm for a given problem situation	4.65	0.84	99
I create a suitable flowchart for a given problem situation	4.36	0.85	99
I write logical code blocks	4.66	0.80	99
I code suitably for a given problem situation.	4.63	0.84	99
I enrich coding activities through examples from real life.	4.32	0.92	99
I collaborate with my students in order to develop different coding projects.	4.32	0.91	99
Part 2			
I try to improve the skills of my students by using the program, Scratch, which is a tool that helps learning.	2.66	1.12	99
I try to improve the skills of my students by using the program, Small Basic, which is a tool that helps learning.	2.63	1.19	99
I try to improve the skills of my students by using the program, Python, which is a tool that helps learning.	3.28	1.50	99
I try to improve the skills of my students by using the program, Arduino, which is a tool that helps learning.	2.69	1.19	99
I try to improve the skills of my students by using the program, Mblock, which is a tool that helps learning.	2.74	1.29	99
I try to improve the skills of my students by using the program, Raspberry Pi, which is a tool that helps learning.	2.74	1.66	99
I try to improve the skills of my students by using the program, EV3 Lego Mindstorm Pi, which is a tool that helps learning.	2.89	1.52	99
I try to improve the skills of my students by using the program, MIT App Inventor, which is a tool that helps learning.	4.45	1.04	99
I try to improve the skills of my students by using the program, Alice, which is a tool that helps learning.	3.56	0.93	99
I try to improve the skills of my students by using the program, HTML, which is a tool that helps learning.	3.9	0.95	99
I feel the need of a coding tool in my lessons.	3.41	1.18	99

The first part aims at finding out the level of the coding trends of the participants whereas the second part is about the frequency of the use of current coding tools in lessons. In the second part, 11 coding tools have been presented. These tools have been listed by being inspired from MEB and the other resource books. According to the results, it can be stated that the majority of the teachers use the programs (49%) Scratch, (53%) Small Basic, (49%) Mblock, (45%) Raspberry Pie, (48%) EV3. In addition to these, it can be noticed that the number of the teachers using the programs (69%) Alice and (50%) HTML is quite low. Overall, the average points the participants have scored in the questionnaire and the standard deviation values regarding the averages have been calculated. The findings are illustrated in Table 2 above.

Coding Efficiencies of Information and Communication Technology Teachers in Terms of Gender Variable

Data gathered related to the question "Is there a statically significant difference in how often information technology teachers use coding activities in their lessons and their perception of self-efficacy based on their gender?" is as follows:

Table 3. *Coding trend differentiation by gender*

Variables	Gender	N	Rank average	Total of averages	Mann-Whitney U	Z	p
I write a suitable algorithm for a given problem situation.	Female	44	51.36	2260	1150	-0.593	0.553
	Male	55	48.91	2690			
	Total	99					
I create a suitable flow chart for a given problem situation.	Female	44	48.06	2114.5	1124.5	-0.671	0.502
	Male	55	51.55	2835.5			
	Total	99					
I write logical code blocks.	Female	44	51.55	2268	1142	-0.671	0.502
	Male	55	48.76	2682			
	Total	99					
I code suitably for a given problem situation.	Female	44	51.02	2245	1165	-0.436	0.663
	Male	55	49.18	2705			
	Total	99					
I enrich coding activities through examples from real life.	Female	44	49.83	2192.5	1202.5	-0.059	0.953
	Male	55	50.14	2757.5			
	Total	99					
I collaborate with my students in order to develop different coding projects.	Female	44	50.07	2203	1207	-0.023	0.981
	Male	55	49.95	2747			
	Total	99					
I try to improve the skills of my students by using the program, Scratch, which is a tool that helps learning.	Female	44	60.58	2665.5	744.5	-3.474	0.001**
	Male	55	41.54	2284.5			
	Total	99					
I try to improve the skills of my students by using the program, Small Basic, which is a tool that helps learning.	Female	44	49.58	2181.5	1191.5	-0.137	0.891
	Male	55	50.34	2768.5			
	Total	99					
I try to improve the skills of my students by using the program, Python, which is a tool that helps learning.	Female	44	53.98	2375	1035	-1.271	0.204
	Male	55	46.82	2575			
	Total	99					

I try to improve the skills of my students by using the program, Arduino, which is a tool that helps learning.	Female	44	53.66	2361	1049	-1.173	0.241
	Male	55	47.07	2589			
	Total	99					
I try to improve the skills of my students by using the program, Mblock, which is a tool that helps learning.	Female	44	52.91	2328	1082	-0.949	0.343
	Male	55	47.67	2622			
	Total	99					
I try to improve the skills of my students by using the program, Raspberry Pi, which is a tool that helps learning.	Female	44	49.77	2190	1200	-0.075	0.94
	Male	55	50.18	2760			
	Total	99					
I try to improve the skills of my students by using the program, EV3 Lego Mindstorm, which is a tool that helps learning.	Female	44	57.7	2539	871	-2.471	0.013*
	Male	55	43.84	2411			
	Total	99					
I try to improve the skills of my students by using the program, MIT App Inventor, which is a tool that helps learning.	Female	44	51.63	2271.5	1138.5	-0.622	0.534
	Male	55	48.7	2678.5			
	Total	99					
I try to improve the skills of my students by using the program, Alice, which is a tool that helps learning.	Female	44	47.75	2101	1111	-0.741	0.458
	Male	55	51.8	2849			
	Total	99					
I try to improve the skills of my students by using the program, HTML, which is a tool that helps learning.	Female	44	53.53	2355.5	1054.5	-1.151	0.25
	Male	55	47.17	2594.5			
	Total	99					
I feel the need for a coding tool in my lessons.	Female	44	52.07	2291	1119	-0.673	0.501
	Male	55	48.35	2659			
	Total	99					

The second question tried to be answered in the research is whether the coding trend of the participants differs based on the gender or not. According to the result of the statistical analysis (2 genders x17 coding trends)carried out in order to answer this question, it has been observed that the coding trend of the participants differs at a certain extent based on the gender. In order to examine whether the level of the coding trend differentiation by gender is statistically significant or not, as the questionnaire item distribution wasn't at the normality level, Mann Whitney U, one of the nonparametric tests, was carried out. The related findings are presented in Table 3

above. According to the results of Mann-Whitney U test, between the coding trends of male and female participants, there are statistically significant differences in the variable "I try to improve the skills of my students by using the program, Scratch, which is a tool that helps learning." as (U= 744,50, p=,01, z=-3,47) and in the variable "I try to improve the skills of my students by using the program, EV3 Lego Mindstorm, which is a tool that helps learning." as (U=871, p=,05, z=-2,47). On the other hand, it can be stated that the coding trends of male and female participants are generally similar in the other variables.

Coding Efficiencies of Information and Communication Technology Teachers in Terms of Age Variable

The second question tried to be answered in the research is whether the coding trend of the participants differs based on the age or not. According to the result of the statistical analysis (3 age ranges x17 coding trends) carried out in order to answer this question, it has been observed that the coding trend of the participants differs to a certain extent based on age. In order to examine whether the level of the coding trend differentiation by age is statistically significant or not, as the questionnaire item distribution wasn't at the normality level, Kruskal Wallis, one of the nonparametric tests, was carried out. The related findings are presented in Table 4 below.

Table 4. *Coding trend differentiation by age*

Variables	Age Range	N	Average	Kruskal-Wallis H	df	p
I write a suitable algorithm for a given problem situation.	21-30	17	37	10.055	2	0.007**
	31-40	72	53.82			
	41-50	10	44.6			
	Total	99				
I create a suitable flow chart for a given problem situation.	21-30	17	34.32	9.026	2	0.011*
	31-40	72	54.52			
	41-50	10	44.1			
	Total	99				
I write logical code blocks.	21-30	17	37.24	12.915	2	0.002**
	31-40	72	54.52			
	41-50	10	39.15			
	Total	99				
I code suitably for a given problem situation.	21-30	17	35.06	12.586	2	0.002**
	31-40	72	54.33			
	41-50	10	44.25			
	Total	99				

I enrich coding activities through examples from real life.	21-30	17	35.62	7.544	2	0.023*
	31-40	72	54.14			
	41-50	10	44.65			
	Total	99				
I collaborate with my students in order to develop different coding projects.	21-30	17	39.47	4.46	2	0.108
	31-40	72	53.28			
	41-50	10	44.3			
	Total	99				
I try to improve the skills of my students by using the program, Scratch, which is a tool that helps learning.	21-30	17	48.26	4.108	2	0.128
	31-40	72	52.6			
	41-50	10	34.25			
	Total	99				
I try to improve the skills of my students by using the program, small basic, which is a tool that helps learning.	21-30	17	56.62	1.747	2	0.418
	31-40	72	49.45			
	41-50	10	42.7			
	Total	99				
I try to improve the skills of my students by using the program, Python, which is a tool that helps learning.	21-30	17	54.94	0.647	2	0.724
	31-40	72	48.95			
	41-50	10	49.15			
	Total	99				
I try to improve the skills of my students by using the program, Arduino, which is a tool that helps learning.	21-30	17	50.15	0.837	2	0.658
	31-40	72	51.01			
	41-50	10	42.45			
	Total	99				
I try to improve the skills of my students by using the program, Mblock, which is a tool that helps learning.	21-30	17	52.53	0.225	2	0.894
	31-40	72	49.23			
	41-50	10	51.25			
	Total	99				
I try to improve the skills of my students by using the program, Raspberry Pi, which is a tool that helps learning.	21-30	17	51.41	4.246	2	0.12
	31-40	72	47.43			
	41-50	10	66.1			
	Total	99				
I try to improve the skills of my students by using the program, EV3 Lego Mindstorm, which is a tool that helps learning.	21-30	17	47.06	6.483	2	0.039*
	31-40	72	53.47			
	41-50	10	30.05			
	Total	99				

I try to improve the skills of my students by using the program, MIT App Inventor, which is a tool that helps learning.	21-30	17	37.32	7.168	2	0.028*
	31-40	72	53.61			
	41-50	10	45.55			
	Total	99				
I try to improve the skills of my students by using the program, Alice, which is a tool that helps learning.	21-30	17	46.88	0.343	2	0.843
	31-40	72	50.35			
	41-50	10	52.75			
	Total	99				
I try to improve the skills of my students by using the program, HTML, which is a tool that helps learning.	21-30	17	51.24	2.384	2	0.304
	31-40	72	51.47			
	41-50	10	37.35			
	Total	99				
I feel the need for a coding tool in my lessons.	21-30	17	48.41	0.084	2	0.959
	31-40	72	50.47			
	41-50	10	49.35			
	Total	99				

Upon examining Table 4, when points the participants have scored in the item related to their age are compared, the results are as follows; in the variable *"I write a suitable algorithm for a given problem situation"* as (H=10,055, SD=2, p=,05); in the variable *"I create a suitable flow chart for a given problem situation"* as (H=9.026, SD=2, p=,0.011); in the variable *"I write logical code blocks"* as (H=12.915, SD=2, p=,0.002); in the variable *"I code suitably for a given problem situation"* as (H=112.586, SD=2, p=,0.002); *"I enrich coding activities through examples from real life"* as (H=7.544, SD=2, p=,0.023); in the variable*"I try to improve the skills of my students by using the program, EV3 Lego Mindstorm, which is a tool that helps learning"* as (H=16.483, SD=2, p=0.039); *"I try to improve the skills of my students by using the program, MIT App Inventor, which is a tool that helps learning"* as (H=7.168, SD=2, p=0.028). As a result, it has been observed that coding trend of the participants differs at a statistically significant level by age. When it is examined the difference between which groups is the source of this differentiation, the difference observed in the variable *"I write a suitable algorithm for a given problem situation"* is in favour of the age range 41-50.

Professional Experience

The fourth question tried to be answered in the research is whether the coding trend of the participants differs based on the professional experience or not. According to the result of the statistical analysis (3 levels of length of service x17 coding trends) carried out in order to answer this question, it has been observed that the coding trend of the participants differs to a certain extent based on professional experience. In order to examine whether the level of the coding trend differentiation by professional experience is statistically significant or not, as the questionnaire item distribution wasn't at the normality level, Kruskal Wallis, one of the nonparametric tests, was carried out. The related findings are presented in Table 5 below.

Table 5. *Coding Tendency Differentiation According to Professional Experience*

Variables	Length of service	N	Mean	Kruskal-Wallis H	df	p
I write a suitable algorithm for a given problem situation.	1-10 years	39	47.63	1.727	2	0.422
	11-20 years	57	52.11			
	21 years and over	3	40.83			
	Total	99				
I create a suitable flow chart for a given problem situation.	1-10 years	39	45.99	3.089	2	0.213
	11-20 years	57	53.55			
	21 years and over	3	34.67			
	Total	99				
I write logical code blocks.	1-10 years	39	47.72	1.652	2	0.438
	11-20 years	57	52.04			
	21 years and over	3	40.83			
	Total	99				
I code suitably for a given problem situation.	1-10 years	39	47.99	1.346	2	0.51
	11-20 years	57	51.84			
	21 years and over	3	41.17			
	Total	99				
I enrich coding activities through examples from real life.	1-10 years	39	46.72	2.454	2	0.293
	11-20 years	57	53.04			
	21 years and over	3	34.83			
	Total	99				
I collaborate with my students in order to develop different coding projects.	1-10 years	39	48.04	0.385	2	0.825
	11-20 years	57	51.37			
	21 years and over	3	49.5			
	Total	99				
I try to improve the skills of my students by using the program, Scratch, which is a tool that helps learning.	1-10 years	39	51.56	1.158	2	0.56
	11-20 years	57	49.76			
	21 years and over	3	34.17			
	Total	99				
I try to improve the skills of my students by using the program, Small Basic, which is a tool that helps learning.	1-10 years	39	50.85	3.017	2	0.221
	11-20 years	57	48.06			
	21 years and over	3	75.83			
	Total	99				

I try to improve the skills of my students by using the program, Python, which is a tool that helps learning.	1-10 years	39	53.27	0.908	2	0.635
	11-20 years	57	47.75			
	21 years and over	3	50.17			
	Total	99				
I try to improve the skills of my students by using the program, Arduino, which is a tool that helps learning.	1-10 years	39	47.62	0.548	2	0.76
	11-20 years	57	51.77			
	21 years and over	3	47.33			
	Total	99				
I try to improve the skills of my students by using the program, Mblock, which is a tool that helps learning.	1-10 years	39	53.95	1.514	2	0.469
	11-20 years	57	47.76			
	21 years and over	3	41.17			
	Total	99				
I try to improve the skills of my students by using the program, Raspberry Pi, which is a tool that helps learning.	1-10 years	39	48.63	4.624	2	0.099
	11-20 years	57	49.2			
	21 years and over	3	83			
	Total	99				
I try to improve the skills of my students by using the program, EV 3 Lego Mindstorm, which is a tool that helps learning.	1-10 years	39	56.28	3.299	2	0.192
	11-20 years	57	45.89			
	21 years and over	3	46.33			
	Total	99				
I try to improve the skills of my students by using the program, MIT App Inventor, which is a tool that helps learning.	1-10 years	39	43.44	8.726	2	0.013*
	11-20 years	57	55.57			
	21 years and over	3	29.5			
	Total	99				
I try to improve the skills of my students by using the program, Alice, which is a tool that helps learning.	1-10 years	39	49.56	0.645	2	0.724
	11-20 years	57	49.65			
	21 years and over	3	62.33			
	Total	99				
I try to improve the skills of my students by using the program, HTML, which is a tool that helps learning.	1-10 years	39	49.55	0.035	2	0.983
	11-20 years	57	50.18			
	21 years and over	3	52.33			
	Total	99				
I feel the need for a coding tool in my lessons.	1-10 years	39	51.32	0.408	2	0.816
	11-20 years	57	49.55			
	21 years and over	3	41.33			
	Total	99				

Upon examining table 5, when points the participants have scored in the item related to their professional experience are compared, it has been observed that there are statistically significant differences regarding the professional experience in the variable *"I try to improve the skills of my students by using the program, MIT App Inventor, which is a tool that helps learning"*as (H=8.726, SD=2, p=,05). When it is examined the difference between which groups is the source of this differentiation, the difference observed in the variable *"I try to improve the skills of my students by using the program, MIT App Inventor, which is a tool that helps learning"* is in favour of the teachers that have 11-20 years of professional experience.

Coding Efficiencies of Information and Communication Technology Teachers in Terms of Institution Variables

The seventh question tried to be answered in the research is whether the coding trend of the participants differs based on the institution they work in is a public or private school. According to the result of the statistical analysis (2 institution types x17 coding trends) carried out in order to answer this question, it has been observed that the coding trend of the participants differs to a certain extent based on the school type. In order to examine whether the level of the coding trend differentiation by institution type is statistically significant or not, as the questionnaire item distribution wasn't at the normality level, Mann Whitney U, one of the nonparametric tests, was carried out. The related findings are presented in Table 6 below.

Table 6. *Coding Tendency Differentiation by Institution Type*

Variables	Institution	N	Rank average	Total of average	Mann-Whitney U	Z	p
I write a suitable algorithm for a given problem situation.	Public	43	54.72	2353	1001	-2.01	0.044*
	Private	56	46.38	2597			
	Total	99					
I create a suitable flow chart for a given problem situation.	Public	43	54.69	2351.5	1002.5	-1.585	0.113
	Private	56	46.4	2598.5			
	Total	99					
I write logical code blocks.	Public	43	53.45	2298.5	1055.5	-1.47	0.142
	Private	56	47.35	2651.5			
	Total	99					
I code suitably for a given problem situation.	Public	43	55.06	2367.5	986.5	-2.115	0.034*
	Private	56	46.12	2582.5			
	Total	99					

I enrich coding activities through examples from real life.	Public	43	55.48	2385.5	968.5	-1.848	0.065
	Private	56	45.79	2564.5			
	Total	99					
I collaborate with my students in order to develop different coding projects.	Public	43	52.14	2242	1112	-0.721	0.471
	Private	56	48.36	2708			
	Total	99					
I try to improve the skills of my students by using the program, Scratch, which is a tool that helps learning.	Public	43	56.63	2435	919	-2.132	0.033*
	Private	56	44.91	2515			
	Total	99					
I try to improve the skills of my students by using the program, Small Basic, which is a tool that helps learning.	Public	43	48.21	2073	1127	-0.572	0.567
	Private	56	51.38	2877			
	Total	99					
I try to improve the skills of my students by using the program, Python, which is a tool that helps learning.	Public	43	52.72	2267	1087	-0.852	0.394
	Private	56	47.91	2683			
	Total	99					
I try to improve the skills of my students by using the program, Arduino, which is a tool that helps learning.	Public	43	55.08	2368.5	985.5	-1.596	0.11
	Private	56	46.1	2581.5			
	Total	99					
I try to improve the skills of my students by using the program, Mblock, which is a tool that helps learning.	Public	43	50.71	2180.5	1173.5	-0.227	0.821
	Private	56	49.46	2769.5			
	Total	99					
I try to improve the skills of my students by using the program, Raspberry Pi, which is a tool that helps learning.	Public	43	50.41	2167.5	1186.5	-0.131	0.896
	Private	56	49.69	2782.5			
	Total	99					
I try to improve the skills of my students by using the program, EV3 Lego Mindstorm, which is a tool that helps learning.	Public	43	50.44	2169	1185	-0.139	0.89
	Private	56	49.66	2781			
	Total	99					

I try to improve the skills of my students by using the program, MIT App Inventor, which is a tool that helps learning.	Public	43	49.94	2147.5	1201.5	-0.022	0.983
	Private	56	50.04	2802.5			
	Total	99					
I try to improve the skills of my students by using the program, Alice, which is a tool that helps learning.	Public	43	47.17	2028.5	1082.5	-0.912	0.362
	Private	56	52.17	2921.5			
	Total	99					
I try to improve the skills of my students by using the program, HTML, which is a tool that helps learning.	Public	43	51.76	2225.5	1128.5	-0.56	0.575
	Private	56	48.65	2724.5			
	Total	99					
I feel the need for a coding tool in my lessons.	Public	43	51.1	2197.5	1156.5	-0.352	0.725
	Private	56	49.15	2752.5			
	Total	99					

According to the results of Mann-Whitney U test, between the coding trends of male and female participants working in public and private schools, based on the institution type, there are statistically significant differences in the variable *"I write a suitable algorithm for a given problem situation."* as (U: 1001, p=,05, z=-2,01) and in the variable *"I code suitably for a given problem situation"* as (U: 986,5, p= ,05, z=-2,12) and in the variable *"I try to improve the skills of my students by using the program, Scratch, which is a tool that helps learning."* as (U: 919, p=,05, z=-2,13) On the other hand, it can be stated that the coding trends of male and female participants working in public and private schools are generally similar in the other variables.

Coding Efficiencies of Information and Communication Technology Teachers in Terms of Education Status Variable

The fifth question trying to be answered in the research is whether the coding trend of the participants differs based on the education status. According to the result of the statistical analysis (2 education status x17 coding trends) carried out in order to answer this question, it has been observed that the coding trend of the participants differs to a certain extent based on the education status. In order to examine whether the level of the coding trend differentiation by graduation status is statistically significant or not, as the questionnaire item distribution wasn't at the normality level, Mann Whitney U, one of the nonparametric tests, was carried out. The related findings are presented in Table 7 below.

Table 7. *Coding Tendency Differentiation by Education Status*

Items	Education Status	N	Rank Average	Total of averages	Mann-Whitney U	Z	p
I write a suitable algorithm for a given problem situation.	Graduate	77	48.79	3757	754	-1.098	0.272
	Postgraduate	22	54.23	1193			
	Total	99					
I create a suitable flow chart for a given problem situation.	Graduate	77	47.38	3648.5	645.5	-1.89	0.059
	Postgraduate	22	59.16	1301.5			
	Total	99					
I write logical code blocks.	Graduate	77	48.77	3755.5	752.5	-1.115	0.265
	Postgraduate	22	54.3	1194.5			
	Total	99					
I code suitably for a given problem situation.	Graduate	77	48.61	3743	740	-1.24	0.215
	Postgraduate	22	54.86	1207			
	Total	99					
I enrich coding activities through examples from real life.	Graduate	77	46.78	3602	599	-2.32	0.02*
	Postgraduate	22	61.27	1348			
	Total	99					
I collaborate with my students in order to develop different coding projects.	Graduate	77	49.2	3788.5	785.5	-0.575	0.565
	Postgraduate	22	52.8	1161.5			
	Total	99					
I try to improve the skills of my students by using the program, Scratch, which is a tool that helps learning.	Graduate	77	49.47	3809	806	-0.366	0.715
	Postgraduate	22	51.86	1141			
	Total	99					
I try to improve the skills of my students by using the program, Small basic, which is a tool that helps learning.	Graduate	77	48.75	3754	751	-0.851	0.395
	Postgraduate	22	54.36	1196			
	Total	99					
I try to improve the skills of my students by using the program, Python, which is a tool that helps learning.	Graduate	77	48.73	3752	749	-0.851	0.395
	Postgraduate	22	54.45	1198			
	Total	99					

I try to improve the skills of my students by using the program, Arduino, which is a tool that helps learning.	Graduate	77	47.67	3670.5	667.5	-1.564	0.118
	Postgraduate	22	58.16	1279.5			
	Total	99					
I try to improve the skills of my students by using the program, Mblock, which is a tool that helps learning.	Graduate	77	45.95	3538	535	-2.764	0.006**
	Postgraduate	22	64.18	1412			
	Total	99					
I try to improve the skills of my students by using the program, Raspberry Pi, which is a tool that helps learning.	Graduate	77	50.66	3900.5	796.5	-0.452	0.651
	Postgraduate	22	47.7	1049.5			
	Total	99					
I try to improve the skills of my students by using the program, EV 3 Lego Mindstorm, which is a tool that helps learning.	Graduate	77	49.41	3804.5	801.5	-0.396	0.692
	Postgraduate	22	52.07	1145.5			
	Total	99					
I try to improve the skills of my students by using the program, MIT App Inventor, which is a tool that helps learning.	Graduate	77	48.75	3754	751	-0.999	0.318
	Postgraduate	22	54.36	1196			
	Total	99					
I try to improve the skills of my students by using the program, Alice, which is a tool that helps learning.	Graduate	77	48.83	3760	757	-0.806	0.42
	Postgraduate	22	54.09	1190			
	Total	99					
I try to improve the skills of my students by using the program, HTML, which is a tool that helps learning.	Graduate	77	49.2	3788.5	785.5	-0.544	0.586
	Postgraduate	22	52.8	1161.5			
	Total	99					
I feel the need for a coding tool in my lessons.	Graduate	77	49.39	3803	800	-0.416	0.678
	Postgraduate	22	52.14	1147			
	Total	99					

According to the results of Mann-Whitney U test, between the coding trends of teachers that are graduate sand postgraduates, there are statistically significant differences in the variable "I enrich coding activities through examples from real life." as (U= 599, p=,05, z=-2,32) and in the variable *"I try to improve the skills of my students by using*

the program, Mblock, which is a tool that helps learning." as (U=535, p=,01, z=-2,76) On the other hand, it can be stated that the coding trends of male and female participants are generally similar in the other variables.

Coding Efficiencies of Information and Communication Technology Teachers in Terms of the Variable of Whether Having Participated in a Course or Not

The sixth question tried to be answered in the research is whether the coding trend of the participants differs based on the variable of whether having participated in a course or not. According to the result of the statistical analysis (2 coding training x17 coding trends) carried out in order to answer this question, it has been observed that the coding trend of the participants differs to a certain extent based on the variable of whether they have participated in a course or not. In order to examine whether the level of the coding trend differentiation by the variable of whether having participated in a course or not is statistically significant or not, as the questionnaire item distribution wasn't at the normality level, Mann Whitney U, one of the nonparametric tests, was carried out. The related findings are presented in Table 8 below.

Table 8. *Coding Tendency Differentiation by whether having participated in a course or not*

Variables	Coding training	N	Rank Averages	Total of Averages	Mann-Whitney U	Z	p
I write a suitable algorithm for a given problem situation.	Yes	84	53.4	4485.5	344.5	-3.909	0**
	No	15	30.97	464.5			
	Total	99					
I create a suitable flow chart for a given problem situation.	Yes	84	53.46	4491	339	-3.164	0.002**
	No	15	30.6	459			
	Total	99					
I write logical code blocks.	Yes	84	53.32	4479	351	-3.818	0**
	No	15	31.4	471			
	Total	99					
I code suitably for a given problem situation.	Yes	84	53.33	4479.5	350.5	-3.757	0**
	No	15	31.37	470.5			
	Total	99					
I enrich coding activities through examples from real life.	Yes	84	52.54	4413.5	416.5	-2.316	0.021*
	No	15	35.77	536.5			
	Total	99					
I collaborate with my students in order to develop different coding projects.	Yes	84	52.35	4397.5	432.5	-2.141	0.032*
	No	15	36.83	552.5			
	Total	99					

I try to improve the skills of my students by using the program, Scratch, which is a tool that helps learning.	Yes	84	50.54	4245	585	-0.465	0.642
	No	15	47	705			
	Total	99					
I try to improve the skills of my students by using the program, Small Basic, which is a tool that helps learning.	Yes	84	51.51	4327	503	-1.305	0.192
	No	15	41.53	623			
	Total	99					
I try to improve the skills of my students by using the program, Python, which is a tool that helps learning.	Yes	84	49.35	4145.5	575.5	-0.549	0.583
	No	15	53.63	804.5			
	Total	99					
I try to improve the skills of my students by using the program, Arduino, which is a tool that helps learning.	Yes	84	50.93	4278.5	551.5	-0.793	0.428
	No	15	44.77	671.5			
	Total	99					
I try to improve the skills of my students by using the program, Mblock, which is a tool that helps learning.	Yes	84	53.57	4500	330	-3.082	0.002**
	No	15	30	450			
	Total	99					
I try to improve the skills of my students by using the program, Raspberry Pi, which is a tool that helps learning.	Yes	84	50.85	4271	559	-0.736	0.461
	No	15	45.27	679			
	Total	99					
I try to improve the skills of my students by using the program, EV 3 Lego Mindstorm, which is a tool that helps learning.	Yes	84	53.39	4485	345	-2.879	0.004**
	No	15	31	465			
	Total	99					
I try to improve the skills of my students by using the program, MIT App Inventor, which is a tool that helps learning.	Yes	84	52.04	4371	459	-2.063	0.039*
	No	15	38.6	579			
	Total	99					
I try to improve the skills of my students by using the program, Alice, which is a tool that helps learning.	Yes	84	54.3	4561	269	-3.747	0**
	No	15	25.93	389			
	Total	99					
I try to improve the skills of my students by using the program, HTML, which is a tool that helps learning.	Yes	84	53.49	4493.5	336.5	-3.01	0.003**
	No	15	30.43	456.5			
	Total	99					
I feel the need for a coding tool in my lessons.	Yes	84	53.21	4469.5	360.5	-2.764	0.006**
	No	15	32.03	480.5			
	Total	99					

According to the results of Mann-Whitney U test, between the coding trends of teachers that have received coding training and the ones that haven't, there are statistically significant differences in the variable*"I write a suitable algorithm for a given problem situation."* as (U= 344.5, p=,01, z= -3.909); in the variable "*I create a suitable flow chart for a given problem situation."* as (U= 339 , p=,0.002, z= -3.164); in the variable *"I write logical code blocks."* as (U= 351, p=,01, z= -3.818); in the variable *"I code suitably for a given problem situation."* as (U= 350.5, p=,01, z= -3.757);in the variable *"I enrich coding activities through examples from real life."* as (U= 416.5 , p=,01, z= -2.316); in the variable *"I collaborate with my students in order to develop different coding projects."* as (U= 432.5 , p=,0.02, z= -2.141); in the variable *"I try to improve the skills of my students by using the program, Mblock, which is a tool that helps learning."* as (U= 330, p=, 0.002, z= -3.082); in the variable "*I try to improve the skills of my students by using the program, EV 3 Lego Mindstorm, which is a tool that helps learning."* as (U= 345, p=,0.004, z= -2.879); in the variable *"I try to improve the skills of my students by using the program, MIT App Inventor, which is a tool that helps learning."* as (U= 459, p=,0.039, z= -2.063); in the variable *"I try to improve the skills of my students by using the program, Alice, which is a tool that helps learning."* as (U= 269, p=,01, z= -3.747); in the variable "*I try to improve the skills of my students by using the program, HTML, which is a tool that helps learning."* as (U= 336.5 , p=0.003, z= -3.01) and in the variable "*I feel the need for a coding tool in my lessons."* as (U= 360.5, p=,0.006, z= -2.764).

CONCLUSION

With this study, the trend and frequency of the use of coding tools by primary, secondary and high school information technology teachers in their lessons have been measured. As a result, it can be concluded that

The teachers, in general, carry out activities related to coding and use the given software. Although the teachers generally use visual based programming, they have difficulty with collaborating with their students, providing them with project ideas from real life. It can be stated that the teachers are good at Scratch visual based programming and often use it, and likewise, they carry out various activities in the Kodu Game Lab program and have a good command of the programs in general. The main reasons why some of the programs are used less can be stated as follows; They may have had difficulties having access to the program or downloading it; they may have given up on the program due to the uninterested attitude of the students, they may have opted for specific programs in order to take part in activities such as tournaments and competitions. Such results can be inferred.

RESULT - DISCUSSION – SUGGESTIONS

IT teachers' perception of self-efficacy and frequency of use regarding coding have been examined according to specific variables and significant differences have been observed. Significant differences have been observed in the use of Scratch and EV3 by female teachers regarding the variable of gender. Besides, significant differences have been found in the trend of coding use by the teachers at the age range of 21-30. A significant difference has been observed in the frequency of use of the program MIT App Inventor among the teachers with a professional experience of 1 to 10 years.

While there is a significant difference in the trend of the teachers who work in public institutions in order to benefit from coding activities to write algorithms and solve problems, the rate of teachers' who hold a bachelor's degree enriching activities through examples from real life and using mostly Mblock in their lessons has a significant difference. On the other hand, teachers who receive in-service training related to their field, feel more confident and significant differences have been observed in many items. These items are as follows; *"I write a suitable algorithm for a given problem situation; I prepare a suitable flow chart for a given problem situation; I write logical code blocks; I code suitably for a given problem situation; I enrich coding activities through examples from real life; I collaborate with my students in order to develop different coding projects; I try to improve the skills of my students by using the program, Mblock, which is a tool that helps learning; I try to improve the skills of my students by using the program, EV3 Lego Mindstorm, which is a tool that helps learning; I try to improve the skills of my students by using the program, MIT App Inventor, which is a tool that helps learning; I try to improve the skills of my students by using the program, Alice, which is a tool that helps learning; I try to improve the skills of my students by using the program, HTML, which is a tool that helps learning; I feel the need for a coding tool in my lessons."*

Upon examining the significant differences, the fact that some programs aren't really preferred stands out, which can indicate that teachers have second thoughts. Therefore, by using in-service training, peer training, distance training portals, teachers can be supported in terms of contributing positively to the self-improvement of the teachers in their field. Through distance training, presentations and examples, which can inspire teachers in terms of content, can be shared and within this context, the curriculums of the related departments at universities could be updated based on the needs. Samples can be provided for teachers via activities such as conferences, seminars and symposiums to be organized for teachers and the content could be enriched thanks to workshops.

The limitations of this study can be stated as follows; the study could be carried out on a wider scale through a wider sampling; in the study the teachers could be asked what level they teach (primary-secondary-high school) in the questionnaire. The fact that the majority of the teachers taking part in this study is unclear has been observed as a shortcoming for this study.

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Cybersecurity in e-Learning During the COVID-19 Pandemic

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Abstract

The COVID-19 pandemic, through its negative impact on global society, has led, in a relatively short period of time, to the disruption of the functioning of existing socio-economic ecosystems, affecting the lives of billions of global citizens. Education has been one of the areas most affected by the scale of the decisions applied, in this context, to a large number of people. Our purpose is to increase the degree of awareness among students and teachers regarding the vulnerability of computer systems used in the educational process, the resulting consequences, but also a prompt for thought on the behaviors that can sometimes unconsciously facilitate such dangerous circumstances. In this sense, several case studies will be presented regarding a series of cyber-attacks that have affected educational institutions, the analyzed consequences and solutions provided that could prevent future attacks similar to those described. Thus, the main actors in the educational environment (students and/or teachers) will have at their disposal a set of digital conduct rules that can lead to limiting the consequences or even discouraging the propagation of such attacks. It is of paramount importance to understand that, due to the paradigm shift (namely the outbreak of the pandemic), the educational environment has changed its behavior and shifted from using e-learning platforms only within university systems to universal access, from anywhere. A consequence of this change, but also of the lack of digital security education, was the increase in the degree of vulnerability of these platforms to cyber-attacks of various types. In order to emphasize the impact and raise awareness of this phenomenon, a summary of the main cyber threats to e-learning platforms will be presented. Furthermore, this article is intended as a preamble to a broader study of the impact that these attacks had on students and the educational process already affected by the pandemic. In this sense, a tool will be developed to allow the investigation of how cyber incidents disrupted the educational activities carried out through e-learning platforms. With the help of this tool, data will be collected from several educational actors (teachers, students, administrators and even institutions) who suffered from cyber incidents during the COVID-19 pandemic. Based on the analysis of the collected data, we hope to be able to formulate a series of recommendations for prevention as well as rapid reaction to cyber incidents that may appear at the level of e-Learning tools usage. Thus, a massive shift to online learning has highlighted a number of vulnerabilities that have allowed this paper to explore the main causes, present study cases, and propose solutions to prevent such incidents in the future.

Keywords: *COVID-19, e-Learning, cybersecurity, education, online.*

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INTRODUCTION

As it was previously shown in the abstract, the COVID-19 pandemic has had an enormous impact on all walks of life and more specifically on the e-Learning systems of various countries and universities. The situation generated by COVID-19 has created a so-called "cyber pandemic" (Fichtenkamm et al., 2022), a new "cyberworld" and increased costs due to attacks. Recent changes in work and education environments, wherein the stakeholders have adopted a "perform any aspect of the task from any location" approach has led to a shaft in paradigm as we are not asking "if?" a cyberattack will occur, rather than "when?" will the cyber-attack occur.

In this cyberworld in which almost 90% of the working population performs their work duties from home, the educational ecosystem was forced to adapt to the new conditions (ILO, 2021). This sudden change in the paradigm of delivering learning and teaching led to a sudden increase in both the volumes and the frequency of data sharing on devices outside of institutional premises. As a result, the existing security challenges have been extended, the cybercriminals now having many more targets and vulnerabilities that can thus be exploited

Reports such as the one made in June 2020 by Microsoft Security Intelligence show us a worrying trend regarding the number of cyber-attacks that have affected the Higher education institutions (HEIs) (Castelo, 2020). Thus, within 30 days, 61 percent of the 7.7 million reported malwares affected the education industry, more than any other sector. Reported to the year 2020, countries such as Russia, Germany, Austria had some of the highest infection rates (Kaspersky, 2020). Personal data of students and teachers, taking control of devices and resources, exploiting security gaps to obtain unauthorized access, represent some of the interests of cybercriminals. All these intentions were aimed at the use of fraudulently obtained data and privileges to perpetuate new attacks (phishing, spam, ransomware, etc.) in order to obtain substantial amounts of money.

Starting with the spring of 2020, in many countries, due to the COVID-19 pandemic, there was an untimely interruption of offline study. This sudden and complete transition to online caught the educational field largely unprepared, both from the point of view of the existence of adequate security policies for massive online activities, but also from the point of view of the poor training of students and teachers in the use of new technologies (some insufficiently tested) often doubled by ignoring or not knowing some elementary rules regarding security in the online environment (Srivastava, 2021).

This work is intended to be a preamble to a larger study that aims to capture the impact of cybernetic attacks on those involved in the educational process. Therefore, in this article we will analyze the challenges at the level of cyber security in the academic environment during the pandemic, being formulated a series of recommendations for prevention as well as rapid reaction to cyber incidents that may appear at the level of e-Learning tools usage. This paper is structured as follows. Chapter 2 presents a brief review of the main research that addressed the influence of cyber security incidents on e-learning platforms even before the COVID-19 pandemic. Chapter 3 investigates the amplitude of e-Learning cyberattacks during the

pandemic, presenting the main types of threats in the field of education, as well as examples of famous cases of attacks in this field. Chapter 4 presents the conclusions and recommendations that could improve the security of Learning management systems. This study will continue in a new iteration, this time with the involvement of the stakeholders in the educational process, results that will be presented in a new work.

RELATED WORK

Specialized literature generated studies that addressed the influence of cyber security incidents on e-learning platforms even before the COVID-19 pandemic. However, these studies have gained a greater scope after the onset of the pandemic as a result of the development of the majority of educational activities through online platforms. Thus, Ulven & Wangen (2021) carried out an analysis of studies published in the last twelve years based on the Comprehensive Literature Review (CLR) Model, in order to synthesize research within the cybersecurity risk by reviewing existing literature of threat events, threat actors, and vulnerabilities in higher education.

The research conducted by Alexei & Alexei (2021) was based on identifying the classes of attacks with major impact on the e-learning platforms, but also making recommendations for increasing cyber security in e learning conditions like updating systems and managing security patches and implementing access policies at the application. The authors emphasize on updating information systems and applications, control access to information, the use of secure protocols and educating staff and students in the field of information security in order ensure a consistent level of security of eLearning platforms.

The impact of the coronavirus pandemic on the security of academic institutions in the UK is analyzed in the study of Arogbodo (2022) by comparing the pre-pandemic annual cyber security survey with the peak and post-pandemic survey, i.e., 2019, 2020 and 2021 respectively. The results of this research shows that the pandemic determined a rise in cyberattack, which made universities prioritize security and add defensive measures. The post pandemic statistics suggest that educational institutions have improved their systems with adequate security measures to prevent future cyber-attacks.

The paper of Cvitić et al. (2021) analyzes the impact of the COVID-19 pandemic on the e-learning systems in Croatia. In the study a research methodology has been presented to develop a cyber-threat detection model that considers the specifics of the application of e-learning systems in crisis. The proposed methodology includes establishing a theoretical basis on DDoS and flash crowd event traffic, defining a laboratory testbed setup for data acquisition, development of DDoS detection model, and testing the applicability of the developed model on the case study.

Related to the online behaviors of students during the pandemic, Tick et al. (2021) conducted a study within an international project aimed to explore the risk attitudes and concerns, as well as protective behaviors adopted by, students at a South African,

a Welsh and a Hungarian University, during the pandemic. In this study, the Global CyberSecurity Index and the Cyber Risk literacy and education index were used to provide a cyber security context for each country. The results of the study revealed significant differences between the student behaviors within these universities, especially between students' risk attitudes and concerns.

Other studies focused on the analysis of traffic changes on applications intended for online learning during the pandemic. Thus, Favale et al. (2020) analyzed how the pandemic influenced the network traffic of PoliTO (the solution for virtual teaching of Politecnico di Torino). The results of the study showed that incoming traffic drastically decreased, while out- going traffic has more than doubled to support online learning.

AMPLITUDE OF E-LEARNING CYBERATTACKS DURING THE PANDEMIC

With the rapid development of new cyber technologies, global virtual (online) learning has experienced rapid growth even before the COVID-19 pandemic, becoming one of the popular learning methods in higher education institutions and a dominant trend for distance learning through various collaborative course platforms (Coman et al., 2020). From 107 billion in 2015 (eLearning Infographics, 2015), the global virtual learning had a market value of $188 billion at the end of 2019 and reached over $200 billion in 2020. Also, a recent estimate advances the sum of $376 billion by 2028 (Thrive My Way, 2022). An accelerated increase in the importance and degree of use of online learning was definitely due to the pandemic context starting in 2020, when lockdown measures were implemented on a large scale that led to the sudden online transition of the entire learning process. We can say that the pandemic was an accelerating factor of this trend, a recent study showing that for 90% of the 7000 respondents, online education continues to be as attractive, even after the end of the Covid-19 pandemic (Alexei & Alexei, 2021).

Carrying out the learning process in the Internet environment offers a series of benefits but also brings to the fore a series of challenges related to the risks and vulnerabilities of IT systems in the educational/academic environment. We can refer in particular to cyber threats and attacks targeting communication networks, e-Learning platforms and video conferencing applications used to carry out online learning activities (Ulven & Wangen, 2021). The COVID-19 pandemic provided a unique opportunity where the two fates represented by benefits and risks had a strong impact on users. Since in some periods of the pandemic there were no alternatives to online education, it became a challenge to maintain the integrity and availability of electronic educational resources. According to studies, the average number of weekly cyber-attacks per academic organization in July-August 2020, increased in Europe in July-August 2020 by 24% in contrast to other fields (9%), financial losses being in the order of millions of dollars (Alexei, 2021).

The main types of threats in the field of education

There are different threat actors involved in such attacks, from state-sponsored groups to cyber criminals groups or stand-alone hackers that use different tactics and techniques to exploit mostly the vulnerabilities of the video conferencing applications and online learning platforms (Ulven & Wangen, 2021).

According to a study developed by Kaspersky (2020), the main cyber threats in the field of education have been: denial of service or distributed denial of service (DoS / DDoS), malware attacks and phishing.

Famous cases of attacks in the educational field

Currently, the existence of a causal link between the large-scale adoption of remote access solutions in the educational/academic field and the multiplication of cyber threats during the COVID-19 pandemic has been demonstrated. We will refer in particular to the year 2020, which in absolute terms was the most prolific during the pandemic, in relation to the previous years as well as the years after (JISC, 2020). A brief summary of incidents caused by cyber-attacks is presented in table 1According to Kaspersky (Digital Education: The Cyberrisks of the Online Classroom, 2020), in 2020, 65% of DoS/DDoS attacks were in the education/academic field (Netcout, 2021). According to an annual report of ransomware attacks worldwide, there were a total of 304 million ransomware attacks worldwide in 2020. This was a 62 percent increase from a year prior, but with 49% compared to 2021 (Statista, 2022). Globally, 56% of K-12 schools and 64% of colleges and universities report being hit by an attack in 2021 (Sophos, 2022). In the first quarter of 2021, 611,877 unique phishing sites were detected, representing a four percent increase from the Q4 of 2020 (APWG, 2022). According to the National Cyber Security Center (GDPR, 2021), 69% of schools and universities suffered a phishing attack (a social engineering attack, often via an email, that tries to trick you into clicking a malicious link or downloading an infected attachment)

Table 1. *Amplitude of cyber incidents in the period 2019-2021 (in millions)*

Scales	2019	2020	2021
DoS/DDoS	8.35	9.99	9.7
Malware (Ransomware)	187.9	304.6	623,3
Phishing (Unique phishing sites)	0.79	1,5	0.6 1(Q1)

DoS/DDoS attacks

Such a case happened in May 2020 when a DDos (High volume bandwidth DDoS attack) type cyber-attack occurred on the information system of the Yildiz Teknik University in Turkey with a bandwidth of 30GiB. This attack affected the distance education platform of the university, which led to the degradation and interruption

of services for students. The purpose and source of this attack remained unknown (Smith, 2020). Two years later, on May 3, 2022, another institution belonging to the same universities, YTU Yıldız Teknopark, was subjected to a much more sophisticated DDoS attack, this time affecting the personal data of an undetermined number of employees, users and customers (TehnoPixel, 2022). The main types of data obtained by threat actors were:

- Credential information;
- Contact information;
- Location information;
- Personal information;
- Customer transaction information;
- Finance information;
- Professional experience information.

A Denial of Service (DoS) attack also targeted distance education platforms in Russia in the first half of 2020. Threat actors have targeted a website that hosted the results for the Unified State Exam (USE) with a 6 Gbps DDoS attack. Although the exam itself was not compromised, there were interruptions in its progress. At the level of experts, the fact that the attack was perpetuated by students was taken into account, the objective still not being very clear (Smith, 2020).

In another part of the world, in June 2020, an important university in the northeast of the United States requested the support of companies specialized in cyber security to reduce the impact of a DDoS attack that managed to disrupt the online testing session. Although not many details were provided, the security experts concluded that the attack vectors used weren't especially sophisticated, and the traffic was localized close to the university. As in the previous case, this security incident was included in the typology of student cyber activities. The process of identifying and diagnosing the problem was quickly, in a few hours the pattern of this attack was identified. It was communicated by the software security company to the IT department of the university, being compared with the own traffic pattern, thus the attack being traced back to a campus proxy run at another university (Schaffhauser, 2020).

Malware attacks

In October 2020, a ransomware attack compromised the computer system of the Bucharest Universities of Economic Studies, both the university governance systems and the administrative IT systems suddenly becoming unavailable. The attack was well prepared, and part of the back-up servers were also affected. The impact was visible, affecting both teaching staff, students and auxiliary staff. Thus, the students no longer had access to the educational content of the platform, as both they and the teachers were blocked from logging in to the university's online platform. Even the financial department was unable to carry out current financial activities, being unable to access and view the financial records. In this case, the human factor inside the university contributed to the success of this attack, by rejecting the cyber security team's requests to transfer all external connections through a Virtual Private Network

(VPN), preferring the much more convenient option (but also the most vulnerable) to activate and use remote desktop connection. The threat actors were thus able to take control of the university's IT system by identifying using bots, the existing vulnerabilities on one or more personal workstations which were remotely connected to the key components of the university's platform. The university did not pay the ransom, and an important part of the data was lost.

An attack with the most serious consequences in terms of its scale and impact took place in the first part of 2020 and used a security breach of the software provider Blackbaud, one of the largest providers of education administration, fundraising, and financial management software, widely used in universities from around the world. More than 20 universities and charities in the UK, US and Canada are affected. The personal data of students and teachers were affected, in some cases information regarding financial history, contact data, etc. being stolen. In this case, Blackbaud is not revealing the scale of the breach and has accepted to pay the ransom After making the payment to the hackers, Blackbaud announced that it had received the "confirmation" that the copy of stolen data had been destroyed.

In the preamble to the beginning of the pandemic, at the end of December 2019, another case highlighted the existing vulnerabilities in the computer systems of the universities, bitter lessons that somehow predicted the explosion of these incidents during the pandemic. Unfortunately, these lessons did not always have the desired impact on the decision-makers, the statistics being quite suggestive in this sense. On December 23, 2019, Maastricht University (UM), which is connected to the Dutch education and research network SURFnet, was hit by a major ransomware attack. This attack was particularly fast, in 30 minutes the attackers managed to take control and block the data on 267 servers of the university. The attack took place in several stages, the infiltration taking place in October by sending a phishing email to several people within UM. By opening the link attached by an employee, malware was installed on the user's workstation. Due to some changes made by the attackers, it went unnoticed by virus scanners. Other similar attacks took place a few days later, so that the attackers had full access to the university's network. In the end, the university paid the amount requested by the attackers to unlock the servers. After this attack, a series of measures were taken that went from increasing the level of awareness of users regarding the risk of phishing attacks to the initiation of measures that allowed a faster intervention in such cases. A better segmentation of the network and the addition of a firewall for each server, reconsidering the access rights of administrators by limiting them, a better configuration of database management or a detailed mapping of each process on the server were some of the measures taken.

On the other side of the ocean, in the United States, the University of California San Francisco, one of the leaders involved in research on Covid-19, was the victim of a ransomware-type malware attack after which it had to pay a sum of 1, $14 million to regain control of the university's servers. After paying the amount, the attackers provided the decryption tool, without confirming any leakage of sensitive data. It should be noted that this attack was carried out on the same model as the one at Maastricht University, hence the need to learn from the lessons of the past.

Consequently, it can be seen that these attacks should not surprise. Specialized institutions such as the FBI, Europol, etc. have constantly issued alerts and warnings regarding the spear phishing campaigns against students at multiple universities (Federal Bureau of Investigation, Cyber Division, 2019). Thus, it is found that phishing remains the easiest way for cybercriminals to gain unauthorized access to the accounts of some users and through them to access bank information or personal data about students, copying or blocking access to them through a ransomware attack.

Phishing attacks

According to APWG (APWG, 2022), in December 2021 there were 316,747 of phishing attacks, being the highest monthly total in APWG's reporting history, three times compared to the beginning of 2020. Based on these figures, we can talk about millions of attacks carried out every year, with significant increases during the pandemic (Alexei, 2021). According to the Barracuda report (2020), 25% of phishing attacks occur in the educational sector.

As observed in the previous examples, phishing attacks are the gateway for malicious malware applications that lead in most cases to ransomware attacks. A series of such cases took place in the second part of 2020 at Louisiana State University (LSU) in the United States, and Oxford, Brighton, and Wolverhampton Universities in the United Kingdom

CONCLUSIONS AND RECOMMENDATIONS

The Covid19 pandemic period made the educational environment able to board the learning activities in an online way also. So, after this pandemic period ends some activities will be kept online. For that it is very important to understand the importance of the cybersecurity assured for the educational environment, also for the software systems and platforms like Learning Management Systems, and also for the hardware infrastructure used by the schools or universities to organize these online learning activities.

Cyber threats exist for all kinds of systems and also for learning systems. In this way the schools and universities should invest resources in increasing the security of these systems.

According to Axonify (2022), factors that improve the security of Learning management systems are shown, out of which the most important ones are:

- user management - is important to have a good management of all users that can access the platform, and when the students are finishing their studies, the user should become inactive. In this way the users that are not involved in the learning process cannot access the platform;
- data security - can be assured by encrypting the stored data on the platform, by using IP blockers to reduce the malicious traffic, by using a firewall and by creating frequent backups;

- password management - same with the user management, password management is an important factor and should be done by the same persons that are involved in the user management. For password management it is necessary to establish some rule for the password and the frequency of changing it.

Until this moment, administrators as well as users of online platforms for education, either teachers or students, have not considered security as a top priority, possibly because in the past there have been very few serious security incidents in this area or because the majority of platforms were used only within universities. As courses have moved online, more attention and efforts are needed on their part to prevent possible security breaches in the online educational environment before it is too late.

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The Importance of Item Analysis in the Assessment of Open and Distance Learning

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Abstract

Tests with multiple choice questions are generally used to determine academic success in open and distance learning. In this context, it is of great importance to examine the questions in the test in order to increase the reliability and validity of the test. Item analysis is a process that helps to make comments about the items by measuring the responses of the learners to the items in the measurement tool. In this analysis, which reveals the quality of the questions used in the measurement tool, item difficulty index, item discrimination index and distractor analysis are the most used analyzes. The aim of this study is to examine the item analyses of the 2022 midterm exams related to two numerical and two verbal courses in the open and distance learning system. In this context, numerical and verbal lessons were analyzed and interpreted according to the item difficulty index and item discrimination index.

Keywords: *Open and distance learning, item analysis, multiple-choice questions, assessment.*

INTRODUCTION

Multiple-choice questions are used as an objective and reliable measurement tool to evaluate the learning performance of learners because they can be applied to a large number of participants in a short time, the results are obtained in a short time, and they are impartial and fair (Badat, Usgu, Dinler Bayramlar, & Yakut, 2020). On the other hand, it is an effective measurement tool that is widely used to evaluate the cognitive learning domain (Singh, 2012). Tests with multiple-choice questions are generally used to determine academic success in open and distance learning. In this context, it is of great importance to examine the questions in the test in order to increase the reliability and validity of the test.

The quality of the measurement tool depends on the characteristics of the questions that make up the test. Preparing multiple-choice questions is a complex, challenging and time-consuming process. (Kolte, 2015). The item analysis method is used to evaluate the multiple choice exam in terms of standard and quality (Singh, Gupta, Singh, 2009; Hasançebi, Terzi, & Küçük, 2020). Item analysis; It is the process of selecting suitable questions for the exam, correcting items that do not have certain qualifications, and removing unsuitable items from the exam. Post-exam item analysis ensures that erroneous questions are identified and that these questions are excluded from the assessment and the exam is conducted fairly (Çelik, 2000).

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Item analysis is a process that helps to make comments about the items by measuring the responses of the respondents to the items in the measurement tool. On the other hand, whether the item measures the property to be measured; If it does not measure, determining the reasons and making it suitable for the purpose are the applications that take place in this process (Hasançebi, Terzi ve Küçük, 2020; Considine, Botti, Thomas, 2005). Item analysis; consists of item difficulty index, discrimination index and distractor analysis.

Item Difficulty Index

The most commonly used methods for calculating item statistics in the item analysis process are the Henryson Method and the Simple Method. The main difference between these two item analysis methods is the number of samples included in the calculation. In the Henryson Method, all respondents are included in the measurement, while in the Simple Method, the most successful 27% upper and the most unsuccessful 27% subgroup are determined from the total scores of all respondents, and 54% of the population is used (Tekin, 2000; Hasançebi, Terzi, & Küçük, 2020). The item difficulty index is the average of the item scores for an item scored in two categories (scored as 1 or 0). It is defined as the ratio of the number of individuals who answered an item correctly to the total number of individuals in the group. In other words, the item difficulty index is the percentage of correct answers to an item. The item difficulty index takes a value between 0 and 1. If all individuals in the group answer an item correctly, the value of the item difficulty index becomes "1", and if no individual can answer correctly, it becomes "0". When the value of the index approaches 1, it means that the number of those who answered the item correctly increases, thus the item becomes easier. When the value of the index approaches 0, it means that the number of correct answers to the item decreases, thus the question becomes more difficult (Table 1) (Hasançebi, Terzi, & Küçük, 2020).

Table 1. *Evaluation of item difficulty index results*

Item Difficulty Index	Evaluation
0.29 and below	Difficult
0.30-0.49	Medium difficulty
0.50-0.69	Easy
0.70-1.00	Very easy

Item Discrimination Index

It is the correlation between an item and the test it is in (Tekin, 2000). It is an index used to distinguish between those who have the characteristic to be measured by the test and those who do not. Individuals who have the characteristic to be measured are expected to give correct answers to the items in the test, and individuals who do not have them are expected to give incorrect answers. Student answers are scored with 1 for correct answers and 0 for those left blank, marked more than once, or incorrectly answered. The number of correct answers given by the students and the test scores are found. According to the test scores, the student answer sheets are put in order from the highest score to the lowest score. 27% of the group with the highest test score is called the upper group, and 27% of the group with the lowest score is called the subgroup. The

middle group (46%) is excluded from the analysis. The discrimination index is found by subtracting the number of correct answers in the lower group from the number of correct answers in the upper group and dividing by the number of students in any of the groups. The interpretations of the results are given in Table 2.

Table 2. *Evaluation of item discrimination index results*

Item Discrimination Index	Evaluation
0.19 and below	Too weak should be discarded from the test.
0.20-0.29	It needs to be fixed and improved.
0.30-0.39	Pretty good but still can be improved.
0.40 and higher	Very good

Distractor Analysis

In a multiple-choice test, options other than the correct answer option are distracting. The purpose of using distractors in achievement tests is to measure whether the respondent knows the correct answer. Distractor development is one of the most important and most difficult components of the test development process. Because the distractors should not be chosen randomly, they should have some features. Some of these are that they do not carry any information about the correct answer, that they are far from semantic confusion, and that they only give a single meaning when read. In order for an option to be the best distractor, the difference between the number of those who chose the relevant distractor from the lower group and the number of those who chose it from the upper group should be maximum when compared to other options. For an option to be the strongest distractor, it must be the one that attracts the most people from both groups. Each of the distractor options must be chosen by a sufficient number of respondents in order to be able to say that they are working effectively. The main purpose of the distractor analysis is to determine the items in the measurement tool that need to be reviewed and renewed, to eliminate the ineffective distractors and to increase the discrimination power of the multiple-choice items (Haladyna, 2016).

METHOD

The aim of this research is to examine and interpret the item analysis of the midterm exams of the courses taught in Anadolu University Open Education System. In this direction, item analysis related to the midterm exams of 2 numerical and 2 verbal courses were handled within the scope of the research. The tests related to the midterm exams of these courses were examined and interpreted on the basis of item difficulty and item discrimination values.

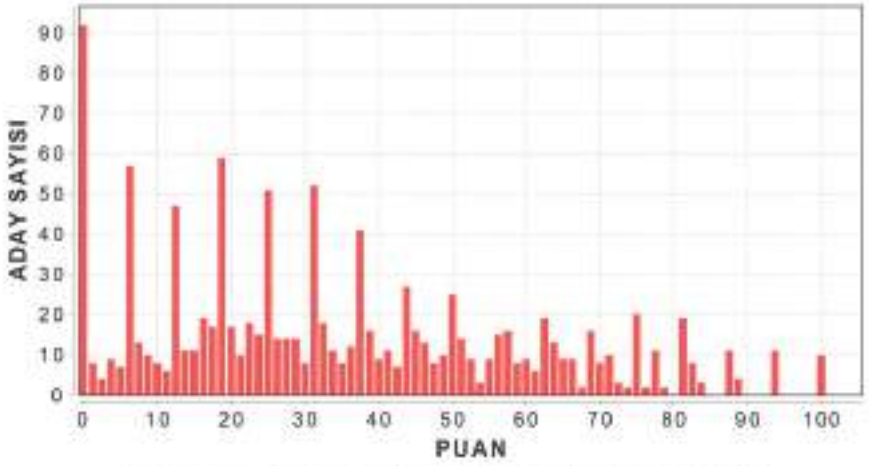
FINDINGS

In this section, item analysis of 2022 midterm exams related to 2 numerical and 2 verbal courses were examined. Below are the analysis of these courses, respectively.

The Numeric-1 Course

DERS ADI : SAYISAL 1
TEST GRUBU : A

Toplam Aday Sayısı	2107	En Yüksek Puan	100.00	Standart Sapma	24.97
Madde Analizi Aday Sayısı	1053	En Düşük Puan	0.00	Çarpıklık	0.55
Güvenirlik Aday Sayısı	1002	Ortalama Puan	34.52	Basıklık	-0.55



		A		B		C		D		E		BOŞ		GEÇERSİZ			
SORU	CEVAP	ÜST	ALT	ÜST	ALT	ÜST	ALT	ÜST	ALT	ÜST	ALT	ÜST	ALT	ÜST	ALT	p	r
1	B	0.08	0.16	0.58	0.32	0.05	0.29	0.01	0.09	0.02	0.08	0.05	0.14	0.00	0.00	0.60	0.58
2	D	0.23	0.29	0.11	0.24	0.05	0.11	0.41	0.07	0.11	0.25	0.08	0.05	0.00	0.00	0.24	0.37
3	D	0.05	0.08	0.12	0.29	0.04	0.27	0.70	0.23	0.08	0.08	0.08	0.05	0.00	0.00	0.47	0.47
4	E	0.12	0.26	0.09	0.14	0.04	0.13	0.03	0.13	0.38	0.09	0.13	0.15	0.00	0.00	0.29	0.42
5	B	0.09	0.19	0.81	0.48	0.11	0.12	0.02	0.08	0.71	0.14	0.00	0.05	0.00	0.00	0.48	0.58
6	A	0.93	0.67	0.01	0.06	0.00	0.11	0.00	0.08	0.00	0.13	0.08	0.04	0.00	0.00	0.77	0.48
7	D	0.02	0.09	0.01	0.20	0.10	0.30	0.32	0.38	0.38	0.09	0.00	0.04	0.00	0.00	0.35	0.34
8	E	0.20	0.34	0.04	0.13	0.04	0.11	0.04	0.19	0.06	0.00	0.13	0.19	0.00	0.00	0.20	0.42
9	A	0.67	0.48	0.03	0.12	0.10	0.13	0.03	0.16	0.03	0.28	0.14	0.16	0.00	0.00	0.58	0.59
10	B	0.03	0.14	0.83	0.48	0.04	0.16	0.04	0.24	0.03	0.10	0.07	0.21	0.00	0.00	0.46	0.78
11	B	0.08	0.06	0.89	0.19	0.00	0.06	0.00	0.03	0.00	0.03	0.08	0.13	0.00	0.00	0.78	0.41
12	A	0.44	0.30	0.31	0.10	0.05	0.16	0.11	0.10	0.07	0.13	0.25	0.22	0.00	0.00	0.27	0.34
13	C	0.08	0.30	0.02	0.22	0.09	0.17	0.01	0.11	0.01	0.03	0.05	0.15	0.00	0.00	0.63	0.34
14	C	0.04	0.17	0.29	0.10	0.57	0.13	0.04	0.10	0.02	0.03	0.05	0.27	0.00	0.00	0.50	0.43
15	A	0.67	0.32	0.02	0.29	0.08	0.12	0.00	0.06	0.03	0.23	0.02	0.09	0.00	0.00	0.59	0.55
16	D	0.01	0.14	0.02	0.05	0.10	0.47	0.32	0.04	0.11	0.16	0.02	0.05	0.00	0.00	0.39	0.66
17	C	0.01	0.12	0.01	0.10	0.08	0.29	0.01	0.23	0.08	0.10	0.06	0.15	0.00	0.00	0.33	0.78
18	B	0.01	0.07	0.74	0.10	0.12	0.37	0.00	0.01	0.08	0.06	0.05	0.07	0.00	0.00	0.45	0.58
19	C	0.02	0.12	0.06	0.05	0.08	0.19	0.01	0.13	0.02	0.13	0.09	0.13	0.00	0.00	0.34	0.78
20	E	0.03	0.26	0.01	0.13	0.06	0.07	0.00	0.14	0.01	0.23	0.06	0.12	0.00	0.00	0.37	0.68

Image 1

The total number of candidates in the Numerical 1 course is 2107. The number of candidates for which item analysis was made is 1053. The highest score obtained from this test is 100.00 and the lowest score is 0.00. The mean score is 34.52 and the standard deviation value is 24.97. The highest P value of the test is 0.78 and the lowest P value

is 0.24. In the test, items 2, 7 and 12 were classified as "good" and other items as "very good'. "Very good" items had P values between 0.29 and 0.78; R values range from 0.40 to 0.70. For the items in the "Good" category, the P value was 0.24-0.35; It is seen that the R value varies between. 34-0.35 (Image 1).

The Numeric-2 Course

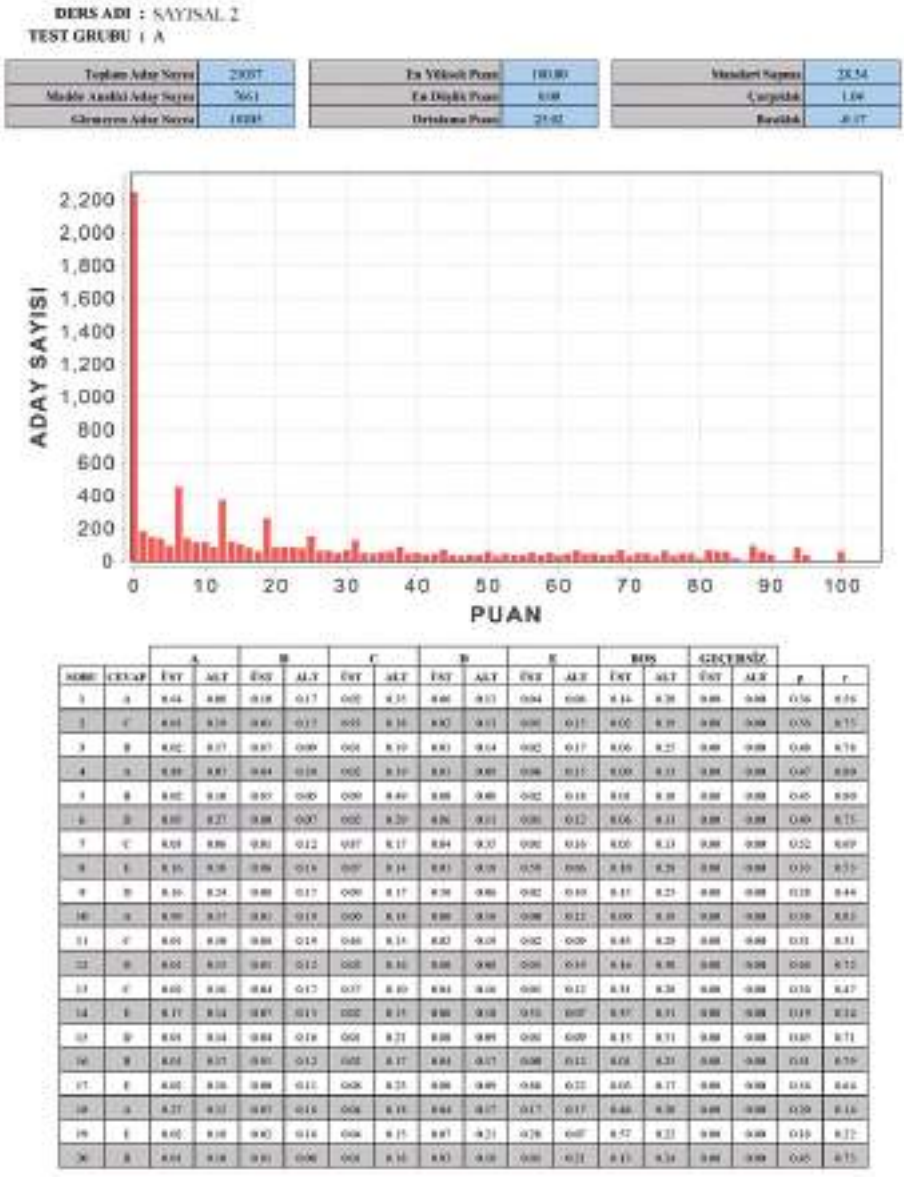


Image 2

The total number of candidates in the Numerical 2 course is 21037. The number of candidates for which item analysis was made is 7661. The highest score obtained from this test is 100.00 and the lowest score is 0.00. The mean score is 25.02 and the standard deviation value is 28.54. In this test, the highest P value is 0.58 and the lowest P value is 0.18. 1st, 2nd, 3rd, 4th, 5th, 6th, 7th, 8th, 9th, 10th, 12th, 13th, 15th, 16th, 17th, and 20 Items were categorized as "very good". Considering the P values of the items categorized as "very good", they ranged from 0.28 to 0.58; It was observed that the R values varied between 0.44 and 0.82. The P-value for the reverse working items (items 14, 18, 19) was 0.18-0.20; R value is between 0.14-0.24 (Image 2).

The Verbal-1 Course

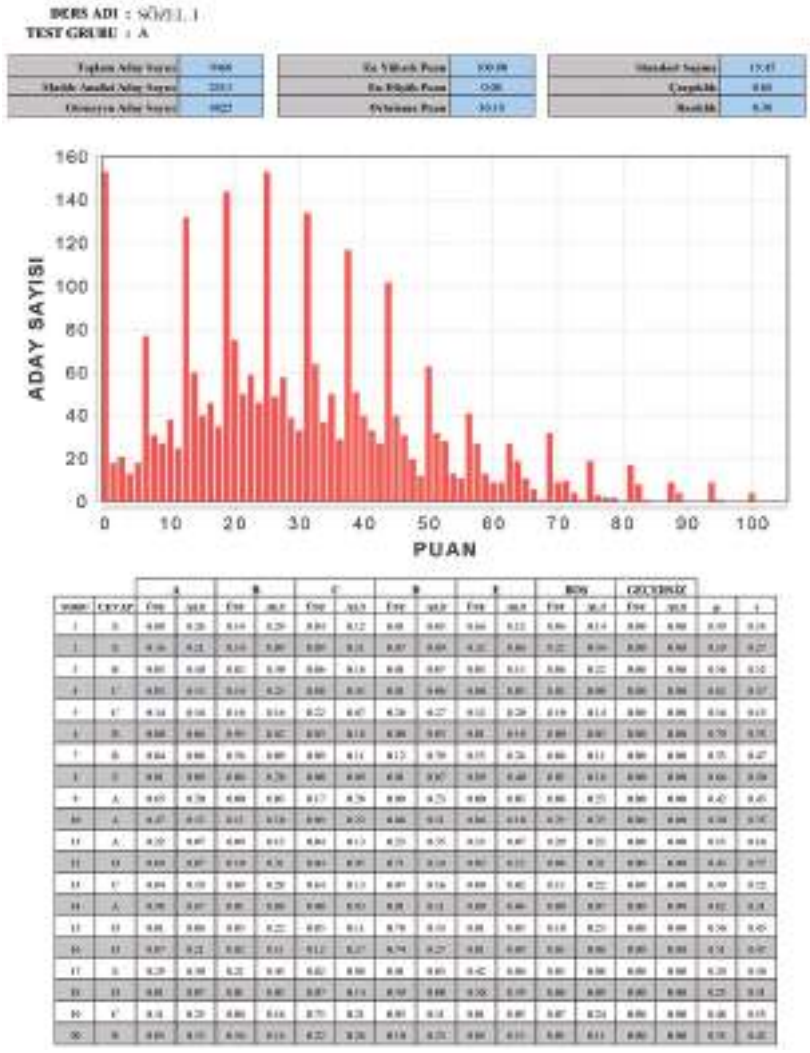


Image 3

The total number of candidates in the Verbal 1 course is 9460. The number of candidates for which item analysis was made is 2513. The highest score obtained from this test is 100.00 and the lowest score is 0.00. The mean score is 30.18, and the standard deviation value is 19.45. Items 1, 3, 7, 8, 9, 12, 13, 15, 16, 19, and 20 were classified as "very good" in the test. The P values of the items in this classification were between 0.33 and 0.64; R values range from 0.42 to 0.57. The P values of items 5, 11, and 18 that reversed in the test were 0.14-0.23; It is seen that the R-value is 0.14-0.31 (Image 3).

The Verbal-2 Course

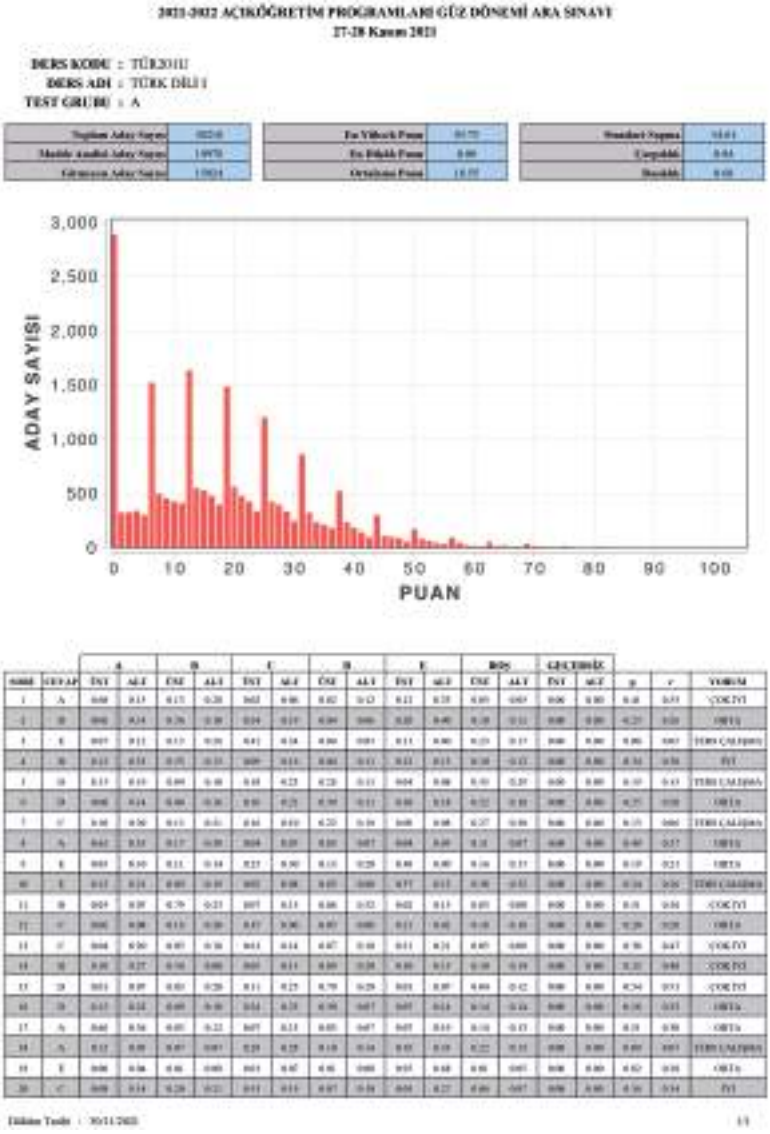


Image 4

The total number of candidates in the Verbal-2 course is 38218. The number of candidates for which item analysis was made is 19978. The highest score obtained from this test is 93.75 and the lowest score is 0.00. The mean score is 18.55 and the standard deviation value is 14.61. Items 1, 11, 13, 14 and 15 were classified as "very good" in the test. The P values of the items in this classification were between 0.45 and 0.72; R values range from 0.41 to 0.56. The P values of the 1st, 2nd, 7th, 9th, 13th and 18th items in the "Good" category were 0.32-0.54; It is seen that the R value varies between 0.47-0.53. The P value of the 3rd, 5th, 7th, 10th, and 18th items reversed in the test was 0.08-0.24; The R value is seen to be 0.05-0.26. The 2nd, 6th, 8th, 9th, 12th, 16th, 17th and 19th items in the test were at a moderate level. The P value of these substances was 0.18-0.82; Its R value is between 0.21-0.30 (Image 4).

DISCUSSION AND CONCLUSION

Multiple-choice tests are the leading measurement tools used in the assessment of open and distance learning (Chaudhary & Dey, 2013; Karadağ & Özgür, 2020; Zhang, Tsui, Jegede, Ng & Kowk, 2002). In order to minimise chance success in exams with multiple-choice tests and to ensure inter-institutional unity in the evaluation of learners, Anadolu University open and distance learning system has been implemented since the 2016-2017 academic year, in which four wrong answers destroy one right answer. In this study, the tests consisting of multiple choice questions related to 2 numerical and 2 verbal courses in the open and distance learning system were interpreted based on the item difficulty and item discrimination index of the exam results. In terms of its results, this study is a guide for institutions providing open and distance education.

In general, when numerical and verbal lessons were compared in this study, it was seen that the discrimination of the items in the tests of numerical lessons was higher. In other words, they are questions that can distinguish between those who know the answer to the question and those who do not. The distinctiveness index of the questions in the numerical-1 course is quite high (Image 1). Although the discrimination indexes of the questions in the test of the Numerical 2 course were high, 3 questions worked in reverse. In other words, some of the learners in the upper group who were successful in this test chose the wrong option. The discrimination coefficient of the reversed questions was quite low. In other words, the degree of distinguishing learners in terms of measured characteristics is quite low (Büyüköztürk, 2012). The standard deviation of this test is larger than the arithmetic mean. In other words, it was seen that the learners gave different answers and the differentiation increased, and the group was

not homogeneous. Looking at the skewness coefficient, it is seen that the distribution is skewed to the right. When there is a right skewness in the distribution, it can be said that an unsuccessful group or questions are difficult for the learners because the majority of the learners have low scores. In such cases, the arithmetic mean; is greater than the mode and the median. In a normal distribution, the arithmetic mean, mode, and median take very close or equal values.

In the two tests of the verbal lessons, there are more reversed and less distinctive questions compared to the numerical lessons. The test of the Verbal 1 course consisted of qualified questions, except for 3 reverse working questions. The distribution is skewed to the right. That is, the mean is greater than the mode and the median. On the other hand, in the test of the Verbal 2 course, 5 questions worked in reverse and 8 questions worked at medium level. The mean is quite low, and the distribution is again skewed to the right. It can be said that the questions were difficult for the learners. Considering that 7 questions measure the desired feature, the other questions in this test, especially the reversed questions, need to be reviewed.

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How Covid-19 Taught Teachers How to Teach Online – The Story of Teacher Resilience Amidst Coronavirus Pandemic – A Case Study at the Open University of Mauritius

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Abstract

Covid-19 marked the next year with unprecedented death tolls, millions of infected people, and closure of almost all activities, including education. The UN 2020 report highlights that this pandemic has caused the largest disruption of education in history with a near-universal impact on learners and teachers around the world. A total lockdown was enforced in Mauritius from 19th March 2020. On the eve, we prepared ourselves to adopt online teaching without any time to train our 400 part-time tutors and time to think about tutor and learner coping challenges. We just provided guidelines to teachers and learners. The next day, our tutors were performing tasks in which most were not competent. Along with teaching, they were also pushed to learn different skills and methods to teach online and acquaint themselves with new tools. It was a steep learning curve and daunting task leading to a sense of inadequacy as they attempted to reach out and make a difference for students. Yet, they did it and our syllabus coverage was not disrupted. This research adopts the narrative inquiry to gauge the driving forces that enabled teachers to teach under such circumstances, to be resilient, and to emerge as front-liners in education.

Keywords: *resilience, online teaching, pandemic and online teaching*

INTRODUCTION

When 2019 drew to its end, not many humans had imagined a devastation of its breed within the months to come. Covid-19 marked the next year with unprecedented death tolls, millions of infected people and the closure of almost all activities. As researchers and academics worldwide are conducting a plethora of research to have a better understanding of the multipronged consequences of COVID-19, one such area is that of education. The pandemic has forced many educational institutions to move to online teaching. The curriculum had to be completed and as such, tutors and learners had to adopt online platforms to ensure that the semester is not disrupted. The concern required immediate attention and there was no time to evaluate institutions' and users' readiness. The Open University of Mauritius (OU) is an institution that offers learning through a blended mode.

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When the Prime Minister of Mauritius announced a total lockdown on 19th March 2020, the next day all our courses went online. There was no time to think about how teachers and students would cope – time was limited and we had to ensure that courses were not disrupted. As we were anticipating some bad news in the hours to come, on the eve we prepared ourselves to move all courses online. But we had no time to train part-timers, which amounted to around 400. We prepared a guideline for teachers and students to enable them to understand how things will be. Teachers had a guideline about how to use Zoom for their sessions. On Saturday 20th March 2020, these teachers were not only working alone at home, but they were working on tasks about which they may or may not feel competent. While they had to teach, they were also pushed to learn different skill sets and methods required for delivering instruction online and to use new platforms for teaching. For many, these were a steep learning curve and a daunting task and leading to a sense of inadequacy as they attempted to reach out to students and make a difference for them. Yet, they did it, and this continued as we faced a second lockdown in 2021. It is therefore imperative to understand the driving forces which enabled the teachers to teach under such circumstances, to be resilient and to persevere despite not being acknowledged as the frontliners in education.

Literature Review

In 2019, many educational institutions had never imagined the effect a pandemic could bring – with Covid-19, we have seen a resurgence in the way people behave as it has pushed people to re-engineer their traditional ways of doing things. The concept of change is embedded in all spheres of life, however, how prepared we are to see, accept, adopt and succeed is dependent on many factors. Institutions have had to sidestep important strategic management functions: assess needs, design, implement and monitor before finally adopting the online mode of teaching. With Covid-19 many institutions found themselves pushed to adopt new methods of teaching, yet they succeeded. The quasi-presence and use of information and communication technology has undoubtedly had profound impacts across several areas. As such, online teaching and learning are not new concepts, but the prevalence is not the same across all educational institutions.

When it comes to acceptance of technology, use of technology in teaching and online teaching, the literature is flooded with theories that explain these concepts. For instance, the Technology Acceptance Model (Davis, 1986) has been widely used in studies that investigate e-learning and is the mostly used model in studies of users' acceptance of technologies (Cigdem & Topcu 2015). It is designed to measure the adoption of new technology and revolves around variables that measure perceived usefulness and ease of use as well as attitude towards use of technology. As much as it has received critical acclaim and acceptance, it still has many limitations and the model has been further extended to include those variables that the original one does not address. The COVID19 pandemic has further resulted in several studies around e-learning adoption issues in higher education during the pandemic (Almaiah et al., 2020; Vladova et al., 2021).

As put forward by Sokal el al (2020), understanding the nature of teachers' attitudes toward change (TATC) is essential to understanding their intentions to carry out desired behaviour. Another theory highly acclaimed in this field is the Theory of Planned Behaviour (Ajzen, 1985) and the following works that emerged as a response to this theory to explain people's behaviours and attitudes when there is a change in a process. One example is the work of Vakola and Nikolaou (2005) who acknowledged patterns in a person's thoughts, feelings, and behaviours towards change in an organisation. Kin and Kareem (2018) recognised three dimensions when defining attitudes toward change in teachers, and these are belief, cognitive and behavioural.

Nevertheless, there is a dearth of study about the factors that enable teachers to use technology in teaching at a time where there is neither room to consider what drives acceptance and adoption. This research therefore also borrows from the concept of resilience to understand how people react when they are confronted with uncertainties and have to perform their duty under extenuating circumstances, and what drives them to sustain this attitude. The concept of resilience is derived from the disciplines of psychiatry and developmental psychology. Resilience is a psychological condition which entails a person's ability to handle stress, complication, and adversity (Hobfoll et al., 2003). Resilience is also a construct which has been operationalized in a variety of ways, but most definitions are based around two core concepts: adversity and positive adaptation. However, research about teacher resilience is a relatively recent area which provides an understanding of what enables teachers to persist in the face of challenges and offers a complementary perspective to studies of stress, burnout and attrition (Beltman et al. 2011).

This leads to the work of Kin and Kareem (2018) who explained teachers' attitudes toward change and they argued that "cognitive responses to change are defined as teachers' beliefs about the significance and necessity for change, and the extent of how school change would benefit them personally and in the context of the organisation. Affective responses to change are viewed as teachers' feelings about the change, particularly the feelings linked to satisfaction or anxiety about the change. Behavioural reaction to change refers to the actions for or against change i.e. the extent to which teachers would support or resist change." These three aspects also provide a direction in understanding how teachers teach under stressful conditions.

Significance, Applicability and Interest of This Research

Education in the Mauritian public and private tertiary institutions have mostly been dominated by traditional and conventional face to face methods. When the island was hit by Covid-19, most of the universities had to freeze all their courses and students faced many uncertainties. The Open University of Mauritius (OU), on the other hand, uses the Open and Distance Learning approach and offers courses through the blended mode, which is a mix of synchronous and asynchronous. It was decided that in the event of a lockdown, which seemed to be coming imminently, teaching will continue online with immediate effect. Academics and technical teams had one day to choose the most convenient online platform and device guidelines for tutors and students. As anticipated, the country was under lockdown the following day and OU did not freeze

any course and moved online immediately to continue the semester syllabus. Yet, how the tutors managed to successfully deliver courses with the prevailing stressful conditions remains an untold story.

Although it is expected that tutors be ICT literate, there is a difference between literacy and ability to teach online. The teacher educators in Downing and Dyment's (2013) study reported lack of confidence and competence regarding the required technological skills to teach online at the beginning of the transition to online teaching. This type of emotion is therefore believed to be a challenge, specially for those who have never been exposed to this setting. Covid-19 has been like a whirlwind for educators who have had to show immense resilience while balancing the unanticipated changes to their work and home lives. Students depend on their teachers, and in such situations, the teacher has to lead the show to ensure that students are able to gain the knowledge required. Such a research is therefore eye-opening, and serves as an example that resilience can indeed make possible what seems to be impossible. The significance of the narratives is twofold: contributing to the literature in resilience and inspiring teachers and educational institutions to persevere in times of uncertainties. This qualitative research also answers the question of what do we learn from these rapid changes and adaptations in new forms of teaching during the early COVID-19 lockdown to devise measures in higher education in case of future potential public health crises.

Limitation

This study was carried out among a particular university which has a different teaching approach and the findings derived cannot be generalised.

The teachers concerned have been taken from a sample of a university specific pool who teach mostly social science subjects and their views are limited to experiences around such subjects.

This is a cross sectional study and the findings are based on the experiences during that specific point in time.

AIMS AND OBJECTIVES

In times of uncertainty and stress, the way one works is not the same as compared to a normal condition. When Mauritius went into lockdown for the first time, there were many uncertainties and most people found this new way of life problematic. How to buy food, how to get access to health facilities, what about school, there were thousands of questions in the mind of everyone. Among such uncertainties OU teachers were expected to immediately move to online teaching. It was not the time to think about learners' and tutor's preparedness, ability, and all other issues associated with this mode of learning- the process had to continue. This study is aimed at understanding how OU teachers adapted to this new normal under abnormal conditions. The objectives on which this study stands are to: -

1. Examine the challenges teachers encountered to perform their job as online teachers
2. Describe the internal and external factors enabling teachers to cope with online teaching
3. Explore the emotions and attitudes associated with the different encounters which affected the teaching process

METHODOLOGY

This research study has been defined by an interpretivist paradigm and a narrative inquiry methodology. It unravels how the sudden COVID- 19 outbreak led tutors working at OU to the forced adoption of online teaching, the different vulnerabilities they faced, and what factors contributed to their resilience. To discover reasons for observed patterns, especially the invisible or surprising ones, qualitative designs are needed (Busetto, L. et al, 2020). Therefore, guided by the philosophical assumptions of interpretivism, this study considered the teachers employed during the February 2020 semester to make sense about how they have experienced online teaching amid the pandemic subjectively. To analyse the factors that contributed to a sustained course delivery by tutors, the narrative inquiry is used. Narrative inquiry is a form of qualitative research in which the stories themselves become the raw data. Narratives provide insight into people's thoughts, emotions and interpretations, thus an important way to make meaning from experience (Polkinghorne, 1988). The aim of narrative inquiry is therefore not to find one generalisable truth but to 'sign up many truths/ narratives' (Byrne-Armstrong, 2001). The Interview method is used to gain insights into the person's subjective experiences, opinions and motivations – as opposed to facts or behaviours (Hak, T., 2007).

Once the research approach and method were finalised, the next step was to choose respondents. One aim of qualitative sampling is that all variants of the objects of observation that are deemed relevant for the study have to be present in the sample. To meet this aim, purposive sampling was used and the selection criteria ensures that the sample consists of teachers with different demography, subject and level taught, class size, ICT conversant and previous exposure in online teaching/learning environments. As OU mostly offers social science courses, one particular programme was selected – Social Work and five tutors were selected ensuring that they met the requirements for this research. The interview method was used which was guided by the Mishler model (1995), namely, "imposing the story" method whereby the participants are given guidelines as to what should be covered in the story so that salient data is produced, by giving them the liberty to add their inner feelings. Participants thus unfolded their stories which were audio-taped with their consent. Once data was gathered, an analysis of narrative was used to make sense of those data. While the narrative analysis relies on accounts that are analytically treated as whole units rather than fragmented into coded categories as evidenced in other qualitative approaches (Riessman, 2008), analysis of the narrative allows the researcher to make sense of the stories (narratives) of the participants. Given the scope and objectives of this research, an analysis of the data was carried out, allowing the researcher to come up with themes that emerged from these stories. Guided by what Riessman (2008) argues narrative analysts should, that

is, 'strive to preserve sequence and the wealth of detail contained in long sequences', the content was analysed not in fragmented parts, but as a whole, keeping the essence in the story. Based on the content and emotions driving the narratives, each story is resumed in one sentence.

FINDINGS

When the closure of all schools and universities was announced due to the pandemic of COVID-19, and OU maintained that teaching will continue online, the majority of teachers were mostly anxious about how things would be. Fear for the unknown is something common across all domains of life. However, how one responds in the face of the unknown, coupled with adversities, is what ultimately drives that person to overcome all barriers and succeed. It has been thus reported that for many of them, there has been forced immersion into technology-enabled forms of learning. Al-Fudail and Mellar (2008) came up with the word "technostress" which describes the state of teachers who were required to use technology in their teaching but perceived neither internal nor external support to do so successfully, which these teachers felt at the very beginning.

Each of these five stories unveil how these teachers reacted and how they managed to survive this new venture. It was clear that they will be at the forefront to deliver courses, but how? As the scope of this paper does not allow the full story, some salient sentences are presented in Table 1 that emerged in their stories. The sentences have been coded to later resume the story in the form of a title that describes each story narrated. Lastly, the driving emotions and attitudes which the author could make out during the narratives are presented.

Coding and Interpretation of Data

Teacher	Salient sentences	Codes	Resuming the story	Driving Emotions
1	I was worried how to continue teaching through the internet, does it really work.	Anxiety Fear of the unknown	Together challenges can be overcome	Determination
	Thankful note goes to the staff of the University because they forwarded precise details	Institutional support		
	I had to learn how to create an account and share my screen and try means and ways to succeed.	Learning Perseverance		
	I knew I had to do my best for my students.	Intrinsic Motivation		

2	Can be stressful leading to physical ailments such as migraine and poor posture.	Worry for health	Accept and move on	Confidence
	Digital learning promotes a higher flexibility as same can be conducted from anywhere and this is the new normal.	Hope Acceptance		
	Technical issues can occur anytime and hence resulting in disruptive lectures.	Technical problems		
	Option of administering online quizzes to ensure participation of the class.	Engagement		
3	Not sure whether students were really here and following.	Isolation	Defeating challenges by diving deeper	Curiosity
	University believed in my competencies, so I had to do my best to deliver.	Intrinsic motivation		
	I had to take time to understand how Zoom works, acquaint myself and learn	Learning Unveiling own talents		
	Happy that my students managed to understand although the subject involved mostly numbers and this online teaching was not the best approach	Sense of fulfilment Navigate through uncertainty		
4	I was very worried as I was not familiar with this whole environment.	Anxiety Fear of the unknown	Where there is a will there is a way	Accomplishment
	When I saw that most of my students joined my online session on the first day, I knew I had to be at my best to support them	Intrinsic motivation		
	I browsed a lot to learn how to teach online and this really helped me and even the university staff were always responsive to my queries and this encouraged me	Learning Institutional Support		
	Happy that almost all my students joined all the sessions	Feeling triumphed		

5	I know there is no other option and I had to adopt this new method of teaching despite my anxiety	Accepting the unknown	Complicated but possible with required resources	Enthusiasm
	Sometimes I felt it is not working but I did not stop. I looked for other ways to make sure I deliver to my best	Active coping		
	I phoned my colleagues to see how they are doing and we discussed about best practices	Instrumental support		
	Staff at OU were always present to respond to queries, which made this difficult journey less difficult.	Institutional support		

Discussion

Teachers are used to being in contact with their students but this pandemic caused a separation from their students as well as their colleagues. When the lockdown was announced along with changing the nature of their work, teachers felt an apprehension. The sense of isolation and loneliness arising from this condition is known to cause teacher burnout. It can be deduced from the findings that although they were confronted with an unknown situation, the ability to perseverate rests a lot on how they perceived that change and what they did to survive it. According to Maslach and Leiter (2016), burned-out people often feel exhausted and overwhelmed and reflects an uneasy relationship between people and their work. But when burnout is counteracted with engagement, exhaustion is replaced with enthusiasm, bitterness with compassion, and anxiety with efficacy. This is reflected in the findings, especially by the emotions that led to the positive attitude, that when confronted with uncertainty, people can indeed accept and adopt the change.

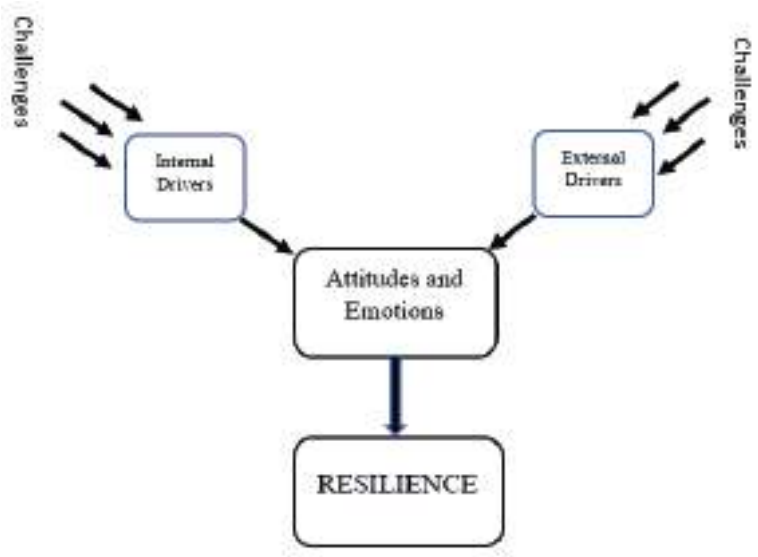
According to Berger (2020), people who do not believe in the reasons for the new behaviour or are suspicious of them are more likely to resist them. Similarly, Fredrickson (2004) observes that a subset of positive emotions promotes discovery of novel actions and social bonds, which serve to build individuals' personal resources and conclude that positive emotions fuel psychological resilience. This is further evidenced in the work of Fredrickson's broaden-and-build theory of positive emotions which contributes to the conceptual basis for understanding the resilient qualities of teachers who are doing a job that is itself emotional by nature. Key personal attributes that built resilience included altruistic motives and a strong intrinsic motivation for teaching. These teachers were driven by their duty towards their teaching vocation, which also needs compassion. As put forward by Nieto (2003), teaching is an intellectual endeavour which involves love, anger and depression, and hope and possibility, which is further consistent with the literature that emotions can help in the face of adversity.

4.3. Summary of Main Findings

The main findings are summarised in the table below: -

Challenges	Anxiety, Fear, Health worries, Isolation, Technical issues
Internal drivers	Learning, Perseverance, Intrinsic Motivation, Hope, Acceptance, Engagement, Intrinsic motivation, Learning, unveiling own talents, Sense of fulfilment, navigate through uncertainty, Institutional, Support, Feeling triumphed, Active coping
External drivers	Support from staff, Quality support, Institutional support
Emotions and Attitudes	Determination, Confidence, Curiosity, Accomplishment, Enthusiasm

Using these findings, a comprehensive resilience framework is proposed: -



RECOMMENDATIONS AND CONCLUSION

Resiliency is a psychological concept encompassing several dimensions such as overcoming diseases (Denz-Penhey and Murdoch, 2008), nursing duties (Polk, 1997) and positive adolescence (Haase, 2004) among others. All related research shows that it is achieved both through internal and external sources. Therefore, it is important to provide opportunities that give individuals access to both environmental and personal resources that develop their resilience in meaningful ways. This can take the form of workshops with teachers that target to build resiliency through: -

1. Identity search in the context of uncertainties and leadership skills that are required to develop and allow identities to evaluate in the wake of adversities.
2. Coaching by role models who can prompt teachers to their capacity to cope and develop critical and creative thinking.
3. Sharing insights from both students and academics who show resilience so that these can be discussed, reflected and practised.

As put forward by McAllister and McKinnon (2009) in their research about resiliency in the health sector, resilient clinicians 'could be encouraged to share lessons from their experiences for the benefit of the future workforce through dialogical activities such as shared storytelling at seminars and conferences and through publications', this research paves the way to encourage researchers to showcase success stories of teachers at institutional, national, and international level so that these insights can serve as internal drivers to build positive attitude during uncertainties, which can in turn build resilience in teaching.

As a concluding note, across nations front-liners (emergency-area staff including those in the health and national security) were thanked for the job they did, this paper is a tribute to all the teachers who are working relentlessly to produce these very front-liners.

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Learning Analytics in Instructional Design Processes: A Systematic Literature Review

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Abstract

Learning Analytics is inherently complicated since the datasets used are frequently huge and originate from a variety of sources. Institutions must acquire sophisticated analytics skills in order to comprehend, share, and use enormous and complex data resources efficiently. If properly implemented and managed, Learning Analytics has the potential to alter schools and greatly enhance student and faculty educational experiences and achievement. This study investigated some of the recent studies on the implementation of Learning Analytics in Instructional Design processes to enhance learners' motivation and performance in higher education context and on issues that are important to further the research and application of Learning Analytics.

Keywords: *Big Data, Learning Analytics, Instructional Design, Motivation, Student performance*

INTRODUCTION

In the context of education, scholars have become more interested in Big Data and Learning Analytics. For the last four years, the Educause Horizon Report has been listing Big Data and Learning Analytics as a research trend. Academic institutions are a huge multinational market for Learning Analytics. Big Data and Learning Analytics have become key developments in academia that require more exploration, there is no doubt that the influence of these advancements on education, and how they can be benefited from must be investigated.

Big Data (BD) is a term that refers to large, complex data sets that involve systematic analysis in order to obtain valuable information. BD has long been gathered and analyzed for commercial gain and solutions, with the goal of improving user experiences and increasing productivity. When we consider BD in educational environments, it seems that there is a great volume of data accessible to analyze and produce value, particularly in technology enhanced learning environments. According to some experts, BD is a kind of information, which cannot be reviewed or processed using traditional methods. The purpose of BD is to extract value from a large volume of data by using appropriate analytical tools (Reinsel & Gantz, 2011), and Learning Analytics is one method to accomplish this purpose.

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The act of obtaining, analyzing, and reporting huge volumes of data in order to better understand and improve learning is known as Learning Analytics (LA) (Siemens & Long, 2011). Scholars may benefit from and use a wealth of data accessible in technology enhanced learning environments thanks to a variety of elements of information and communication technology (ICT) such as educational software, learning management systems (LMS), massive open online courses (MOOCs), and even social platforms to analyze and enhance the learning process. LA has piqued the curiosity of scholars attempting to describe and classify it in various ways (ReinselGantz, 2011; Greller & Drachsler, 2012; Brown et al., 2020; Baig et al., 2020).

Educators may now examine their learners' academic achievement, learning tendencies, and give immediate feedback thanks to the introduction of Learning Analytics (Black & William, 2018). Learners can be motivated and satisfied with quick and constructive feedback, which has a significant impact on students' performance (Zheng & Bender, 2019). Moreover, LA can assist educators in analyzing their existing teaching approach, pedagogy and instructional design and making modifications to meet the needs and requirements of their learners. Multiple virtual learning environments are being designed, and different courses are established depending on individual learner preferences (Holland, 2019). Therefore, it is vital to understand the effectiveness of LA in education to maximize its potential and to minimize the educational issues that can be prevented so that learning can be improved.

In the fields of BD and LA, various review studies have been undertaken so far. Sclater et al. (2016), conducted a systematic literature review study that focused on LA in higher education (HE) context in the UK and its international practice. Leitner et al. (2017), examined the research studies in LA between the years of 2012 and 2017. Viberg et al. (2018) analyzed 252 papers that were published between 2012 and 2018 to identify the current issues and applications of LA in HE. Baig et al. (2020), investigated 40 studies from 2014 to 2019 to identify the trends, research themes and the limitations of BD, and published their work in 2020. Yet, a comprehensive review on the effectiveness of LA in instructional design processes is still lacking today. Thus, the aim of this study is to conduct a systematic review of the studies in LA and investigate whether it contributes to instructional design processes in terms of type and efficacy of the design and whether the use of LA helps enhance learner motivation. The research questions of this study are stated below:

RQ1. Does LA contribute to the type and efficacy of the instructional design?

RQ2. Does LA help improve learners' performance through instructional design?

RQ3. Does Learning Analytics help enhance learners' motivation through instructional design?

Literature Review

By definition, Learning Analytics (LA) is "the use of data produced by the learner and analysis models to discover information and social connections in order to offer advice to learning" (Siemens, 2010; as cited in Wang & Chen, 2018, p.13). The process of LA

can be classified into four phases according to the actions that take place in each phase as follows: In Phase 1, learners produce data, in Phase 2, the infrastructure gathers and saves the data, in Phase 3, the data are analyzed and visualized and in Phase 4, the stakeholders are then fed these analytics (Clow, 2012). However, LA has a wide range of applications and can be used for a variety of reasons. As a result, identifying the fundamental components and developing a framework for LA is critical. According to Greller and Drachsler (2012), LA can be exploited in the field of instructional design (ID) and can be advantageous for instructional goals and practices, student mentoring, quality assurance, instructional design, and teacher effectiveness. In terms of LA dimensions and applications, the researchers offer the following framework shown in Figure 1.

The General Morphological Analysis (GMA) identifies six key dimensions of LA as stakeholders, objectives, data, instruments, external limitations and internal limitations.

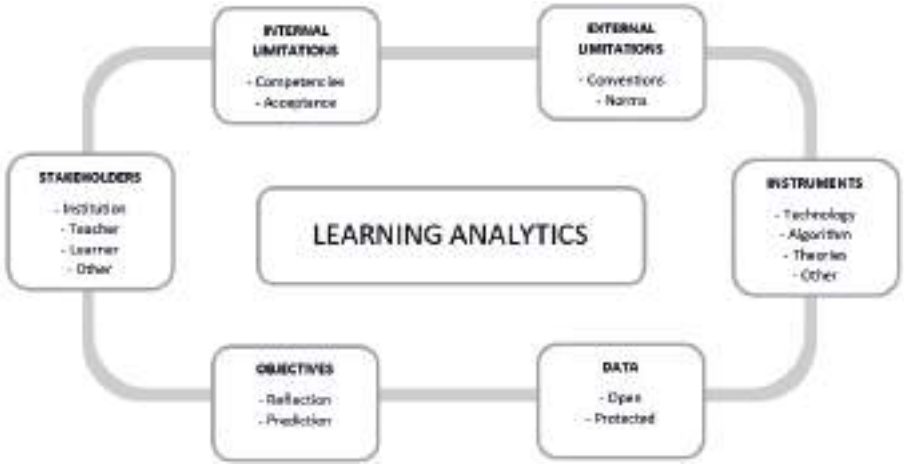


Figure 1. *Critical Dimensions of Learning Analytics (Greller & Drachsler, 2012)*

Stakeholders

The GMA identifies the key stakeholders as institutions, teachers, learners and other organizations that may benefit from the use of LA. Institutions, to offer opportunities for professional development or to apply policies such as quality assurance and efficiency initiatives (Greller & Drachsler, 2012) can use learner and teacher data. Institutions are reported to be in charge of supporting research and involving stakeholders in four areas of (1) developing data structure and application challenges, (2) investigating data utilization, (3) transforming data into information, and (4) evaluating the outcomes (Rafaghelli et al., 2020). However, Baig et al. (2020) state in their comprehensive literature review that just 23% of LA research focused on improving the educational system. This demonstrates the importance of institutions encouraging additional research in this field. LA can be advantageous not just on a micro level, but also on a macro level. For a meaningful and valuable LA insight, institutions must build

cooperation among stakeholders in parallel with doing genuine research in the field. LA may aid instructors on a micro level by providing them with important information about their students, courses, as well as about their own teaching. Instructors that use LA aim to get feedback on their teaching based on the behaviors and performance of their students, identify their needs, and reflect on their teaching or instructional methods (Yu & Wu, 2015). Learners who are primarily the data subjects of LA may profit from this in terms of personal reflection, which can be useful for self-paced and self-regulated learning as both are important aspects especially in technology enhanced learning environments.

The bulk of research on LA focuses on learners because they are the key stakeholders. Baig et al. (2020) conducted a comprehensive literature review from 2014 to 2019 to examine the trends in LA research and found that student behavior and performance accounted for 53% of the research. Many of the study subjects in LA that focus on students include analyzing student behavior to anticipate student success, learners at-risk, retention rates, and self-regulation (Baig et al, 2020). Researchers, instructional designers, governments, and other data clients who could profit from the data are some of the additional stakeholders in LA.

Objectives

The GMA states the objective of LA is to figure out why data is needed and how it will be utilized. Greller & Drachsler (2012), identify the two main objectives of LA as reflection and prediction. The main goal of LA is to offer input to all stakeholders through reflection. On a more individual basis, LA may assist learners in reflecting on their learning processes and providing tailored feedback on their progress. LA can assist institutions in (1) improving performance measurements and recommending actions or activities for individual learners on the micro level, (2) designing courses and instruction based on learner needs on the meso level, and (3) providing empirical data to take larger-scaled actions on the macro level. The next major goal of LA is to predict the future for educational purposes. Learner behavior may also be predicted and modeled using LA. This can facilitate early intervention (to avoid dropout, for instance) or customized solutions and instructional designs (Greller & Drachsler, 2012).

Data

The data might come from a variety of outlets. Institutions already have a vast amount of data, but a few more sources of data such as governmental and non-governmental reports and, more recently, social media data can be useful for LA (Rafaghelli et. al., 2020). The bulk of data extracted from institutions is protected, and they place a great priority on preserving student data. However, particularly on the macro level, open and freely accessible data is also required to benefit from LA. The assumption that data belongs to institutions because the technological systems that produce and gather data are normally controlled by them can pose some ethical and legal issues. Yet, it is still unclear whether institution personnel are included in the data contract between a learner (or their parents) and the educational institution or for what purpose the data is being used for (Greller & Drachsler, 2012).

Instruments

The methods and procedures utilized to collect the data are referred to as instruments. In LA, educational data mining, machine learning, and statistical analysis approaches are only a few options of collecting data. Furthermore, one key component to consider when examining the data is the inclusion of conceptual tools such as instructional and pedagogical theories. Depending on which educational theories are utilized, the same sort of data related to those theories can be interpreted in a variety of ways. As a result, LA researchers should be familiar with analytical frameworks. The methodologies used have a big impact on the quality of the generated data and on the extent of help it offers to the stakeholders. Hidden biases depending on preconceptions are always encoded in the algorithms that create the patterns (Hildebrandt, 2010) in order to provide more neutral objective information to the stakeholders.

Limitations

There are variety of constraints that might prohibit LA treatments from reaching their full potential. When dealing with LA in educational settings, there might be some ethical, legal, and societal restrictions, as well as organizational, managerial, and procedural constraints that must be addressed. External restrictions include regulations, ethical considerations, and institutional impediments. The skills of the stakeholders and agents in charge of data interpretation are internal restrictions. The management of these aspects has an impact on LA's growth and effectiveness. LA can be helpful in predicting student achievement and identifying students who are at risk of being "vulnerable." Determining what qualifies "vulnerable" is, nevertheless, a critical subject to investigate. In the future of the discipline, the ethical implications of LA will likely be a major concern. The terms "vulnerable" or "at risk" are labels that vary based on context, institution, and assessment. It is important to note that these labels may follow people across their academic pursuits and maybe beyond. Research on LA must be interested in focusing on how to define and assess these ideas in an ethical manner (Rafaghelli et al., 2020). In the adoption and growth of LA, privacy and ethics have been a source of debate (Siemens, 2019). When it comes to the amount of data collected, students, who are key stakeholders in Learning Analytics, need transparency and control, as well as awareness on how this data can benefit them (Abamu, 2017). Institutions must be transparent and consent-based when collecting data so that they can initiate the right interventions and make their further plans in a more effective and efficient way accordingly.

METHOD

A systematic literature review was done to explore the current research and discussions on Learning Analytics (LA). The main aim of the search was to examine the contribution of LA to the type and efficacy of instructional design, to students' motivation and performance through instructional design. Systematic literature review answers clearly stated questions by identifying, selecting and appraising research (Dewey and Drahota, 2016). It follows a protocol or a plan including predetermined criteria. In addition, it provides an up-to-date and systematic summary of the status for particular

issues. This study is a systematic review of the recent research literature on LA focusing on the relationships between Learning Analytics and instructional design, as well as learning enhancement and learner motivation in higher education context.

In the current study, the framework created by Okoli (2015) was followed. There are four steps in the framework that defines the flow of the review: (1) Planning, (2) selection, (3) extraction, and (4) execution. In the planning stage, the purpose of the systematic literature review is identified and the consistency in how to execute the review is ensured. In the selection stage, the exclusion and inclusion criteria are decided and literature search is carried out. The extraction step (1) requires extracting qualitative and quantitative data and appraising the quality of the papers to exclude insufficiently qualified ones, (2) involves synthesizing the studies and (3) enables the researcher to elicit and combine the facts to be extracted from the studies. Once the analysis is done, the systematic literature review is written in a way that gives sufficient details about the studies to lead other researchers to reproduce taking the results of the review into consideration independently (Okoli, 2015). The current study follows the Tripartite Model by Daniel and Harland (2018), which is to have clear steps in the execution stage. The Tripartite Model for systematic review, which includes three steps as (1) descriptive, (2) synthesis, and (3) critique, enables researchers to advance by following the designated parts in an organized way (Figure 2).

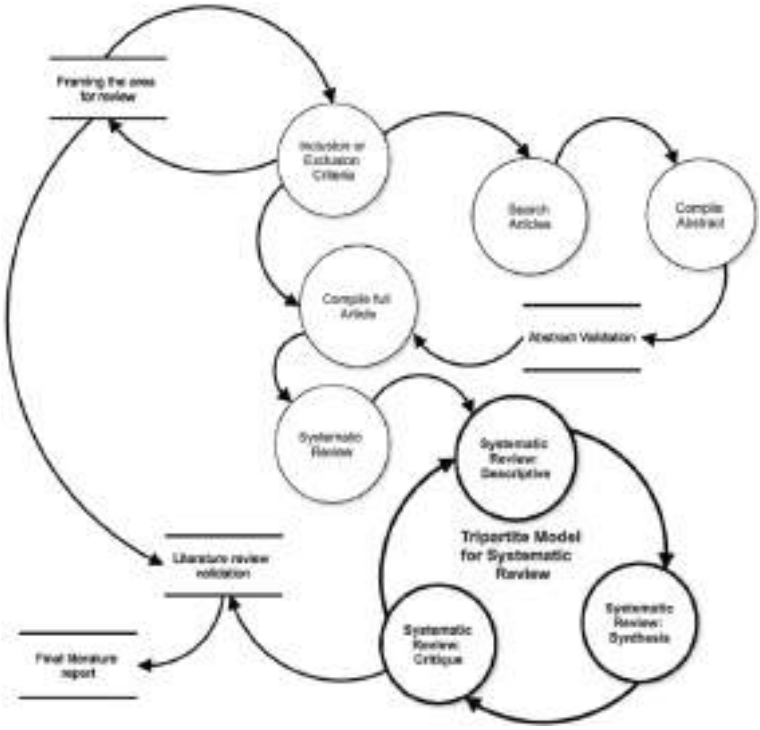


Figure 2. *The Tripartite Model: A Systematic Literature Review Process (Daniel and Harland, 2017)*

Planning

The purpose of the study is to examine whether using Learning Analytics contributes to the type and efficacy of the design and enhances learner's motivation and performance in instructional design processes in higher education institutions.

The research questions of the study were determined as follows:

1. Does Learning Analytics contribute to the type and efficacy of the instructional design?
2. Does Learning Analytics help improve learners' performance through instructional design?
3. Does Learning Analytics help enhance learners' motivation through instructional design?

Selection

Publications that met the criterion for the scope were included in the literature search. The scope of the current study was restricted to use of LA in the instructional design process. In addition, it was restricted to examine the possible effects of LA on instructional design as indicated by students' learning performance and motivation. Another criterion was the context of the studies. The context was restricted to higher education. The keywords and their synonyms were formulated based on these criteria. The databases Scopus, and SSCI were selected to conduct the search query between 2017-2021. The search started from 2017 because the aim was to explore the most recent research and discussions on the contribution of LA to motivation and instructional design. Further, we aimed to explore the research studies on the contribution of LA to students' learning performance and motivation through instructional design. The research studies were queried using the keywords such as "Learning Analytics and instructional design in higher education", "Learning Analytics and performance in higher education", and "Learning Analytics and motivation in higher education". Initially, 75 studies were found with regard to the criteria. Table 1 shows the distribution of the number of articles according to keywords.

Table 1. *Number of Articles According to Keywords*

Keywords	Number of Articles
Learning Analytics and Instructional Design and Higher Education	5
Learning Analytics and Performance and Higher Education	58
Learning Analytics and Motivation and Higher Education	12
Total	75

Inclusion/ Exclusion Criteria

The aim of this study is to identify the effects of LA to the instructional design process and consequently to students' learning performance and motivation. Therefore, we focused on quantitative studies that provide evidence of performance in a standardized method. In some of the studies, qualitative methods were used to gain insight in terms

of the attitudes and views of instructors, instructional designers, and students in the process of teaching and learning and/or supporting / triangulating the quantitative data.

The inclusion and exclusion criteria were identified and implemented after the literature search. Table 2 shows the inclusion and exclusion criteria followed in this study.

Table 2. *Inclusion and Exclusion Criteria*

Inclusion Criteria	Exclusion Criteria
English	Replication studies
Higher education context	Irrelevant to the focus of the study
Published between 2017-2021	Irrelevant to the research questions
Empirical study	Theoretical studies
Including intervention in the process of learning based on Learning Analytics	Overview studies
Full-text available	Manuscripts, systematic literature reviews
Peer-reviewed	Simulation study

Seventy-five papers were found in the initial search. Firstly, the title and abstracts of the studies were read to decide whether to keep them based on the inclusion criteria, or to eliminate them based on exclusion criteria. The articles that did not meet the criteria were excluded. When the abstracts and titles of the studies did not yield enough information to include or exclude, then the method and result sections of the articles were scanned. In the second selection process, the remaining papers by all the authors were examined separately. The search results were discussed and the selection criteria were calibrated. Since there were not any conflicts in the selection of the studies, the remaining 25 studies were included in the extraction phase. From the remaining 25 papers, we extracted and collected research questions, context, participants, intervention, comparators, and outcomes. These studies were subjected to a quality appraisal process.

Extraction

Extraction process is an important step in the systematic literature review procedure as mentioned by Okoli (2015). Extracting data includes taking information from each study to get the raw data for the synthesis (Okoli, 2015). After the literature review, the inclusion and exclusion criteria were used to find the appropriate studies and the list of the studies was prepared. Before moving on to extracting the applicable information from the studies, quality appraisal was carried out.

Quality Appraisal

Quality appraisal guides the interpretation of findings. In addition, it helps researchers decide on the strength of inferences of the studies (Kitchenham, and Charters, 2007).

Quality appraisal can be treated as a detailed inclusion and exclusion criteria. For quantitative studies, "Randomized Controlled Trial Checklist", which is provided by the Critical Appraisal Skills Programme (CASP) (2020) was used. Randomized Controlled Trial Checklist has four sections: Section A includes three questions about the validity; Section B includes three questions about the methodology; and Sections C and D include questions about the results of the studies with three and two questions respectively. For each question, the checklist presents sub-questions to show how to consider what, while answering the main question. It is recommended that researchers begin from Section A. If the study is worth continuing to read, the researcher moves on to Section B, and then to Sections C and D. The researcher can give up answering the remaining sections if the former section yields low quality (CASP, 2020).

The checklist provides three possible answers "Yes", "No", "Can't Tell" and scores of 1, -1 and 0 respectively. Based on the guidelines, the questions that were answered as "Yes" were given 1 point, the questions that were answered "No" were given -1 point and the questions that were answered as "Can't Tell" were given 0 points. All articles were evaluated and coded independently by three researchers. This step helped to explore the quality and possible gaps in the results of the 25 studies. All disagreements between reviews were resolved through discussion. As a result, taking the checklist scores into account, 4 studies were excluded due to lower quality when compared to other remaining 21 studies. Figure 3 shows the distribution of research constructs in the studies and Figure 4 shows the temporal views of these 21 papers. Moreover, Table 3 shows the information of 21 studies included in the study.



Figure 3. *Distribution of Research Constructs*

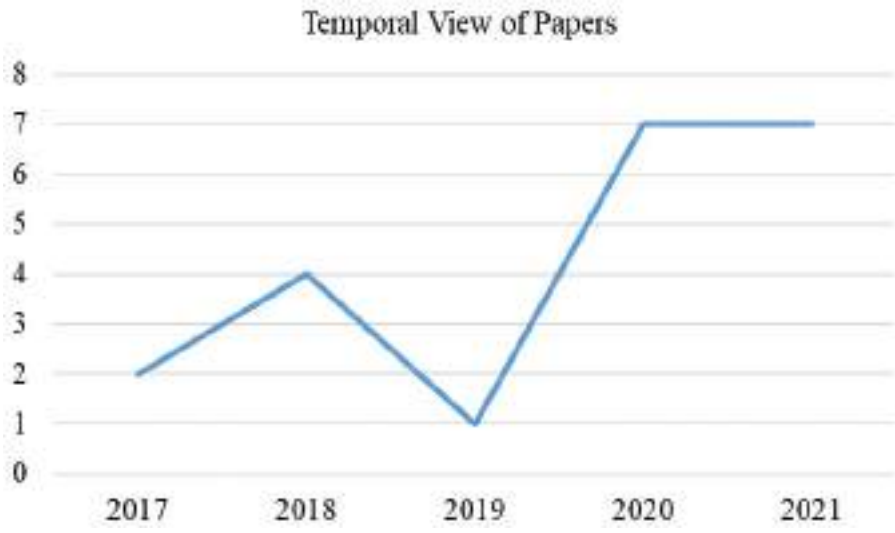


Figure 4. *Temporal View of Paper*

Table 3. *Studies Included in the Systematic Literature Review*

No	APA Reference	Country	Related Constructs
1	Valle, N., Antonenko, P., Valle, D., Sommer, M., Huggins-Manley, A. C., Dawson, K., Kim, D., & Baiser, B. (2021). Predict or describe? How learning analytics dashboard design influences motivation and statistics anxiety in an online statistics course. *Educational Technology Research and Development*, 1-27.	USA	LA and M
2	Jovanović, J., Saqr, M., Joksimović, S., & Gašević, D. (2021). Students matter the most in learning analytics: The effects of internal and instructional conditions in predicting academic success. *Computers & Education*, 104-251.	Multinational	LA and SP
3	Banihashem, S. K., Farrokhnia, M., Badali, M., & Noroozi, O. (2021). The impacts of constructivist learning design and learning analytics on students' engagement and self-regulation. *Innovations in Education and Teaching International*, 1-11.	Iran	LA and ID
4	Kosasi, S., Kasma, U., & Yuliani, I. D. A. E. (2020). The mediating role of learning analytics to improve student academic performance. In *2020 2nd International Conference on Cybernetics and Intelligent System (ICORIS)* (pp. 1-6). IEEE.	Indonesia	LA and SP

5	Jivet, I., Scheffel, M., Schmitz, M., Robbers, S., Specht, M., & Drachsler, H. (2020). From students with love: An empirical study on learner goals, self-regulated learning and sense making of Learning Analytics in higher education. *The Internet and Higher Education*, *47*, 100758.	Holland	LA and ID
6	Aguilar, S. J., Karabenick, S. A., Teasley, S. D., & Baek, C. (2021). Associations between learning analytics dashboard exposure and motivation and self-regulated learning. *Computers & Education*, *162*, 104085.	USA	LA and M
7	Yildirim, D., & Gülbahar, Y. (2022). Implementation of learning analytics indicators for increasing learners' final performance. *Technology, Knowledge and Learning*, 1-26.	Turkey	LA and SP
8	Karaoglan-Yilmaz, F., G., & Yilmaz, R. (2020). Learning analytics as a metacognitive tool to influence learner transactional distance and motivation in online learning environments. *Innovations in Education and Teaching International,* DOI: 10.1080/14703297.2020.1794928	Turkey	LA and M
9	Sun, J. C. Y., Lin, C. T., & Chou, C. (2018). Applying learning analytics to explore the effects of motivation on online students' reading behavioral patterns. *International Review of Research in Open and Distributed Learning*, *19*(2).	Taiwan	LA and M
10	Kaliisa, R., Kluge, A., & Mørch, A. I. (2020). Combining checkpoint and process learning analytics to support learning design decisions in blended learning environments. *Journal of Learning Analytics*, *7*(3), 33-47.	Norway	LA and ID
11	Toro-Troconis, M., Alexander, J., & Frutos-Perez, M. (2019). Assessing student engagement in online programmes: Using learning design and learning analytics. *International Journal of Higher Education*, *8*(6), 171-183.	UK	LA and ID
12	Joshi, A., Desai, P., & Tewari, P. (2020). Learning analytics framework for measuring students' performance and teachers' involvement through problem based learning in engineering education. *Procedia Computer Science*, *172*, 954-959.	India	LA and SP
13	Rafique, A., Khan, M. S., Jamal, M. H., Tasadduq, M., Rustam, F., Lee, E., Washington, P. B., & Ashraf, I. (2021). Integrating learning analytics and collaborative learning for improving student's academic performance. *IEEEAccess*, *9*, 167812-167826.	Pakistan	LA and SP

14	Hellings, J., & Haelermans, C. (2020). The effect of providing learning analytics on student behaviour and performance in programming: a randomised controlled experiment. *Higher Education*, 1-18.	Holland	LA and SP
15	Wang, S. P., & Chen, Y. L. (2018). Effects of multimodal learning analytics with concept maps on college students' vocabulary and reading performance. *Educational Technology & Society, 21*(4), 12–25.	Taiwan	LA and SP
16	Lu, O. H., Huang, A. Y., Huang, J. C., Lin, A. J., Ogata, H., & Yang, S. J. (2018). Applying learning analytics for the early prediction of students' academic performance in blended learning. *Journal of Educational Technology & Society*, *21*(2), 220-232.	Taiwan	LA and SP
17	Strang, K. D. (2017). Beyond engagement analytics: which online mixed-data factors predict student learning outcomes? *Educational and Information Technologies,* DOI 10.1007/s10639-016-9464-2.	USA	LA and SP
18	Mangaroska, K., Sharma, K., Gasevic, D., & Giannacos, M. (2020). Exploring students' cognitive and affective states during problem solving through multimodal data: Lessons learned from a programming activity. *Journal of Computer Assisted Learning, DOI: 10.1111/jcal.12590.*	Norway	LA and SP
19	AlJarrah, A., Thomas, M. K., & Shehab, M. (2018). Investigating temporal access in a flipped classroom: Procrastination persists. *International Journal of Educational Technology in Higher Education, 15*(1), DOI 10.1186/s41239-017-0083-9	USA	LA and SP
20	MD, S. & Krishnamurthy, S. (2021). Student performance prediction, risk analysis, and feedback based on context-bound cognitive skill scores. *Education and Information Technologies*, 1-25.	India	LA and SP
21	Mwalumbwe, I., & Mtebe, J. S. (2017). Using learning analytics to predict students' performance in Moodle learning management system: A case of Mbeya University of Science and Technology. *The Electronic Journal of Information Systems in Developing Countries, 79*(1), 1-13.	Tanzania	LA and SP

Execution

To synthesize the studies, see the general view of the studies, and emerged themes, a thematic analysis was prepared. In the thematic analysis part, the studies were examined in terms of their purposes, participants, interventions, comparators and outcomes. We used this analysis for descriptive purposes. Table 4 shows the thematic analysis of the 21 research studies selected for this literature review.

Table 4. *Thematic Analysis*

Research Number	Purpose of the Study	Participants	Interventions	Comparators	Findings
1	To explore the influences of the use of a predictive or descriptive Learning Analytics dashboard in an online statistics course on motivation and performance	179 graduate students	The predictive and descriptive Learning Analytics dashboards were used.	Predictive and descriptive dashboards, Learners' statistics anxiety, motivation, and learning performance outcomes	Not a statistical significance for learning performance outcomes Positive influence of the predictive dashboard on motivation among highly motivated learners
2	The purpose of the study is to examine to what extent learning analytics, external conditions and learning environments predict students' course performance, drop out risk and the learning process	2472 undergraduate students in 15 Blended courses	Four indicators were defined: (1) interaction of students with the online materials; (2) online learning resources available through the LMS; (3) general regularity of study indicators; (4) engagement with different learning resources.	Dependent variables: course performance, drop-out risk, the learning process Independent variables: LA data on students, the external conditions of students and the learning environment	The overall time spent online, regular daily contributions to the discussion forum, regular weekly access to the course, and lecture materials are found to be the predictors of students' learning outcomes across courses.

Research Number	Purpose of the Study	Participants	Interventions	Comparators	Findings
3	The aim of the study is to investigate the effect of the Constructivist Learning Design and Learning Analytics (CLDLA) Model on learners' engagement and self-regulation, and the learning design.	50 graduate students	Moodle course called "Teaching Skills" and Agentic Engagement Scale and Self-Regulation Questionnaires as a pretest and posttest measurements.	The Constructivist Learning Design and Learning Analytics (CLDLA) Learners' engagement, self-regulation	(1) The CLDLA model has a positive impact on learners' engagement and self-regulation. (2) The CLDLA model provides a pedagogical interpretation of students' self-regulation activities and informs teachers' learning design.
4	The aim of the study is to determine the influences and relationships of learning analytics, the intervening variables in improving students' performance.	203 active undergraduate students	Students fill in questionnaires and surveys. Path analyses were carried out.	Dependent variable: Student performance Intervening variables: The antecedent factors, including soft skills and learning analytics	Strong influences and relationships between academic, emotional learning and soft skills through learning analytics on improving student academic performance, and learning analytics improves student academic performance.

Research Number	Purpose of the Study	Participants	Interventions	Comparators	Findings
5	The aim of the study is to examine how university students make sense of the information presented on learning analytics dashboards.	247 university students	A mock-up dashboard was designed as a learning resource.	The learner goal as the independent variable and the three sense-making factors as dependent variables	Learner goals have a significant effect only on the perceived relevance of reference frames.
6	The aim of the study is to examine the relationship between information indirectly presented through academic advisors' use of LADs, and college students' academic motivation, and academic achievement.	201 students who were enrolled in a summer bridge programme	The model that shows how changes in student motivation and self-regulated learning (SRL) relate to view representations of their achievement embedded within an Early Warning System (EWS) that visually represented aspects of their academic performance	Dependent variables are students' motivation and self-efficacy Independent variable the use of an EWS during meetings	There are moderating effects of students' exposure to visualizations of academic performance on their SRL strategies and academic motivation.

Research Number	Purpose of the Study	Participants	Interventions	Comparators	Findings
7	The aim of the study is to determine indicators affecting students' final performance in an online learning course using predictive learning analytics in an ICT course.	1209 Freshmen students	Pre-test was given. Students received online learning activities that constitute course handbooks, discussion, instructional video and interactive questions.	Dependent variable is student performance Independent variable is learning analytics data	The level of total system interactions of learners with low-level prior knowledge affects performance. LA can inform the course design, appropriate actions to improve performance.
8	The aim is to examine the effects of learning analytics as a metacognitive tool on learner motivation in online learning environment.	81 undergraduate students	The students were randomly assigned to the experimental and control groups. While the students in the experimental group were provided feedback on the weekly LA results, no feedback was provided to the students in the control group about the LA results.	Learning analytics and motivation	Providing metacognitive feedback support to learners about LA results has an effect on increasing motivation.

Research Number	Purpose of the Study	Participants	Interventions	Comparators	Findings
9	The aim of the study is to explore the effect of learning motivation on online reading behavioral patterns.	160 graduate students	Participants were classified into three groups: low reading duration with low motivation, low reading duration with high motivation, and high reading duration based on a second-order cluster analysis.	Learning motivation and online reading behavioral patterns	(1) Highly motivated students exhibited a relatively serious reading pattern in a multitasking learning environment. (2) Online reading duration was a significant indicator of motivation in taking an online course.
10	The aim is to examine whether LA visualizations generated from different sets of process and checkpoint analytics support LD decisions.	36 bachelor students	Canvas activity metrics, discussion forum content, and interactions from a semester-long bachelor-level	Multiple levels of LA and understanding levels of students in online learning	Significant connections between LA and LD require an analysis of student checkpoints and process analytics to support teachers in ID.

Research Number	Purpose of the Study	Participants	Interventions	Comparators	Findings
11	To examine the success of online learning programmes by analyzing learning analytics and student feedback within the context and design of the programme. To decide how learning analytics could help evaluate the delivery of the programme.	33 MA students	Engagement with online content that promoted low-order cognitive skills (i.e. watching videos, reading materials and listening to podcasts) and high-order cognitive skills (i.e. participating in online forums and webinars).	The dependent variable was the average final grade of each student in all four modules. Two independent variables were identified: number of views on content pages and number of posts in forums and participation in webinars.	The results of the learning analytics suggest that engagement with low-end and high-order cognitive activities are the predictors of student performance.
12	To investigate how students' performance can be improved using a learning analytics framework.	3rd year university students	A problem based learning session was conducted for the 3rd year students of software Engineering course on a topic Software Testing. Research methodology consists of three components. (1) Pre-assessment, (2) PBL session, and (3) Post-assessment	Learners' behavior, engagement time, feedbacks, problem solving skills, participation in discussions as LA data, performance in PBL activities	Merging LA and problem based learning is an essential condition in designing efficient pedagogy and learning approaches for both teachers and students.

Research Number	Purpose of the Study	Participants	Interventions	Comparators	Findings
13	The main objective of this study is to predict student performance at the start of the semester and enhance their performance by finding factors responsible for poor performance by using learning analytics.	Students in higher education	A web-based software tool named 'Smart Learning' is designed to analyze and improve the learning of students. There are three modules: (1) visualization, (2) group formation, and (3) intervention, and a prediction.	Dependent variable: students' performance Independent variable: machine learning models	Experiments reveal that demographic, pre-university, and institutional factors (NTS marks, and previous degrees, marks, etc.) are the most appropriate factors to predict students' final performance.
14	The aim of the study is (1) to analyze the effectiveness of a learning analytics dashboard (LAD), (2) to investigate the effects on both online behavior, and performance of students as well as final performance in the course.	556 freshman computer science students	Students were randomly assigned to the treatment and control groups. Former having access to the LAD during the 8-week course, the latter without a dashboard. All students perform weekly exercises in the online environment of the course.	Dependent variables: online behavior and performance of students as well as their final performance in the course. Independent variables: a learning analytics dashboard (LAD), with weekly email with a personalized link to the dashboard.	(1) The email with dashboard access/ use has no effect on exam performance, (2) The weekly email and corresponding dashboard access/ use have positive effects on course performance (3) No evidence on influence of learning analytics on exam performance

Research Number	Purpose of the Study	Participants	Interventions	Comparators	Findings
15	The aim is to integrate a multimodal framework of learning analytics (IMFLA) to see the effects on participants' vocabulary and reading abilities during a period of two academic semesters.	A total of 70 students from a public university	The multimodal framework of learning analytics (IMFLA) with the concept mapping (Cmap) approach to improve students' vocabulary and reading abilities. 70 participants were divided into 2 classes, Class 1 (experimental) and Class 2 (control), for a 1-year period.	Dependent variables: vocabulary and reading test performances Independent variables: using IMFLA, concept map analysis and weekly log analysis with LA	IMFLA and time affected students' reading and vocabulary abilities. LA and log analysis confirmed that the reinforced application of multimodal approaches enhance students' vocabulary ability and reading proficiency.
16	The aim of the study is to study the application of LA and educational big data approaches for the early prediction of students' final academic performance.	59 freshman students studying in a Calculus course	Timely interventions for at-risk students through learning analytics in blended learning, MOOCs and the OAS are utilized to improve freshman students' learning outcomes.	Dependent variable: academic performance. Independent variables: LA data determined through students' use and engagement with the blended course materials and online resources.	LA can predict students' academic performance The blended data set combining online and traditional critical factors had the highest predictive performance.

Research Number	Purpose of the Study	Participants	Interventions	Comparators	Findings
17	The purpose is to explore the relationships between student academic performance and key learning engagement factors.	228 students in Human Resource Management (HRM) course using the Moodle LMS.	Moodle learning engagement	Dependent Variable: Student performance Independent variables: Demographic factors, course logins, forum postings, assignment activity, reading activity, quiz activity, quiz scores, student reflections, student self-efficacy	Moodle engagement analytics indicators were not efficient in predicting student online learning outcomes. None of the analytic factors were significant, except for course logins, which is clearly a predicate of any online activity.
18	The aim is to examine how the theory-informed measures from multimodal data that are selected as proxies for cognitive and affective dimensions of learning, are associated with student performance, and prior knowledge.	40 computer science students (bachelor and master studies)	The collected observations were gathered through repeated measurements over time code-debugging tasks to explore learning constructs associated with problem solving. The main task covered debugging a Java class named Person presented as a part of the main method.	Debugging as the treatment, continuous measures (via behavioral log data and the multimodal data) as predictor variables, and the performance captured thought students' progress with the task as the dependent variable.	Attention, convergent thinking, and frustration were positively correlated with high performing students' successful code-debugging (i.e., performance). Cognitive load, memory load, and boredom were negatively correlated with low performing students' performance.

Research Number	Purpose of the Study	Participants	Interventions	Comparators	Findings
19	To examine whether there are any significant differences among student performance groups with respect to LMS interaction.	63 undergraduate and master's students	Course materials were created by considering the learning analytics data of the students. Videos, readings and other course materials available by MOODLE.	Dependent variable: student performance Independent variables: data generated by MOODLE,	The regularity of student interaction with learning materials predicts learning performance and the irregularity of student interaction with learning materials predicts poor performance.
20	The purpose of the study is to investigate the predictive power and generalization of CCSS scores in identifying the students at risk and creating meaningful feedback.	Student data from 10 engineering courses and 4 courses from other academic programs	The model was trained on student data in engineering courses. Visual feedback is generated for students and teachers by aggregating CCSS for every Learning Objective, enabling them to perceive and analyze the student's progress.	The variables were primarily constructed from the periodical exam results to predict the outcome of an upcoming exam. 2677 exam records of students constituted the primary data set chosen for training and testing the student performance model.	The CCSS scores were successful in predicting the students at risk in both engineering and non-engineering courses.

Research Number	Purpose of the Study	Participants	Interventions	Comparators	Findings
21	The aim of the study is to establish requirements of designing and developing LA tools based on strength and weakness of analyzing existing LA tools. In addition, to determine the causal relationship between students' activities in Moodle and final students' results.	171 students at university taking Applied Biology I and Services and Installations II courses using the Moodle LMS	The study used the data obtained from the LA tool to compare with final exam scores	Dependent variable: students final scores Independent variables: Total login frequency in LMS, time spent in the system, number of downloads, interactions with peers, number of exercises and forum posts	All the LMS data were found to be contributing factors to impact students' performance except the number of downloads, login frequency. Time spent in the LMS was found to have no significant impact on students' performance in both courses.

DISCUSSION

There is no doubt that Learning Analytics (LA) has become a necessary component of education. This work presents a systematic review of the literature on learning analytics in instructional design processes with the aim of providing relevant studies on LA related to (1) higher education, (2) learner performance, and (3) motivation. The studies were collected by performing a systematic search through Scopus, SSCI and Google Scholar databases. Finally, 21 primary studies, which complied with the study protocol, were selected for further analysis. These chosen studies, which had been published between the years of 2017 and 2021, were analysed based on the agreed criteria. Through the findings of this study, it can be concluded that 62% of the studies in LA focused on student performance, 19% were conducted on student motivation and 19% were on instructional design. As a result, significant research on learner behaviour and performance has been carried out. Other topics, on the other hand, received less attention. Hence, more research on motivation and instructional design is anticipated in the future in order to integrate learning analytics into the course design process in higher educational institutions to help improve learning and create effective learning environments.

The constructs of the selected articles varied in terms of their research questions and aims (Figure 5). Of the twenty-one studies selected, thirteen of them were on student performance. One key objective of LA is to predict student learner outcomes in order to make necessary interventions (Greller & Drachsler, 2012). Studies that focus on student performance analyse the factors and the student engagement in order to predict the learning outcomes. Out of these thirteen studies, (1) three focused on the factors that would predict the learning outcomes

(Kosasi et al., 2020; Yildirim & Gülbahar, 2022; Mwalumbwe & Mtebe, 2017). The studies revealed that demographic and socio-economic factors did not play a role in predicting student-learning outcomes.

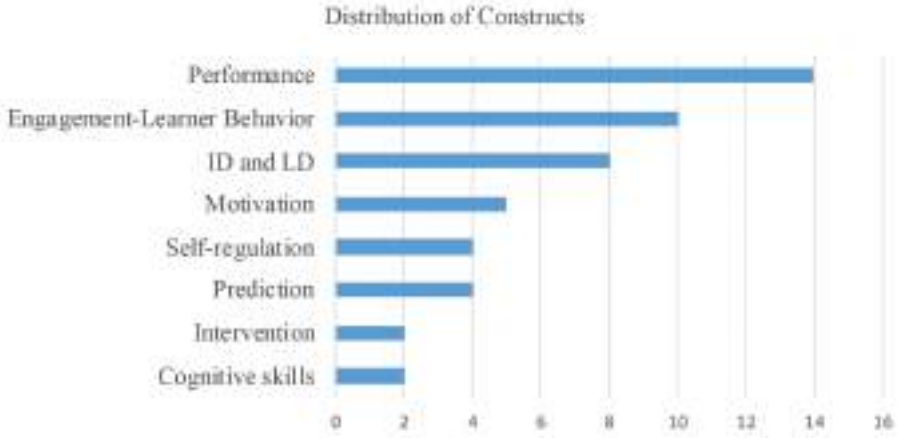


Figure 5. *Distribution of Constructs*

(2) One study found that student engagement levels, specifically, login frequency and time spent in the system had no significant impact on students' performance (Mwalumbwe & Mtebe, 2017). (3) Another three discovered that student online behaviours and their engagement levels in learning management systems did not predict student-learning outcomes (Hellings & Haelermans, 2020; Strang, 2017; Mwalumbwe & Mtebe, 2017). (4) Two studies aimed to find the relationships between the cognitive skills of the learners and their effects on student learning outcomes. Attention, convergent thinking, and frustration were found to be positively correlated with high performing students' performance whereas cognitive load, memory load, and boredom were negatively correlated with those of low performing students' (Mangaroska et al., 2020). The limitations of the studies can be listed as follows: (1) the normal curve was taken into account while analysing data on student performance, which can lead to misinterpretations and a disregard of individual learner characteristics. (2) Another limitation is the fact that ethical issues and issues that violate privacy and data use are not explicitly addressed in the studies. However, all parties must understand how data is accessed and used. The way institutions characterize and use data differs, which necessitates the development of a common strategy. To safeguard stakeholders' privacy and ensure equity, standardized norms and laws are essential. It should be the responsibility of the institutions (1) to be transparent and explain how, why and to what extent data will be collected and exploited and (2) to train learners and raise awareness among them on the topic in that they should have the right to access to their data and be able to add information or context to it. Consequently, further research could focus on the aforementioned areas.

Studies that concentrate on motivation investigated the relationship between LA and the motivation of the learners (Valle et al., 2021; Jovanović et al., 2021; Aguilar et al., 2021; Karaoğlan & Yılmaz, 2020; Sun et al., 2018). In one study, it was found that the predictive learning analytics dashboard (LAD) was beneficial to learners who started the course with higher intrinsic motivation; however, it reduced the motivation of those who started the course with lower motivation (Valle et al., 2021). Another study examined the predictive power of internal and external conditions across courses, and the extent to which the variability in the students' learning outcomes could be explained by each group of conditions (Jovanović et al., 2021). It was found that students' internal conditions explain a large proportion of the variability in their learning outcomes (Jovanović et al., 2021). One other study investigated how exposure to LAD affected learners' motivation and self-regulation (SRL) (Aguilar et al., 2021). The study revealed that the exposure to LADs by intermediaries is predictive

of changes in motivation and SRL strategies over a relatively short period of time (in seven weeks) (Aguilar et al., 2021). Moreover, a study carried out in Turkey found that providing metacognitive feedback support to learners about LA results has an effect on increasing motivation (Karaoğlan & Yılmaz, 2020). Another study explored the effect of learning motivation on online reading behavioral patterns (Sun et al., 2018). Unsurprisingly, it was found that highly motivated students exhibited a relatively serious reading pattern in a multitasking learning environment (Sun et al., 2018). In future research the possible effects of feedback driven from LA such as academic achievement, self-regulation, retention, can be taken into consideration. The student autonomy in the learning context can also be considered in design processes in order to support students to be flexible and autonomous. Therefore, future research can focus on determination of the appropriate content of feedback.

Relatively fewer studies solely investigated the relationship between learning analytics and instructional design processes, which was the primary aim of this study. However, how learning analytics can affect the instructional design of courses was explored in some studies (Jovanović et al., 2021; Banihashem et al., 2021; Joshi et al., 2020; Toro-Troconis et al., 2019; Kaliisa et al., 2019). One study reveals that students will interact more frequently and intensively with resources that are either directly or indirectly recommended by the instructional design (Jovanović et al., 2021). Another study investigated the effect of the Constructivist Learning Design and Learning Analytics (CLDLA) Model on learners' engagement and self-regulation, and whether the theory-oriented CLDLA model could improve students' engagement and self-regulation skills (Banihashem et al., 2021). It was found that the CLDLA model had a positive impact on learners' engagement and self-regulation (Banihashem et al., 2021). The researchers proposed that the CLDLA model could provide an operational framework to fully support students' active participation in the class and engagement in the knowledge construction based on constructivist learning design principles and process (Banihashem et al., 2021). Moreover, the CLDLA model could have a potential in providing a pedagogical interpretation of students' self-regulation activities and informing teachers' learning design (Banihashem et al., 2021). One other study aimed to investigate how theoretical claims could be transformed into effective learning in problem based learning (PBL) and how teachers' involvement could affect students' performance in a PBL environment (Joshi et al., 2020). The researchers claim that

merging LA and PBL is an essential condition in designing pedagogy that is more efficient and learning approaches for both teachers and students (Joshi et al., 2020). Another study examined the importance of evaluating the success of online learning programmes by analysing learning analytics and student feedback within the overall pedagogic context and design of the programme (Toro-Troconis et al., 2019). The research on the effects of LA on instructional design is a relatively new field of research as most of the literature dates back to as late as 2019. In addition, the scope of the available research was not covering mezzo level implementations. It would be more beneficial for instructional designers to have more longitudinal research to be available to refer to.

Another finding of this review is that 71% of the studies employed quantitative research methods and out of 21 studies, only 7 studies were experimental. 29% of the studies used mixed research methods for triangulation purposes. In addition to the quantitative data, interviews were conducted for data collection. Longitudinal data could be preferable for multidimensional measurements and long-term analysis of big data sets. Moreover, the studies were carried out at a micro and meso level yet; longitudinal studies in different learning environments, countries and cultures can help integrate learning analytics into the education system at a macro level.

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Evaluation of Metaverse in Terms of Capabilities for Distance Education

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Abstract

Metaverse generates a physical reality in a virtual environment with the help of digital technologies. It is foreseen that we will heavily feel its influence on our daily lives from education to business, and entertainment in near future. Distance education opportunities are also a rising area of the education world today, especially after the imperative distance education experiences around the world. At the same time, from the beginning, there are some critics about distance education environments. Whereas, metaverse emerges as a contemporary environment to address some of the issues of distance education. In this conceptual study, we analyze the opportunities that metaverse has to offer in terms of opening new windows in terms of distance education environments.

Keywords: *Metaverse, Virtual Reality, Augmented Reality, Extended Reality, distance education*

INTRODUCTION

Current research emphasizes the potential of metaverse to extend 2D experience of existing online platforms by offering a 3D learning immersion (Mystakidis, 2022, Hwang, 2022). With the inclusion of Virtual Reality (VR), Augmented Reality (AR) and Mixed Reality (MR) elements, metaverse provides richer immersion experiences merging the physical and digital worlds (Carter, 2022). Extended Reality (XR) is an umbrella term including VR and AR. VR components in metaverse, not only offer visualization to the users, but also support perception of depth by stereoscopic displays, while MR and AR elements bring digital content into the real world. Advances in imaging technology and computing have led to the capability of incorporating aspects of the physical world into virtual scenes (Damar, 2021). In this way, metaverse broadens the opportunities for real-time and dynamic interactions with an avatar that projects oneself. The above-mentioned capabilities of metaverse have the potential to address the limitations of the existing synchronous and asynchronous learning environments such as emotional isolation, low motivation, and distraction. Since the users have control on their own avatars in the virtual environment, they can have a freedom to represent themselves in various forms, which might help them to increase self-perception and presence.

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Limitations of the Existing Distance Education Environments

Limited interaction between peers and instructor

The literature contains several references to challenges of distance learning. Lack of face-to-face student-student and student-instructor connection is a major issue with distance education (Falowo, 2007; Li, 2009). Many researchers have also cited a lack of interaction between students (Dickey, 2004; Rovai & Wighting, 2005) as well as lack of interaction between students and instructors (Clark, 2002; Garrison & Arbaugh, 2007) as a fundamental drawback of online learning. While the distance learning offers flexibility and independence in terms of the time, place and pace of learning, too much independence may cause the students to become isolated from their teachers, peers, and the educational organization, which will lead to procrastination, delay, and finally program attrition (Klingsieck et al., 2012; Lim, 2016).

Students are more likely to abandon the course as a result of the diminished interaction, which frequently causes feelings of loneliness (Dickey, 2004; Hewitt, 2003; Russo & Benson, 2005). The majority of contacts between students and instructors in a face-to-face learning setting take place in the classroom. However, this kind of engagement is typically unavailable in an online setting, making it difficult for instructors to create more dynamic online learning experiences. Therefore, increasing interactions between students as well as between students and instructors has been seen as a crucial element of successful online learning (Roblyer & Ekhaml, 2000), necessitating the search for instructional strategies that encourage interactions in online education by online instructors.

Student Persistence and Motivation Retain

Closely related with the interaction challenge, another challenge reported in the literature is the student persistence in distance education courses (Naidu, 2017). While it is true that many distance learning students frequently stop attending the courses for extremely personal reasons that have nothing to do with the caliber of their course of study, online courses have a higher student dropout rate than face-to-face courses (Boston & Ice, 2011; Kop, 2011; Lee & Choi, 2010). Dropout rates were found to be associated with level and quality of interactivity among students, instructor, and content (Lee & Choi, 2010). Thus, engagement with the learning and teaching materials activities becomes important. With better design of the student learning experience, attrition can be minimized.

Missing Face-to-face Interactions and Lack of on-campus Socialization

Especially with the COVID-19 pandemic, lots of studies have referred to "missing face-to-face interactions with the peers and the teacher" as a disadvantage of online learning (e.g., Hayhurst, 2022; Jena, 2020; Misirli & Ergulec, 2021; Polimeris & Calfoglou, 2022; Posekany, et al, 2021). Since the emergency shift to remote teaching was brought on by the COVID-19 pandemic suddenly and unexpectedly, both students and instructors had little time to prepare for this transformation and the new remote-learning paradigm, respectively. Similarly lack of on-campus socialization has come to

the fore more with the pandemic. For instance, the following issues were reported in the literature; difficulty with completing group projects (e.g., Adnan & Anwar, 2020; Al-Jarf, 2020; Lassoued, 2020), the experience cannot be compared to that of an on-campus (Sadeghi, 2019); instructors' response time (Adnan & Anwar, 2020).

Just as there are several models of the campus-based experience for various contexts, there is a need for various models of the provision of distance learning for various educational situations. To ensure this, infrastructure and technology tools are key elements. Metaverse with its 3D immersive digital world opportunity is one of the tools that can be used to diminish the challenges reported in the field of distance education.

AFFORDANCES OF METAVERSE

VR–Advances in imaging technology and computing have led to the capability of incorporating aspects of the physical world into virtual scenes (Damar, 2021). Thanks to these advances, users have the opportunity to conduct more effective experiments in virtual laboratories. In addition, learners provide the opportunity to interact with other users in environments where they have not been before, and to capture a more productive learning environment. In the new generation metaverse environments, users can share their own screens, so they can experience their experiences from the eyes of other users. This increases social availability. Thanks to these systems, which bring a new breath to instant online environments, users have come to many freedoms, including the choice of avatars. As users have control over their avatars in the virtual environment, they can have the freedom to represent themselves in a variety of ways, which can help them increase their sense of self and presence (Kye et al.,2021). With these freedoms, users can express themselves more freely and thus increase their social presence. Another point that is at least as important as these is that it becomes an equalizing factor in education in direct proportion to the dimension of independence from space, which is one of the most important advantages of distance education. In addition, with the security dimension provided by blockchain technologies used by metaverse environments, users feel more secure, which further increases social participation and presence as it increases the environment of trust.

APPLICATION IDEAS IN DIFFERENT FIELDS

To understand the potential of a metaverse environment, we may investigate the affordances of each component in that environment. Since every field has its own specific learning needs, it may change from field to field which component(s) of the metaverse environment would be more beneficial. While some components may support mathematics learning more, some address specific gaps in science or music education. On the other hand, there are some affordances of the metaverse environment that would address issues in any field, especially in distance learning.

When we specifically look at the AR elements for example, it enhances the real-world, while some other applications such as VR, draw users away from the real world (MacCallum&Parsons, 2019). Hence, users can make stronger connections with real objects with an AR application, which may lead to higher cognitive presence.

For instance, 2-D and/or 3-D objects can be provided in a metaverse environment, so that students can make more realistic interactions with geometrical concepts in a mathematics course. At the same time, for the fields that use design elements more, representations would be more realistic in digital form in metaverse not only 2-D, but also in 3-D when needed. In this way student persistence and motivation would be improved because of higher possibilities for student-content interaction. Similar applications can also be conducted for other fields such as history and medicine. Historical figures can be represented in a class in a metaverse environment or 3-D representations of organs that students can investigate with zoom feature, even some mechanisms in the human body can be uploaded to the metaverse environment in video form.

In online learning environments, educators search for effective ways to increase social, cognitive and teaching presence (Garrison et al., 2000). All three presences require on-going, meaningful interactions among learners, between the learner and the educator, and between learner and the learning artifacts. Even if teaching strategies exist to support fruitful interactions and keep the learners motivated such as group work, discussion forums, pacing on assignments, still learner motivation and presence can be lost easily. Addition to above mentioned capabilities for student-content interaction, the advantage of metaverse is not only making all these applications possible, but also all the content representations, and students and the teacher are all in the same virtual space through their avatars. Thus, students do not need to feel the existence of the instructor and their peers with their imagination, they would see them and interact with them in different forms. In this way metaverse might provide a stronger sense of community not only for the students, but also for the instructors. In the metaverse, VR elements add more senses with vision, touch, and movement possibilities to a virtual environment, which has potential to address social and cognitive presences of learners. The possibilities for the representation of the content and interaction possibilities will also increase the teaching presence.

On the other hand, with XR elements, metaverse supports a 3D interaction with virtual objects through motion controllers such as buttons, triggers and thumbsticks. In this sense, with effective instructional design and planning, metaverse can provide some of the benefits of gamification and edutainment (Hwang, 2022). In future, users can meet, socialize and interact through their 3D avatars, which also has implications for future learning environments. Empirical studies can be conducted on the above-mentioned possibilities of a metaverse environment to investigate these opportunities more deeply and to present evidence.

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The Effect of the Process of Designing Online Learning Activities With the Design Thinking Approach on Creative Self-Efficacy

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Abstract

The aim of the research is to examine the effect of the designing online courses using the design thinking model on the creative self-efficacy of preservice teachers. For this purpose, the effect of using the design thinking model in course design on the creative self-efficacy of the students, the level of students' realization of the steps of the design thinking model and the creative self-efficacy according to the level of applying the design thinking model were examined. Araştırmaya farklı bölümlerde öğrenim gören 142 öğretmen adayı katılmıştır. Single Group Pre-Test - Post-Test Model was used in the research. As a result of the research, it was determined that the creativity and self-efficacy of the students developed as a result of the education process and online lesson plan design based on the design thinking model. In addition, it has been determined that students have completed at moderate level all steps of the design thinking model - empathize, define, ideate, prototype, test. The creative self-efficacy of the students does not differ according to the level of application of the design thinking model.

Keywords: *Design thinking, design thinking model, creativity, creative self efficacy.*

INTRODUCTION

Design, when viewed professionally, is a term generally used for certain professions such as architecture, fashion, technology and engineering. The development of professional designers and engineers is based on specialized training and years of practice, and design activities often rely on the creation of a valuable product (Li, Schoenfeld, diSessa, Graesser, Benson, English & Duschl, 2019). Generally, in engineering and technology fields, design is considered as an important and distinctive activity (Daly, Adams & Bodner, 2012; Haupt 2018; Simon 1996). However, the recent introduction of engineering and technology in school education has brought a new perspective to students' acquaintance with design thinking and thus the benefits they can realize with design activities (ITEA, 2007; National Research Council, 2009). Design and design thinking pave the way for creativity and innovation as it encourages people to see and address problems with different perspectives and approaches. Design thinking is a toolkit for innovation (Tschimmel, 2012) and has potential and applications in many different fields. The potential benefits of using methods associated with the "design thinking" approach to develop new innovations have been emphasized in the literature (Seidel & Fixon, 2013).

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Recently, design thinking has emerged as a thinking model that every student should develop and have in the twenty-first century (Li et al., 2019). Design thinking has the potential to enable even people who have not been trained as designers to use creative tools to overcome a wide variety of problems. "Anyone can approach the world like a designer. But to unlock greater potential and to learn how to work as a dynamic problem solver, creative confidence is key" (IDEO, https://designthinking.ideo.com/). Creative confidence is related to creative self efficacy and can be improved when one could produce creative solutions using design thinking approaches.

DESIGN THINKING

Design thinking refers to the complex and creative process that engages designers when designing a product (Aydemir, 2019; Stanford, 2010). The design thinking approach began to be used as a systematic program at Stanford University in 1968. After the 1980s, it has become an approach used to produce products and services in many fields (Aydemir, 2019). The term was popularized by the Stanford School of Design and the design firm known as IDEO. The term design thinking has its roots in a variety of disciplines and is often used in early literature only in relation to engineering, architecture and related design disciplines (Renard, 2014). Later, design thinking became the term used in different fields in the literature and practice in worked places.

The most important difference of the design thinking approach from the approaches to develop thinking skills such as critical thinking, problem solving, and the six thinking hats is not only to produce an idea, but also to embody that idea by transforming it into a design. The design thinking approach involves using mind and intuition that encourages empathy with the user, collaborative working and creative problem solving (Panke, 2019). Design thinking aims to reveal initial limitations of the wicked problems- problems with a large, unlimited problem space, complex and open to interpretation, do not have right or wrong answer, require individuals compete for solutions or producing ideas- in order to ensure that right questions are posed (Panke, 2019).

In the field of education, there has been an increasing interest in design thinking. There are increasing numbers of studies conducted to integrate design thinking into educational activities. It is also possible to come across in the education visions of countries. For example, bringing in the design-oriented thinking process aimed with the design-skill workshops in Turkey within the scope of the 2023 Education Vision and raising awareness on this issue has been a matter of importance for the Ministry of National Education. In fact, the Ministry of National Education provided design thinking training to teachers in 2019. Despite this increasing interest, it is not clear how this process will be implemented. There is a need for studies on how this design thinking process can be reflected in education or how a designer can use the design processes of a product more effectively (Henriksen et al., 2020).

Teachers Become Designers

The importance of teachers designing the teaching process in the role of a designer is increasingly emphasized in the literature (Chai & Koh, 2017; Kali, McKenney &

Sagy, 2015; Laurillard, 2012). Having design thinking skills can help students adapt to unexpected changes as well as solve truly complex problems. While the design process includes in-depth cognitive processes that can help students develop critical thinking skills (for example, reasoning and analysis), it also includes personality and dispositional traits such as persistence and creativity (Razzouk & Shute, 2012).

In order for teachers to think like a designer and to understand the design process well, it is important for these teachers to gain design thinking skills in teacher education programs (Henriksen et al., 2020). Design thinking provides a framework and tool for teachers to deal with practical problems, and when teachers take on the role of a designer, they can strengthen their problem-solving abilities at a time when many challenges arise in education systems. Educators face complex and varied problems in designing curricula, motivating students in content areas, communicating effectively with parents, and countless other issues. These types of implementation problems are open-ended and challenging, with many possibilities but no single solution (Bullough, 2012). By thinking like a designer—for example, by examining how students experience different aspects of school, just as a professional designer thinks about how people use products, physical spaces, or other artifacts—teachers can better understand the challenges and identify ways to move forward (Henriksen et al., 2020).

In the literature, academics have tried to make a connection between education and design thinking and addressed the transforming role of teachers. For example, Mishra and Koehler (2006) developed the theoretical framework of technological pedagogical content knowledge on the role of teachers as designers. They underlined the designer role of teachers by emphasizing their design of learning experiences that include many elements such as classroom settings, learning, experiences, and more for their students. At this point, the Understanding by Design framework put forward by Wiggins and McTighe (2005) is a critical practice that guides teachers for course design as learning designers and encourages the purposefulness of design in the learning process.

Given the enormous range of demands in teaching and education in the twenty-first century, it has been emphasized that an expert teacher is both a practitioner and a designer (Kirschner, 2015). The design aspect of what teachers do is considered as actively constructing, inventing, developing and designing teacher education and training activities, unlike the traditional view of teaching, such as just doing or applying what already exists (Carlgren, 1999).

Creative Self Efficacy

Creativity is defined as the ability to design, find and realize something new and original that is accepted as existing in everyone (TDK, 1995). Creativity is a process that involves introducing an innovative product in solving problems and finding different solutions (Rouqette, 1992; Stewig, 1985; Torrance, 1968). Individuals with high creativity have higher imagination, logical and critical thinking skills. In addition, these individuals have features such as fluent speaking, energetic, curious, productive, and having rich interests (Sak, 2014). Creativity is a skill that exists in every individual and can be developed under appropriate conditions. In order to create suitable

conditions, an educational environment suitable for developing creativity should be provided to students. Especially the first years of primary education are a critical period for students who come with a certain creativity potential to develop and use this potential (Bessis & Jaqui, 1973).

The development and future of a society is closely related to the efforts to consider and develop the creativity of teachers and students in that society. Creativity turns into inventions, inventions into technology and production, and as a result, economic development and the general welfare of the society increase. It is also difficult to develop societies that are composed of individuals whose creativity is not evaluated and who lack productive skills. The importance of developing creative problem-solving skills for societies that need to establish their democracy is clear. From this point of view, educational institutions that prepare individuals for society are important in terms of evaluating and developing the creativity of individuals (Şahin, 2003).

Today, creativity is an important factor in adapting to the ever-changing market that employers seek (Lubart, 2010). Creativity is one of the important professional skills and a basic requirement for individuals who grow up in the 21st century world (Puozzo & Audrin, 2021). While companies clearly emphasize and demand this, they should emphasize and encourage within their school's goals and objectives. Because in an increasingly complex society, they need to develop their creativity for their later professional life and schools play an important role in this process (Craft, 2005; Puozzo & Audrin, 2021; Robinson, 2011). According to Demirel (2010), the development of students' creativity skills is closely related to the curriculum applied at school, the characteristics of teachers, teaching methods and techniques. Edwards (2006) stated that a safe environment should be provided during the process of designing creative teaching programs, meeting students' internal and external adaptation needs, developing critical thinking skills, establishing a relationship between higher education and real life, developing different thinking and problem-solving skills in students, supporting group work and enabling students to experience new learning experiences. Teachers have a great role in providing this environment and developing students' creativity. The way for teachers to support their students in creativity is to have this skill themselves. Teachers who use this skill effectively will also contribute to the development of students' creativity.

For the development of creativity throughout life, it is necessary to focus on creative self-efficacy. One of the affective variables that affect the success of individuals in a field is their self-efficacy perceptions in that field. Self-efficacy in a subject is associated with academic success in the relevant field (Pajares, 2005). For this reason, it is possible for people with high creative self-efficacy to have higher creativity. For example, from a sociocognitive perspective (Bandura, 1986), creativity pedagogy consists of the application of creative learning, such that environmental (spaces conducive to creativity), emotional (positive and negative emotions), constructive (leaving, risk-taking, perseverance, and motivation) and cognitive (distinctive, convergent, and analogical thinking) factors intervene in an interdependent, but not necessarily uniform, way. Therefore, it encourages creative processes and action with an experimental approach. It also promotes knowledge

and creativity towards lifelong learning and the development of competence and the desire to be creative throughout life (Capron Puozzo, 2016; Puozzo & Audrin, 2021). Since this type of pedagogy requires students to perform creative actions, creative self-efficacy may be the main factor to keep students engaged in this pedagogy (Puozzo & Audrin, 2021).

Creative self-efficacy can be explained as the belief and confidence that one has the ability to produce creative products or find creative solutions (Beghetto& Karwowski, 2017; Tierney & Farmer, 2002). Creative self-efficacy shapes the creativity of individuals and their participation in creative activities and their efforts to realize it (Beghetto & Karwowski, 2017). The more people specialize in their field, the more their creative self-efficacy increases, which makes it easier for them to produce creative solutions (Puozzo & Audrin, 2021). Farmer and Tierney (2017) reported that creative self-efficacy predicts a highly creative expertise, moderates the quality and originality of problem solutions, and mediates between optimism and innovation. Again in the literature, the positive effect of creative self-efficacy on the performance of individuals has been stated (Ghafoor et al., 2011; Tierney & Farmer, 2002; Yu, 2013). For example, the more creative a person perceives themselves, the more they engage their creativity and they are more likely to come up with creative solutions while learning.

Design Thinking and Creativity

In the literature, creativity is firmly associated with thinking (Chen, 2006; Ouyang,2007; Yu, 2009). For instance, Yu suggested that creativity stems from thinking and is equivalent to thinking. Such a talent can be developed and learned through education; can be developed with a lot of practice in design thinking. Design thinking is a theory that emerged to solve commercial and social problems and includes creativity. "In the teaching, the method gets to know users and define user demands through stages, so as to trigger students' creativity and inspiration and motivate them to quickly present creative ideas with a prototype" (Tu et al., 2018, p.3). Then, the ideas are tested and developed (Yang & Hsu, 2020).

In the review studies on design thinking in the literature, it has been found that creativity is one of the purposes of using design thinking in education (McLaughlin et al., 2019). There are several publications examining the roles and perspectives of teachers in design thinking. In a qualitative case study conducted by Retna (2016), data were collected from a school through in-depth face-to-face interviews and participant observations. According to the findings, teachers perceived that design thinking has the potential to develop skills such as creativity, problem solving, communication and teamwork, and also empowers students to develop empathy for others inside and outside the community. In another study, Taheri et al. (2016) observed that design thinking workshops lead to overconfidence in creativity. However, there are a number of gaps in the literature that underscore the need for causal analysis of the effects of design thinking on creativity. Even though the design thinking is described as a process involving creative problem solving, there is not enough research that reveal concrete relationship of design thinking with creative self efficacy. (Rao et al., 2022).

Present Study

With design education, we should focus on strengthening the thinking of students and making them have knowledge of different disciplines, deepening and expanding their thoughts and developing their creativity. (Baer, 2013). It is important to give tasks designed to lead to multiple possible solutions that foster divergent thinking and therefore creativity (Botella et al., 2016; Capron Puozzo, 2016; Lubart, 2010). These tasks help learners experience creativity. When learners actively perform these tasks and experience competence, they develop their perception of their ability to be creative as well as their learning skills. For this reason, it is aimed in the research to examine the effect of the teaching process based on the design thinking model on creativity self-efficacy. The following problem statements are discussed:

- What is the effect of designing an online lesson plan using design thinking on creative self-efficacy?
- What are the pre-service teachers' levels in the design thinking model steps?
- Do pre-service teachers' creative self-efficacy differ according to their level of application of the design thinking model steps?

In this study, preservice teachers were assigned the task of designing an online lesson plan as their final project of the course titled "Open and Distance Learning". For this task they worked in groups and trained about the Stanford Design Thinking Model. Throughout their task they followed the steps of this model.

The Stanford Design Thinking Model

The Stanford Design Thinking Model includes five steps proposed by Hasso-Plattner Institute of Design at Stanford: Emphatize, Define, Ideate, Prototype and Test (see Figure 1). These steps are intended to be flexible and iterative because at any given moment a designer may need to iterate or revisit a step. Also, during the design process, these five steps can be cycled or re-entered to understand or explore problems and solutions.

Empathize: This step involves fully understanding the target user's experience by observing, interacting, or immersing yourself in users' experiences.

Define: It is the stage where the findings obtained from the first step (emphatize) are processed and synthesized to create a user perspective that the design will appeal to.

Ideate: It allows us to go beyond the obvious and explore a range of ideas by exploring and generating a wide variety of possible solutions.

Prototype: It is the step where ideas are transformed into a physical form so that you can experience and interact with them.

Test: This is the phase where the prototype solution is tested with users, gaining perspective on what works and what doesn't, and what needs to be done or redone.

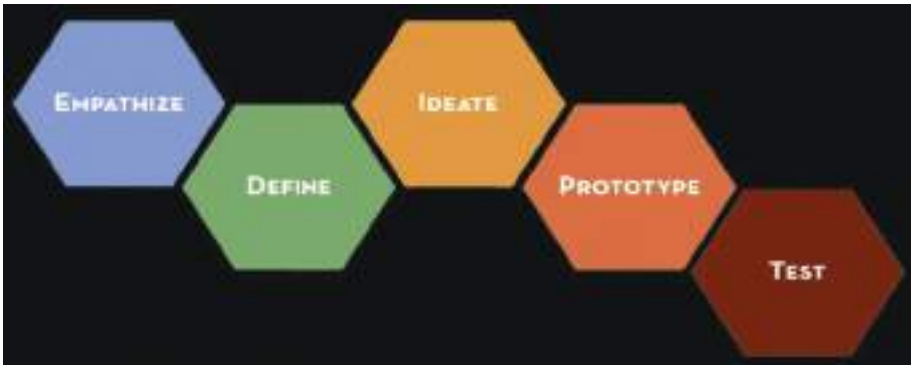


Figure 1. *Design Thinking Process Diagram*

Source: *https://web.stanford.edu/class/me113/d_thinking.html*

Understanding by Design

Preservice teachers used the Understanding by Design (UbD) framework to make the lesson plan. UbD provides a planning structure that guides curriculum, assessment, and instruction (Mctighe & Wiggins, 2012). The UbD framework includes a three-step backward design process for planning and a set of templates and design tools to implement this process (Yurtseven & Altun, 2017). The key concept in the UbD framework is alignment, with the three phases clearly aligned not only to standards but also to each other. In other words, content and understanding in Stage 1 must be what is assessed in Stage 2 and taught in Stage 3 (Mctighe & Wiggins, 2012). Stage 1 includes defining desired outcomes such as objectives, what students will know, learn, transfer, understand, and explore in-depth questions. Stage 2 is about determining assessment evidence to answer how students' performance will be evaluated in a fair and consistent way. Last, Stage 3 is planning all instructional activities including learning experiences (Mctighe & Wiggins, 2012; Yurtseven & Altun, 2017). It has been stated in many studies that the implementation of UbD in an educational institution enables teachers to be active members of curriculum development (Yurtseven & Altun, 2017). Teachers' involvement in design contributes to the development of professional cooperation and communication at school as well (Anwaruddin, 2013), since they share ideas and make decisions through designing. In addition, teachers' application of their own course designs encourages the emergence of their designer identity and reduces the traditional course routine (Wiggins & McTighe, 2011).

Study Context

Open and Distance Education Course is a 14-week online elective course taught in all four year undergraduate teacher preparation programs in a public university in Turkey. Students from all programs (elementary education, special education, mathematics education, science education, English as a second language, preschool, literacy, counseling) can choose the course. This course introduces participants to key concepts of open and distance learning, distance learning theories, development of open and distance learning, learner and instructor' roles, learning management

systems, MOOCs, assessment in distance learning, instructional design for online learning, technologies available for use in online learning. Participants are assigned a final project to design an online lesson in their field as a group activity.

For the purpose of this work, participants were trained about Design Thinking before starting their project. They were all equipped with a diversity of resources related to design thinking including video tutorials, written pdf documents and samples. They were also informed about the UbD framework and how they can design their lesson using this framework and following Design Thinking steps.

METHOD

One of the experimental methods, "Single Group Pre-Test - Post-Test Model" was used in the research. In this model, both pre-experiment (pre-test) and post-experiment (post-test) measurements are conducted (Karasar, 2000). Since the effect of the teaching process based on the design thinking model on the creative self-efficacy of the students was examined in the research, this model was preferred to determine the effectiveness of the design thinking model studies and applications. The research design of the model is given in Table 1.

Table 1. *The Research Design of the Model*

Pre-Test	Procedure	Post-test
P1 Creative self efficacy scale	Design thinking process	P2 Creative self efficacy scale

Participants

The research was carried out with 142 pre-service teachers who enrolled in the Open and Distance Learning course in a public university in Turkey. Participation in the research was based on volunteerism. 85% of the participants are female and 15% are male. 14,2% of the participants are freshmen, 29,6% are sophomores, 42,3% are juniors, 27,5% are seniors. The demographic information of the teacher candidates in the study group of the research is as given in Table 2.

Table 2. *The Demographic Information of the Participants*

Major	Percentage
Elementary education	15,5
Special education	5,6
Mathematics education	12
Science education	4,9
English as a second language	6,3
Preschool education	14,8
Counseling	16,9
Literacy education	10,6

Data Collection

Both quantitative and qualitative data were collected. To measure participants' creative self-efficacy, quantitative data were collected through a pre and post survey. This survey is called The creativite self-efficacy scale (Tierney & Farmer, 2002) adapted to Turkish by Atabek (2020) was used to collect the data of the research. The three-item scale explains 76.88% of the total variance.

Data Analysis

To examine the participants' experiences with the Design Thinking process, we collected reflection papers along with lesson plan units from the participants in which they explained their experiences in the 6-step stages of the design thinking process while they designed their lesson plan. The evaluation of the reflection papers were analyzed by the researchers. The students' levels of realizing the design thinking model stages were evaluated together by two researchers as 0=none, 1=partly, 2=completely. Survey data were analysed using SPSS 20.0. In order to compare the creativity self-efficacy pretest and posttest scores of the students, first of all, the distribution of the data was examined. According to the Kolmogorov-Smirnov Test results, the Wilcoxon Signed Ranks Test was used in the analyzes since there was no normal distribution ($p<0.05$). In the analysis of the relationship between the design thinking model and the creativite self-efficacy of the students, the Kruskal Wallis H Test was used because there was no normal distribution ($p<0.05$), according to the Kolmogorov-Smirnov Test results in the analysis of the data. The average value was taken as the basis in determining the levels of the students in the design thinking model steps.

FINDINGS

Participant's Creative Self Efficacy

The findings regarding the creativity self-efficacy of the participants who were given design thinking training in the study are as given in Table 3.

Table 3. *Wilcoxon Signed Rank Test Results on the Comparison of the Pretest and Posttest Scores of Participants Regarding Creative Self-efficacy*

Pretest-Posttest	N	Mean Rank	Sum of Ranks	z	p
Negative Ranks*	13	32,42	421,50	-5,97	0,000
Positive Ranks	68	42,64	2899,50		
No difference	1				

*Based on negative ranks

A statistically significant difference was observed between the creative self-efficacy pretest and posttest scores of participants who received design thinking training (z=-5,97; p<0,05). When the mean rank and totals of the difference scores are taken into account, it is concluded that this observed difference is in favor of the positive ranks, that is, the posttest score. The effect size calculated as a result of the test (d=0.53) shows

that this difference is moderate. According to these results, it can be concluded that after the design thinking training applied, the creative self-efficacy of the students who designed the lesson plan improved and there was a significant change.

Participants' Experiences with Design Thinking

The results of the analysis carried out to examine the level of realization of the stages of the design thinking process of the participants in the research are presented in Table 4.

Table 4. *The Level of Realization of the Stages of the Design Thinking Model of Participants*

	N	Min.	Max.	Mean	Level
Empathize	125	0	2	0,88	Moderate
Define	125	0	2	0,96	Moderate
Ideate	125	0	2	1,00	Moderate
Prototype	125	0	2	0,89	Moderate
Test	125	0	2	0,98	Moderate
Total	125	0	9	4,72	Moderate

When the table is examined, it is seen that the participants are at a moderate level for all stages of the design thinking model.

Creative Self-efficacy and the Levels of Realizing the Design Thinking Stages

The results of the analysis carried out in the research with the aim of examining the creative self-efficacy of the participants in terms of their level of realization of the design thinking stages are as in Table 5.

Table 5. *Participants' Creative Self-efficacy in terms of Their Level of Realization of the Design Thinking Stages*

Group	N	Mean Rank	df	χ^2	p
1-3 point	30	59,95	2	0,438	0,803
4-7 point	75	64,58			
8-10 point	20	61,65			

Table 5 demonstrates that creative self-efficacy of the participants does not differ according to the level of completion of the five steps of the design thinking model.

Discussion and Conclusion

This study investigated the effects of the using design thinking framework to design an online lesson on creative self efficacy. The findings showed that using design thinking framework had a positive effect on creative self-efficacy. Considering that creative

self-efficacy is a factor that predicts creative performance (Farmer & Tierney, 2017; Huang et al., 2020; Puente-Diaz, 2016) and necessary for the creation of innovative items (Hallak et al., 2018; Tan et al. 2011; Tierney & Farmer, 2002). The design thinking process and stages can enable pre-service teachers to design more creative learning experiences. As Liedtka (2018) observed that design thinking is a new social technology that, like total quality management, which transformed manufacturing, has the potential to enhance creative outputs but has gotten little academic attention.

Rao et al. (2022) in their study examined the effect of design thinking training on creativity of middle school students. They found that the design thinking training greatly improved ideational fluency and elaboration in a divergent thinking test in addition to boosting confidence. They also speculated that the metacognitive foundations of design thinking were overlooked and that this requires further research and that what matters is not design thinking per se but interventions that foster metacognitive thinking. The research shows that the design thinking training greatly improved ideational fluency and elaboration in a divergent thinking test in addition to boosting confidence (Rao et al., 2022). As demonstrated by Mathisen and Bronnick (2009), students, professors, and employees may all benefit from a course that combines lectures on creativity research with exercises that put those findings to use. According to Tierney and Farmer (2011), increased supervisory expectations for creativity and learners' identification with creative roles were responsible for the shift in creative self-efficacy over time.

The results of the study revealed that creative self-efficacy of the participants does not differ according to the level of completion of the five steps of the design thinking model. In fact, the design thinking process is not linear, and designers follow a forward (destructive) and backward (confirming) reasoning strategy (Goldschmidt & Weil, 1998). While research is inconsistent on how time is spent in design thinking, the findings suggest that there is a learning development in the design thinking process that transforms a novice into an expert design thinker (Razzouk & Shute, 2012). In some studies (Ahmed et al., 2003; Atman et al., 1999; Christiaans & Dorst, 1992; Gunther & Ehrlenspiel, 1999), the difference between seniors and lower grades has been examined and the results of these studies revealed that freshmen or lower class people are mostly stuck in the first stages, have difficulty in problem solving and cannot produce high quality designs, but seniors complete the design process much better and produce good products. However, this is not an obstacle to the development of creative self-efficacy.

With adequate and well-integrated practices, support and formative feedback, it may be possible for students to gain design thinking skills. In addition, thanks to learner centered approaches such as problem-based learning, project-based learning and pedagogical approaches including inquiry-based learning, students' creative self-efficacy and potential to produce creative products increase. Tierney and Farmer (2011) theorized and empirically demonstrated that changes in creative self-efficacy are predicted by changes in creative role identity, or identification with the role of being creative at work. Educators can support their students in developing design skills by providing them with multiple and varied opportunities to think creatively

and critically, to develop different solutions to problems, to work collaboratively, to reflect on their learning, and to repeat the cycle as they revise and improve each time through their design project assignments. By giving design thinking training to teacher candidates, we can enable them to look at problems from the perspective of a designer, to be willing to face challenging problems, to think outside of the box, and to produce innovative solutions. Thus, they will be better prepared to face the difficult problems they will face in their teaching careers and they will be more able to design learning experiences that will enable their students to have 21st century skills (Razzouk & Shute, 2012).

In this study, we integrated the design thinking process and enabled pre-service teachers to design online courses. We saw the progress by making measurements at the beginning and end of this process. However, observing the design thinking stages separately allows us to have more information about how much the participants applied these stages and how these stages contributed to the participants. We recommend that future studies examine the design thinking stages and the cognitive and skill development through these steps. In addition, several responsibilities develop when people work in teams. While some people could be the ones that spark new ideas, others might be in charge of the supportive roles (Furnham et al., 1993). Future studies should look at how students' team roles and sense of their creative roles impact increases in their creative self-efficacy (Ohly, Plückthun, & Kissel, 2017).

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Assessing Spurious Correlations Among Research Output Categories of South African Higher Education

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Abstract

Research publications play a major role in the status of institutions of higher learning, both nationally and internationally. The pearson correlation coefficient is used to assess the relationships for the bi-variate configurations made from the three categories (journals, books and conferences) as variables. The establishment of high correlations among the categories of research outputs produced in higher education system of South Africa (that include e-learning), may be misleading in the predictive nature of one research output category versus the other one. İn such cases, linear regression may not be appropriate. Although the high correlations are acknowledged, they cannot be used for causal effect purpose. This type of correlation was found to be spurious. Hence the positive change in all three variables yields to spurious correlations with confounding factors that are not still determined. These factors do not transpire explicitly in the data related to the research output categories and should be investigated. The research output contribution from the giant open distance learning institution, i.e. the University of South Africa should also be investigated.

Keywords: *Spuriousness, research output, correlation, causation, higher education*

INTRODUCTION

Research outputs (RO) play an important role in the prestige and ranking of institutions of higher learning. The generation of new knowledge pursued in institutions of higher learning is possible by promoting research activities. It is very often that universities combine research and teaching and learning. The funding model by the Department of Higher Education and Training of South Africa (DHET, 2015) makes provision to subsidise financially institutions of higher learning per unit of research output. Different funding models in universities across the world have been noticed, for example, China, Germany and Spain are dominated by a single funding agency model, while USA, Japan, Canada and Australia are dominated by a double funding model whereas countries, like UK, France and Italy have a diversified funding model (Wang et al., 2012). The Department of Higher Education and Training (DHET) of South Africa policy considers original and systematic aspects of the research problem being investigated for the purpose of gaining new knowledge and understanding (Department

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of Higher Education and Training [DHET], 2018). The department gives guidelines for subsidy of conferences, books/book chapters and journals. It publishes each year a list of acceptable and accredited journals, which are from the Scopus; Scientific Electronic Library Online (SciELO) South Africa (SA); the Norwegian Register for Scientific Journals; Clarivate Analytics (formerly Thomson Reuters) Web of Science; the ProQuest International Bibliography of the Social Sciences (IBSS) and the DHET list of SA journals (DHET, 2018). Three categories of publications, i.e. conferences, books/book chapters and journals form mainly the research outputs that respond to the criteria set by the DHET and fall under its subsidy model for universities. Creative outputs, artifacts, patents, textbooks and non-accredited publications do not form part of the subsidy (DHET, 2013). Besides these 3 categories of publications, the subsidy model by DoHET takes into consideration other variables such as student enrolment, throughput rates, etc. Hence the motive for institutions of higher learning to publish accredited RO as required by DHET can be monetary driven as well as prestige driven for both their staff members and their institutional brand. This was in line with a study conducted in the cost and accounting management field between German universities of applied sciences and South African universities of technologies (Rosentreter, et al., 2013). Novices as learning instructional practitioners in universities would need to be actively involved in research projects (Schulze, 2008). In this way, they learn through experience while their identities develop accordingly. Highly ranked universities strategise in order to maintain their global standing, by maximising the research incentives.

It is mandatory that the South African higher education takes seriously aspects related to research ethics being enforced to ensure the quality of RO is uplifted. This is done across the world. The department of higher education and training of South Africa ultimately determines the quality of research outputs. These include also the contribution from the dedicated open distance learning (ODL) education of South Africa, mainly from the university of South Africa.

However, the interaction among research output in terms of regression analysis, has been rarely tackled in the past. For instance, in German universities, there was a strong link between publications and research grants (Rosentreter, et al., 2013).

This paper establishes correlation that exists among research output types or categories (journals, books and conferences) of the higher education sector in South Africa. The argument in this study is that no research category has an ultimate causal implication on the other. That is to say publishing a conference paper may not be considered as a determining factor for publishing a journal paper and vice versa. The same could be supported for books and journals; and conferences and books. Nonetheless this study acknowledges that all categories contribute to the overall research outputs of a given university and ultimately to the national research output. So far, there is no indication in the literature of a causal effect among research output categories. Hence any attempt to establish correlation among these variables could be seen as spurious correlation. Past studies have dealt with spurious correlation which has the main characteristic of variables not having direct causal effect, but such correlation could be strong (Gralk et al., 2018; Gao & Zhang, 2016). It could occur that two nonindependent variables, in the

case of event area-weighted suspended sediment yield and event mean runoff depth, the spurious correlation was observed and the variability of the variables caused the spurious correlation (Gao & Zhang, 2016). In fact correlation does not mean causation (Lübke, et al., 2020), in case independent variables which has a strong positive or negative correlation. Nonindependent variables may exhibit such a correlation, however where the true casual relation has been established between variables, the spurious correlation could be ignored (Gao & Zhang, 2016). The correlation between two variables may be due to a third factor or variable. Such correlation is confound to a third variable or other factors and does not give any clarity about the causation of the effect. This situation leads to misspecification in the relationship, which could be due to relevant variables being omitted or irrelevant variables being included or a combination of the two (Granger & Newbold, 1973).

The rest of the paper is organised as follows:

Section 2 deals with the methods that articulate linear regression for measuring correlation among research output categories as variables. Data availability is also presented for the application of the methods. Section 3 covers the results and discussion from the methods. Section 4 sets out the conclusion and makes suggestions.

In what follows, category and variable will be used interchangeably. The prefix Pearson may be omitted before correlation.

METHODS AND DATA AVAILABILITY

Data include both face-to-face and open distance education institutions. The results of correlation are analyzed against the trend of the three variables and the causal nature among these variables. The plots associated with linear equations enable to determine negative, positive or no trend in the time series associated with the number of journals, books and conferences. Hence this enables us to check whether correlations among variables are spurious or not. The plausible assumption among variables is that the dependence structure among RO categories is negligible, based on the foregoing argument. Hence the publication of a given RO category is not conditioned by the occurrence of another category. For instance, it is logical to assume that the probability of generating a jornal given a conference paper is almost zero for a given university or the countrywide RO. Such correlation between variables will be investigated.

Regression Method

The Person correlation coefficient is mainly considered to detect the relationship between pairs of variables: number of journals, number of books and number of conferences. Within the context of regression among different variables, the correlation matrix defined the degree of association or dependence among variables. The Pearson correlation was used within the context of regression analysis. For example publications and research grants were shown to be correlated (Gralk et al., 2018). The regression method via ordinary least squares method (OLSM), is usually used to derive the mathematical relationships among the variables. In this way, predictive capability or dependence among variables can be revealed. The regression method is summarised

by equation (1) as follows:

$$Y = \varphi_1 X_1 + \varphi_2 X_2 + \ldots\ldots + \varphi_k X_k + e \quad (1)$$

Y is the dependent (predicted) variable,

$\varphi_1\ \varphi_2, \ldots\ldots, \varphi_k$: coefficients of regression parameters,

$X_1\ X_2, \ldots\ldots, X_k$: independent (predictor) variables

e: is the error term which is usually assumed to be normally distributed for linear regression analysis. This error term can be minimised through OLS. One of the simple ways to conduct multiple regression analysis was to use the Data Analysis tool in Excel. Generally, a significance level at 0.05 (p-value) was used to assess the overall acceptance or rejection of regression coefficients.

Equation (1) can be used genuinely as a predictive tool for Y variables if its occurrence is conditioned by X variables. In this case, the correlation coefficient is not spurious. On the contrary, when the occurrence of Y is independent from X variable, any strong correlation that would be detected between Y and X will be deemed spurious.

Data Used

The data from 2013 and 2017 related to research output (RO) (DHET, 2018) were used in this study, which was commissioned by DHET. Whereas the final report by DHET gave time series data in a graph of the overall research outputs, without desegregating them, the report by Muton et al., (2019) was preferred for this study since it gave time series on the publication counts, between 2005 and 2017. Table 1 below displays the number of research output counts per category. It means that RO is related to the number of journals, books/book chapters and conferences generated and submitted to DHET in 2017 for funding purposes. The books column is a combined count of books and book chapters.

Table 1. *Research output related to conferences, books and journals from 2005-2017 (Mouton et al., 2019)*

Year	Books	Conference	Journals	Yearly document per category
2005	217	521	7075	7796
2006	199	673	7864	8736
2007	597	865	8059	9521
2008	566	1139	9748	11453
2009	738	1206	10163	12107
2010	829	1589	11112	13530
2011	1102	2377	12808	16287
2012	1641	2504	14522	18667
2013	1501	3020	16030	20551
2014	1736	3087	17431	22254
2015	1872	3624	18022	23518
2016	2110	3628	19486	25224
2017	2184	3250	20698	26132
Total documents per category	**15275**	**27483**	**173018**	**215776**

RESULTS AND DISCUSSION

The data presented in the previous table were plotted in Figure 1, which shows all three RO increasing simultaneously however the rate of increase of journals was the highest, followed by that of conferences and books. The recent increase of RO was pointed out (DHET, 2018).

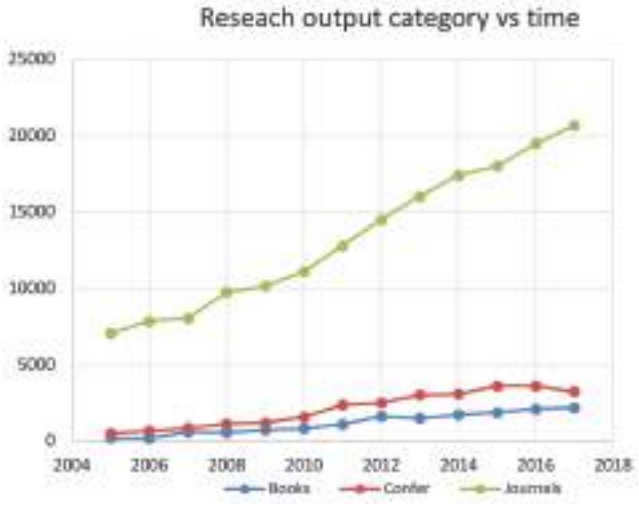


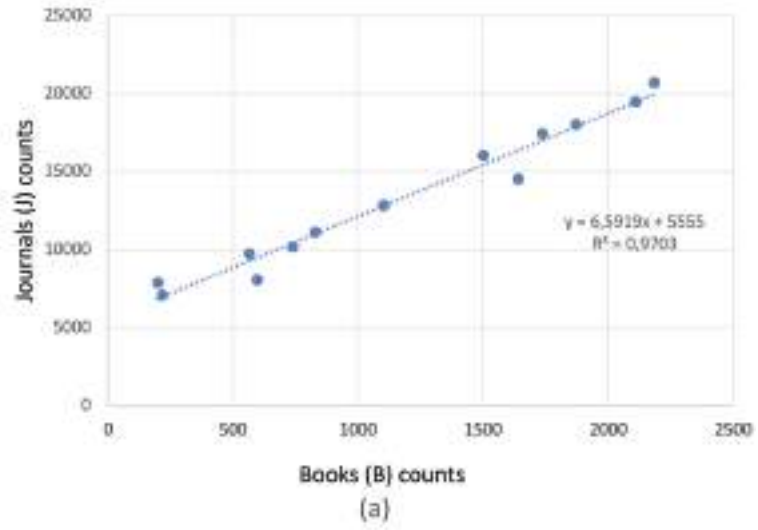
Figure 1. *Research outputs over time in Public Universities of South Africa*

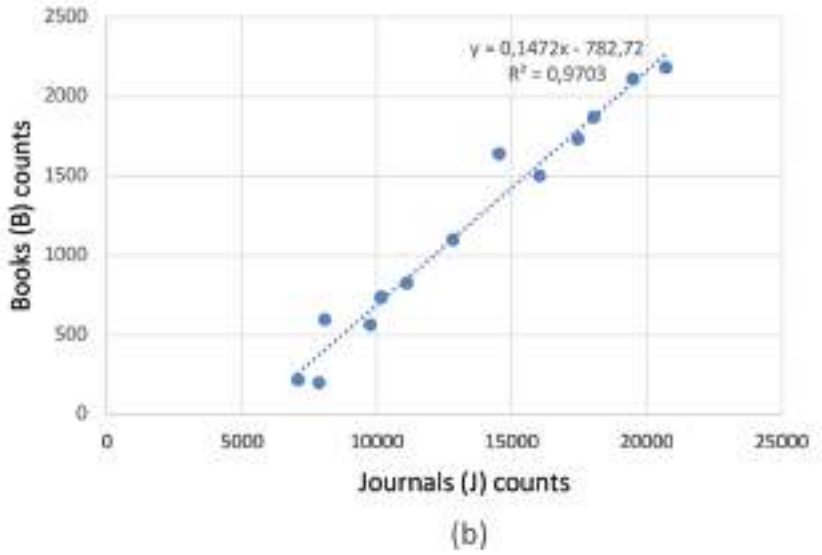
The linear correlation among variable pairs was investigated firstly by computing the Pearson correlation coefficient among the different categories as displayed in Table 2 in the form of a matrix. These values displayed very high correlation values and could suggest strong linear erroneously predictive capability among the different RO categories.

Table 2. *Correlation pairs among books, conferences and journals*

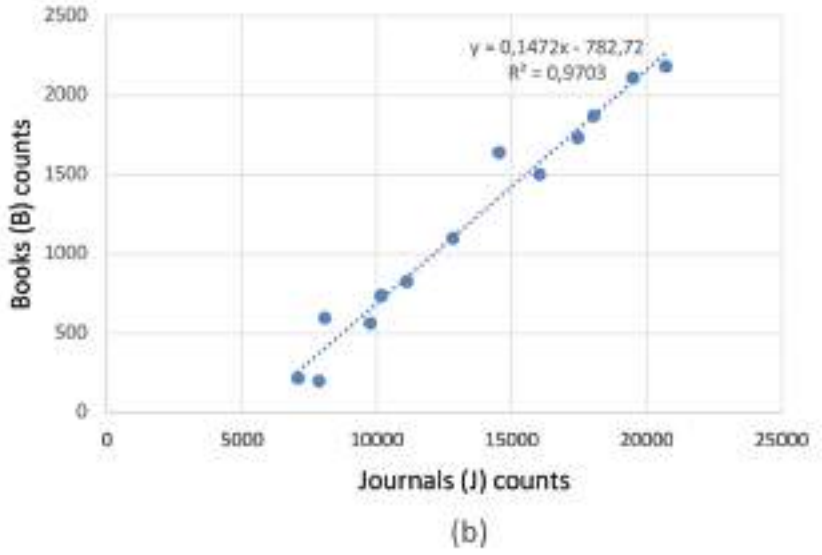
	Books	Conferences	Journals
Books	1		
Conferences	0.969	1	
Journals	0.985	0.974	1

Although the variables were not directly linked in a causal-effect relationship, it was revealed that the pairs (Journals, Books) and (Books, Journals) and (Conference, Journals) had each a p-value below 0.05. The p values were 1.89×10^{-10}, 2×10^{-9} and 2×10^{-8} for these pairs respectively. Such correlations, although positive and strong, they are spurious since there is no dependence structure among categories. Figures 2(a)-(c) depict a strong correlation among variables. This correlation was spurious and could be a mis-specification to be used for inference purpose. Inferring one of the variables using such regression equations could be considered misleading. These results would suggest the existence of confounding variable(s) that might cause such strong relationships. This would need to be investigated, for instance in the financial incentive for publications, grants, or prestige in terms of global ranking of institutions of higher learning, etc. Journals and books are in a symmetrical relationship. Data presented are the national aggregate counts of RO, however the contribution of each university could be assessed as well including University of South Africa, which is the only dedicated open distance learning institution.





(b)



(b)

Figure 2. *South African Universities publication counts, 2005-2017 for: (a) Books vs. Journals, (b) Journals vs Books, (c) Journals vs. Conferences*

CONCLUSION

This study could be the first in its kind to investigate the relationship between RO categories, i.e. journals, books and conferences within the South African higher education system. Results revealed that although there is no dependency among the categories, the linear correlations among pairs were positively high and this suggested spurious correlation. Strong relationships among all variable pairs, with an upward

trend in all variables were detected due to higher correlation coefficient values. However, the causal effect among variables could not be established among variables, from the data used. It is suggested that spuriousness in the data sampled be diagnosed and the main cause be identified. Such investigation could include among others; financial stimulus for RO publications and institutional ranking.

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Students' Online Learning Experiences Regarding Course Quality, Content, and Dialogic Interactions Amidst the COVID-19 Pandemic

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Abstract

The unprecedented outbreak of the COVID-19 pandemic and the consequent lockdown forced institutions across the world to initiate online learning and switch to emergency online learning and teaching. The dominance of environmental factors in online learning has never been so high before. This necessitates research on revisiting the existing knowledge of students' perception with regard to online learning. This basic descriptive qualitative study set out to examine the learning experiences and perceptions of students attending online English courses at a foundation university in Turkey. Moore's transactional distance learning theory provides a basis for this research in understanding the dialogic interactions between course content, students, platforms, and teachers. Purposive sampling was used to select 12 students who volunteered to participate in the study. The data collection was multimodal with online observations and interviews. The data analysis was conducted through inductive coding in NVivo software. The results showed that students were satisfied with the overall quality of their interactions with platforms, and teachers. They also expressed their appreciation for the quantity and quality of the content that they were presented with through the learning management system, itslearning and the Microsoft Teams despite some concerns over its variety of the materials they were provided with due to the repetitive tasks. The students with low autonomy, on the other hand, had difficulty adapting to online learning. They also complained about the lack of peer interaction and rigid structure of the writing and grammar lessons. Lastly, the COVID-19 pandemic had negative impacts on students' motivation, discipline, and attitudes towards the course. Students thus did not prefer online learning as a substitution for face-to-face learning. We argue that there Is a direct relationship between course content Including all course materials and the Interactions during online courses and suggest that further research should be carried out given that online education has been gaining increasing popularity in educational institutions.

Keywords: *Online learning, COVID-19, student perception, transactional distance.*

INTRODUCTION

With the outbreak of the Covid-19 pandemic in 2020, more than 150 countries across the world decided to suspend face-to-face education as a precaution to prevent the

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pandemic from spreading and approximately 1.5 billion students were deprived of physical schooling (UNICEF, 2020). As such, schools swiftly turned to emergency online education prior to the implementation of mass vaccination since no one had been ready to fight such a global pandemic. The aim was to use community mitigation measures like social distance to limit the viral spread in schools and neighbouring communities during the pandemic (Uscher-Pines et al., 2018). This unprecedented transition caught both teachers and students off-guard and they have been trying hard to adapt to these extraordinary teaching and learning conditions (Sudrajat & Saefi, 2021). Initial actions were to optimize the curriculum, provide emergency in-service training, and set up learning management platforms that could be accessed by students staying at home (Perrotta, 2020). The pandemic, thus, forced institutions to undergo a radical transformation and give serious thought to improving course delivery (Bhagat & Kim, 2020). The institutions hesitated to lift closures for a long time in case the rate of infection might get worse. That's why; there was no other option, but to persist in online learning.

Literature Review

Online Learning

Online learning is defined as "learning that takes place via the internet either in a synchronous or asynchronous environment where students interact with educators and classmates at their leisure" (Singh & Thurman, 2019, p. 302). Online learning has seen rapid expansion over the last decade due to its significant characteristics including increased flexibility, accessibility, connectivity, and a large body of existing knowledge. In the digital era, throughout the world, online learning is also supported by government policymakers and administrations who have progressively been encouraging online learning, which leads to a transition from face-to-face education toward online learning. Online learning offers a highly authentic and meaningful learning ecosystem that bridges self-regulation and collaboration among students thanks to the emergence of sophisticated educational technologies (Hodges et al., 2020). Researchers, on the other hand, have stated their doubts regarding the quality of online learning and emphasized the key challenges in building the ecosystem with a sense of social presence and involvement (O' Doherty et al., 2018). Furthermore, some academics highlighted the primary issues associated with online learning as social isolation, paucity of engagement and collaboration, and lack of meaningful feedback (Baczek et al., 2021).

For the last decade, research studies have been demonstrating the benefits of online learning. While some studies have found that dialogic interactions between students and instructors have a significant influence on students' impression of online learning (e.g., Bolliger & Halupa, 2018; Paul et al., 2015), others indicated that the essential characteristics that influence the success of the students in online learning are the consistency in course design (Swan et al., 2000), social presence (Kim et al., 2005), instructors' role (Hung & Chou, 2015), self-regulation (Matuga, 2009; Cho & Shen, 2013), and instruction (Gilber, 2015). However, most of these studies were conducted prior to the pandemic. It could be better to revise the existing knowledge on online

learning during the pandemic since the external factors are dominant and there has never been such a dramatic change in the course delivery for such a long time.

Moore's Transactional Distance Theory

Many would argue that online learning is as efficient as face-to-face learning (Means et al., 2013). The drop-out rate in online education contradicts the widespread belief, though (Gregori et. al, 2018; Valldosera & Minguillon, 2014). The root cause behind this problem is the transactional distance (TD) proposed by Moore (1993) as an influential concept for distance education. TD is described as "the distance of understanding and perceptions, caused in part by the geographic distance, that has to be overcome by teachers, learners, and educational organizations if effective, deliberate, planned learning is to occur" (Moore, 1991, p. 2). In distance learning, the distance between the teacher and the students can cause communication gaps and may create a context where instructors' and students' behaviours may be misunderstood (Moore & Kersley, 1996, p. 200). The interactions among various elements such as learners, teachers, technology, and programs impact the quality of online learning. For example, research shows that the low level of experience of an instructor increases the transactional distance (Nwankwo, 2013). Additionally, the course technology with its distinct features shows a prediction for effectiveness (Sun, 2016). In this regard, the integration of social media and synchronous activities into online education augments the community culture of the classroom and thus strengthens social interaction (Banna et al., 2015).

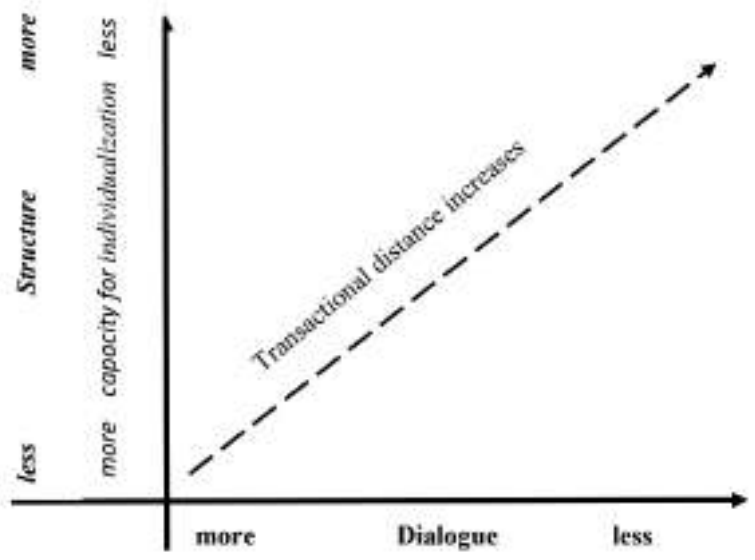


Figure 1. *Relationship between Course Structure and Student-Instructor Dialogue*

The construct of interactions should also include such factors as dialogue, structure, and learner autonomy along with instructional and learning patterns (Moore, 1997).

Dialogue represents mutual interaction between teachers and learners. Structure means the flexibility of a course design. Finally, autonomy is defined as students' capability to specify their own goals and act accordingly. The extent of transactional distance in online education might vary based on these factors (Moore, 1997). For example, when there is an increase in dialogue, the decrease is seen in the transactional distance and students act more autonomous. Conversely, when there is not enough space for a student for interaction with an instructor, transactional distance goes up in parallel to structure.

Emergency Teaching in ELT During the Covid 19 Pandemic

Some studies concerning online learning during the COVID-19 were conducted for the last two years such as Agung et al. (2020) indicating that learners were not prepared for the new learning method, and their devices could not support rapid high technology changes, and Shevchenko et al. (2021) stating that faculty member and students were caught ineligible for the emergency online education in Ukrainian universities. It is also emphasized that instructors were implementing traditional learning methods in online learning. Additionally, Adnan and Anwar (2020) found out that online learning might not lead to good results in underdeveloped areas of the world such as Pakistan due to limited resources to access high technology. In another study on Chinese parents' beliefs on online learning (Dong, 2020), traditional learning was considered superior to online learning due to students' insufficient self-regulation. Khalil et al. (2020), on the other hand, stated that online learning was valued by university students in Saudi Arabia, and this had significant implications for the future of education. A study by Laksana (2020) also showed that students in a private university in Indonesia appreciated the quality of education, interaction, and feedback during online learning. Additionally, Kumar et al. (2020) highlighted that the medical students in China favoured online learning as it promotes a sense of community and collaboration. Moreover, Clark et al., (2021) reported that online learning had increased students' exam scores.

Significance of the Study

Several studies across the world were conducted to understand the effect of the pandemic on online learning and provide insights into beliefs, challenges, implications, and strategies for the future. There is, however, a shortage of studies focusing on Turkish students' experiences and perceptions regarding online learning during and after the COVID-19 given that the popularity of online learning is constantly increasing in educational institutions.

This study, therefore, set out to investigate students' perceptions of their own online learning experiences and their interactions with the instructors, the course content, and one another during the pandemic at a foundation university in Turkey. Consequently, this study seeks to obtain data that contributes to the field in terms of online learning and teaching experiences and interactions during online classes as well as offering insights to stakeholders including instructors, instructional designers and administrators to improve course content and quality. Moreover, it aims to examine

the factors that impact students' online education experience and explore how these factors contribute to the quality of online education from the viewpoint of learners.

In the light of all these, the following research questions were developed with an intention to practice ethical research and with no intention to cause any harm to participants:

- How do students perceive and describe their online learning experiences during COVID - 19?
- How do students perceive and describe their interactions with the instructors, students, the course content, and online platforms?

METHOD

The design of the current study is based on a constructivist-interpretive qualitative research design, which relies on the data gathered through participants who share their inner experiences. The goal of the study is to derive patterns of meaning from participants' interpretation of online education and their interaction with the course, other students, and the instructors during the pandemic. Thus, an interpretive-constructivist approach was found appropriate to serve for the above-mentioned research questions.

Participants

The number of students in an English Preparatory School Intensive English Program at a private university and the sample was 12 students from Prep-C classes (see Table 1). A purposive sampling technique was implemented to identify and select the participants of the study. In addition to knowledge and experience, it is important that the participants were available and willing to participate and had the ability to communicate their experiences and opinions in an articulate, expressive, and reflective way. Given all the above and considering the fact that Prep-C level students were both domestic and international students who were more capable of expressing themselves in English. 12 students who were willing to participate in the study became the population of this basic interpretive qualitative study.

Setting

The context of the study was a private university in Turkey in a School of Foreign Languages (SFL) English Preparatory School Intensive English Program (IEP) where 121 domestic and international teachers instruct English as a foreign language. During the pandemic, a total of 24 hours of synchronous classes were held on Microsoft Teams (a web conferencing tool) and Itslearning (a learning management system) synchronously and asynchronously. Students were provided with both weekly digitized content prepared by level coordinators to supplement the course books in all levels and digitized self-study materials parallel to the syllabi in all skills prepared in cooperation with level coordinators and the Technology Enhanced Learning Unit (TELU). Also, the students were assessed online through online tests, online tasks, online participation, and their completion of the weekly video tasks on English Central by completing the video tasks prepared in accordance with the syllabi in all levels except for Prep-C level,

in which students were not assessed but taught to better prepare for the proficiency exam they were required to take to be exempted for the prep school. In the placement test, those who scored 65 and above became eligible to study at their departments. The ones who scored below 65 were streamed into classes in different levels between A1 and Prep-C depending on their language proficiency levels to start studying at the IEP. The IEP consisted of five modules each of which lasted eight weeks and the students whose overall module passing grades were below 65 were required to take the same module. Due to the breakout of the pandemic and the unprecedented lockdown, the whole program had been delivered fully online.

Table 1. *The Demographics of The Participants*

Participants	Pseudonym	Age	Gender		Department
Student 1	S1 BNK	20	Female	Turkish	Mechatronic Engineering
Student 2	S2 HGK	23	Female	Turkish	Sociology
Student 3	S3 ACE	20	Male	Turkish	International Trade and Management
Student 4	S4 ITA	20	Male	Turkish	Business Administration
Student 5	S5 AGI	19	Female	Turkish	Political Science and International Relations
Student 6	S6 BM	19	Female	Turkish	Law
Student 7	S7 VES	19	Male	Turkish	Computer Engineering
Student 8	S8 YY	18	Female	Turkish	English Language Teaching
Student 9	S9 DAY	20	Male	Turkish	Artificial Intelligence Engineering
Student 10	S10 SK	18	Female	Turkish	Law
Student 11	S11 SA	18	Female	Turkish	Sociology
Student 12	S12 ZBK	23	Male	Turkish	Public Relations

Data Collection

The qualitative data were collected from 12 participants of the study during Module 4 of the spring 2021 semester via interviews and observations to analyse their perceptions. Due to time limitations, semi-structured interviews were preferred as it was proved to be a better alternative in cases when interviewers do not have the chance to meet the participants more than once. Furthermore, to ensure the trustworthiness of the qualitative research, the researchers have completed the following steps: (1) member checking, also known as a participant or respondent validation, is a technique for exploring the credibility of results, (2) prolonged engagement time which refers to intensive contact with the participants, (3) Triangulation by employing multiple data sources, (4) peer debriefing that enables a peer researcher to review and assess transcripts, (5) thick descriptive data, (6) interrater-reliability with dual coding by different researchers, and (7) audit trail referring to documenting every step of research to make better analytic decisions.

Interviews

The researchers contacted the rest of the 12 participants of the study through Microsoft Teams chat messaging system and elicited some demographics about them by asking them about their age, their gender, their nationality, and their departments. Soon after this, the participants were given pseudonyms. Then, the researcher as an interviewer explained (1) what the following steps of the interview procedure would be like, (2) made sure whether all the participants read, signed, and returned the participant connect form and interview protocol, (3) agreed on an interview date and time once again. Then the participants were sent an email and a Microsoft Teams chat message a day before the interview for confirmation. On the day of the interview, the researcher read the interview protocol to the participants. The semi-structured interviews had 12 questions (Appendix B) generated based on Moore's transactional distance theory. The interviews were conducted and recorded on Microsoft Teams. During the interviews, the software Otter.ai was used to turn the conversations into smart notes as transcriptions.

Observations

The class observations in the current study were carried out on Microsoft Teams and therefore, its video recording, the video recordings of two other classes as well as the notes were taken by the researchers during the actual observation and while watching the class recordings constituted the data resources for the observation report.

After being granted permission for the study, the teachers whose classes would be observed voluntarily were contacted to ask for their consent to be observed and they were asked to inform their students that their class would be observed by the researcher.

The researcher observed one live class on Microsoft Teams. The observation was planned to be an overt observation process during which the researcher would play no part and simply observe the online interactions in the online classroom as a non-participant. Natural observation technique, which involves studying the spontaneous behaviours of participants in their natural surroundings and in which researchers simply record what they see in whatever way they can. As for the recording of data, the event sampling method in which the researchers decide in advance what types of behaviours are to their interest and what behaviours or events are to be recorded, ignoring all the other types of behaviour. For this specific observation, the researcher focused on the online interactions among the instructors, the students, the content, and the online platform.

Data Analysis

The thematic analysis for this study was employed with the inductive coding approach. After having transcribed all the interviews, the researchers uploaded the transcriptions to NVivo software individually to identify the code and then reach the theme and initiated the inductive coding process. When they compared their NVivo codes, they found that they identified almost the same in different numbers and the wording of the codes was quite similar. They also found that the themes and codes they identified

corresponded to the themes of Moore's Transactional Distance theory. The researchers, then, agreed on the wording of the themes and sub-themes and switched to the deductive coding process. For the next six transcriptions, the researchers identified the phrases or sentences of the participants to find references for them from the text. They both drew individual tables to compare the number of the codes, the number of the appearance of the codes, and finally, they agreed on the codes and themes.

The second data analysis procedure was carried out with the class observation notes. One of the researchers attended a synchronous session for observation purposes. She then shared the video recordings of the live observed class as well as two other class recordings with the second researcher. The researchers individually took memos and notes on the interactions during the classes. They then compared their memos and notes and drew out one final observation report for the results.

FINDINGS

Six themes emerged following the data analysis (Table 2). The researchers provide a thick description of each theme by exemplifying interviewees' experiences and perceptions about online learning with the course content and their interactions with the instructor and other students in online classes.

Table 2. *Themes*

Themes	Sub-themes	
Structure	Structure	13
Dialogue	Student - Student Interaction	43
	Student - Teacher Interaction	29
	Student - Platform Interaction	30
	Student - Content Interaction	11
Learner Autonomy	Time Management	8
	Goal-orientedness	11
Environmental Factors	Lockdown Effect	8
	Technical Support	15
Quality	Overall Quality	12
	Content Quality	12
	Platform Quality	15
	Interaction Quality	22
Instructional Preference	Instructional Preference	15

Theme: Structure

Most of the students agreed in complaining about the rigidity of the course while others highlighted the flexible structure. Specifically, 7 out of 12 students emphasized that the rigid structure of the course demotivated them. For example, Student 7

explained, "In grammar and writing lessons, I got bored. There were narrowly focused lessons. We had to follow the strict guidelines and practiced them without interaction". Also, Student 1 commented, "It's just writing because we are learning, just one specific way and we are making these continuously, like, we are not changing our style, we are just writing disagree or agree paragraphs". Student 2, on the other hand, underlined the flexibility by saying, "I can reach the content whenever and wherever I want. Also, it was easy to get in touch with teachers. They always replied to my private messages". In addition, Student 6 stated, "You know you can reach it wherever you want, and even on your phone, I have the apps. It's easy and useful for me". Several factors are known to be associated with the rigid or flexible structure of the course such as teacher role, content, platform, and course. It is clear from these findings that these factors did not satisfy some students whereas the easier access to content, teacher, and platforms influenced some other students positively.

Theme: Dialogue

Student - Student Interaction

There were some factors directly affecting the interaction between students. Firstly, all the students complained that the cameras were off during synchronized online learning sessions. For example, Student 1 commented, "Generally, we do not open our cameras, we are not feeling like interactive, we don't know our friends so it's important you know we are staying at home, and we are feeling lonely". Likewise, Student 2 explained, "My friends do not participate in the lesson. Their cameras and microphones are always closed. Our teachers say 'hello' or 'Where are you?'. They always do not respond". Moreover, Student 5 confessed, "I don't open the webcam, just listen. I don't speak. Only the teacher is speaking. Students do not attend lessons. These lessons are boring for me".

Another aspect that students (n = 6) emphasized regarding interactions with their classmates is the interactive activities provided by teachers to enhance their speaking skills in the breakout rooms, which is a feature of the video conferencing platform. All the participants valued collaborative tasks in the breakout rooms, adding that such activities enabled them to interact and practice speaking. In this respect, Student 12 underlined the importance of these activities by explaining like this:

> *"Sometimes we speak in the different rooms in the lessons. The teacher gives us a topic and says, "Talk about this with your friends". And we speak with two or three friends in the other room in the Microsoft Teams. While speaking with my friends, I learned a lot. Sometimes we correct our mistakes and discuss the questions about the topic. I think it is beneficial".*

Based on the findings, it could be said that while some students were not delighted with the camera-off situations, others promoted the good side of the breakout room feature in interacting with their classmates.

Student - Teacher Interaction

Except for one participant, the rest of the interviewees were pleased both with the interactions they had with their teachers and with the attitudes of their teachers toward them. They mentioned several factors that teachers did to improve their learning during online education. For instance, Student 6 commented, "I can reach my teachers by email. Also, I can text them through my phone. They are available all the time and trying to text or connect us back as soon as they can". Also, Student 5 said, "Teachers' emotions are important. They are energetic every time. I don't remember any teachers saying we are tired. Their mood affects our performance in the class". In addition, Student 4 reported the following:

> *"Our teacher is really good. She tries to help me. Before the exam, I called her and said I have problems with noun clauses. She called me after that and helped me. It was really good. I love my university".*

It is obvious that nearly all the students reported positive ideas about their interactions with teachers.

Student - Platform Interaction

The participants of the study were using Itslearning and Microsoft teams as online platforms (1) to have classes online, (2) to have access to the course content, (3) to interact synchronously and asynchronously, (4) to communicate through short messages, and (5) to do the homework, and (6) to have synchronous and asynchronous tests. Some students including Student 1, Student 2, and Student 3 favoured itslearning more by saying, "I prefer itslearning because it's easy. We can check grades and feedback directly, and our teacher can check the moment we submitted. It makes sense". Some others, however, found Microsoft Teams more useful and user-friendly than itslearning. Yet, the participants' overall perceptions of the online platforms were quite positive. All of them reported that the platforms were good enough to continue online learning. For instance, Student 9 commented, "When I compare with other platforms, Microsoft Teams and itslearning are so easy. They are user-friendly". Also, Student 10 stated, "I was comfortable because I can easily find anything on the Teams or itslearning, I can also get in touch with my teachers and friends". Clearly, students were content with the online platforms which were exploited in the program as they enabled them to reach their course content, have online sessions, do homework and tests, interact, and communicate without having problems.

Student – Content Interaction

Another aspect that students emphasized during interviews was the student-content interaction. Students made a total of 43 comments on how they interacted with the course materials and content. 9 participants commented positively on student-content interaction. For instance, Student 7 reported the following:

> *"I think it's great (referring to the content on Teams and itslearning) because whenever we want to open a document, like a vocabulary or reading, we have a chance to reach them any time. Yet, that's great because we don't get the chance to lose anything. Everything is online. So, that's good I think in online sessions".*

Similarly, Student 11 stated, "Teams and itslearning... I think it is easy to access information. We have extra documents there. Content in itslearning is good but it can be improved with enjoyable things". Student 7 said, "We were doing collaborative tasks in the first module. The materials were interactive. It was great for me…". However, three of the participants provided negative ideas about student-content interaction. For example, Student 5 said, "Content is sometimes boring. I like to see more games and enjoyable materials" and Student 3 stated, "When we use too many classical things for example, the teacher writes something in the word or reading in the class. I can do it after the lesson. I am responsible. These are boring things".

Theme: Learner Autonomy

Goal orientedness

The researcher asked the reasons why they wanted to learn English and preferred taking online courses although they had a chance to drop out during the course period due to the pandemic. Most of the students (n = 8) were aware of the importance of learning English. In this respect, Student 2 emphasized, "I studied scholarship 100%, and I really want to attend this university, and I really want to learn English. I want to speak very fluently, and I want to listen very fluently". In addition, Student 8 explained, "There was no chance to improve my English for IELTS and TOEFL. I have dreams to live abroad. I forgot English in my country because of studying for exams".

Time Management

Some students (n = 8), on the other hand, felt that they were having a hard time adapting to online education. In distance learning, students have more responsibility for their own learning. Thus, some students with low autonomy might have problems in fulfilling required activities. It was apparent in the interviews that some of them struggled to be on time during online learning. For example, Student 7 asserted, "Mostly, I struggle with waking up early. As I am learning online, I feel more comfortable. So, I had a hard time attending lessons on time."

Theme: Environmental Factors

Lockdown Effect

Understanding the effects of the COVID-19 pandemic is significant for researchers as it was the unique side of the context in the current study, so they directed questions to the participants to consider their online educational environment. As expected, the majority of the students (n = 8) uttered the hardships of studying online due to the lockdown. For example, Student 5 remarked, "It was really difficult to be motivated at home. I was mostly sleepy. Due to the pandemic, I could not get out of the house. I miss my friends". It can be clearly inferred that the lockdown effect posed a difficulty for students in terms of their moods and motivation.

Technical Support

The above-mentioned challenges should be overcome by either student or external support. 8 out of 12 students did not demand any technical support, whereas the rest asked for technical support from teachers and the technical support unit of the school (n = 4). Student 12 illustrates this point clearly by saying, "I haven't got any technical problems so I don't need this but some of my friends need some help for technical issues and they could solve it with BAU SFL".

Theme: Quality

Table 3. *Student Ratings on the online program*

Area of rating	Very Good	Good	Moderate	
Overall quality	Students 2,3	Students 1,4,5,6,7,8,9,10,11	Student 12	
Platform Quality	Students 3,7,8,10	Students 1,2,5,6,9,11,12	Student 4	
Content Quality	Students 3,7,8	Students 1,2,4,5,6,9,10,11	Student 12	
Student –Student Interaction Quality	Student 3	Students 1,2,5,6,7,9,10	Students 8,11	Student 12
Student –Student Interaction Quality	Student 3	Students 1,2,5,6,7,9,10	Students 8,11	Student 12
Student – Teacher Interaction Quality	Students 1,3,7,9,10,11	Students 2,4,5,6,8,12		
Student - Content Interaction Quality	Student 3	Students 1,2,4,5,6,7,10	Students 11,12	
Student Platform Interaction Quality	Students 3,8,10,11	Students 1,2,4,5,6,7, 9,12		

Theme: Instructional Preferences

In our interviews, we asked the participants to make a choice between traditional face-to-face education and online education. All the participants stated that they favoured face-to-face education rather than online education despite emphasizing the merits of distance learning. For example, Student 1 stated that she preferred face-to-face education since she found online education demotivating as they could not see their classmates when their cameras were off. She explained, "When we are in an online classroom, we don't have to open our cameras. This takes my motivation down". In addition, Student 6 said, "I feel more energetic and motivated in face-to-face education. Studying at home demotivates me because the home is comfortable, and we often attend the classroom in our bed." Furthermore, Student 5 commented, "I prefer face-to-face. It is better I think because I want to live a college life in Istanbul but now

there is only me and my computer trying to stay alive." It can be clearly understood from these answers that face-to-face education is valued more by all the participants when compared to online education.

DISCUSSION AND CONCLUSION

This qualitative study sought answers to the research questions of how students perceive and describe their online learning experiences during COVID - 19 and how students perceive and describe their interactions with the instructors, students, the course content, and online platforms. The findings are discussed taking the research questions and the components of transactional distance theory into consideration.

Course Structure

The findings of the study suggest that just over half of the participants were not satisfied with the structure of the course specifically in grammar and writing lessons due to the instructional strategies implemented by teachers. This aspect of the lesson patterns was echoed unanimously by the participants who believed the existing high rigidity of the course as they reported to be doing repetitive tasks. A possible explanation for this might be shown as the teachers' role and the nature of learning a foreign language. First, teachers are responsible for delivering the content by employing proper instructional strategies. They need to make decisions to make learning fun even if the content itself requires structured one-way explanations (CITE). This reason appeared to be contrary to the students' attitudes towards teachers since all of them were satisfied with the performance of their teachers and appreciated their effort in providing necessary resources in or outside the class. However, teachers could have given serious thought to designing the online writing and grammar lessons. Second, learning a language is gradually getting expertise in a set of skills including speaking, listening, reading, and writing. Additionally, to master these skills, learners need to receive a rich body of information on grammar or vocabulary. As Cook (2013) reminds us, those who learn a language find grammar or writing more abstract and compelling. Thus, students complain about the more compelling side of the language. 5 out of 12 participants, on the other hand, argued that the course was flexible enough to learn a language online. This result might be explained by the fact that the school was using one of the best online learning platforms (itslearning, Microsoft teams) in terms of interface, design, interaction, ease of use, etc. It could be understood from students' perceptions regarding platforms that they valued the well-designed interface and features including grading, feedback, assignment, the delivery of the content in folders on platforms, chat and message options, and spaces for collaboration, etc. These results corroborate the ideas of Goel et al. (2012), who proposed that the improvement in the quality of learning platforms would impact the flexibility of the course positively.

Dialogue

The findings provided the largest set of significant clusters of sound evidence for the effective interactions among the learner, content, and instructor. It is also noteworthy to highlight that the most obvious finding to emerge from the study is the success of

reciprocal dialogue between the attributes. Dialogue is the backbone of the transactional distance during online education (Best & Conceiçao, 2017) since its quality is the strong predictor for the learners' buy-in (Strachota, 2003). There are several possible explanations for this result. First, serious training was given to instructors for the purpose of decreasing the dropout rate and improving attention during the online sessions. Second, the content was revised and optimized by removing higher cognitive tasks which required strong personal investment. Third, extra materials were uploaded to the LMS for asynchronous learning. Fifth, the same LMS has been used for a few years in the school. Thus, instructors' familiarity with the LMS has expedited the process.

Contrary to expectations, the participants also expressed some concerns over the dialogic interaction amongst classmates during the online sessions. A possible explanation for this might be that there was not a compulsory open-camera policy for the participants. This influenced learners' attention and motivation as there were many distractors at home as stated by some students.

Learner Autonomy

Several issues were identified regarding students' autonomy during online learning. It is obvious from the findings that some students (n = 8) had problems managing their time, maintaining their motivation, and study discipline. These students also reported statements indicating low autonomy on their own learning. This result might be explained by the fact that students are more independent while having online education, which necessitates a high sense of self-management (Ribbe & Bezanilla, 2013). Therefore, the study confirms that learner autonomy is a significant component of online learning. Students who have low autonomy are having difficulty in keeping motivation and discipline. This finding is consistent with that of Hagel and Shaw (2006, p. 285) who state that "students studying off-campus need to take more responsibility for their own learning". In the same vein, Borges (2007) argues that confident digital students are those who have a higher autonomy in his or her own learning. These results are also in line with those obtained by Doğan and Mirici (2017) who stated that Turkish students tend to learn by means of spoon-feeding due to the perceived low autonomy.

Environmental Factors

There is a relatively small body of literature that is concerned with environmental factors in the transactional distance during online learning. Moore (2013) holds the view that the effects of environmental factors need further investigation. In the interviews, a variety of perspectives was expressed in relation to environmental factors including the lock-down effect, and technical support. In all cases, the informants reported that they were badly affected by the pandemic due to the lock-down and stressful unclear times for the future. In this regard, Shevchenko et al. (2021) point out that the unexpected transition to distance education has raised questions regarding the readiness, motivation, and well-being of the students as well as uncertainties about the quality of learning. These results are also in an agreement with those obtained by

Dong (2020). Conversely, Kumar et al. (2021) and Clark et al., (2021) reported that online education was more effective in pandemic conditions compared to face-to-face learning. This result is likely to be related to extra efforts invested by institutions in shifting to online education. Most schools provided training for in-service teachers and bought software to improve the quality and satisfaction. These factors might explain the reason why these students held better feelings towards online education. In addition, some students needed technical support during distance learning. However, it could be understood from the findings that only two of them contacted the IT department to receive outer support. It seems possible that this is partly due to teachers' intervention for minor problems in advance. It could also be explained by students' and teachers' higher digital literacy because Nawaz and Khan (2012) posited, "the degree of dependence on technical support is determined by the degree of users' digital literacy" (p. 41).

Quality

The overall voices regarding the quality of a wide range of attributes including interactions, software, materials, and educators were quite satisfying. It seems possible that these results are due to the dedication of the instructors, rigorous planning and development, sophisticated software, and technical support of the school. This finding broadly supports the work of other studies in this area linking the quality with those attributes (Harasim, 1989, Graham & Scarborough, 2001, and Li, 2002). These results also corroborate the ideas of McGorry (2003), who suggested that distance education describes five general factors that might impact learning experience and gratification with online courses: perceived usefulness of the course, flexibility, interaction, student experience, and engagement. Another possible explanation for the overall satisfaction is that being provided technical support and having access to institutional resources help increase the perceptions of students on quality (Phipps, and Merisotis, 1999). However, it is noteworthy to emphasize that some students uttered the hardships in communicating effectively with their peers during the classes. As mentioned, this is related to the school's policy on the use of cameras.

Instructional Preference

What is interesting about the data in the current study is the participants' instructional preferences. All of them preferred traditional face-to-face instruction rather than online learning. This is a rather remarkable outcome. Additionally, this result is somewhat counterintuitive as a large body of research considers online education as the future of learning with its flexibility (Tabatabaei & Gardiner, 2012; Nguyen, 2015; Palvia et al., 2018). This discrepancy could be attributed to the pandemic effect as there has never been such a long compulsory online education under a lethal outbreak in the world before. As noted by Daniel (2020), the increased anxiety based on uncertainties in life impacted both students and parents' well-being negatively. In other words, a note of caution is due here since this unusual condition may have influenced student experiences deeply. It is also worth mentioning that students having low autonomy and students who found the course structure rigid might have had difficulties in adapting to the new learning environment. In addition, these results are in accord with

recent studies (Dong et al., 2020) indicating that online learning could not become the replacement for traditional learning despite its merits such as accessibility. Instead, it could only be used as an extension of face-to-face education to enrich and diversify the instruction. Similarly, Sibirskaya et al. (2019) found that online education is effective when used in micro-levels but macro-level benefits require further empirical investigations. Furthermore, this finding broadly supports the work of Baczek et al. (2021) who indicate that students do not prefer online learning due to social isolation during the pandemic.

In this investigation, the aim was to assess the efficacy of online education in terms of different attributes including course content, quality, and dialogic interactions based on Moore's transactional distance theory. This paper has also argued the effects of the pandemic on online education. Overall, the results have shown that students were satisfied with the overall quality of their interactions with platforms, students and teachers despite hesitations regarding peer interaction. In addition, the structure of the writing and grammar lessons was found rigid. They expressed their appreciation for the quantity of the content despite some concerns over its variety due to repetitive tasks. Students with low autonomy, on the other hand, had difficulties in adapting to online learning. One unanticipated finding was that students did not prefer online learning as a substitution for face-to-face learning in spite of their positive remarks with regard to the dialogic interactions. This outcome seems to be contrary to the large body of literature on the association between transactional distance and online education. However, this inconsistency is likely to be related to the lock-down effect as an environmental factor during the pandemic since many were tired of staying at home or going out for only a limited time of the day. Additionally, students' low autonomy, insufficient peer interaction and partly rigid structure are the main reasons for this result. This work hereby contributes to existing knowledge of students' perception of online education by focusing on external factors as well as dialogic interactions during the pandemic. More broadly, research is also needed to determine the widespread beliefs on online learning amid COVID-19.

A limitation of the current study was the low English language proficiency level of the students, which posed some difficulties for them to express their ideas fluently and accurately. In addition, the study employed the limited number and profile of the participants in that all of them who volunteered for the study were Turkish students attending a foundation university in Turkey. The results of the study thus could have been more generalizable for the researchers if more students from a wide range of universities had volunteered to take part in such research.

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Filipino Senior High Schools' Acceptance of Webinar as Teaching and Learning Platform During Remote Learning

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Abstract

The public health issues brought about by the sudden onset of the pandemic has resulted in the shift from classroom teaching to remote or online instruction in the Philippines. It has paved the way for webinars and videoconferencing as necessary components in the education sector. At the University of the Philippines Open University (UPOU), webinars had been conducted starting 2020 covering topics on education, environment, health sciences, ICT, and management, among others. The webinar's popularity keeps on growing as the university continues to conduct webinars for its various publics. However, there is a need to understand how effective webinar is as a teaching tool from the students' point of view. HENCE, this study looked into the learner's perception and acceptance of webinar as a tool for teaching and learning. A survey was conducted among public senior high school students between the ages of 18 and 19 years. These students previously attended a ten-module webinar program organized and offered for free by UPOU and its private partner institution. An online survey questionnaire was used to gather feedback on their experiences and views about the webinar as well as statements based on Everett Rogers' Diffusion of Innovation Theory. Results revealed that webinars can be a substitute tool for teaching-learning when holding face-to-face classes is not possible. The top three reasons cited were: students learn new information/knowledge from the webinar; they can simulate interactivity of the real classroom; and convenience for individuals to participate in webinars anywhere. However, the majority of the respondents agreed that there are courses that can be better taught via webinars while other courses are better taught face-to-face. The results of the study can be used to help improve/maximize the potential of webinars as a teaching and learning tool. Given the various public health, environmental, political, and economic changes that happen globally, it is still a challenge to keep the students engaged in their new learning set-up, thus there is a need to develop better solutions to deliver quality education.

Keywords: *webinar, teaching tool, educational technology, remote teaching*

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INTRODUCTION

The recent environmental and public health concerns in the country and in the world have brought disruptions in accomplishing everyday tasks in various sectors of society. In the education sector, a shift to remote teaching forced educators to quickly redesign or redevelop their teaching and learning methodologies. Students also had to adapt to a new academic lifestyle in order to cope with the new normal setting of education.

An article on remote learning published in 2021 by a major Philippine newspaper stated that the Philippine education system lacked the preparation to shift to remote learning. It further exposed a problematic situation wherein teachers and students attempted to replicate the traditional mode of teaching in the online platform. The result is a less meaningful learning experience for the students (Adonis, 2021). And as the article further stated, the situation is the same for secondary education pupils.

As the pandemic brought about by COVID-19 stretches on, it is imperative not only to search for other methods and/or platforms but also to study how to maximize the use and enhance the effectiveness of methods and platforms currently being used to provide education to students.

One of the methods being adopted is webinar, a computer-mediated communication that facilitates synchronous interactions or real-time interactivity/engagement. Webinars, made possible by various computer applications, have become buzzwords all over the world, as they provide significant support to online learning (Wang and Hsu, 2008).

Webinar applications enable live transmission of video, audio, and images. Depending on the capabilities of the chosen application, the use and sharing of whiteboard and other applications can also be done. Webinars also offer a wider reach, allowing transmission and exchange of information among thousands of facilitators and learners from various parts of the world.

For over a decade, the UP Open University has conducted live-streamed lectures and discussions not only for its undergraduate and graduate students, but for the public as well. In the first quarter of 2022, the university started to hold webinars on online teaching and learning, to help educational institutions transition to online and/or remote learning. Prior to this, the university had been livestreaming talks and conducting webinars about health, gender, environment, research, and public management, among others.

The Digital Literacy Webinar

The university, in cooperation with a private telecommunications company, offered a free webinar series on digital literacy. It was conducted on 5 February 2021 until 21 May 2021, with Grade 7 to 12 students as target participants. It covered a total of ten modules, featuring one module per webinar each week. The topics discussed were as follows: digital productivity tools; online collaboration tools; 21st century competencies; effective communication skills; digital literacy; responsible use of social media, global digital citizenship, cyber security; lifelong learning; and introduction to sustainable development goals.

The webinar series featured different resource persons from the academe and the telecom industry. The webinar used the platform Zoom and live streamed on three sites — a Facebook page, a YouTube channel, and the UPOU Networks' website, the university's online repository of open educational resources and webinars. By streaming the webinar on the three said sites, the organizers had given the students the flexibility to choose the platform that would be easier for them to access.

The webinar sessions, which ran from 90 - 120 minutes, were recorded and kept uploaded in the three sites mentioned. By doing this, the participants who missed a session or those who wanted to rewatch a session can do so according to their chosen time. An online quiz was given after each episode, but the site is only open for 72 hours. Webinar participants who got passing scores for each episode quiz earned certificates of participation.

How did these students, who were so used to classroom sessions then suddenly shifted to attending virtual classrooms, feel about attending classes and learning via webinar? This paper studied Grade 12 students' acceptance and perception of webinars as an alternative teaching and learning platform.

Specifically, it sought to answer the following questions:

1. How did Grade 12 students accept webinars as an alternative to traditional classrooms?
2. What are the factors that affect Grade 12 students' acceptance/non-acceptance of webinars as an alternative teaching and learning tool?
3. What makes webinar sessions interesting and engaging to these learners?
4. What are the problems, challenges, and limitations experienced by the Grade 12 students when joining webinars?
5. What are the perceived advantages and disadvantages of webinars as a teaching and learning tool?

The results of the study hope to serve as a basis for educators and school administrators to improve the delivery of teaching and learning via webinars. The results can also help educators and school administrators plan/develop and/or redevelop methods to make teaching via remote learning more effective, and to increase student engagement.

OBJECTIVES

This research aimed to know the learners' acceptance of webinars as a teaching and learning methodology.

Specifically, this research aimed to:

- assess Grades 12 learners' acceptability of webinars as an alternative to traditional classroom teaching;
- determine the factors that contribute to the acceptability or non-acceptability of webinars as a teaching and learning tool among Grades 12 students;
- identify the Grade 12 students' perceived advantages and disadvantages of webinars as a teaching and learning tool;

- enumerate the factors that would make webinar sessions interesting and engaging to these learners;
- identify the problems and limitations experienced by Grade 12 students in attending webinars; and
- come up with guidelines and/or best practices for holding effective webinars as an alternative to face-to-face teaching for Grade 12 or younger students.

THEORETICAL FRAMEWORK

This research study utilized Everett M. Rogers' Diffusion of Innovation Theory. This theory seeks to explain why and how new technology/ideas are spread and adopted including factors that affect the rate of adoption. Rogers defined innovation as "... an idea, practice, or project or object that is perceived as new by an individual or other unit of adoption" (1983, p. 11). The theory posits that there are five factors or attributes that influence the adoption of innovation: (1) relative advantage, (2) compatibility, (3) complexity, (4) trialability, and (5) observability (Rogers, 1983).

Relative advantage refers to the perceived advantage of an innovation over an existing idea or practice. When an innovation is perceived as relatively advantageous or offers more incentives over other ideas, then its adoption is done faster (Rogers, 1983).

Compatibility is the perceived similarity or harmony of the innovation with the existing values, experiences, and needs of adopters. When the innovation is compatible with the needs of the adopters, the rate of adoption increases (Rogers, 1983).

Complexity is the adopter's perceived difficulty to understand and use an innovation. When an adopter perceives the innovations as difficult to do or use, it would be slower for people to adopt an innovation (Rogers, 1983).

Trialability refers to the degree to which an innovation may be used, tried, or experimented with on a limited basis. Rogers (1983) said that innovations that can be used or accessed on an "installment basis" shall be adopted faster than those that are not. He added that the adopters' perception of this attribute is relative or differs from one adopter to another, i.e., early adopters view trialability as important, while late adopters (who may have depended on the experiences of others before adopting the innovation) may find trialability less significant (Rogers, 1983).

The last factor that affects the diffusion of an innovation, as stated by Rogers (1983), is observability. It is the degree by which "the results of an innovation are visible to others". The more visible or observable the results or advantages of an innovation are, the faster the innovation shall be adopted.

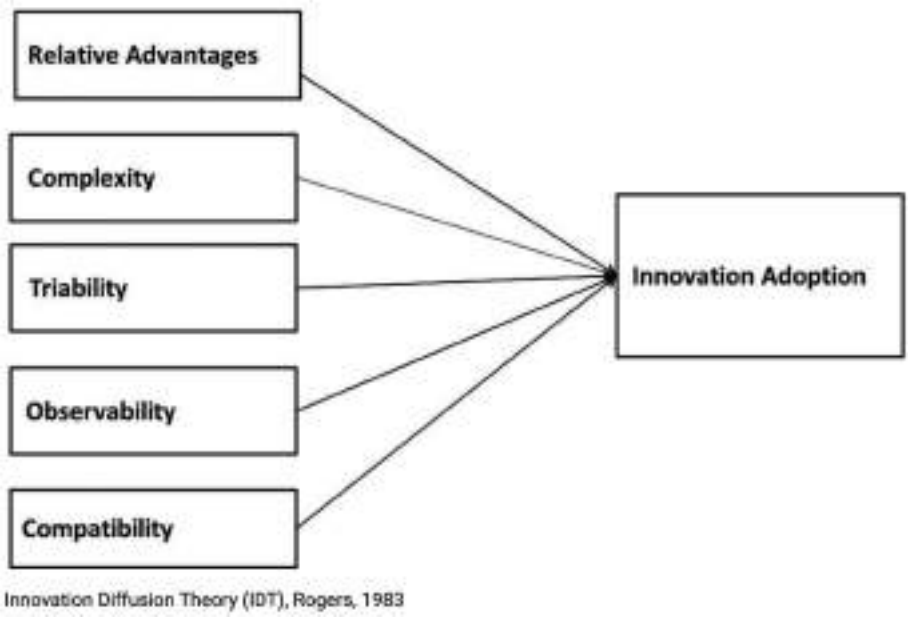


Figure 1. *The Innovation Diffusion Theory of Everett Rogers*

REVIEW OF RELATED LITERATURE

Prior to the Coronavirus pandemic, webinars and/or web streaming of lectures were already being used in training programs and conferences, and occasionally in higher education institutions where participants were mostly adult learners. Their growing popularity led to the conduct of numerous studies on the effectiveness and perception of adult learners toward webinars/web streaming as a tool for teaching in formal and nonformal education.

Shian-Kwei Wang and Hui-Yin Hsu of the New York Institute of Technology conducted a study (2008) regarding the learners' perspective on the use of the webinar tool to support training. The research participants were experienced trainers in instructional technology. The research found the following factors/advantages that affected the participants' satisfaction with the webinar tool they used for the training: (1) provision of a nearly face-to-face environment where they were able to interact with instructors and co-training participants; (2) savings on commute time; (3) reduction of anxiety experienced by learners compared with attending face-to-face session; and (4) successful delivery of conceptual or basic procedural knowledge (Wang & Hsu, 2008).

Similarly, Nadama, Tennyson and Khajuria (2019) evaluated the usefulness and utility of webinar as a platform to educate students on clinical academic program. The findings indicated that 71.2% of 118 participants, who are millennials, strongly agreed that webinars offer flexibility and convenience. This research also highlighted that the "acceptability of webinars may be attributed to generational differences in learning" (Nadama et al., 2019 pp. 321). The millennial participants were seen as technologically advanced or digital natives who were more probably inclined

to learn more through multimedia than traditional textbooks. (Frand, as cited in Nadama et al., 2019, pp. 321).

Several studies also explored higher education learners' perception of webinars as a teaching tool in terms of usefulness and acceptance rate. For instance, Al-ahmari and company (2021) showed in their research that 89.1% of neurosurgery residents and 87.3% of neurosurgery attending participants were satisfied with webinars as a teaching tool. It was also pointed out that the millennial group, the neurosurgery residents, were more satisfied with the webinar as a teaching tool. This is consistent with the generational learning theory highlighted in Nadama and colleagues' research (2019).

Dasgupta and company (2021) also studied the impact of webinars on the learning experience of 382 ophthalmic residents from medical colleges in India during the COVID-19 pandemic. Seventy-five percent of the respondents perceived webinars as a good to very good academic tool and that more than half of the residents (54%) said that even after the pandemic, they prefer to attend webinars over face-to-face sessions.

Meanwhile, Patel, Khajuria and Khajuria's (2020) study on the "utility of a webinar to educate trainees on UK core surgical training (CST) selection" found that more than one-half of the 111 respondents (55%) preferred webinars over face-to-face tutorials and pointed out that webinars provided them more convenience and flexibility in participating in the class.

In UPOU, web streaming of lectures/tutorials for its continuing/nonformal education courses was highly accepted by its online students who could not participate in face-to-face sessions. However, they pointed out that the sessions would be more effective if real-time interactivity is further improved (Gelisan, 2014).

The above findings showed the potential of webinars as a viable tool for remote teaching and learning especially when public health and environmental concerns prevent the holding of teaching onsite or in the physical classroom. However, these research findings covered only the views and perceptions of higher education learners and adult learners. There are limited research studies focusing on basic education learners. This research, therefore, may contribute to the growing studies regarding the use of webinars as a teaching and learning tool.

METHODOLOGY

Research Method and Research Instrument

This study used the survey and focus group discussion as methods to collect data. For the survey, an online self-administered questionnaire, created using Google form, was sent to the respondents who agreed to take part in the study. The questionnaire was written in two languages, Filipino and English. The respondents were given the freedom to choose which version of the questionnaire to answer.

The questionnaire was used to collect baseline data about the participants; including their access to the internet and other ICT devices, experiences on attending the digital literacy webinar, suggestions on how webinars can be further improved; and their perception of webinar, using Likert-scale statements. The statements were developed based on Rogers' Diffusion of Innovation Theory.

Prior to the survey proper, the questionnaire was pre-tested on individuals with similar characteristics to that of the target respondents. The results of the pre-test were used to revise and improve the contents of the questionnaire.

A focus group discussion (FGD) using a videoconferencing application was also conducted with the same respondents to get more insights into the answers given in the survey.

Sampling Method

The sampling method used for the study was total enumeration. The 706, Grade 12 participants of the digital literacy webinar series were sent with email messages about the research and the request for them to take part in the study. Only those who were 18 years old and above, and gave their consents to participate in the study qualified as respondents. With these considerations, the study came up with a total of 72 respondents.

The 18-year-old, and older, were chosen as respondents because they were assumed to have more knowledge, skills, and experience on the use of different online teaching and learning tools as well as social media platforms. Such knowledge and experiences on the use of IT, social media literacy, and maturity could contribute much to their more objective evaluation of webinars as a teaching and learning tool.

For the FGD, only four out of the 72 survey respondents gave consent to participate.

Data Analysis

Data were analyzed using descriptive statistics, specifically measures of frequency – count and percentages.

In analyzing the Likert scale, the researcher used the following weight:

Strongly Agree (SA) = 5
Agree (A) = 4
Neither Agree nor Disagree (N) = 3
Disagree (D) = 2
Strongly Disagree (SD) = 1

Results were interpreted according to the following range:

Mean result = 1 - 1.80 = SD
Mean result = 1.81 - 2.60 = D
Mean result = 2.61 - 3.40 = N

Mean result = 3. 41 - 4.20 = A
Mean result = 4.21 - 5.00 = SA

Ethics

The research protocol was reviewed by the University of the Philippines Open University's Institutional Research Ethics Board. It was approved on 21 November 2021.

RESULTS AND DISCUSSIONS

Demographic Characteristics of The Research Participants

Socio-Demographic Characteristics

Seventy-two Grade 12 webinar participants took part in the survey. Of these, 49 (69.4%) are female and 22 (30.6%) are male. Almost 90% of the participants are between 18 to 19 years old. The oldest participant is 43 years old (Table 1).

Sixty-five of the participants attend public high schools (90.28%), and the remaining are enrolled in private schools.

Table 1. *Socio-demographic characteristics of participants*

Demographic characteristics	Number	%
Sex		
Female	50	69.44
Male	22	30.56
Age		
18	48	66.67
19	16	22.22
20	2	2.78
more than 21 years old	5	6.94
no answer	1	1.39
School Classification		
Public	65	90.28
Private	7	9.72

Access to ICT and platforms used

Currently, access to quality and fast internet in the Philippines is a challenge. Most of the respondents participated in the webinar via their mobile data (40.3%) or through a prepaid broadband connection (31.94%). Only 16 participants have access to a fiber network internet (22.22%) while 5.56% used the digital subscriber line (DSL).

Though most of the participants have 15.1 Mbps or higher internet speed (40.3%), they noted that they still encounter disconnection on webinars due to loss of internet connection.

Table 2. Access to the internet and the internet speed of the participants

	Number	%
Internet Connection		
Data	29	40.28
Broadband Wifi	23	31.94
Fiber	16	22.22
DSL	4	5.56
Internet Speed		
15.1 mbps and higher	29	40.28
5.1 mbps to 15 mbps	18	25.00
1.1 mbps to 5 mbps	17	23.61
Less than 1 mbps	7	9.72
no answer	1	1.39

The respondents were also asked to identify the devices used and platform preferred when joining the webinar. Fifty-nine or 81.9% of the respondents prefer to use mobile phones as primary equipment, while laptop is preferred by half of the respondents as secondary equipment (Table 3), this is because of the portability of the mobile phone as well as it is relatively cheaper than laptop/computer. In terms of device ownership (Table 4), there are still a number of students who do not own their own devices (13.89%), they either borrow or share equipment with family members and friends.

Table 3. Primary devices in participating in the webinar series

Device Used	Number	%
Primary Device		
Cellphone/Smartphone	59	81.94
Laptop	10	13.89
No answer	2	2.78
Tablet	1	1.39
Desktop Computer	0	0.00
Secondary Device		
Laptop	36	50.00
Cellphone/Smartphone	21	29.17
No Answer	8	11.11
Desktop Computer	4	5.56
Tablet	3	4.17

Table 4. ICT device ownership

Device Ownership	Number	%
Self-owned	62	86.11
Borrowed	10	13.89

In terms of platforms, Facebook has the highest number of users (78%) (Table 5). This is because majority (58.6%) of them believe that Facebook is the easiest to access and uses the least Internet data (Table 6).

Table 5. Platforms used in participating in the webinar series.

Platform	Number	%
Facebook	56	77.78
YouTube	9	12.50
Zoom	4	5.56
UPOU Networks	3	4.17
Total	71	100

Table 6. Reasons for choosing Facebook as the platform for participating in the webinar[a]

Reasons	Number	%
Easy to access (uses less data and loads faster)	82	58.57
Very mobile	30	21.43
User friendly	28	20.00
Total	140	100

[a]*Multiple responses*

Perceived Advantages and Disadvantages of Webinars as a Teaching and Learning Tool

To know more about the students' experiences in joining the webinar series, they were asked to enumerate the perceived advantages and disadvantages of webinar as a teaching and learning tool. Their answers were grouped according to themes.

Table 7. *Respondents' perceived advantages of webinar as a teaching and learning tool*[a]

Advantages	Number	%
Interactivity	127	37.91
Provides interactivity between teacher and students (53)		
Provides interactivity between classmates (32)		
Provides students to have the courage to join the discussion (42)		
Flexibility	116	34.63
Recordings of the webinar can be rewatched (60)		
Lessons are easier to understand than by just reading the modules (56)		
Accessibility	92	27.46
One can participate in webinars anywhere (52)		
One does not need to go to school to attend class (40)		
Total	335	100

[a]*Multiple responses.*

In terms of advantages, results show that the students perceived interactivity (37.9%) as the best advantage of a webinar, followed by flexibility (34.6%), and accessibility (27.5%).

These results are almost similar with the findings of Wang and Hsu (2008) and Nadama, Tennyson, and Khajuria (2019). In the former, the research participants identified interaction and accessibility as two of the factors affecting their satisfaction with learning via webinar. In the latter study, the participants acknowledged that the webinar provided them flexibility in terms of studying and/or catching up with the lesson.

In a previous study on web streaming, participants pointed out the need for real-time interaction to make web streaming of lessons an effective online tool for teaching (Gelisan, 2014).

On the other hand, the respondents identified dependence on the use of the Internet (54.3%) as the webinar's biggest downside. This is followed by learning and interaction limitations, due to limited time for open forum, (29.3%), and dependence on the use of ICT (16.4%) (Table 8).

Table 8. Respondents' perceived disadvantages of webinar as a teaching and learning tool[a]

Disadvantages	Number	%
Dependence on the use of the Internet	172	54.26
Disconnection to due poor internet connection (63)		
Choppy sound due to loss of or poor Internet connection (59)		
No Internet access (50)		
Learning and interaction limitations	93	29.34
Inattention of or distracted students (47)		
Limited student participation in the discussion due to time limit (46)		
Dependence of webinar on the use of ICT	52	16.40
Limited to no access to ICT equipment (52)		
Total	317	100

[a]*Multiple responses*

It should be noted that participants also identified dependence of webinars on the use of ICT as a disadvantage even though majority (86.11%) of them owned devices as shown in Table 4. During the FGD, respondents mentioned that learners who do not have access to ICT devices, including Internet access, were at a disadvantage because they cannot participate in the webinar on real time, which is like missing a class.

Issues and Challenges Encountered by the Participants

While most of the participants have 15.1 Mbps or higher internet speed, they still encounter problems while watching the webinars due to loss of internet connection. This is an ongoing issue in the country, as it continues to improve its ICT infrastructure.

Thus, this study also looked into the issues and challenges experienced by the webinar attendees. For every 10 respondents, 9 said that they encountered technical issues. Table 9 shows the technical challenges encountered by the participants.

Table 9. Technical challenges encountered while watching webinars

Challenges	Number	%
Slow internet connection	45	26.47
Internet disconnection	40	23.53
Choppy/unclear audio	39	22.94
Blurred video	34	20.00
Inaccessible website	12	7.06

Slow internet connection is the biggest challenge students encounter while watching webinars. This is an expected issue as the participants mostly rely on their data connection as shown on Table 2. Internet connection has a big implication on the potential of webinars as this tool relies heavily on the internet and ICT infrastructure. As shown on the table above, the two main challenges are aligned to the Internet connection. Other challenges encountered include blurred video and choppy sound which were also results of slow internet connection.

Factors to Consider to Make Webinars Interesting and Engaging

The participants were likewise asked to identify ways to improve the conduct of webinars. Table 10 shows that interactivity is one of the major things to consider. Hence, they suggested having more time for student interaction during webinars (24%). They also suggested that webinar organizers/teachers should make the webinar site more accessible (22%). Earlier, student participants pointed out that Facebook is the most accessible site for them, which is why they would rather watch the webinar on the said platform. It should be noted though that the webinar organizers used other streaming sites to provide flexibility and increase the accessibility of the webinar series.

Further, the participants also reiterated to record and make recordings of the webinar available online so they can rewatch the lecture/discussion (21%) anytime/anywhere. Others suggested adding more motivational activities (18.2%).

Table 10. *Participants' suggestions to make webinar more interesting*

Suggestions	Number	%
Make it more interactive by giving more time for open forum	71	23.99
Make webinar site more accessible	65	21.96
Make available online the recordings of the webinar	62	20.95
Add motivational activities	54	18.24
Make PowerPoint presentations more interesting by adding more graphics than text	44	14.86
Total	296	100.00

[a]*Multiple responses*

To increase student engagement in the webinar, the respondents suggested adding games, giving longer time for open forum, and giving rewards or prizes to the participants. During the FGD, when participants were asked to choose between webinar and face-to-face discussions, three of them chose face-to-face discussions. They reasoned that interaction in face-to-face discussions is richer than what webinars can provide. Student A said that "it's true that there are some interactions that we can experience in webinar but the interaction is different when you are interacting

with your discussant face-to-face", though she also recognized that interaction can be mimicked in the webinar, unfortunately, issues with unstable internet connection can distract the focus of the participants.

Table 11. *Participants' suggestions to make webinar engaging and/or participativea*

Suggestions	Number	%
Add games or contest	55	35.48
Add more time for open forum (more time for students to share questions and/or opinions)	52	33.55
Give prizes to the participants	48	30.97
Total	155	100

[a]*Multiple responses*

Table 12 shows the factors that can make a webinar boring or uninteresting. These are too long talking-head lectures, and very long webinars (25.7% each). Almost one-fifth (18.84%) said that webinars without interaction between the speaker and the participants are boring.

The recurring appearance of interaction in the survey results shows that the participants are eager to have more interaction rather than have a passive type of webinar.

Similarly, non-usage of any presentation material (no video, music, and PowerPoint) was perceived to be a feature of a boring webinar.

Table 12. *Characteristics of a boring webinar as identified by the participantsa*

Perceived reason for boredom in a webinar.	Number	%
Too long talking-head lecture	71	25.73
Too long webinar	71	25.73
Absence of interactivity	52	18.84
Non-usage of presentation materials (video, music, PowerPoint, etc).	48	17.39
Only one person talking in the webinar	32	11.59
Too scripted and the talk cannot be related to real life.	2	0.72
Total	276	100

[a]*Multiple responses*

Regarding the preferred length of webinars, majority of the participants chose 60 minutes (37.5%) followed by 30 minutes (30.6%) (Table 13.) This length is actually almost similar to the classroom discussion time per subject.

Table 13. *Participants' preferred length of webinars.*

Length	Number	%
60 minutes	27	37.50
30 minutes	22	30.56
45 minutes	15	20.83
15 minutes	4	5.56
More than 60 minutes	2	2.78
No Answer	2	2.78
Total	72	100

Factors Affecting Participants' Acceptability/Non-Acceptability of Webinar as Teaching and Learning Tool

The participants' acceptance of webinars as a teaching and learning tool was studied using the five attributes that influence the adoption of innovation based on E.M. Rogers' Diffusion of Innovation Theory. These attributes are compatibility, relative advantage, complexity/simplicity of the platform, trialability, and observability of webinars and its affordances. The rating results for each attribute are shown in Table 14.

Table14. *Participants' perception of the webinar based on the five attributes of the Diffusion Theory*

Statement	Mean	Interpretation
Relative Advantage	3.74	Agree
Webinars allow me to listen and participate in lectures/ discussion anywhere.	4.19	
I find learning is easier through webinars than by reading books or modules alone.	3.82	
I had more fun participating/engaging with the lecturer and fellow learners via webinars.	3.75	
I feel that lecture/discussion through webinar is as good as learning through face-to-face lectures or attending lectures inside a classroom.	3.63	

I can concentrate more when listening to the lecture when done through webinars than through lectures inside the classroom.	3.31	
Compatibility	4.21	Strongly Agree
Webinar is a good teaching and learning tool for the topic discussed (Digital Literacy)	4.39	
The webinar made me learn more about ICT and social media as learning tools, while also learning about the topic being discussed in the webinar.	4.43	
I found webinars to fit/complement the remote learning that we are doing	4.27	
Webinar is suitable for my learning style and needs.	3.94	
Webinars should still be conducted even when classes go back to regular classroom set-up	4.00	
Complexity	3.70	Agree
I do not need the latest model of gadgets to be able to participate in a learning session through a webinar.	3.90	
It is not hard for me to participate/engage in the discussion during the webinar.	3.67	
I do not have difficulty accessing/watching the lecture/ discussion via webinar.	3.54	
Trialability	4.15	Agree
I feel that I have nothing to lose in trying to join a lecture/ discussion through a webinar.	4.31	
Being able to try to attend a webinar was important in my decision to accept webinar as a teaching and learning tool.	4.29	
I like being able to attend a webinar before deciding whether I like it or not.	4.01	
I did not feel scared to try learning through webinars.	3.96	
Observability	3.55	Agree
I think it would be easy for me to explain how teaching and learning happen through webinars.	3.76	
My friends knew that I know more about Digital Literacy because I attended the Digital Literacy Webinar Series	3.77	
My other classmates who are attending webinars like attending on it	3.59	
My classmates also have good learning experience via webinar.	3.47	
My family members became interested in learning via webinars when they saw me joining webinars.	3.30	

Relative Advantage

The relative advantage statements in the questionnaire compared webinar, as an innovation and an acceptable alternative, to traditional classroom teaching. The average score of this factor is 3.74, or interpreted as 'agree'. This suggests that webinars are perceived as a favorable alternative tool to traditional classroom teaching in terms of its relative advantage.

Compatibility

The statements on compatibility pertained to the suitability of the webinars in terms of students' learning needs. Overall, the students strongly agreed (4.21) that webinars catered to their learning needs during remote learning and that these are welcome tools for teaching and learning.

Complexity/Simplicity

The statements under the complexity factor gauged the perceived ease of using webinar as a tool for learning. The students agreed (3.70) that the webinar as a teaching and learning platform is easy to use. This can be attributed to their familiarity with the platforms used in the webinar, specifically Facebook.

Trialability

The statements on trialability pertained to the participants' ease in trying the webinar. It determines the rate of acceptance and efforts of the participants to try the webinar. According to the Diffusion theory, adopting an innovation requires resources, and those innovations that can be tried or experimented with prior to full implementation are easily adopted.

For this research, the webinar series did not have a formal trial period. Participants who signed up for the program started right away. However, joining the program was for free and they could drop out anytime from the program without negative consequences.

The average score of the responses given to trialability is 4.15, which means that they agree that it is easy to try using the webinar platform and they see webinar participation as an important learning tool.

Observability

The statements on observability pertained to the perceived visibility of the advantages of webinars. For this research, the respondents' responses resulted in a mean score of 3.55. The mean score implies that the participants agree that the benefits of webinars are observable to others

Acceptability of Webinar as an Alternative to Traditional Classroom Teaching

Generally, the target participants accepted webinars as a teaching and learning tool. When asked if they think their school should hold webinars to deliver lessons/lectures to students, 90.28% of them answered yes. The reasons for this are presented below (Table 15).

Table 15. *Participants' reasons for accepting webinars as an alternative to traditional classroom classesa*

Reasons	Number	%
A way to acquire more knowledge during the pandemic	39	33.91
A supplementary tool for teacher to help student better understand the lessons given in the text-based module.	31	26.96
An inclusive and flexible tool for learning (wider reach and recorded webinar can be rewatched anytime/ anywhere).	25	21.74
Can provide real-time interactivity/active learning.	14	12.17
Can make teaching easy for teachers to do.	3	2.61
Boosts student's confidence as informative lessons are given to students during crucial times.	3	2.61
Total	115	100

[a]*Multiple responses*

The research participants gave various reasons why they find webinar an acceptable alternative to traditional classroom classes. All reasons highlighted the convenience and flexibility that webinars can offer (Table 15). These findings are similar to the findings of Dasgupta et al. (2021), Wang and Hsu (2008), Nadama, Tennyson, and Khajura (2019), and Patel, Khajura, and Khajura (2022).

Seven statements were presented to the students to assess their perception of the usefulness of webinars using the Likert-Scale analysis. Six out of the seven statements had mean scores of 4.5 to 3.5 (strongly agree to agree). The remaining statement, which pertained to perceived comparable effectiveness of webinar with that of face-to-face session, had a mean score of 3.0, which means that the participants neither agreed nor disagreed (Table 16).

During the FGD, the participants reiterated that webinar is a viable alternative tool for teaching but are subject to the following conditions:

The teacher should make the webinar engaging, students should not just be just passive viewers.

Flexibility in joining and/or watching the webinar should remain -- students can join and learn from it anywhere.

The recording of the webinar should still be made available so that they can go back to it if they did not understand the lesson.

It should be noted that in the FGD, three out of the four participants said that although webinars can simulate classroom classes, still there are certain topics that would be best taught via face-to-face sessions, specially those that would require skills development..

Table 16. *Participants' perception of the usefulness of webinars*

Statement	Mean	Interpretation
1. I believe that there are courses that can be taught via webinar, but there are also courses that can be taught better via face-to-face.	4.49	Strongly Agree
2. Webinars allow me to learn while at the same time able to multitask or do other things.	4.09	Agree
3. I believe that webinars are a good alternative to face-to-face classroom teaching.	3.97	Agree
4. I believe that webinars are only applicable for teaching conceptual knowledge and not for procedural knowledge.	3.71	Agree
5. Classroom discussions via webinars are more convenient to teachers.	3.70	Agree
6. Classroom discussions via webinars are more convenient to students.	3.53	Agree
7. Learning through webinars is as effective as face-to-face classroom teaching.	3.33	Neither Agree nor Disagree

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The sudden shift from traditional to remote teaching and learning in the Philippines, as brought about by the pandemic, paved the way for innovative teaching and learning modalities. Webinar is one of the innovations adopted and the respondents of this study accepted it as a viable teaching and learning tool.

Several factors were considered in validating this acceptance.

For the attributes of Rogers' diffusion theory, the participants positively responded to each attribute of the webinar as an innovation.

However, the compatibility of webinars with the participants' needs is the only attribute which earned the strong agreement rating. Webinar is considered a complementary tool that helps them better understand the topics discussed in their module. They also said that even when remote learning is no longer adopted in school, webinars should still be conducted.

The most positive relative advantage of webinar as seen by the participants is its being accessible anytime and anywhere. It offers students a certain degree of flexibility (time and location), giving them access to the recorded webinar anytime and anywhere that is convenient for them.

The simplicity of the webinar platforms also contributed to its acceptance by the students, with Facebook page as the most preferred platform for webinar participation. They consider Facebook as the most accessible tool and uses less Internet data compared to Zoom, Youtube, and the university website.

In terms of the advantages of the webinar, three themes have emerged: interactivity, flexibility, and accessibility. On the other hand, the disadvantages identified were all caused by the poor and/or slow Internet connection.

While almost all of the research participants agreed that a webinar is an alternative for face-to-face teaching session, they emphasized two things: a) it is best to use webinar for teaching conceptual knowledge as there are courses that are still best to be taught via face-to-face, i.e. skills courses, and b) teachers should make the webinar sessions more interesting and engaging so that students will not be bored and/or distracted.

The respondents also suggested several factors/features that can make webinars more engaging and interesting for the learners.

Guidelines and Best Practices for Holding Effective Webinars for Teaching and Learning

The following are some guidelines and best practices that can further maximize the effectiveness of using webinars for teaching and learning.

1. **Platform to use.**
   Use platforms that are easy to access, especially by the students.
   Facebook is one of the most preferred social media platforms for streaming because this is the most accessible through mobile phones (that offer mobility features) and requires less Internet data.
   However, it is still best to use various platforms to give options to learners, as each may have different circumstances, capabilities, access, and needs.
2. **Webinar length.**
   The maximum length of a webinar is 60 minutes, but it can be shorter though. The shorter screen period can help sustain the attention and interest of the participants. Should the webinar be more than 60 minutes, it should be divided into a series of webinars.
3. **Interactivity within the webinar.**
   To sustain the interest and engagement of the participants, adding games/fun learning activities and longer discussions/interactivity are a must. Avoid too formal lectures where only one person is talking all throughout the program.
4. **Record and make the recording available online.**
   Make it easy for the students to catch up on what they missed during the real-time streaming or had difficulty understanding the lesson. With the webinar

recordings available and easily accessible, students are given the chance to view and review the lessons.

5. **Use multimedia presentations.**
   Make webinars more interesting by using multimedia presentation materials. Let the students see, hear and feel what they need to, so they can better understand the topic. Do not bore the learners with long talks.
6. **Be an animated and engaging speaker.**
   The speaker should not only know the topic but should also learn how to interact/perform before a camera. As teaching is performing, it helps keep the attention and focus of the students on the webinar.
7. **Choose your gadgets.**
   In the real classroom face-to-face setting, teachers always try to look good and sound good. This is the same, maybe much more, when presenting a topic through a webinar. Teachers should be seen and heard clearly. The basic gadgets one needs are a good microphone, camera, and basic lighting set-up.

Future Research

Directions for future research should include more studies on the learning needs and characteristics of different learners from different group ages to further enhance the effectiveness of webinar as a teaching and learning tool. Learners from different age groups may have different expectations about teaching and learning via webinar.

To further evaluate the effectiveness of webinars in relation to cognitive learning, different statistical tools such as factor analysis and correlation analysis, among others, can be used to critically analyze the views and opinions of learners towards the use of webinars for teaching and learning.

Specific research could also focus on investigating the teaching strategies or styles that would work best for teaching using webinars, especially for young learners.

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Instructor Presence and Tool Interactivity in Online Learning: How Do They Influence Students' Learning Experiences?

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Abstract

Due to the COVID-19 pandemic and mitigation measures to put a stop to its spread, mainstream education was delivered online in many parts of the world. Teachers who had different levels of online instruction experiences ranging from none to some had to switch to emergency remote teaching using online platforms most of which had not been specifically designed for educational purposes. In addition, the materials that were not specially developed by taking the relevant design principles into account were mainly utilized as supplementary course materials. As a result of the distant presence of the teachers, course participants and online education tools employed, the perception of teacher presence and the interactions in the online classroom were affected by the dramatic shift in the mode of instruction. The research aims to investigate how instructor presence and tool interactivity influence online learning and make some suggestions on how online education can be more effective by enhancing interactions in an online class and consequently, how student engagement and satisfaction can be improved in online learning. The current study, thus, seeks to answer whether there was a statistically significant relationship (a) between tool interactivity and the perception of instructor presence in online classes, and (b) between the perception of instructor presence and student learning experiences such as engagement and satisfaction in online learning. The researchers found that there is a statistically significant relationship between tool interactivity and perceived instructor presence, and between student engagement and student satisfaction.

Keywords: *Online learning, Tool interactivity, Teacher presence, Student engagement*

INTRODUCTION

Massive improvements in technological affordances in both software and hardware enabled people in education to integrate them into the classroom environment in order to enhance learning and teaching as well as boost the performance of the students. This progress in information and communication technologies has allowed instructors to develop a classroom that is beyond the walls of schools by blending in-person instruction with Web 2.0 tools and initiating fully online education. Emerging supplementary systems have empowered learning in different modes including synchronous and asynchronous classes. Fully online remote learning was widely operated to reach a large number of participants who are eager to learn at a distance.

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Online learning has also become an essential matter in educational settings owing to the increasing requirement, prospects of current students, the enthusiasm of institutions to transform their teaching environments to comply with the 21st century needs and requirements. The steady growth of enrollment to remote learning demonstrates that online learning is no longer a trend, but central to the educational landscape (Betts, 2017; Singh & Thurman, 2019, Durak & Çankaya, 2020).

Many faculties are now seeking out to initiate hybrid or remote courses by combining online and in-person instruction to design a course that caters to the needs of their learners in a better way combining the best of both methods of instruction (Dziuban et al., 2005). While the merits of online learning have been identified and recognized, there have been questions about the effectiveness of online learning. It has been reported that (a) online courses can be difficult to follow as they require student preparedness (Kara et al., 2019), (b) students may perceive the lack of interactions because instructors are not physically present in online classes (Swan & Jenna, 2017), (c) student-teacher interaction shows major differences (Ferri et al., 2020) and (d) student engagement and motivation can be worse when compared to f2f-classes (Bettinger & Loeb, 2017).

Student engagement has always been an area of emphasis for educators. A myriad of guidelines have been provided to improve education and they are usually based on engagement indicators such as student–faculty interaction, cooperation among students, active learning and prompt feedback (Chickering & Gamson, 1987;). Research in the field has also found that the use of computers and information technology helps promote student engagement (Robinson & Hullinger, 2008). As technology advances, it enables new technologies such as videoconferencing tools like Microsoft Teams to enable instructors to enhance student engagement and better cater to their needs as learners to provide student satisfaction in online learning (Çankaya & Durak, 2020).

Similar to other schools across the world, schools in Turkey have been continuing their education online due to the Covid-19 pandemic since March, 2020. Due to this unprecedented consequence of the pandemic, both teachers and students have gained experience online although many of them did not have such an experience before and enough training or knowledge on how to study or teach online. Although student-instructor interactions, student engagement and student satisfaction in online learning are important factors to be focused on, the rapid implementation of online learning due to the pandemic allowed no preparation time on how to promote such interactions and engagement in online learning contexts (Shevchenko et al., 2021).

Purpose of the Study

The current study aims to understand how educators can make online learning more effective by encouraging interactions among students and instructors and consequently, bolstering student engagement and satisfaction during online learning. This paper also explores the relationship between tool interactivity and instructor presence. The study thus seeks rationale for the following two research inquiries:

- Is there a statistically significant relationship between tool interactivity and the perception of instructor presence in online classes?
- Is there a statistically significant relationship between the perception of instructor presence and student learning experiences such as engagement and satisfaction in online learning?

This study puts forward the following hypotheses based on the research questions and the schematic diagram in Figure 1 depicts the research model with the following hypotheses:

- H_1: Perceived instructor presence is significantly impacted by the tool interactivity during online learning.
- H_2: Student engagement is significantly impacted by perceived instructor presence during online learning.
- H_3: Student satisfaction is significantly impacted by perceived instructor presence during online learning.
- H_4: Student satisfaction is significantly impacted by student engagement during online learning.

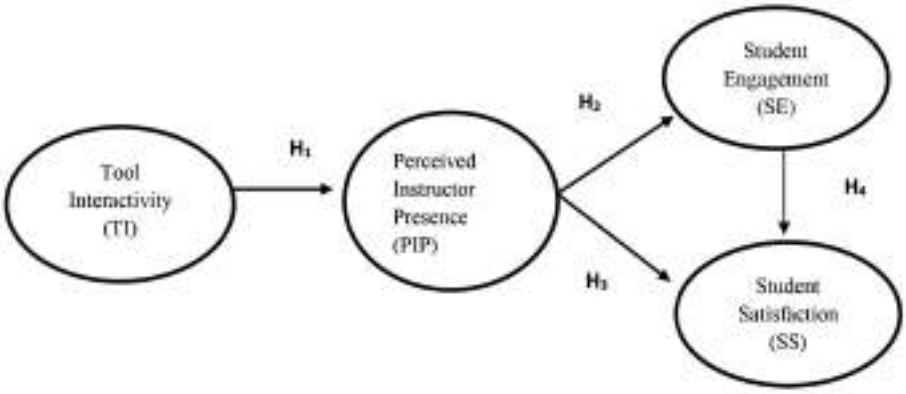


Figure 1. *The Construct of the Current Research*

To find answers to these research questions, this study (a) makes use of the theories of constructivism, social presence and engagement, (b) proposes and empirically tests a research model where the interactivity of a communication tool influences student engagement and satisfaction through perceived instructor presence, (c) confirms the constructivist viewpoint on learning claiming that interactions lead to better learning experiences in online learning environments, and (d) aims to contribute to the understanding of how an interactive communication tool influences students' perception of instructor presence in online learning, promotes student engagement, and eventually leads to higher student satisfaction.

LITERATURE REVIEW

Constructivism in Online Learning

Constructivist theorists posit that the knowledge of individuals is built through interactions (Hurd, 2009). Learning is considered as attending and being involved in a nearby environment to develop individual perspective of reality rather than merely being exposed to lecturing regarding the reality (Fosnot, 2013). Constructivist ideas have offered suggestions to assist instructors in forming learning-centered interactive settings that encourage reflective and experiential online learning (Huang, 2002). According to Norman (1993), such constructivist knowledge could arise from individuals' collaboration with the environment. Students are described as the ones who get in touch with the surroundings, obtain information, and gain capabilities by means of their experiences. In online settings, technology-enhanced communication takes place between the learners and teachers. The implementation of proper information and communication technologies (ICT) strengthens the interaction and helps students gain intended outcomes. In this respect, Jaggars et al. (2013) highlight that strong instructor presence is constructed by means of influential ICT tools and this promotes a high sense of community.

Student Engagement

Student engagement is described as "students' willingness, need, desire, and compulsion to participate in, and be successful in the learning process" (Bomia et al., 1997, p.294). Instruction in online learning necessitates pedagogical practices that maximize chances for learning and engagement. Students' dispositions or feelings with regard to online learning are an area of engagement as well as promoting cognitive abilities (Finn & Zimmer, 2012). Engagement refers to the degree of individual interest, interaction and desire to be part of the learning process. Engagement behaviors are strongly correlated with in and out class practices. Engagement is also influenced by affective factors including attitude, trait, and self-efficacy. The level of interaction, in addition, is highly sensitive to the degree of engagement during class time. Therefore, it is indispensable for instructors to consider factors that affect engagement and accordingly learning satisfaction.

Social Presence

Social presence has lately been a key concept in the field of online learning (Sung & Mayer, 2012). Social presence briefly refers to the formation of a space for interactive and instructional discourse in which learners are able to tell their ideas freely (Splitter, 2009, Baker, 2010, Zilka et al., 2018). It is also described as "the degree of awareness of another person in an interaction and the consequent appreciation of an interpersonal relationship" (Park & Kim, 2020, p.478). In education, social presence refers to the presence of educators that influence learners' engagement and involvement in a virtual or physical classroom. Additionally, social presence enhances the learning environment by improving learners' buy-in and motivation. Educators should promote collaboration among learners by incorporating social media tools such as forums etc. In this respect, the design of the courses should ensure the negotiation

among the participants in a virtual community through teachers' scaffolding (Salman, 2016; Sharan, 2014). A study by Pelz (2004) stated that learning is a dynamic process that leads to the active contribution of the students. This could be accomplished with the rise in social presence.

Social presence has the potential to minimize the transactional gap that arises among learners as a result of disparities in knowledge or misunderstandings with regard to the learning process. The conversation between an educator and a learner as well as support for the students might improve the sense of social presence. The presence of the students in a classroom, the engagement, and deeper understanding of the content are closely intertwined, as they get to know each other, and are exposed to the content more after a while (Edwards et al., 2011). Studies have demonstrated that social presence in a virtual setting can augment student participation by creating a safe zone for interaction and collaboration even when there has not been a physical gathering in advance (Holley & Dobson, 2008; Cameron et al., 2009; Edwards et al., 2011). Researchers have also claimed that cooperation in virtual activities allows students to reach their full potential through active participation, promotes perseverance, and lowers dropout rates (Meyers, 2008; Young & Bruce, 2011). To summarize, instructors that support the formation of a learning community improve teacher presence and social presence, resulting in a reduction in the transactional barrier.

Student Satisfaction

Satisfaction in online learning is one of the most essential elements that influences the course delivery, technology integration, pedagogy and instructor attitudes. It has usually been an impact on the quality of learning. The degree to which students are satisfied with the process sheds light on the entire learning experience and a strong indicator of to what extent online learning worked well; learning outcomes are retained; and the use of technology addressed students' needs (Ilgaz & Gülbahar, 2015). A study by Beqiri et al. (2009) investigated the factors that influence satisfaction of learners during online learning. They came to realize that students with self-efficacy, and high ICT skills were more satisfied. In another study (Pena & Yeung, 2010), students' ICT competency was found to be positively correlated with satisfaction. Additionally, teacher presence was an influential factor in satisfaction (Ice et al., 2007) since presence strengthens the sense of community and support along with immediate feedback.

METHODS

The study employed a non-experimental quantitative design to find appropriate answers whether the above-mentioned hypotheses are correct or not. The researchers identified the variables and looked for association between these without manipulating the data. As for the sampling method, convenience sampling was administered to determine the participants of the current study. Convenience sampling method is considered as a sort of non-probability sampling in which the audience of the target population is selected according to specific practical criteria, such as reaching the volunteer participants easily at an appropriate time within a short time.

Pilot Study

A pilot study was performed with the students of the Intensive English Programme (EIP) of the School of Foreign Languages (SFL) of the foundation university where this study was held for a variety of reasons: (a) to improve the quality of the survey items; (b) increase the efficiency of the survey logistics with regards to time and response rate; (c) to establish the final version of the research questions; (d) specify the necessary sample size by doing a power analysis and (e) provide a training and further experience for the researcher.

The pilot study was conducted with 19 (8 males and 11 females) students studying English at B2 level in the EIP of the SFL of the foundation university where the survey would be conducted. The survey was created using Google forms and administered online. The pilot study provided the researchers an opportunity to test the feasibility of the 5-point Likert scale and some feedback on the efficiency of the design process.

The lowest Cronbach's *alpha* in the pilot data was .83, which indicated a strong estimate of internal consistency. The time allowance of 5 minutes allocated to the participants to fill the survey was assessed to be sufficient. The participants responded positively to the survey and commented that they could comprehend the questions easily, which helped the researcher conclude that the wording of the survey was appropriate. 93% of the audience did not report comments on the wording on the items.

Setting

This study was conducted in the Intensive English Programme of the School of Foreign Languages of Bahçeşehir University (BAU SFL), a foundation university in Istanbul, Turkey in the second module of the 2020-2021 academic year. Bahçeşehir University is an English medium educational institution which accepts international students as well. Undergraduate students are required to complete the English Preparatory Program successfully or present an internationally approved English Proficiency exam result before starting to do their majors. Learners at BAU PREP have a year (minimum 1 semester & maximum 2 years) to complete the program before they can start studying at their departments. The Intensive English Programme is made up of five modules each of which lasts 8 weeks and each week they have 24 class hours.

With the unprecedented breakout of the COVID-19 pandemic in March, 2020, like all the other educational institutions all around the world, BAU SFL were required to adopt emergency remote teaching practices. The courses began to be delivered online both synchronously and asynchronously in digital learning environments. The synchronous course material delivery and communication have been carried out through the institutional LMS, itslearning. Due to the intensity of the technical issues both the faculty and students experienced, Microsoft Teams was chosen as the tool to deliver the courses online. In addition to the interactive synchronous lessons on Microsoft Teams, 10 hours of asynchronous lessons were added to the programme and students are expected to complete some daily and weekly tasks assigned by their instructors on itslearning to do these lessons at their own convenience on condition that they meet the weekly deadlines.

Participants

The research was conducted with 471 students from an international student group attending the second module of the Intensive English Programme at the School of foreign languages of Bahçeşehir University. The participants were asked six questions to collect data about their gender, age, native language, major at the university, and their online learning experience as well as online platform experience. Out of 471 participants, 204 of them were male and 266 of them were female. One participant did not respond to the demographics question on gender. Table 1 shows the gender distribution of the participants.

Table 1. *The Gender Distribution of the Participants*

	Gender	Frequency	Percent
Valid	Male	204	43.3
	Female	266	56.5
	Total	470	99.8
Missing		1	.2
Total		471	100.0

According to the collected data, the ages of participants ranged between 17 and 35. The median age of the group was 18 and the mean was 18.32. While 90 percent of the participants were Turkish, 7.4 percent was found Arabic along with a few students from 11 different countries. The institution accepts international students from many other countries around the world and this makes the learning environment a multi-cultural environment where more different languages are spoken. The institution offers a total of 25 programmes including the vocational school programmes and graduate school programmes. The data elicited from the survey revealed that the participants of the study (N = 471) attend 19 of the 25 programmes. Table 2 shows the programmes in which the participants will be studying after they pass the English Language Proficiency Exam to become eligible to study in the departments listed.

Table 2. *The Department Distribution of the Participants*

Department	Frequency	Percent
Faculty of Architecture and Design	64	13.6
Faculty of Communication	41	8.7
Faculty of Dentistry	14	3.0
Faculty of Economics, Administrative and Social Sciences	79	16.8
Faculty of Educational Sciences	30	6.4
Faculty of Engineering and Natural Sciences	126	26.8
Faculty of Health Sciences	41	8.7

Faculty of Law	25	5.3
Faculty of Medicine	10	2.1
School of Applied Disciplines	17	3.6
School of Business	15	3.1
School of Communication	9	1.8
Total	471	100.0

The participants of the study who came from different educational backgrounds also had different experiences with regards to studying online and using an online platform. Out of 471 participants, 295 of them (62.6%) had had some online learning experience, 176 of them (37.4%) had not studied online at all before they started IEP at BAU SFL. However, while 276 of the participants (58.6%) had used an online platform before, 195 of them (41.4) had their first online platform experience after they started to study at IEP. Table 3 shows the distribution of online learning and online platform experience among the participants of the study.

Table 3. *Online Learning and Online Platform Experience*

	Online Learning Experience		Online Platform Experience	
	Frequency	**Percent**	**Frequency**	**Percent**
No	176	37.4	276	58.6
Yes	295	62.6	195	41.4
Total	471	100.0	471	100.0

Data Collection

The surveys administered in the study involve six items to collect demographic data and 15 items which were grouped under four constructs: TI (5 items), PIP (3 items), SE (4 items) and SS (3 items). The survey was made up of 15 positively worded items and employs a five-point Likert scale (strongly agree to strongly disagree). The individual scores of the participants were calculated by averaging their responses for the items under each construct. The five items for perceived user-to-system interactivity were adopted from a survey built by Leiner and Quiring (2008) to evaluate the tool interactivity. Four items of social presence, on the other hand, were used to measure instructor presence. The four items for student engagement were adapted from the absorption subscale of the Utrecht work engagement scale (Schaufeli et al., 2002). The items for measuring satisfaction were adopted from Dang et al. (2016). The items in the scales were based on a five-point Likert scale.

Reliability. Cronbach's *alpha* coefficients for each score were estimated as a measure of internal consistency of scores. The Cronbach's *alpha* coefficients for *INT*, *PIP*, *ENG* and *SAT* scales were .92, .80, .87 and .93 respectively. High *alpha* coefficients indicated a high internal consistency of the scores. It is suggested that .70 or higher of Cronbach's

alpha and composite reliability indicates extensive evidence of reliability. The results of the study were also consistent with the results of the pilot study as the Cronbach's *alpha* coefficients for the 15 items were .94.

Table 4. *Internal Consistency / Reliability Analysis*

Construct	Cronbach's Alpha
Tool Interactivity	0.926
Perceived Instructor Presence	0.803
Student Engagement	0.872
Student Satisfaction	0.933

Data Analysis

The analyses of data were executed by using Statistical Package for the Social Sciences (SPSS) 25.0. The study used descriptive statistical methods to draw an outline of the data and the data were first analysed descriptively by computing the means and standard deviations for each continuous variable. All the items in the 5-point Likert scale were positively worded. The responses were coded as 1,2,3,4 and 5 (1 for "I strongly disagree", 2 for "I disagree", 3 for "I am neutral, 4 for "I agree" and 5 for "I strongly agree"). The effect sizes were estimated converting the R^2 scores to f^2 score and using the G*Power2 app. Second, the regression analysis was carried out in SPSS. The data were also uploaded to IBM SPPS Amos 25 and the model of the research was drawn in the programme (see Figure 2).

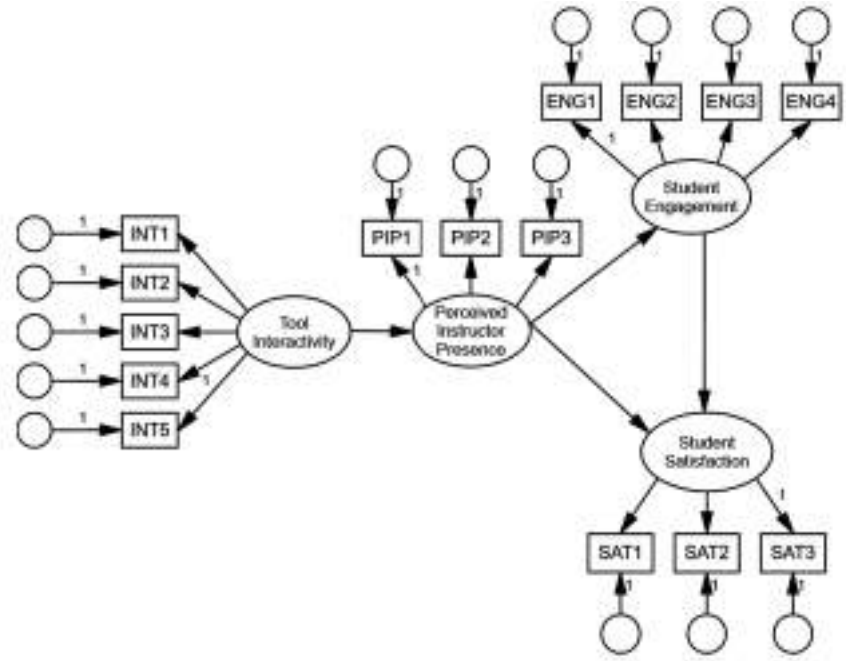


Figure 2. *The diagram of the research model.*

FINDINGS

The findings of the study included the presentation of descriptive statistics at both item and factor levels. Table 5 shows the median, mode, range and standard deviation values for the item-level data.

Table 5. *The descriptive Statistics of the Data*

	Mean	Median	Mode	Std. Deviation	Range
Interactivity1 (INT1)	3.98	4.00	4.00	0.974	4.00
Interactivity2 (INT2)	4.12	4.00	4.00	0.980	4.00
Interactivity3 (INT3)	3.89	4.00	4.00	1.063	4.00
Interactivity4 (INT4)	3.91	4.00	4.00	1.098	4.00
Interactivity5 (INT5)	4.10	4.00	5.00	1.026	4.00
PerceivedInstructorPresence1(PIP1)	3.45	4.00	4.00	1.154	4.00
PerceivedInstructorPresence2 (PIP1)	3.43	4.00	4.00	1.202	4.00
PerceivedInstructorPresence3 (PIP1)	3.60	4.00	4.00	1.155	4.00
Engagement1 (ENG1)	3.26	3.00	3.00	1.084	4.00
Engagement2 (ENG2)	2.82	3.00	3.00	1.098	4.00
Engagement3 (ENG3)	3.46	4.00	4.00	1.140	4.00
Engagement4 (ENG4)	3.40	4.00	4.00	1.091	4.00
Satisfaction1 (SAT1)	3.77	4.00	4.00	1.011	4.00
Satisfaction2 (SAT2)	3.88	4.00	4.00	1.029	4.00
Satisfaction3 (SAT3)	3.81	4.00	4.00	1.031	4.00

Table 6. *Correlations between Variables of the Study*

	Tool Interactivity	Perceived Instructor Presence	Student Engagement	Student Satisfaction
Tool Interactivity	1	.543**	.512**	.634**
Perceived Instructor Presence		1	.566**	.573**
Student Engagement			1	.722**
Student Satisfaction				1

***. Correlation is significant at the 0.01 level (2-tailed).*

First, a correlation analysis was carried out to test the correlations between the dependent and independent variables of the study. Table 6 shows the correlation matrix between the variables of the study. The correlation analysis results for the

sample (N=471) reveals that the correlation between the dependent variable *TI* and the independent variables *PIP, SE,* and *SS* were all strong at $p < .05$ level and there is a positive statistically significant relationship between the dependent variable and the independent variables of the study. The strongest correlation was identified between *student engagement* and *student satisfaction* ($r = 0.722$) and the weakest one was observed between *tool activity* and *student engagement* ($r = 0.512$). The findings thus demonstrate strong evidence for the hypotheses of the study.

The correlations between the variables of the study were found to be positive and significant. However, individual regression analysis was implemented to find R^2 values for each path in the structural model of the study. Table 7 shows the regression analysis results for R^2 values and Figure 3 presents the R^2 values to explain the structural model of the study.

Table 7. *The Regression Analysis Results for R^2 Values*

	R2	F	Sig.
H1 Path	.295	196.299	.000
H2 Path	.321	221.536	.000
H3 Path	.329	229.543	.000
H4 Path	.522	511.825	.000

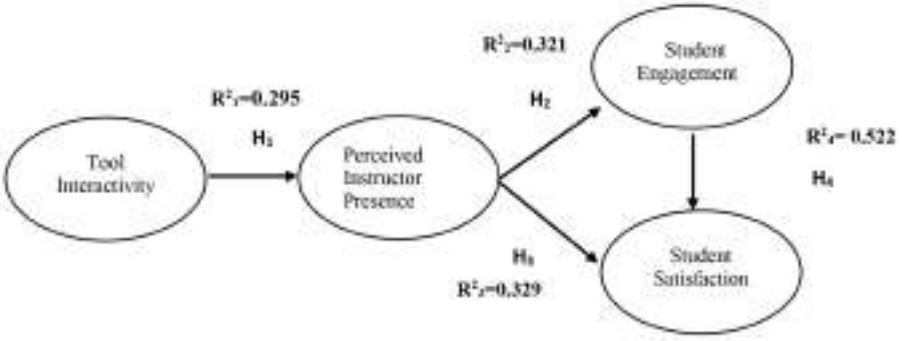


Figure 3. *The structural model of the study*

DISCUSSION AND CONCLUSION

Online education has been developing at a rapid pace. This unprecedented growth following the pandemic should be supported with ample evidence to increase the efficacy and to enhance the student satisfaction, participation, engagement, perceived learning outcomes and interaction. There has been a rich body of research to provide sound implications for online education and to pave the way for better learning experience in radically shifted learning environment (Dziuban et al., 2005; Beqiri et al., 2009; Finn & Zimmer, 2012; Sung & Mayer, 2012; Salman, 2016; Betts, 2017; Bettinger & Loeb, 2017; Zilka et al., 2018; Singh & Thurman, 2019). The utmost need of distance education is to design courses with theoretically verified pedagogy to facilitate the

rapid transition in lecture delivery (Moore, 2013). In this regard, we feel that our study adds to the existing body of knowledge by exploring crucial attributes of online learning and comprehensive investigation of their relationships with each other.

To begin, the study reinforces the constructivist perspective on education, which rests upon the assumption that improved interactions in online learning result in superior learning experiences (Jonassen et al., 1995). The findings of this research have indicated that encouraging student-teacher interaction via the use of communication tools influences student engagement and satisfaction. A possible explanation for this might be that collaboration and communication is the primary element of online learning as there is much less teacher support as well as physical gaps that lead to psychological barriers. This could be overcome through well-designed courses and increased interaction. Interaction is a two-way communication that motivates students and promotes active learning (Bates, 2005). Paying enough attention to the interactive activities, thus, tends to reinforce participation and a sense of well-being.

Second, this study makes a significant and distinctive contribution by introducing and including perceived teacher presence in understanding the online learning experience. A significant disadvantage of online education in comparison to conventional education is the reduced amount of student-teacher contact, which might result in a shortage of instructor presence. The purpose of this study is to analyze how the idea of social presence could be utilized to increase instructor presence and suggest a new way of fostering positive attitudes towards online education. The findings indicate that implementing an interactive communication tool improves students' perceptions of teacher presence in online learning, which has a beneficial effect on student learning experiences such as engagement and satisfaction. The finding could be attributed to the fact that instructor strategies directly affect social presence in that they might initiate conversation, access via e-mail, send feedback, talk about experiences, and use humor.

Third, this research confirms the importance of student engagement in two-way communication in online settings. Prior research has experimentally shown that involvement has a favorable effect on the learning experience of students in both conventional classroom and online settings (Bomia et al., 1997; Gray & DiLoreto, 2016; Swan, 2001). This study looked into the impact of engagement on satisfaction in online courses and found it crucial. This combination of findings provides some support for the conceptual premise that online learning consists of many factors including teacher presence, presence, engagement and satisfaction that lead the success of education. Each is intertwined with other factors. Thus, instructors should consider the whole system prior to implementation.

Limitation

This study has some limitations to be addressed for future research. First, the sample group is limited to students attending English preparatory school of a foundation university despite the large size. It would be better to welcome participants from different departments and schools to diversify the learner profile. Second, Tool interactivity could also be investigated with different forms of delivery software since

each has unique features that lead to interaction and engagement. Third, the data might be supported with objective test results to see whether satisfaction and engagement are reflected in scores.

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Appendices

Appendix A. Measurement items

Constructs	Mean	s.d.	Items (5-point Likert scale; 5 - strongly agree; 1 - strongly disagree)
Tool			Class communications with the instructor using Microsoft Teams:
Interactivity	4.72	0.49	are up-to-date.
	4.52	0.82	are usually at hand.
	4.54	0.72	are fast.
	4.57	0.63	can be used anywhere.
	4.45	0.80	are versatile.
Perceived Instructor Presence	4.39	0.78	When using Microsoft Teams, I felt I was getting individualized attention from the instructor.
	4.30	0.85	When using Microsoft Teams, there was a sense of sociability with the instructor and classmates.
	4.15	0.94	I felt I was closer to the instructor when using Microsoft Teams than when using emails.
Student Engagement	3.63	1.27	Time flies when I'm studying for this class.
	3.60	1.16	When I am studying for this class, I forget everything else around me.
	3.31	1.23	I feel happy when I am studying intensively for this class.
	3.54	1.17	I can get carried away by my studies for this class.
Student Satisfaction	4.19	0.87	Overall, taking this class makes me feel: (very satisfied … very dissatisfied).
	4.12	0.86	Overall, taking this class makes me feel: (very pleased … very displeased).
	4.04	0.88	Overall, taking this class makes me feel: (very delighted … very terrible).

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Application of Moore's Online Engagement Framework as Design for Effective ODL

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Abstract

Engagement is crucial to student learning and satisfaction in online courses. Hence, it is essential to create multiple opportunities for student engagement in an online environment. The need for engagement has resulted in the development of guidelines for designing effective online courses (Roblyer & Ekhaml, 2000). To boost student's engagement, three basic engagement techniques of online learning have been identified: student-content, student-instructor, and student-student. This trifecta of elements was distinguished by Moore (1989) in his article; Three Types of Interaction. The purpose of the study is to illustrate the application of Moore's Online Engagement Framework in the process of instructional design towards an effective ODL programme. In this paper, each pair (student-content, student-instructor, and student-student) were demonstrated on how it was designed in the form of instructions and supporting activities. For methodology, a mixed method research design was used, selecting both quantitative methods (utilizing survey research) and qualitative methods (employing open-ended questionnaire items). Data was collected from the feedback of participating learners who comprises working professionals, enrolled in a professional online post graduate programme. The results identified closely with Moore's arguments on the three types of interaction. In other words, the results were positive in developing and sustaining student's engagement for the learners' learning experience. The implications of these findings for higher education in providing online programmes for the learners and further research are also discussed. The results of the study have significance for online instructors, instructional designers, and administrators who want to enhance engagement in the online distance learning courses.

Keywords: *online engagement, instructional design, virtual learning environment, student engagement.*

INTRODUCTION

This study set out to explore the central themes illustrated in the application of Moore's Online Engagement Framework in the process of instructional design towards an effective ODL programme. Engagement is identified as one of the significant themes in student learning and satisfaction in online courses. The definition of the term "engagement" has been thoroughly researched in distance and online learning literature for decades. Tyler (1949) described engagement in terms of focusing on what the student does, rather than what the teacher does. Newmann, Wehlage, & Lamborn (1992), defined engagement as "the student's psychological investment in an effort

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directed toward learning, understanding, or mastering the knowledge, skills, or crafts that academic work is intended to promote". Student engagement in online learning is very crucial because online learners have fewer opportunities to be engaged with the institution (Martin, & Bolliger, 2018). Therefore, it is imperative to develop and design multiple opportunities for student engagement in the online environment. The necessity for engagement has pushed for the development of guidelines for designing effective online courses (Roblyer & Ekhaml, 2000).

Moore Online Engagement Framework

Interaction is a crucial element for effective learning on online education (Wanstreet, 2009; Bannan-Ritland, 2002; Gunawardena & McIsaac, 2004; Moore, 1993). Moreover, interaction in online courses has shown to have a significant impact on student satisfaction, student achievement and learning outcomes (Durrington et al., 2006). Moore (1989, 1993) noted three types of interactions necessary for effective online education: learner–content interaction, learner–learner interaction and learner–teacher interaction.

> *"Student–content interaction is "the process of intellectually interacting with content that results in changes in the learner's understanding, the learner's perspective, or the cognitive structures of the learner's mind. Learner-content interaction is considered a distinguishing strength of all Distance Education and refers to students' intellectual interactions with content that result in changes in understanding, perceptions, and cognitive structures. Learner–learner interaction is both cognitive and social in nature and refers to communication between and among peers with or without the teacher present. Learner-teacher interaction, a factor that distinguishes online education from independent studies, refers to all communications between the teacher and the student that occurs throughout the course. It also refers to the organization that the educator provides to guide learning throughout the course (i.e. curriculum development) and the role that the educator plays in motivating and supporting students' learning."*
>
> *-Moore, 1989*

Lack of these three types of interaction would be problematic for online courses. Therefore, there must be opportunities for high levels of teacher-learner, learner-learner, and learner-content interaction to improve the learning process in online education (Baggerly, 2002). The purpose of the study is to illustrate the application of Moore's Online Engagement Framework in the process of instructional design towards an effective ODL programme.

CONTEXT

In this study, the online courses were from an online professional programme at a postgraduate level. The students were adult learners and working professionals. Refer to Figure 1 on the layout presentation of the online course. The virtual learning journey of each online course was presented according to the given layout. Each of the online courses was designed with the following six elements: (1) Course Banner (2) Welcome letter from the instructor (3) Ice Breaker activity (4) Lecturer's Profile (5)

Sections Categories (6) Instructions. The following table (refer to Table 1) illustrates the connection of each item with the interactions: teacher-learner, learner-learner, and learner-content.

Table 1. *Opportunities developed for high levels of interaction*

Item	Interaction
Course banner	learner-content
Welcome Letter from Instructor	teacher-learner
Ice Breaker activity	learner-learner learner-content teacher-learner
Lecturer's Profile	teacher-learner
Sections Categories	learner-content
Instructions	learner-content



Figure 1. *Instructionally designed online course*

Course Banner

The course banner is displayed at the top of the Course Page. The course banner consists of a relevant image and the course title. Not to be underestimated, images are known to make the course content visually pleasing. An attractive course which visually stimulates the learner is more likely to motivate them in exploring the course. In addition, the purpose of the course banner is to add personalization to the individual course. The course banners guide the instructor and the students to differentiate one course from another course. The images chosen for the course banner represented the theme of each course. In other words, it also serves the purpose of highlighting the overall content of the course. Hence, this triggers the interaction of learner-content.

Welcome Letter From the Instructor

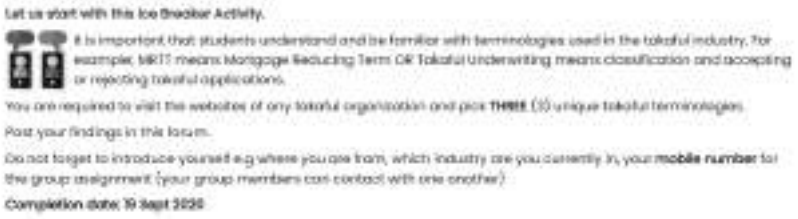
A welcome message includes key information for the course and should not be the whole detailed syllabus. Key information of the course refers to the description of the course, and the learning outcomes of the course. Besides introducing the course, the purpose of this communication is to welcome the students and establish a comfortable class environment. A welcome letter to students before the course begins is a crucial step in establishing the instructor's online persona (Bellafiore, 2007; Gibson and Blackwell, 2005; Mensch and Ali, 2007; and Phillips, 2011). Hence, this item provides an opportunity for learner-teacher interaction. The letter in this online course was presented in the form of a recorded video of the lecturer. A high-quality welcome video is a key building block of teaching presence, as it allows the lecturer to show students not only a preview of the course, but also a glimpse of who the lecturer is as a professor. Due to the function of the item, it was placed at the first part of the course. The placement also illustrated that the learners need to read the item first before proceeding to check other items in the course.

Ice Breaker Activity

Research has frequently illustrated that in an online environment, it is significantly crucial to create and build a sense of community to keep the students engaged and to limit their feelings that they are alone in the learning process (Tayebinik & Puteh, 2012). Therefore, icebreaker discussion forums are known to be very efficient for this purpose because of their ability to set the tone for the online course and build relationships early in a semester. The functionality encompasses three interactions: teacher-learner, learner-learner, and learner-content.

Icebreakers are interactive activities which assist both instructors and students to get to know each other. This activity connects students to each other by setting the groundwork for an interactive and collaborative learning experience. When one of the first activities students do is to participate in icebreakers, instructors set the level for active participation and interaction. Moreover, an activity such as this at the start of an online course illustrates that instructors are interested in getting to know their students and are invested in their learning. This can help increase students' motivation to perform well in their online course.

At the same time, it also helps students to become acquainted with one another and get a glimpse of the variety of working experiences they bring to the virtual class. This information is also necessary if there is a plan to assign group work or establish study groups later in the course. This further shows that the ice breaker forums can be identified as an excellent place for the learners to virtually meet and establish commonalities which they can later build on when they work together. On the other hand, the ice-breaker forum provides the opportunity to the lecturer to ascertain the learners' perception of the course. Since the programme was of postgraduate level, the ice-breaker activity was extended beyond the basic questions of such e.g., type of work, from which country or what was your level of education. The questions were related to gauging the learner's prior knowledge of the course. This was to evaluate the learner's understanding of the course. As seen in Figure 2, the question did not only just evaluate the learner's prior understanding of the course, but also encouraged them to search and analyze before identifying the right answer. In other words, the learner would also indirectly be reading and picking additional knowledge.


Let us start with this Ice Breaker Activity.

It is important that students understand and be familiar with terminologies used in the takaful industry. For example, MRT means Mortgage Reducing Term OR Takaful Underwriting means classification and accepting or rejecting takaful applications.

You are required to visit the websites of any takaful organization and pick THREE (3) unique takaful terminologies.

Post your findings in this forum.

Do not forget to introduce yourself e.g where you are from, which industry are you currently in, your mobile number for the group assignment (your group members can contact with one another)

Completion date: 19 Sept 2020

Figure 2. *Sample question for Ice-Breaker activity*

Lecturer's Profile

When the online students first access their online course, they are looking for answers to their plenty of questions. Among the questions are: Who is this instructor? What qualifications do the instructors have? What research papers have the lecturer written? By providing answers to these types of questions, it will help instructors humanize themselves for students. Therefore, for this section, three items are included: the instructor's profile photo, the lecturer's email, and the weblink of the instructor's academic-working profile. This supplements the learner-teacher interaction.

Sections Categories

To have an effective interaction learner-content, content in an online course needs to be mapped out. This will guide the online learners in their learning process throughout the online course. On that account, sections were divided into fixed sections and flexible sections.

Fixed Sections: Course İnformation, Assignments, Webinar Sessions, and Recorded Videos

This section consists of three standard items for all the online courses as shown in Figure 3. Course information section comprises Course Plan and Course Assessment. Assignments section includes Assignment questions, and Submission links. In the Webinar Sessions

section, students will find the links to each of the e-tutorial which are conducted in webinar form. The Webinar Section also consisted of Webinar Recorded Videos item which the learners can access the recordings of the live webinars. The students would be able to download the recordings for them to watch at a convenient time.



Figure 3. *Sample question for Ice-Breaker activity*

Flexible Sections: Topics / Categories for Topics of the Course

In these sections, the topics are arranged. The term 'flexible' indicates that the lecturer would have the opportunity to adjust the arrangement of the topics, be it according to categories or single topic per section. There would be an arrangement in which the topics are arranged in four main themes, with each theme consisting of three to four topics. There are other lecturers who would arrange according to the given topics while some online courses would be a combination of both themes and individual topics. Each section of the topics consists of digital reading materials e.g., in pdf format, digital media resources e.g., YouTube videos, and online forum discussion. Refer to Figure 4 on the items added in a sample of a topic / category section.



Figure 4. *A sample on one of the topic/category sections*

Instructions

Instructions are a significant element of course design. This increases the level of interaction with learner-content. Instructions are of paramount importance for an online course, especially clear and specific instructions. Since there is no prior face-to-face assistance, the learners must switch their own torchlight and interpret the signboards to guide themselves in moving from one section to another section, and deciphering what to do in each section. A simple yet powerful way to improve the quality of online instruction is to consider how the online course appears to learners when they first encounter it and later try to navigate through it (Lehman & Conceição 2010).

For this online course, instructions were added in every part of the course i.e. from the welcome letter to the icebreaker activity and to each section. Within each section, there were also instructions for each sub-section (Refer to Figure 5). For the section, the learners were informed what they needed to do, and what to be done after. For example, as shown in the Underwriting subsection, the learners were briefed which items they would have to read and the activity they would have to attempt prior after. The instructions were given in detail because one should not assume all the learners "knew what to do". By adding such instructions, every learner would be at the "same page". One would say time is not wasted on how to navigate through the online course. Moreover, online learners tend to be put off in their learning process if faced with additional stress and worries in searching for items in a virtual course.



Figure 5. *A sample on instruction for the section*

FINDINGS

In this section, from the presented items, three identified elements (Course Design, Lecturer's presence and Learner's interaction) are discussed in detail. The percentage of response rate calculated for each question from the survey is the accumulative of the Likert scale 4 (agree) and 5 (strongly agree).

Course Design

A study by Moore & Kearsley (1996) cited in Kuo et. al. (2013) mentioned that course design would affect learners' interaction with the content and their instructor. These following statements represented the quantitative section of the survey.

- The objectives of this course were evident in the learning activities
- The course material was presented in ways that suggested future application
- It was easy to navigate my way around the module website to access the online teaching materials and related learning activities
- The instructions given in the course are clear
- The icons and images used in course made the online course looks more appealing

In the following table (Refer to Table 2), the majority of the students recognized the clear instructions in the course which in turn also helped them in their navigation of the course in the online platform. This illustrated that prescribing a suitable content arrangement would enhance the learning process.

This was evident in a similar study by Lee & Rha (2009). Lee & Rha (2009) revealed that a highly structured course design is preferred by online learners as well as specified guidelines for each given task or assignment. This suggests that setting up the right pattern for learning content could actually "speed-up" the learning process. However, the response rate for question number five is not in the 90% range. It is interesting to note that icons and images do not play a major role for the adult students' learning experience in a virtual environment.

Table 2. *Responses rate for Course Design*

Questions	Response Rate (Agree/Strongly agree)
1.The objectives of this course were evident in the learning activities	98%
2.The course material was presented in ways that suggested future application	90%
3.The instructions given in the course are clear	90%
4.It was easy to navigate my way around the module website to access the online teaching materials and related learning activities	92%
5.The icons and images used in course made the online course looks more appealing	82%

Lecturer's Presence

There were studies which mentioned the significance of learning support from the instructor or facilitator. For example, Eom et al. (2006) identified a significant link between learners and the facilitator's presence in an online course. This study found that the time that instructors take to reply to queries has a significant influence on learners' satisfaction and learning. Shea et al. (2006) found that students were "significantly more likely to report higher levels of learning and community when they perceived higher teaching presence behaviors". These following statements represented the quantitative section of the survey.

- The lecturer seemed concerned about my needs as a learner.
- The lecturer actively encouraged me to participate in the course.
- The lecturer initiated contact with the students using LMS communication tools or Whatsapp.
- The lecturer set a positive climate for the online learning journey.
- The lecturer sent an announcement to remind me to be on track with my online learning.

As seen in Table 3, the participants' choice on both scales reflects their high satisfaction on the online learning experience according to the item-lecturer's presence. Despite being fully virtual, the online learners did acknowledge the lecturer's efforts and gave them assurance this was the similar experience of a lecturer's presence to a physical classroom setting. A study by Ross et al. (2014) argued that students were concerned about the presence of their instructors from the beginning of an online course. In the same study, Ross et al. (2014) also commented that students were waiting for an embodied, authoritative, and recognisable "teacherly moment" which cannot be achieved via embedded materials and activities. In other words, this could signify that the virtual presence of teachers in an online course advocates students' engagement.

Table 3.

Questions	Response Rate (Agree/Strongly agree)
1.The lecturer seemed concerned about my needs as a learner.	93%
2.The lecturer actively encouraged me to participate in the course	93%
3.The lecturer initiated contact with the students using LMS communication tools or Watsapp	93%
4.The lecturer set a positive climate for the online learning journey.	86%
5.The lecturer sent an announcement to remind me to be on track with my online learning.	93%

Learner's İnteraction

Online learners tend to feel isolated in the learning process (Callahan, 2010; Chakraborty and Nafukho, 2014; Gillett-Swan, 2017). Subsequently, online learners would feel demotivated during learning in that semester. Therefore, it is imperative that engaging learners is also the key to an effective virtual learning environment (Bernard et al., 2009). Learner's engagement is defined as the level of interest exhibited by the learners and the level of interaction with the content, instructor, and peers (Chakraborty and Nafukho, 2014). According to Noe et al., (2010), learner engagement embraces active and collaborative learning, participation in challenging academic activities and formative communication with the instructor.

Research by LaPointe and Gunawardena (2004) indicated that students who had frequent inter-action illustrate a high level of satisfaction.

These following statements represented the quantitative section of the survey.

- Online comments by other participants helped me learn
- I contributed to the learning environment by responding to my peers
- I learned to value other points of view
- Taking part in collaborative activities with other students helped me to learn
- I attended online activities (e.g., Discussion Forums and Webinar) run by my lecturer which helped me understand the module concepts and/or prepare for assessment
- Taking part in optional exercises or activities to test my understanding helped me to learn

As seen in Table 4, the participants' choice on both scales reflects their satisfaction on the online learning experience according to the item-learner's interaction. Item 1 reflects how much the online learners value the feedback given by their peers in their learning process. The percentage response rate for both item 1 and item 2 were very closed to one another. In other words, this places the learners in seeking active learning with their peers. The virtual communication became two-way. By building the community of learners, the adult students participated in the online activities which were set-up by the course lecturers.

Having the forum discussions and the webinar sessions without a doubt, assisted their understanding in the content, giving the learners a good grasp on the newfound knowledge. In other words, it showed that the learners were able to indulge in deep learning from the forum discussion. The gradual build-up of learner-learner, and learner-lecturer engagement in due course made the learners take part in optional exercises. Optional exercises or activities did not contribute to the coursework weightage. This can be interpreted as a positive outcome from the interaction and engagement process.

Table 4. *Responses rate for Course Design*

Questions	Response Rate (Agree/Strongly agree)
1. Online comments by other participants helped me learn.	80%
2. I contributed to the learning environment by responding to my peers	78%
3. I learned to value other points of view	90%
4. Taking part in collaborative activities with other students helped me to learn	78%
5. I attended online activities (e.g. Discussion Forums and Webinar) run by my lecturer which helped me understand the module concepts and/or prepare for assessment	88%
6. Taking part in optional exercises or activities to test my understanding helped me to learn	90%

CONCLUSION

The analyzed data from the study revealed the approach which needed to be taken into consideration to ensure opportunities of higher interactions: learner-content, learner-teacher, and learner-learner to sustain an effective online distance learning experience. An instructor needs to take note to include the following six variables when designing and managing an online course, (1) Course Banner (2) Welcome letter from the instructor (3) Ice Breaker activity (4) Lecturer's Profile (5) Sections Categories (6) Instructions. Further research needed to be looked into instructor presence in the online platform, and the learning content posted in the virtual platform. Would both items contribute towards a more impactful learning among the online learners? More investigation is encouraged on the type and the significance of instructions with various examples of instructions needed to support the virtual learning journey of the online learner.

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Analysis of the Value Realization of the Students of Open University for Senior Citizens

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Abstract

Purpose

Data from the Seventh National Population Census showed that 149 cities at the prefecture level and above in China entered a "deep aging" period in 2020, and China's aging population is accelerating. Coping with an aging population has become a national strategy in China. According to previous research results, education plays an important role in coping with population aging, and education can promote the realization of the self-value of the elderly. The purpose of this study is to provide empirical evidence for education for the elderly and the positive response to population aging.

Methodology

In this study, 713 local Open University for Senior Citizens students in Beijing, Ningbo, and Xinxiang were selected. The study was carried out with a questionnaire on the education of the elderly. The questionnaire was divided into four parts :(1) basic information and health status, (2) learning experience of the elderly in the Open University, (3) social participation, (4) attitude to aging, depression and loneliness level, family relationship satisfaction, and life satisfaction.

Findings

Attending Open University for Senior Citizens has a significant influence on the attitude to aging, depression and loneliness level, family relationship satisfaction, and life satisfaction of the elderly. The Open University has enriched the lives of the elderly, increased their knowledge and abilities, and developed their interests and hobbies. However, it still needs to be further strengthened in promoting the elderly to find jobs and start businesses, make contributions to society, and realize their self-value.

Originality/implications

There were few empirical studies on the realization of the value of education for the elderly, and there were also few empirical studies focusing on a larger range of elderly groups rather than retired cadres. Based on the survey data of Open University for Senior Citizens students in Beijing, Ningbo, and Xinxiang, this study empirically analyzes the effect of education for the elderly on the value realization in a larger range of elderly groups. The study finally suggests that the government, society, and the Open University should encourage the elderly to actively participate in the labor market and social life through various channels, and establish corresponding policies and regulations to provide institutional guarantee for the employment and social participation of the elderly.

Keywords: *Open University, Value realization, Mental health, Population aging, Education.*

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INTRODUCTION

According to international standards, when the proportion of people aged 65 and above in a country or region exceeds 7%, it means the country or region entering a population aging period; if reaching 14%, the country or region would be considered in "deep aging" period, and if exceeding 20% the country or region would be considered in "super-aging" period. Data from the 7th National Population Census shows that 149 cities at the prefecture level and above in China will enter a "deep aging" period in 2020, with an accelerated aging trend ("China's urban aging data: 149 cities are deeply aging, concentrated in these provinces," 2021). The accelerated expansion of the elderly population will bring about greater social security pressure, structural pressure on the labor supply, and other problems (Lu & Lin, 2021). Accordingly, the traditional concept of aging delivers a pessimistic attitude towards an aging population society. In terms of the value of older people, as important subjects in society, older people have significant social and personal values (Zeng & Zhu, 2009). The modern concept of aging focuses on the agency, motivation, and creativity of older people, emphasizing that along with economic and technological development, older people will develop themselves and integrate into society positively. Exploiting the potentialities of older people is important for building a better society in the future (Guo & Shi, 2006).

Proactively responding to population aging has been elevated to a national strategy in China. President Xi Jinping stressed that effectively responding to population aging is a matter of national development in general and the well-being of hundreds of millions of people (Xinhua News Agency, 2016). The report of the 19th CPC National Congress proposed to actively respond to the aging population, and build a policy system and social environment of being welfare, filial, and respectful to the elderly (Xi, 2017). The Medium- and Long-term Plan for Responding Proactively to Population Aging proposes to establish a lifelong learning system, innovate and develop education for the elderly, and implement an action plan for the development of an open university for senior citizens. It also urges to improve the level of technology and informatization of services to continuously meet the needs of the elderly (Xinhua News Agency, 2019). The fifth plenary session of the 19th Central Committee of the CPC officially elevated proactively responding to population aging to a national strategy, pointing out the need to actively develop human resources for the elderly, develop the silver economy, and promote the integrated development of undertakings for the elderly and industries (Central Committee of the Communist Party of China, 2020).

Education has an important role to play in coping with population aging. Education is an important factor influencing health, and it can help older people adapt to economic and social development, contribute to the empowerment of older people, improve their quality of life, promote their social participation, and develop human resources. The international community generally emphasizes creating an environment of empowerment for older people to support them continuously contributing to society and promote the lifelong development of the elderly (Ji, et al., 2020; Liu & Jiao, 2015; United Nations, 2002). It can be argued that education can contribute to the realization of older people's values. To provide empirical evidence, this study briefly analyses the role of education on the value realization of older people using survey data from students of the open university for senior citizens.

LITERATURE REVIEW

Previous research has analyzed the values of the elderly. In terms of definition, the value of the elderly refers to the role and significance that the elderly have. In terms of classification, there are social and personal values and real and historical values of the elderly. Social value means that elderly individuals are able to meet the needs of society or the subject. Personal value means that society respects and meets the survival and development needs of the elderly, such as self-value realization. The elderly not only have important economic values, but also spiritual values such as cultural transmission, modeling society, and uniting family (Sun, 2019; Zeng & Zhu, 2008). As Erikson states every stage of life must experience active involvement and requires age-specific pursuits (Erikson, Erikson, & Kivnick, 1989). UNESCO's framework for active aging states that policies and practices that guarantee the rights of individuals of all ages are related to social justice. Active aging refers not only to the active participation of older people in the labor market but also to their active participation in social, economic, cultural, spiritual, and civic affairs (Pan et al., 2018; WHO, 2002). The framework explores how to achieve active aging in terms of the elderly's personal and social values. Some studies point out that contemporary society should meet older people's basic needs such as health and hygiene needs, a sense of belonging and emotional needs, and developmental needs, such as self-enrichment, self-promotion, and self-fulfillment (Zeng et al., 2008).

Some studies have analyzed the pathways to value realization for the elderly. Sun Guiying and Lan Jian (2019) mention how older people can realize their values including studying in practice, engaging in lifelong learning activities, and improving their physical, psychological, and social conditions to postpone senility. They discuss the education project for the elderly in the rural area conducted by the UNESCO Community Learning Centre (CLC) project team, which promotes education for the elderly based on the concept of "active aging". The project focuses on encouraging the elderly continuously involved in activities and improving their situation. However, this study only describes the CLC project and does not empirically examine the ways in which the elderly realize their values. Yu Yingying (2019) points out the paths to achieving social participation of the elderly, such as building a service platform based on communities and setting jobs that are suitable for older people. Setting jobs should consider combining with internet technology, establishing a flexible work system, and motivating older people to engage in family work. Meanwhile, it is necessary to establish a policy system to promote the social participation of the elderly and establish corresponding policies and regulations to provide institutional guarantees for the employment of the elderly, including enhancing the benefits and giving appropriate preferential policies to those who participate in social activities. This empirical study makes constructive macro-level suggestions on the approaches to getting the elderly to participate in society but does not specifically examine the relationship between these approaches and the realization of the elderly's values. In addition, Li Yajiao (2017) collected data to analyze the value realization methods of retired cadres through questionnaires. She concluded that the main factors affecting the value realization of retired cadres are the restriction of ideology, lack of platforms and effective sources of information, lack of complete institutional guarantee, and lack of efforts from society and institutions that the elderly once worked for. The study points out that pathways and suggestions to promote value realization of retired

cadres include improving the social environment through completing regulations and promoting successful cases, building a strong platform, making good organizational arrangements, and enriching the ways of value realization, such as establishing and improving open universities, organizing elderly social and cultural groups and voluntary services. However, this study focuses on the main factors affecting the value realization of retired cadres rather than the degree of effectiveness of the pathways to value realization.

Ensuring the physical and mental health of the elderly is a prerequisite for the realization of their values. The physical and mental health of the elderly is influenced by many factors. Studies have found that there are significant differences in the health of the elderly by gender, therefore gender should be considered when formulating public policies(Yang, Zhou, & Zhang, 2016). Education is an important factor that affects the health of the elderly. Studies show that music education has a positive impact on the physical and mental health of the elderly (Qiao, 2014). Overall, the higher the education level of the elderly the better their self-rated health and psychological well-being (Xue & Ge, 2017). Education programs for the elderly can provide an environment and atmosphere for social interactions, and social interaction improves the life satisfaction of the elderly (Lin & Chen, 2007). Older people with higher education levels and more social interaction have more social and psychological resources, thus keeping a younger subjective age, and a younger subjective age contributes to a greater sense of self-worth, which in turn helps to keep their emotional well-being (Chen, Yuan, & Cheng, 2019). In conclusion, education provides a form of social support for the elderly, and social support can enhance life satisfaction by improving their sense of meaningfulness and physical and mental health (Liu, Sun, & Du, 2020).

Previous research has largely reached a consensus on the value of the elderly in terms of both social and personal values and has conducted useful explorations on how older people's values are realized. In terms of personal values, a portion of the research has explored the factors that influence the physical and mental health of older people through an empirical approach and has focused on the role of education. However, fewer empirical studies address the impact of education on the value realization of the elderly, and fewer empirical studies focus on a larger group of older people rather than retired cadres. Based on survey data from open universities for senior citizens students in Beijing, Ningbo, and Xinxiang, this paper empirically analyses the role of education on the value realization of open universities for senior citizens students, focusing on the effect of education on the value realization of older people, from which the value realization of a larger group of older people can be explored.

RESEARCH DESIGN

This paper discusses how attending an open university for senior citizens influences the value realization of the elderly. Firstly, it focuses on the reasons, gains, and satisfaction of the open university for senior citizens. From the perspective of personal value realization, it explores the effects of attending OU on older people's attitude to aging, depression and loneliness level, family relationship satisfaction, and life satisfaction, and accordingly explores the role of attending OU on older people's value realization.

Data collection

In terms of data collection, the study conducted a questionnaire to students of the open university for senior citizens in Beijing, Ningbo, and Xinxiang (including Huijia County). The questionnaire has four sections:(1) basic information and health status, (2) learning experience of the elderly in the Open University, (3) social participation, (4) attitude to aging, depression and loneliness level, family relationship satisfaction, and life satisfaction.

In terms of specific measures: (1) attitude to aging. The study used 12 questions from the Attitudes to Aging Questionnaire (AAQ), using a five-point Likert scale, with higher scores indicating more positive attitudes to aging; (2) depression levels. The study used 9 questions from the Center for Epidemiological Studies Depression Scale (CES-D), using a three-point Likert scale, with higher scores indicating higher levels of depression; (3) loneliness level. The study measured loneliness levels with the UCLA-3 scale, using a three-point Likert scale, with higher scores indicating higher levels of loneliness; (4) For family relationship satisfaction and life satisfaction, the study measured the same question using a five-point Likert scale, with higher scores indicating greater satisfaction. The above scales were validated by Cronbach's alpha test.; (5) Reasons and gains for attending the open university for senior citizens. The study used multiple choice and asked the interviewed students to select the option that matched. (6) Satisfaction with attending an open university for senior citizens. The questions cover the teaching style of the teachers, the professionalism of the teachers, the content of the courses, the classroom atmosphere, the management and services of the OU, the assessment method of the courses, learning effect, learning ability, and overall satisfaction with the open university for senior citizens; (7) Basic information including gender, age, and education level.

Data analysis

The study used descriptive statistics to analyze the students' reasons, gains, and satisfaction with attending the open university for senior citizens and used multiple regression analysis to investigate whether the reasons, gains, and satisfaction were significant predictors of attitude to aging, depression level, loneliness level, family relationship satisfaction, and life satisfaction. The multiple regression uses the reasons, gains, and satisfaction (including only learning effectiveness and learning ability) of attending the OU as predictor variables, and uses attitude to aging, depression level, loneliness level, family relationship satisfaction, and life satisfaction as outcome variables.

The regression analysis was conducted using a stratified regression model. The first strata added gender (female = 1, male = 0), age group (60 years and older = 1, under 60 years = 0), and education level (below primary = 1, graduate = 6, considered as continuous variables) as covariates. The second strata added the predictor variables mentioned above (reasons, gains, and satisfaction with attending the open university for senior citizens) to the first strata to predict each outcome variable separately.

All statistical analyses were performed on SPSS 27.0. Missing values were excluded from the analysis, and the significance level was $\alpha = 0.05$ (two-tailed).

RESULTS

Sample composition

The survey received 713 responses, including 110 (15.4%) from Beijing, 219 (30.7%) from Ningbo, and 384 (53.9%) from Xinxiang (Table 1). In terms of gender, 136 (20.7%) were male and 512 (79.3%) were female. In terms of age (M = 61.42, SD = 6.88), most of the students interviewed were in the 50-69 age group. There were 282 students (40.5%) aged 50-59, and 308 students (44.3%) aged 60-69. Besides, 86 students (12.4%) aged 70-79, 14 students aged 40-49 (2.0%), and 6 students aged 80 and over (0.9%). In terms of education level, most of the students interviewed graduated from high school or secondary school or above (33.0% graduated from high school or secondary school, 46.1% graduated from college or university, and 6.0% had master's degrees), 85 students graduated from middle school (12.2%), 17 students graduated from primary school (2.4%), and 2 students' degree below primary school (0.3%).

Table 1: *Sample Composition of the Responses of the Students*

	Total (N = 713)		**Beijing (N = 110)**		**Ningbo (N = 219)**		**Xinxiang (N = 384)**	
	N / M	% / SD	N / M	% / SD	N / M	% / SD	N / M	% / SD
Gender								
Male	136	20.7	4	3.9	34	16.6	98	28.0
Female	521	79.3	98	96.1	171	83.4	252	72.0
Age	61.42	6.88	61.81	7.50	62.99	6.21	60.42	6.90
Education								
Below primary education	2	0.3	0	0.0	1	0.5	1	0.3
Primary school	17	2.4	0	0.0	6	2.8	11	2.9
Middle school	85	12.2	2	1.9	40	18.5	43	11.5
High school	231	33.0	20	18.5	75	34.7	136	36.3
College or bachelor's degree	322	46.1	75	69.4	91	42.1	156	41.6
Master degree	42	6.0	11	10.2	3	1.4	28	7.5

Reasons, gains, and satisfaction of attending the open university for senior citizens

In terms of the reasons for attending an open university for senior citizens (Figure 1), the three choices with the highest proportion are "to satisfy my hobbies" (76.6%), "to increase knowledge and competence" (74.5%), and "to be happy" (63.1%). The three choices with the lowest proportion are "to learn skills for re-employment" (6.8%), "to serve society" (21.1%), and "to spend time" (21.5%). In terms of gender, a significantly higher proportion of female students (N = 338, 66.3%) than male students (N = 69, 52.3%) chose to attend OU "to be happy". In terms of age groups (the old-aged group is 60 years old and above students, the middle-aged group is students under 60 years old),

the old-aged group (N = 307, 78.9%) chose "to increase knowledge and competence" significantly more than the middle-aged group (N = 198, 68.3%). In terms of education level, the proportion of students with higher education (college or bachelor's degree or above) choosing "to satisfy my hobbies" (higher education group: N = 289, 81.0%; lower education group: N = 234, 71.8%) and "to be happy" (higher education group: N = 243, 68.1%; lower education group: N = 191, 58.6%) is higher than those with lower education (high school or middle school or below).

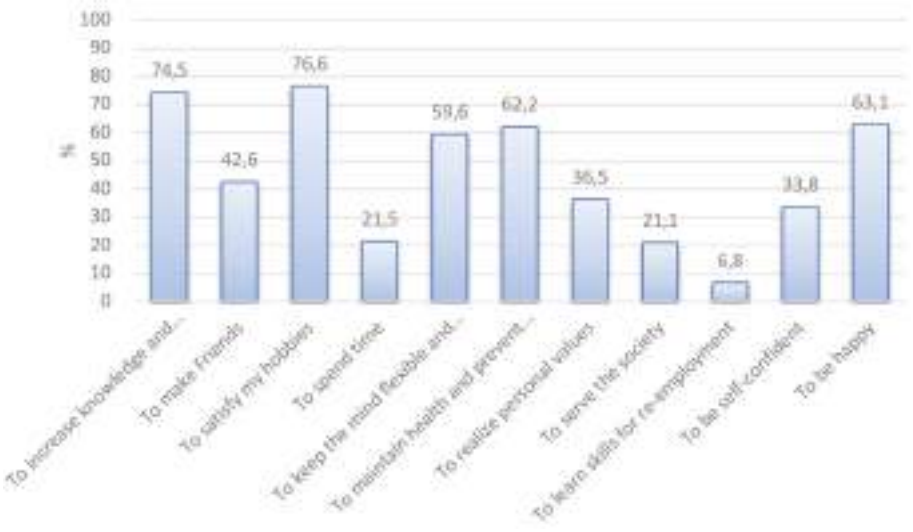


Figure 1. *Reasons for interviewees to attend the open university for senior citizens*

From the students' answers about the gains of attending the open university for senior citizens (Figure 2), the three highest proportion choices are "life is more fulfilled" (74.7%), "increased knowledge and competence" (73.9%), and "developed hobbies" (73.6%). The three lowest proportion choices are "learned skills for re-employment" (9.7%), "contributed to society" (24.1%), and "realized personal values" (35.9%). In terms of gender, a significantly higher proportion of female students than male students chose "made new friends" (M: N = 72, 54.5%; F: N = 342, 67.2%) and "developed hobbies" (M: N = 85, 64.4%; F: N = 397, 78.0%). In terms of age groups, the old-aged group chose "increased knowledge and competence" (old-aged group: N = 305, 78.6%; middle-aged group: N = 196, 67.6%), "made the mind more flexible" (old-aged group: N = 228, 58.8%; middle-aged group: N = 145, 50.0%), "realized personal values" (old-aged group: N = 155, 39.9%; middle-aged group: N = 88, 30.3%), "contributed to society "(old-aged group: N = 106, 27.3%; middle-aged group: N = 58, 20.0%) were significantly higher than those in the middle-aged group. In terms of different levels of education, students with higher education chose "increased knowledge and ability" (higher education group: N = 279, 78.4%; lower education group In terms of different education levels, a significantly higher proportion of students with higher education

chose "increased knowledge and ability" (high education group: N = 279, 78.4%; low education group: N = 229, 70.2%) and "developed hobbies" (high education group: N = 274, 77.0%; low education group: N = 229, 70.2%).

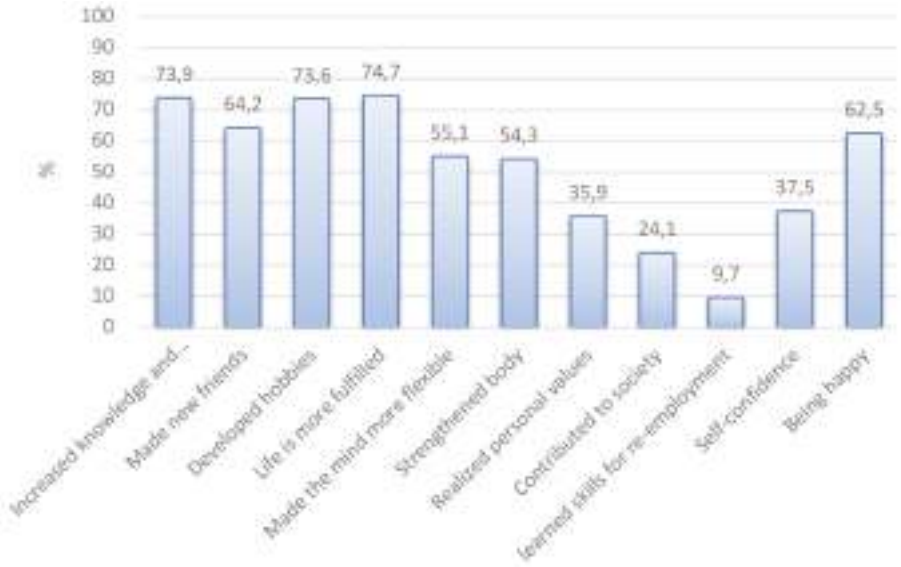


Figure 2. *What interviewees gained from participating in the open university for senior citizens*

Overall (Figure 3), 82.1% of the students were satisfied with the open university for senior citizens, 17.7% were average, and 0.3% were dissatisfied. Specifically for each item, the three items that students were most satisfied with were the content of the course (82.7% satisfied), the atmosphere of the classroom (82.4% satisfied), and the professionalism of the teachers (82.4% satisfied); the items that students were less satisfied with were their learning ability (63.0% satisfied) and their learning effect (71.3% satisfied). In terms of overall satisfaction, the difference between genders was not significant (male: N = 132, M = 2.76, SD = 0.45; female: N = 508, M = 2.83, SD = 0.38), t = 1.818, df = 182.192, p = 0.071; the difference between age groups was not significant (older group: N = 388, M = 2.84, SD = 0.38; middle-aged group: N = 289, M = 2.78, SD = 0.41), t = 1.873, df = 591.039, p = 0.062; no significant difference between students with high education (N = 356, M = 2.82, SD = 0.40) and those with low education (N = 325, M = 2.81, SD = 0.39), t = 0.355, df = 679, p = 0.723.

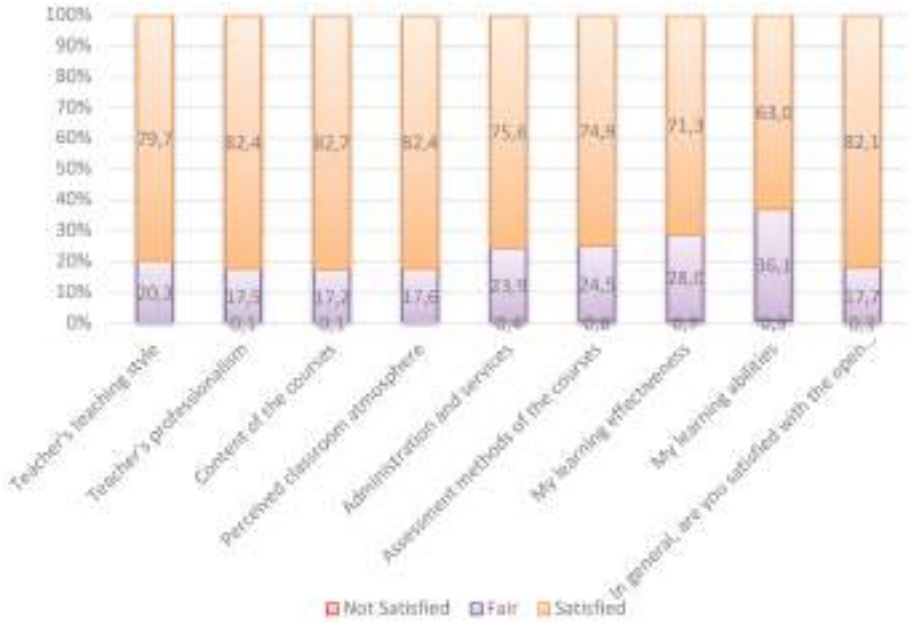


Figure 3. *Satisfaction of the interviewed students with the open university for senior citizens*

Results

Attitude to aging

Among the reasons for attending OU, attitudes to aging can be predicted by "to maintain health and prevent diseases" ($\beta = 0.10$, $p = 0.039$), "to serve the society" ($\beta = 0.13$, $p = 0.011$). Among the gains from attending OU, attitudes to aging can be predicted by "self-confidence" ($\beta = 0.14$, $p = 0.015$). Among the satisfaction with attending OU, attitudes to aging can be predicted by "satisfaction with my learning effectiveness" ($\beta = 0.22$, $p < 0.001$).

Depression level

Among the reasons for attending OU, depression level can be predicted by "to satisfy my hobbies" ($\beta = -0.13$, $p = 0.002$), "to spend time" ($\beta = 0.18$, $p < 0.001$), and "to be happy" ($\beta = 0.13$, $p = 0.005$). Among the gains from attending OU, depression level can be predicted by "developed hobbies" ($\beta = -0.14$, $p = 0.001$). Among the satisfaction with attending OU, depression level can be predicted by "satisfaction with my learning effectiveness" ($\beta = -0.17$, $p = 0.001$) and "satisfaction with my learning ability" ($\beta = -0.11$, $p = 0.036$).

Loneliness level

Among the reasons for attending OU, loneliness level can be predicted by "to satisfy my hobbies" ($\beta = 0.11$, $p = 0.007$), "to spend time" ($\beta = 0.17$, $p < 0.001$), and "to maintain health and prevent diseases" ($\beta = -0.10$, $p = 0.027$), and "to be happy" ($\beta = -0.13$, $p = 0.004$). Among the gains from attending OU, loneliness level can be predicted by "developed hobbies" ($\beta = -0.17$, $p < 0.001$), "learned skills for re-employment" ($\beta = 0.09$, $p = 0.030$), "gained happiness" ($\beta = -0.18$, $p < 0.001$). Among the satisfaction with attending OU, loneliness level can be predicted by "satisfaction with my learning effectiveness" ($\beta = -0.17$, $p = 0.001$).

Family relationship satisfaction

Among the reasons for attending OU, family relationship satisfaction can be negatively affected by the "want to make friends" ($\beta = -0.15$, $p = 0.001$). Among the gains from attending OU, family relationship satisfaction can be negatively affected by "developed hobbies" ($\beta = 0.09$, $p = 0.045$). Among the satisfaction with attending OU, family relationship satisfaction can be affected by "satisfaction with my learning effectiveness" ($\beta = 0.11$, $p = 0.027$).

Life satisfaction

Life satisfaction can not be influenced by the reasons for attending OU, $\Delta R2 = 0.03$, $\Delta F = 1.64$, $p = 0.083$. Among the gains from attending OU, life satisfaction can be significantly affected by "made new friends" ($\beta = 0.09$, $p = 0.044$), "life is more fulfilled" ($\beta = -0.11$, $p = 0.017$). Among the satisfaction with attending OU, life satisfaction can be significantly affected by "satisfaction with my learning effectiveness" ($\beta = 0.13$, $p = 0.006$).

CONCLUSIONS AND POLICY RECOMMENDATIONS

Conclusions

The statistical description shows that: (1) students have both emotional needs and knowledge acquisition needs to attend open universities for senior citizens, but they are not sufficiently motivated to undertake social service functions outside their families. (2) attending open universities enriches the life of the elderly, increases their knowledge and ability, and develops their hobbies, while it needs to strengthen promoting the re-employment, contribution to society, and realization of self-worth of the elderly. (3) the students are overall satisfied with the open universities especially with the course content, classroom atmosphere, and teachers' professionalism, while the satisfaction level of their learning ability and learning effect is slightly lower; (4) there are differences in the reasons, gains, and satisfaction of the students from different regions, genders, ages and education levels for attending open universities for senior citizens.

The results of regression analysis show that attending OU has a significant effect on the attitude to aging, depression and loneliness level, family relationship satisfaction, and life satisfaction of the elderly. (1) attitudes to aging can be significantly influenced by the reasons and gains of attending OU, such as "to maintain health and prevent diseases", "to serve the society", and gaining "self-confidence". (2) depression levels can be predicted by "to satisfy my hobbies", "to spend time", and"to be happy" in the reasons of attending OU, "developed hobbies" in the gains, "satisfaction with my learning effectiveness", and "satisfaction with my learning ability" in the satisfactions with attending OU. (3) loneliness levels can be predicted by "to satisfy my hobbies", "to spend time", "to maintain health and prevent diseases", and "to be happy" in the reasons for attending OU, "developed hobbies", "learned skills for re-employment", and "gained happiness" in the gains, and "satisfaction with my learning effectiveness" in the satisfactions with attending the OU. (4) family relationship satisfaction can be predicted by "want to make friends" in the reasons for attending OU, "developed hobbies" in the gains, and "satisfaction with my learning effectiveness" in the satisfaction with attending OU. (5) life satisfaction can be predicted by "made new friends", "life is more fulfilled" in the gains, and "satisfaction with my learning effectiveness" in the satisfaction with attending OU.

Policy recommendations

This study found that the open university for senior citizens has enriched the lives of the elderly, increased their knowledge and abilities, and developed their hobbies, but it needs to be strengthened in promoting the re-employment of the elderly, contributing to society, and realizing their values. This may be related to the motivation of the elderly to attend an OU. This study showed that the elderly were not sufficiently motivated to attend an open university and to take on social service functions outside of the family. Therefore, the government, society, and the open university for senior citizens should promote the social and personal values of the elderly in various ways, encourage the elderly to actively participate in the labor market and social life, and motivate the elderly to attend education programs, so as to broaden and deepen the effect of the education for the elderly. In addition, appropriate policies and regulations should be established to provide institutional guarantees for the employment and social participation of the elderly. For example, to achieve self-health management of the elderly through community participation, enhance the benefits of the elderly by improving the external environment, and give appropriate preferential policies to the elderly who participate in social activities (Yu, 2019).

This study found that the students have slightly lower levels of satisfaction with their learning ability and learning effectiveness, while the satisfaction with their learning ability predicts depression levels, and the satisfaction with their learning effectiveness predicts attitudes to aging, loneliness levels, depression levels, family relationship satisfaction, and life satisfaction. Therefore, the open university for senior citizens

should take the students as the center during its curriculum setting and teacher training, design the curriculum and provide diversified services according to the learning ability and needs of different students. It will improve the satisfaction levels of the students with their learning ability and learning effectiveness, and then cultivate positive attitudes to aging, improve family relationship satisfaction and life satisfaction, and relieve depression.

In addition, this study found that the reasons, gains, and satisfaction with attending the open university for senior citizens differed by students' region, gender, age, and education level. Therefore, the open university for senior citizens should set up diversified and targeted courses and services according to regional economic development levels and characteristics of the elderly.

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A Potential Online Open Educational Resource for Detecting Water Pixels of Tailings Pond Around an Open Pit Mining Area Using Remote Sensing

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Abstract

An online free source is used to detect changes in a water body, characterised by a tailings pond of a mining area between 2021 and 2022 using satellite imagery, through Earth Observation (EO) browser. EO is a cloud computing and a geospatial technology environment used for sharing open resources. The normalised difference water index (NDWI) is used to detect the dynamics in space and time of water pixels at a point of interest of the water body. The case of the Phalaborwa mine of South Africa is illustrated and shows that EO Brower as a free web-based technology can be potentially used by distance education engineering technology students in mining programmes. Mining managers and practitioners can also use EO browser for rapid detection and assessment of water extent in tailings ponds.

Keywords: *satellite image, open education, e-learning, mining management, tailings pond*

INTRODUCTION

The use of online freely available software packages is increasing in many applications. Open sources fall in the category of open educational resources (OERs) and are prominent for training of different users such as researchers, students, practitioners, etc. Access to free web resources offers advantages particularly for students since they pay nothing, except in some cases, data for internet connection. Besides, the resources may strengthen self-learning. In some cases, the lecturer may offer guidance in accessing such resources. Remote sensing applications made possible through the information and communication technologies (ICT), increases the value of information context of learning process as well as contributes to the learner's cognitive skills interest in ICT (Kholoshy et al., 2019). Already in early 2000, distance education model was set up to provide remote sensing to college learners (Bailey et al., 2001). The US has promoted the remote access of satellite products from geospatial technology for education and research. Also, the efforts by the Copernicus to make freely available satellite images has made significant advances in education and research in several disciplines where

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remote sensed-data are used. Some European and Asian universities created an innovative open source e-learning platform in the field of remote sensing that covers modules made available open to the public (Bauer, et al., 2021). The digital integrated learning environments (ILEs) brought the complex topic of earth observation (EO) into classrooms. EO gave pupils with no prior experience in remote sensing the opportunity to solve tasks with earth observation data by using the same means that professionals have at hand (Hodam et al., 2021). For example, a web-based for teaching and learning was developed on a local server to enhance remote sensing application (Li et al., 2020); earth observation has been used as a tool to facilitate climate change education (Asimakopoulou et al., 2021).

Remote sensing has gradually developed into an important tool to monitor the ecological environment for mining areas. This also includes mining waste, e.g. Mielke et al. (2014). Remote sensing was shown to provide cost effective alternatives for the accurate monitoring of mine tailings (Chetty, 2013). The development of remote sensing provides convenient conditions for comprehensively, rapidly, and continuously identifying environmental factors and monitoring environmental changes in mining areas (Song et al., 2020). It also gives technical support for decision making by governmental departments (Song et al., 2020). Water body pollution of mining areas was undertaken by Lobo et al., (2015). Remote sensing technology is one of the fields for research that has proven its value on surface; however, ways of customising this proven technology into underground mining environments should still be explored (Caleb, 2014). Vegetation monitoring around mining areas through remote sensed data has been documented, e.g. Mhangara et al. (2020). Earth observation as a tool hasn't been used extensively as an OER in the literature for detection of water pixel dynamics. For example, applications for changes in vegetation cover, bare soil, and mine opened pits using SPOT 6 satellite imagery and spectral angle mapper to map the changes in vegetation and bare soil were illustrated (Mhangara et al. 2020). Students, at both undergraduate and honours level, in engineering technology programmes cover in one way or the other these applications. These programmes are offered in South Africa, in universities of technologies and comprehensive universities. Comprehensive universities offer both engineering programmes and mainstream/traditional engineering programmes such as Bachelor of Science in Engineering, Honours in Engineering, etc.

In this study, EO was explored as an open source to stimulate self-learning. From their exposure to open distance and e-learning, the authors were able to present their arguments in relation to this study.

The rest of the paper is structured as follows: First an overview on EO, including remote sensing, is presented. Secondly, use of the normalised difference water index (NDWI) is covered. Thirdly, the methodological approach is explained. Fourthly, the findings and discussion are given. Lastly, the conclusion and suggestions are laid down.

Online Open Web Cloud Computing For Remote Sensing

EO Browser is a powerful and user-friendly tool that enables to visualise and compare high resolution satellite images from the archive of Sentinel-1, -2 &-3, Sentinel-5P,

Landsat 5, 7 and 8, , Envisat Meris, Proba-V, MODIS and GIBS products (https://eo4society.esa.int/resources/eo-browser). To visualise images, the end user can choose the selection of the area of interest (AOI) or the point of interest (location) can choose, the period of the selection and level of cloudiness.

EO can be viewed as an open educational resource for teaching and learning, research, and practice in many disciplines. Particularly, OER as an open source freely available on the web, it offers an advantage for its suitability for online learning. To access EO browser graphical user interface (GUI), users can use the link https://apps.sentinel-hub.com/eo-browser. Refer to Figure 1 below. EO browser requires Internet connection to perform all tasks in the cloud. A very quick tutorial is given just by clicking and does not require more than 5 minutes for the user to know how to go through the browser and the user can access the image under "visualise" option, in Figure 1.



Figure 1. *EO browser as accessed from* https://apps.sentinel-hub.com/eo-browser/?zoom=10&lat=41.9&lng=12.5&themeId=DEFAULT-THEME&toTime=2022-08-30T19%3A20%3A07.772Z

For the purpose of this study, only sentinel products were explored, i.e. Sentinel 2.

OVERVIEW OF SENTINEL 2 DATA

Sentinel-2 data are multi-spectral satellite images obtained from the EO mission, under the Copernicus programme. The images are of high resolution, which vary between 0 m to 60 m. They cover different classes: land, soil and water and coasts. The provision of multispectral data is possible through two identical sentinel satellites (2A and 2B) working together. Sentinel images comprise 13 bands ranging in the visible, near infrared and shortwave. The specific product (Sentinel) used for the purpose of this study was Sentinel 2 Level-2A, which represents the Top-of-atmosphere (TOA)

reflectance in the combined Universal Transverse Mercator (UTM) coordinated system and WGS84 ellipsoid and atmospherically corrected. Under the same watching angles, the data related to the tile are revisited on a 10-day cycle. The level of cloudiness can be set for the satellite visualization, which makes the AOI or point of interest (POI) free of clouds or cloud shadows. Table 1 represents only selected bands that were used for the purpose of NDWI index as shown in the next section.

Table 1. *Selected bands used for Sentinel-2 data, from Copernicus (ESA, 2015)*

Name	Description	Resolution	Wavelength	Scale
B3	Green	10 meters	560nm (S2A) / 559nm (S2B)	0.0001
B8	NIR	10 meters	835.1nm (S2A) / 833nm (S2B)	0.0001

Normalised Difference Water Index

The use of various indices to enable both temporal and spatial earth changes are very popular. For instance, these changes can be monitored via the normalised difference vegetation index (NDVI), normalised difference water index (NDWI) (Rasul et al., 2018). The NDVI was used as the monitoring indicator of vegetation restoration of different mining stages (Guo et al., 2022), Dlamini & Xulu (2019), Chetty, (2013). O'Donovan et al. (2022) used NDWI to monitor water body changes, in particular the tailings dams and concluded that pond area measurements based on Sentinel-2 agree with the validation imagery. The monitoring of water body coal dust pollution was undertaken by measuring the SWIR (Shortwave infrared) vegetation index (Lobo et al., 2015). Although enabled to obtain the required information conveniently; inaccuracies were observed in the qualitative analysis of the results, and the outcome of the study was only suitable on heavily polluted areas (Song et al., 2020). For water body detection, the NDWI was introduced in water resources management (WRM) by McFeeters (1996), and it uses the near-infrared and green spectral bands. Besides water body, NDWI was used to determine water content in vegetation (Jackson et al (2004), prediction of vegetative diversity using rainfall and temperature (Chapungu1 & Nhamo, 2016). The present study focuses only on NDWI for water body detection, i.e., tailings pond around an open pit mining area. The mathematical equation in the case of NDWI is defined by Equation (1) as given below:

$$NDWI = \frac{gr - nir}{gr + nir} \qquad (1)$$

Where gr, nir are green and near infra-red bands respectively.

The bands in the above equation are functions of the type of satellite images. For instance, gr and nir are equivalent to bands B03 and B08 respectively as shown in

Table 1. NDWI values generally range between -1 to 1 (O'Donovan, 2022; Ji et al., 2009). Vegetation and soil have negative or lower values while water bodies, flooded lands, soils saturated with water have relatively higher values. That is, for water, NDWI is positive and non-water it is negative generally (Ji et al., 2009). Madasa et al. (2021) used NDWI for mining monitoring area land cover and concluded that the index was promising. There are also other mathematical expressions for change detection in water bodies, besides NDWI. Despite the popularity of NDWI, the Modified NDWI (MNDWI) has been also documented in improving the sensitivity aspect of NDWI for built-up features (Du et al., 2016). Usually, the combination of more indices enables us to have a good insight on the ecological status of the area under investigation. For instance, the near-infrared reflectance, which is the ratio of the NIR radiation that a body receives to the NIR radiation that it emits, has also been used (O'Donovan et al., 2022).

METHODS AND DATA AVAILABILITY

The online freely available EO browser was used in this study. Based on this OER, NDWI values were associated with water pixels whereas zero or negative NDWI signal vegetation or bare ground.

The methodology related to the derivation of NDWI for remotely sensed data as well the extent of the surface water area is conducted as follows and is based on a quick guide of EO browser as seen in Figure 1.

- Select the type of satellite, e.g. Sentinel 2, for which the advanced option can be chosen
- Set the period for date extraction
- Search images based on the period defined
- Visualise the time series of images.
- Browser and select the image with less cloud cover.
- Use the natural colour visualisation of satellite images.
- Use the NDWI visualisation to perform water pixels detection
- Find the point of interest, by choosing clicking on the yellow location icon as shown in the EO browser GUI.
- Click on plot for NDWI to generate the time series for the index, e.g. month, 6 months, year, etc.

The area of interest for EO browser selected was the Phalaborwa copper mine in South Africa, with a large open pit in the centre as displayed in Figure 2, i.e. Landsat 8 image of July 2, 2019, taken by the earth observatory of Nasa. The open pit measures 2 km wide approximately. The mine has transitioned from surface to underground mining practice. From researchers, more interest has been on predicting the in-surface deformation due to underground mining. It should be emphasised that the contribution from the mining sector to the GDP of South Africa is significant, but mining exploitation has environmental impacts.



Figure 2. *Phalaborwa copper mine satellite image taken on 2 July 2019, Landsat, with landslide formation in the open pit.* (https://earthobservatory.nasa.gov/images/145366/south-africas-largest-open-pit-mine)

The 2 years, i.e., 2021 and 2022 chosen in the same month were selected arbitrarily, to assess the change dynamics of online available resources.

For demonstration purposes, a location (point of interest) was selected as explained in the next section.

FINDINGS AND DISCUSSION

Figure 3 illustrates the time series of images visualised as shown for 2022 after "Phalaborwa Mining " was entered under Search text box. The image with minimum less cover was selected. For instance, the 2022-08-11 image had 0.0% cloud cover. The same procedure was performed for the 2021-08-06 image. Comparison between these 2 images was performed through "compare" and "split" functions as shown in Figures 4a and 4b respectively. These figures showed the true colour images of the Phalaborwa mine with the open pit in the middle respectively for Sentinel 2-L2A of 2021-08-06 and of 2022-08-11 respectively. These images depict similar features retrieved in Figure 3 and were the top and bottom overlain layers respectively. Small differences could be noticed between the 2 layers by splitting the 2 figures. What is remarkable is the landslide in the open pit in the middle of the Phalaborwa mining area which became increasingly pronounced from 2021 to 2022. It revealed that mine management should pay attention to the mining process, which is now done underground, around the propagation of the landslide in the open pit. Potential hazard should be assessed due to the effect of mining.

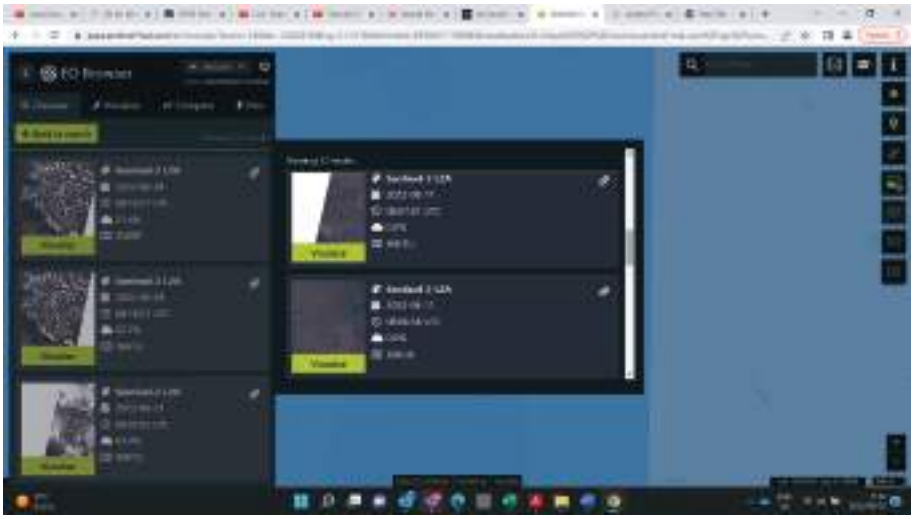


Figure 3. *Earth observation of time series of the sentinel images of August 2022 around the Phalaborwa mine*



Figure 4a. *True colour of the Phalaborwa mining for the 2 overlain layers, i.e. 2022/08/06 and 2022/08/11*



Figure 4b. *True colour of the Phalaborwa mining for the 2 overlain layers, i.e. 2022/08/06 and 2022/08/11, with the split passed beyond the open pit.*

Determination of the Ndwi Time Series

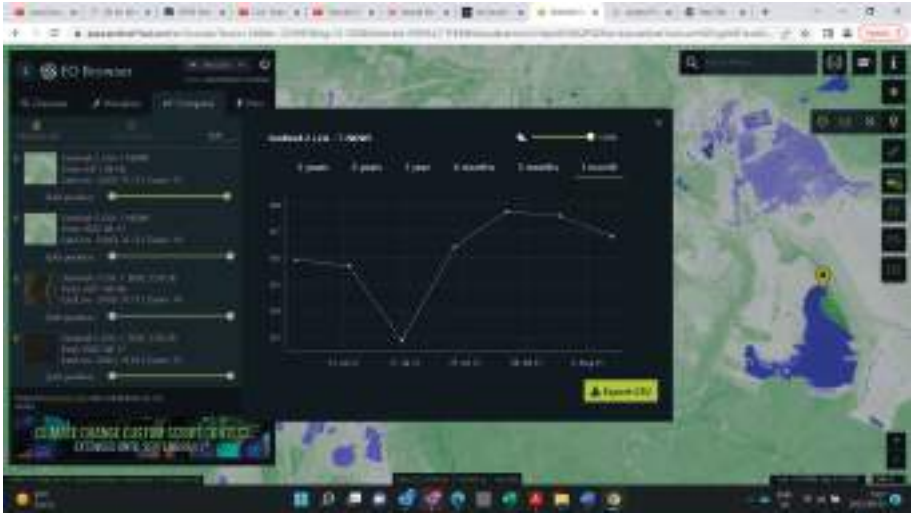


Figure 5a *NDWI calculation for a month period at the point of interest for 2021, which is in the water body, i.e. tailing pond*

Figure 5a shows the graphical representation of one for all NDWI calculated between the beginning of July and beginning of August 2021. There is a decrease of NDVWI until 17 July and a sharp increase until 26 July 2021, then a slight decrease till end of the period. However, all the values are positive and generally above 0.6. Hence the POI could be confirmed to be a water body pixel since all values of NDWI are positive.

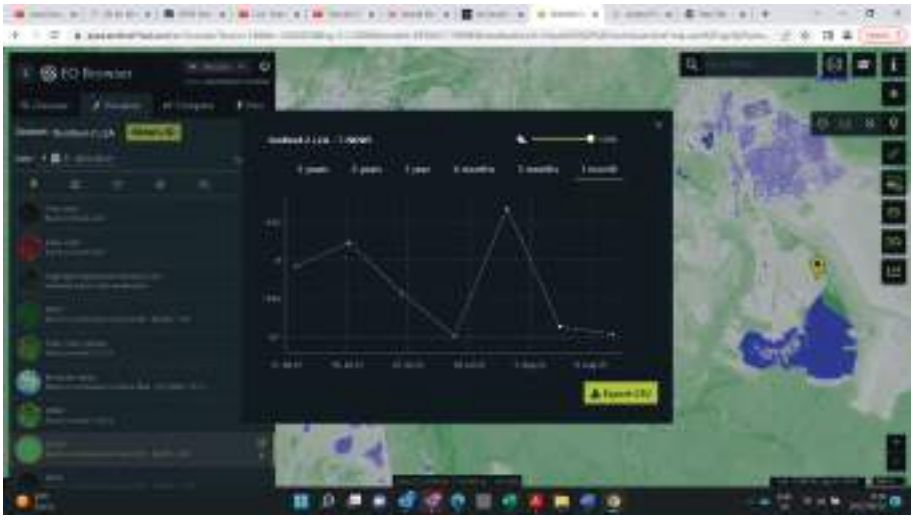


Figure 5b. *NDWI calculation for a month period at the point of interest for 2022, which is at the bare ground*

Figure 5b shows the graphical representation of all NDWI values calculated between mid-July and mid-August 2022. There is a slight increase of NDVWI until 16 July and a sharp decrease until 26 July 2022. Still the NDWI values are negative, then an increase from negative value to positive values, but these values are in the vicinity of 0. Then there is a decrease to the negative values. Generally, values for the bare ground are negative and are between -0,1 and 0. Hence the POI could be confirmed to be a bare ground in August 2022 since NDWI are generally negative.

Investigation into an agreement between the tailing pond area measurements and those based on Sentinel 2 satellite imagery for the selected months of 2021 and 2022 could have been useful to give more insight on the dynamics of the water body.

The results have shown that EO browser is an interactive geospatial tool and users do not have to know programming to go through it. The user sets dates and selects a POI of his choice and performs the rest. Hence, this tool is valuable for open pit mining management. Remote sensing is becoming increasingly prevalent for open pit mining monitoring, especially in areas where measured data are not always readily available. Water body variation monitoring via EO browser has been shown to be potentially a valuable instrument for open distance education to enhance topics covered in the mining programme.

CONCLUSION

The current study showed that the EO browser as a geospatial technology tool presents a user-friendly environment for open educational resources. The advantage of such a tool is that the end user is not bothered about the computational tasks that happen behind the scenes. Recent satellite images are obtained easily, and the user can select images based on cloudiness. The spatial and temporal detection of water bodies, i.e. effluent in the tailing pond of an open pit mine was carried out using the normalise difference water index. The Phalaborwa open pit mining area was used as a case study for quick assessment of the extent of the water pixel detection. The positive values of NDWI confirmed the presence of water pixels in the tailing pond, whereas the negative values suggested the bare ground. However, other water indices could be used for further assessment. It was clear that the OER could be used to monitor water pixels in an open pit mining space. The visualisation of areas, comparison of two different times can be easily done. The natural colour and the NDWI were the only aspects tested for this study, however many other options could be tested. The main characteristics for the learning objects were shown through good interaction, navigation and easier access to the EO browser. In many respects, OER has emerged as a potential online learning tool. This could be an opportunity for distance education learners to enhance mining related modules. It will be interesting to explore the whole area of Phalaborwa mine by including other visualisation parameters than the natural colour and NDWI. Other open mining parts of South Africa could be explored.

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Research Tendencies in the Discipline of Distance Education (2015-2022): Examination of Doctoral Theses in Higher Education in Turkey

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Abstract

The discipline of distance education is evolving and becoming mainstream, and this view requires examining research tendencies in the field. Motivated by this justification, it can be argued that understanding distance education to the fullest extent is possible partially through examining changes in theory and practice, as research conducted in the field reflects changes, dynamics, and perspectives. In this regard, the purpose of this paper is to present the research tendencies in doctoral theses in the Turkish higher education context with a specific focus on distance education. In line with this aim, a total of 265 doctoral theses published between 2015 and 2022 were examined through data mining and analytics approaches. The analysis of the titles through t-SNE analysis revealed four broad themes. These are: (1) more emphasis on learning processes; (2) the comparison of online technologies and online learning spaces; (3) a strong focus on educational technologies; and (4) the limitations emerging from comparative studies. The examination of the abstracts through text-mining identified the following themes: (1) the methodological vicious circle, the pursuit of methodological perfection, and lack of critical perspectives; (2) the tendency to use online [educational] technologies; (3) the comparison of distance and face-to-face education; and (4) the design of social interaction and communication in distance education processes. Finally, the analysis of the keywords through word clouds surfaced the following research tendencies: (1) Technology-supported distance education processes; (2) the wide use of educational technologies; (3) focusing on issues related to the learners in distance education. The paper concludes with implications and recommendations for future research directions.

Keywords: *Open and Distance Learning, Open Education, Distance Education, Online Learning, Educational Technologies.*

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INTRODUCTION

We need to understand the past, draw inferences from experiences, and create strategic roadmaps in that direction to understand the future and properly position ourselves in the scholarly landscape as researchers. The balance of power is determined by access to information and knowledge in today's [digital] information age, and distance education, as an interdisciplinary field, has adapted itself to this process as the world changes and develops, along with studies on the theory and practice through academic work. The dynamic nature of distance education makes it necessary to identify research trends and patterns in order to understand the field and develop a multidimensional understanding. This means that there needs to be a thorough understanding and interpretation of changes in the field of distance education. This is where this research comes in, looking at doctoral theses to find research trends and patterns that are emerging in this field. Accordingly, a doctoral thesis is:

> *"a formal and lengthy scholarly publication that reports on a research project or study, or an extended analysis of a topic. It is planned to be a work of original research, represent critical thinking, and it is written in partial fulfillment of the requirements for an academic degree or professional qualification. Dissertations [doctoral theses] are an important source of information because they tend to be original and recent, and are written to make a new and creative contribution to [their] field of study. In addition to being original and substantial, they explain [a] scientific procedure, and the statements presented should be correct and defensible in a logical and scientific sense." (Bozkurt et al., 2015b, p. 2).*

Based on the aforementioned arguments, this paper considers doctoral theses as valid and reliable sources of data and uses them to identify the research tendencies on distance education in Turkish higher education context. On this ground, the purpose of this paper is to present the research tendencies in doctoral theses in Turkish higher education context with a specific focus on distance education.

RELATED LITERATURE

The number of local and global studies on understanding distance education has increased since it became a mainstream discipline (Bozkurt, 2019), especially following the 2000s. Among the first studies to examine the process of change and transformation were Berge and Mrozowski (2001), who analyzed research trends in 1990 and 1999, and found that pedagogically oriented distance education applications triggered a shift in design approaches. Lee et al. (2004) examined the research trends that emerged between 1997 and 2002 and emphasized the need for new research methods and paradigms due to the changing nature of the distance education field. In their study covering the period between 2000 and 2008, Zawacki-Richter et al. (2009) reported that interaction and communication, instructional design, and the use of educational technologies in online environments are emerging themes.

According to Bozkurt et al.'s (2015a) study, it was revealed that the concept of openness in education and online learning processes is an increasing trend. Bozkurt and Zawacki-Richter (2021) conducted a follow-up study and analyzed studies conducted between 2014 and 2019 on distance education. They identified prominent research

trends and patterns in the areas of distance education and educational technologies, respectively (I) openness and access in distance education, (II) digital transformation, and (III) social learning design in online learning processes. As well as studies dealing with distance education from a holistic and global perspective, there are also studies dealing with distance education in the context of Turkey. Nevertheless, these studies (Aydin et al., 2020; Bozkurt et al., 2019; Zawacki-Richter et al., 2020) provide only a partial perspective or do not fully focus on distance education (Durak et al., 2022).

There are, however, other studies that examine the field of distance education from a holistic perspective by examining the theses produced within the context of Turkish higher education. For instance, Durak et al. (2017) investigated the master's these published between 1986 and 2015 and found that there was an increasing trend in the use of e-learning processes. The same study also found that, based on Zawacki-Richter's (2009) classification of research areas, education technology, instructional design, and student characteristics were the areas of research that were most extensively studied in distance education (Durak et al., 2017). In another study by Bozkurt et al. (2015b), it was noted that the distribution of the research areas (Zawacki-Richter, 2009) in doctoral theses between 1986 and 2014 was unevenly distributed, and the most studied research areas included instructional design, distance education systems and institutions, education technology, and learner characteristics. In addition to this finding, Bozkurt et al. (2015b) demonstrated a growing trend towards online and e-learning, and revealed that most doctoral theses lack a clear theoretical foundation.

In any research field, it is essential to reveal trends and patterns, to consider the subject from different angles, to complement one another, and to provide a holistic view. This study contributes to this goal by examining the doctoral theses within the Turkish Higher Education System. In this context, the purpose of this study is to conduct a follow-up study by examining doctoral theses that were written from 2015 onwards. A significant difference between the study conducted by Durak et al. (2017) is that the master's theses are not included in the study.

METHOD

To explore the research tendencies in the discipline of distance education, this study adopted data mining and analytic approaches (Fayyad et al., 2002) such as text mining (Feldman & Sanger, 2007) and t-SNE analysis (van der Maaten & Hinton, 2008) to explore patterns and thematic trends in doctoral theses on distance education between 2015 and 2022.

Sampling and Analysis Process

Doctoral theses in Turkish higher education were reviewed for this study. Turkish Council of Higher Education (CoHE) has an electronic thesis/dissertation database in which all theses and dissertations are available for researchers (Bozkurt et al., 2022). For this purpose, a total of 265 doctoral theses were included in the research corpus. To identify the related studies, the following keywords were used (see Table 1).

Table 1. Search strings

Database	Keywords
Turkish CoHE Thesis/Dissertation Center https://tez.yok.gov.tr/UlusalTezMerkezi/	"distance education" OR "distance learning" OR "distance teaching" OR "open education" OR OR "online learning" OR "online education" OR "online teaching" OR "e-learning" OR "electronic learning" OR "m-learning" OR "mobile learning" OR "u-learning" OR "ubiquitous learning"

After building the research corpus, three separate analyses were conducted. First, the titles of the selected doctoral theses were analyzed using t-distributed stochastic neighbor embedding (t-SNE) analysis. Second, lexical analysis of the abstracts was performed to visualize a thematic concept map and to identify major themes emerging from the research corpus. In the third and final stage, a word cloud was used to examine the keywords of the sampled doctoral theses. To increase reliability and validity, doctoral theses in the research corpus were coded by a second reviewer and those which were relevant were added to the final research corpus.

FINDINGS AND DISCUSSIONS

This section presents findings emerging through data mining and analytic approaches and then discusses by comparing and contrasting them using the related literature.

t-SNE Analysis of the Titles

The titles of doctoral theses are just as essential as the titles of other research studies in terms of how effortlessly they could be comprehended, the availability of the thesis in an easily accessible format, and how well they portray the research topic. Based on the analysis of the titles in the sampled doctoral theses (See Figure 1), the researchers have identified the following broad themes:

- More emphasis on learning processes
- The comparison of online technologies and online learning spaces
- A strong focus on educational technologies,
- The limitations emerging from comparative studies

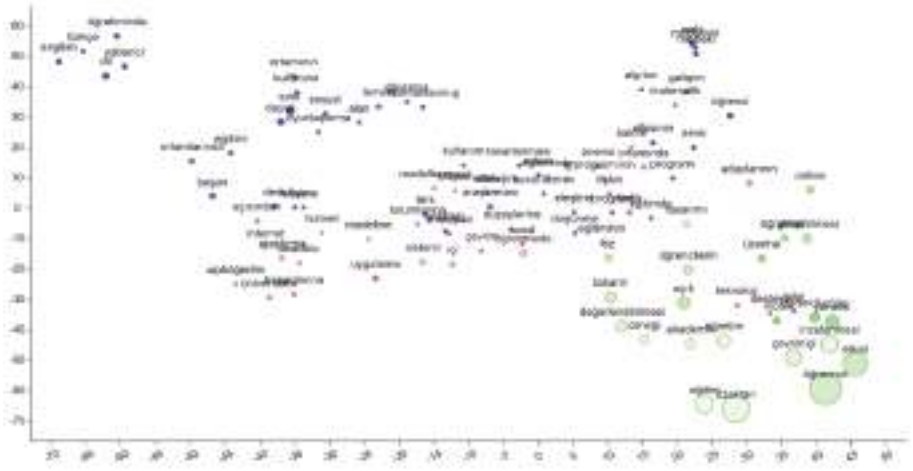


Figure 1. *t-SNE analysis of the titles ((Identified terms are in Turkish).*

In accordance with the outcomes of Zawacki-Richter and Anderson's (2014) research, the majority of the studies in the distance education field that have been published put an emphasis on teaching and learning. Supporting this view, Bozkurt et al. (2015a) show that the terms "learning" and "education" were major nodes in distance education research. According to the findings of the current study, educational technology is yet another subject that is highlighted in a major manner. As Figure 1 demonstrates, educational technologies are extensively reported, nevertheless, the vast bulk of attention is focused on online learning technologies and online learning environments.

The doctoral theses that were published in the field of distance education within the context of Turkish higher education between 1986 and 2014 were analyzed in the study that was carried out by Bozkurt et al. (2015b). The essential themes like "teaching" and "learning" that were highlighted in that study are comparable to the findings of this study. According to the findings of this study, even though the number of theses published in the field after 2014 has increased, notably in the wake of the Covid-19 outbreak in 2020, researchers continue to focus on issues that are reasonably similar to each other. On the contrary, Cakiroglu et al. (2019) examined peer-reviewed journal articles published between 2009 and 2016, and revealed that open educational resources and learner perspectives are among the most studied themes. This finding also implies that there are different research agendas for doctoral theses and publications targeting scholarly journals.

In addition to the above emerging issues, one of the findings obtained from the analysis of the titles is that comparison studies are preferred for doctoral theses. This scenario, which could also be viewed as limitation for doctoral theses research and further for the distance education field, also illustrates that comparative research tendencies have just become widespread in the field.

The Text Mining of the Abstracts

Research for doctoral theses carried out in the field is valuable because it reflects the current level of interest in a particular issue. What the summary sections provide is a reliable indicator of the work's value, primarily when it comes to presenting to the readers what these theses are about and how broad they are. Accordingly, this section is based on the following emerging themes (See Figure 2). These are:

- Methodological vicious circle, the pursuit of methodological perfection, lack of critical perspective,
- The tendency to use online [educational] technologies,
- Comparison of distance and face-to-face education,
- Design of social interaction and communication in distance education processes.

The findings indicate that abstracts of the doctoral theses can provide a wide overview of the setting of the research. As can be seen in the figure above, the most prominent points are *learning, internet, teaching, remote education, motivation,* and *research methodologies*. First of all, this image highlights the fact that research methodologies have not altered sufficiently to encompass the entire context of doctoral theses, which implies that qualitative and quantitative studies are the most frequently utilized methods in doctoral theses in distance education. Contrary to this outcome, leading studies advocate combining qualitative and quantitative methodologies to ensure a solid epistemological foundation for the research and a push forward into mixed methods research (Garrison & Shale, 1994; Zawacki-Richter & Anderson, 2014). As a result, deficiencies in the field, such as methodological vicious cycles, and a lack of critical perspective, may occur.

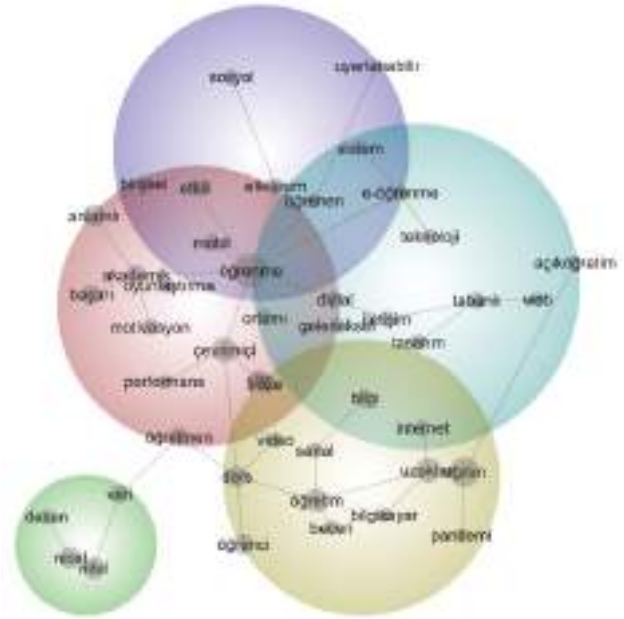


Figure 2. *Text-mining analysis of the abstracts (Lexical map is in Turkish).*

Secondly, it is apparent from these summaries that the usage of web technology in doctoral theses is quite prevalent. *System, e-learning, technology - learning, digital, web, design,* and *computer, remote, internet* are some of the most frequently used online technology phrases. Horzum et al. (2013) analyzed distance education studies in the Turkish context published between 2005 and 2011, and reported that the focus of these studies was web-based education and web technologies. Similarly, master's theses were studied in a different review study conducted within the context of Turkish higher education, and similar to this study's findings, educational technology research was the most prevalent (Durak et al., 2017). In contrast, Davies, Howell, and Petrie (2010) analyzed 308 master's theses and doctoral theses conducted at universities in North America between 1998 and 2007, and discovered that the number of technology-related theses dropped over time. Even though their research results do not match the findings of this study, this could be due to cultural or year-related differences.

According to the results of the analysis, the comparisons between face-to-face classroom settings and online learning environments are among the most important aspects of these studies. This situation is exemplified by the connections between *performance, face-to-face, online, learning, environment,* and *effective* terms. Additionally, the connections between *traditional, digital, learning, academic, success,* and *meaningful* concepts bring to light the comparison between face-to-face and distance practices. According to the study by Horzum et al. (2013), studies comparing distance education and face-to-face education were emphasized, and the results of these comparative studies demonstrated that there was no significant difference between the two modes of education. In terms of the intensity of the comparative studies, the findings of these two studies are similar.

What is more, according to the research analyses, one of the most noteworthy findings is the fact that the design of social interaction and communication processes in distance education is commonly chosen as the focus of these doctoral theses. This is one of the most interesting and important findings. The three terms "social," "interaction," and "learning" are the ones that come up most frequently in the research done on the subject of the design of social interaction processes. This finding implies that a shift from instructional design to learning design (Saçak et al., 2022) is appearing in the field of distance education.

The Text Mining of the Abstracts

Based on the analysis of the keywords through the word cloud, the following broad themes were identified (Figure 3).

- Technology-supported distance education processes,
- The wide use of educational technologies,
- Focusing on issues related to the learners in distance education.



Figure 3. *A word cloud of the keywords (Keywords are in Turkish).*

As can be seen in Figure 3, *distance, education,* and *learning* are the most frequently adopted keywords used in distance education related doctoral theses published between 2015 and 2022 in the Turkish context. Primarily, this finding supports the conclusions of the previous studies (Bozkurt et al., 2015b; Durak et al., 2017) in which *distance education/learning* is used as a generic term identifying the field (Bozkurt et al., 2015a). Similarly, *openness* and *online* are the terms strongly associated with distance education. Issues such as open education, open educational resources (OER), and open educational practice (OEP), for instance, play a significant role in distance education (Stracke et al., 2022a) to promote issues such as learner equity, sustainability, and access to education (Stracke et al, 2022b). Additionally, *online education* or *online learning,* which refers to distance education delivered through the Internet, expands opportunities by eliminating the barriers of distance and time (Simonson et al., 2015). Considering the close relationship of these concepts with the field of distance education, it is not surprising that these terms appeared among the most frequently used keywords. *Technology, mobile, video,* and *digital* are the other keywords that can be linked to each other in the word cloud. Based on the thematic connections identified, it seems that *educational technology* or *technology assisted learning environments* is a popular research area in dissertations analyzed in the current study. Moore and Kearsley (2005) emphasize that distance education is prearranged learning experiences where communication is facilitated by technology. Bozkurt et al. (2015a) and Bozkurt and Sharma (2022) also stress that the two are intertwined and technological advancements have revolutionized the way distance education is carried out. Furthermore, Aydin et al. (2020) reported that educational technology was one of the most prevalent themes in articles published in Turkish Online Journal of Distance Education (TOJDE) between 2000 and 2015. The conclusions of these studies (Aydin et al., 2020; Bozkurt et al., 2015a) are confirmed by the findings of the present research. The keyword analysis also reveals that themes such as *motivation*, *achievement*, *attitude, engagement*, *competence*, and *self-processes* are some of the most studied research areas. Accordingly, it is noteworthy that learners are the focus of most research. Self-processes including self-directed learning and

self-determined learning are characteristics of distance education (Blaschke, 2012). In addition, Bozkurt and Zawacki-Richter (2021) state that the issues including learners' motivation, attitudes, perceptions, and their competence have been mostly employed in research areas of distance education. Overall, the findings of the present study are in line with the earlier literature (Blaschke, 2012; Bozkurt & Zawacki-Richter) and imply that learners and their self-skills are critical and are still widely researched in doctoral theses in Turkish Higher Education context.

DISCUSSION AND CONCLUSION

This paper examined a total of 265 doctoral theses published between 2015 and 2022. The analysis of the titles through t-SNE analysis revealed four broad themes. These are: (1) more emphasis on learning processes; (2) the comparison of online technologies and online learning spaces; (3) a strong focus on educational technologies; and (4) the limitations emerging from comparative studies. The examination of the abstracts through text-mining identified the following themes: (1) the methodological vicious circle, the pursuit of methodological perfection, and lack of critical perspectives; (2) the tendency to use online [educational] technologies; (3) the comparison of distance and face-to-face education; and (4) the design of social interaction and communication in distance education processes. Finally, the analysis of the keywords through word clouds surfaced the following research tendencies: (1) Technology-supported distance education processes; (2) the wide use of educational technologies; and (3) focusing on issues related to the learners in distance education. The findings of the study can be concentrated into three meta-themes: These are:

- The use of (online) technologies and implementation of educational technologies,
- Increasing efforts on learning processes as a focal point on learners,
- The pursuit of methodological perfection rather than exploring the field with a critical perspective and theoretically forged practices.

In this regard, the following suggestions and implications can be considered for future research directions. Rather than focusing on certain aspects of the field (e.g., learners and learning processes), adopting a systems view and approaching from the perspective of learning ecologies can contribute more to the development and advancement of the field because such an approach would help to better explore the neglected research areas and better understand the topics that are frequently studied. Another issue is the strong focus on the use of technology, which signals the imposition of technology-deterministic future research directions that can harm and hamper the advancement of the distance education field. Besides, rather than comparing and contrasting distance education practices (e.g., distance education vs. face-to-face education), researchers can focus on issues that improve current practices, move the field into the future, and upgrade it by benefiting from the distilled knowledge of the theory and best examples of the innovative practices. In the end, it is not a race between distance education and face-to-face education, in contrast, it is (and should be) a collective and collaborative process to provide learning opportunities to those who demand it and liberate minds, and perhaps, souls, through well-designed learning processes..

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A Pre-pandemic Evaluation of Learning Environments in Three Open Universities in Asia

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Abstract

The COVID-19 pandemic swept through every country and forced many educational institutions to adjust and implement emergency remote teaching. However, open universities have been providing inclusive, and quality higher education to everyone through open and distance education even before the pandemic struck to serve learners who could not attend traditional in-person universities. While open universities vary in terms of providing their services to learners at a distance, many have shifted to e-Learning through cost-effective learning management systems (LMS). However, the way these LMS were used by open universities also varied because they were used in different contexts and fulfilled varying needs. Thus, these institutions need to benchmark to discover gaps for mutual improvement. In this regard, a comparative study of Allama Iqbal Open University (AIOU) Pakistan, the University of the Philippines -Open University (UPOU), and Universitas Terbuka, Indonesia was conducted for decision-makers to understand how they could improve in providing quality education to their learners through these platforms. The Delone and Mclean Model was used to systematically compare system, information, and service quality in eLearning delivered by the LMS of the three participating universities. Information gleaned from the study supported the universities' improvement as they faced the COVID-19 pandemic. The authors hope that the results and recommendations from this study will help educational institutions that have started to employ online or blended learning strategies due to the pandemic.

Keywords: *Learning Management System, MOODLE, Delone and McLean Model*

INTRODUCTION

One of the United Nations' sustainable development goals is Quality Education, which means "ensuring inclusive and equitable quality education and promoting lifelong learning opportunities for all (UNDP, 2015)". To achieve this goal of quality education formal educational institutes are struggling but to ensure inclusiveness and equity in education the formal education system is not sufficient and capable of meeting this challenge. To meet this challenge open and distance education universities are instrumental in widening the access of people to education and promoting lifelong learning at least in Asia; member universities of the Asian Association of

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Open Universities (AAOU) are known to be implementers and promoters of Open Educational Resources (OER) and free online courses.

AAOU, founded in 1987 is a non-profit organization of higher education universities that primarily deals in Open and Distance Learning (ODL). The purpose of this association is to promote ODL and strive for quality education and access for all. This allows people from all walks of life to be able to access the vast wealth of knowledge that these institutions, together with their partners, possess.

Learning Management Systems (LMS) have become essential in ODL due to the geographic distance between the student and the educator and recent advancements in information and communication technologies (ICT). Since it has been adopted and implemented by many ODL institutions, the interest in utilizing it as a Virtual Learning Environment (VLE) for eLearning has been increasing. In ODL, students face more administrative and technical problems than students in traditional universities. Being a type of information system (IS), the success of implementing an LMS can be measured using an IS success model proposed by Delone and McLean (2003). Comparing the success indicators of ODL institutions implementing the same LMS could help improve certain aspects of their operations and serve as an effective benchmarking activity.

Review of Related Literature

The literature is plentiful, with papers describing and comparing LMS implementations across universities. However, most of them were comparisons between *Moodle* and other learning management systems like *Blackboard*, *LAMS* and *ATutor* (see Bower & Wittmann, 2011; Carvalho et al., 2011; Lengyel et al., 2006), and other platforms like *Facebook* (see Jeljeli et al., 2018). Even more abundant were evaluations of Moodle in a single university like the ones done in Sri Lanka (Marikar, F. M., & Jayarathne, 2016), Jordan (Hasan, 2019), and the Netherlands (Conijin et al., 2016). The authors have not found any published study that systematically and comprehensively compared the success of LMS implementations of the same platform like Moodle among open distance Learning (ODL) institutions like open universities from different cultural and geographical contexts. The closest to this criterion was the work of Wang et al. (2013). They compared student perceptions of Moodle between a university in Taiwan and Portugal. However, these were residential universities that used the LMS for blended learning. The gap in literature led the authors to ask five research questions:

1. What are the general and technical differences among ODL universities implementing the same LMS platform?
2. How different is user satisfaction among ODL universities implementing the same LMS platform?
3. How different are users' intentions to use and net benefits among ODL universities using the same LMS platform?
4. How different is the quality of LMS implementation among ODL universities using the same LMS platform?
5. How is the quality of LMS implementation related to users' intention to use and user satisfaction in these universities?

Theoretical Framework

To analyze and compare the successful implementation of Moodle in three universities, a multidimensional model was chosen as the research framework. According to (Wu & Wang, 2006), DeLone and McLean IS success model is one of the multi-dimensional models used in many different fields. However, the concept of measuring the success of information systems is still not very mature. This model is based on six dimensions. This comparative study will primarily subscribe to the Delone and Mclean Information Systems Success Model, which investigates the system quality, information quality, service quality, user satisfaction, intention to use, and net benefits. The model was recently proven valid and reliable (Sirsat & Sirsat, 2016).

Figure 1 shows the components of the Delone and McLean IS success model and their hypothesized directional relationships.

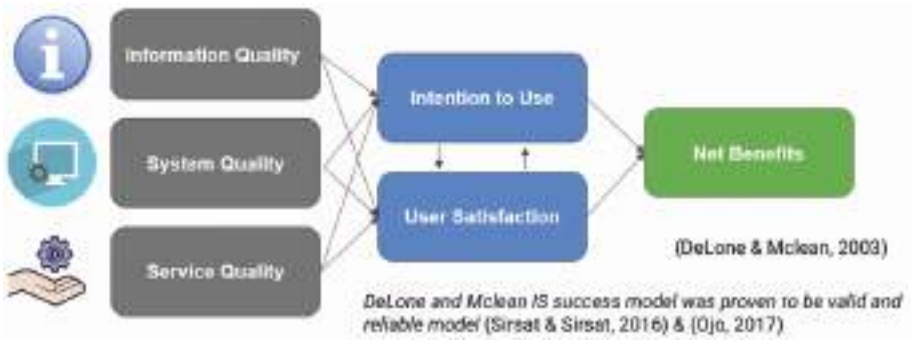


Figure 1. *DeLone and McLean IS Success Model*

System Quality

System Quality measure focuses on the usability of the system, and it also covers the performance characteristics of the system under investigation. System quality may cover access, convenience, customization, data accuracy, ease of learning, ease of use, response time, reliability, interactivity, system accuracy and system features etc.

Information Quality

This measure of success is more related to output. The output required by the user and the output generated by the IS. The closer these two are, the higher the success rate and higher the satisfaction of the user.

Service Quality

In this measure of success factor, technical support or help provided by the IT department is covered. This may include assurance, empathy, flexibility, interpersonal quality and responsiveness of the support team.

User Satisfaction

It covers the level of satisfaction while using an IS. It is a very important measure of success. User satisfaction is not an isolated measure it is interlinked with other measures like service quality.

Intention to Use

This measure indicates the frequency, the usage or the intention of the user in utilizing the system. This also includes actual use, daily use, nature of use, number of transactions etc.

Net Benefits

This measure is the summary of all previously mentioned measures. This is closely related with the benefits of all stakeholders involved. (Urbach & Muller, 2012)

METHODOLOGY

The study was primarily conducted at the University of the Philippines Open University when two of the authors stayed in the Philippines as visiting researchers in 2019. The study followed the Delone and Mclean IS Success Model as a framework but added general and technical comparisons to investigate further factors that could have contributed to differences in relevant variables. This section starts with a restatement of the research questions into research objectives, followed by the recruitment of participants, a description of instruments, data collection methods, and analysis performed to answer each research question.

Research Objectives

This comparative study aimed to achieve the objectives:

- To compare the general and technical aspects of Moodle implementations in AIOU, UPOU & UT.
- To compare user satisfaction from LMS implementations across the three universities.
- To compare users' intention to use and net benefits across the three universities
- To compare the quality of LMS implementations across the three universities.
- To determine associations between quality dimensions, satisfaction, intention to use, and net benefits.

Participants

The authors interviewed ICT Directors of each university to collect data regarding general and technical aspects of their Moodle infrastructure. The survey was given to participants who were either faculty members or students of the three universities. There were a total of 15,566 respondents. Figure 2 shows bar plots that illustrate the

distribution of participants in various categories. UT had the most respondents (n = 14,526), followed by AIOU (n=775), and UPOU (n = 265). There were 13,372 students and 2,194 faculty members among the participants. There were 8,757 females and 6,785 males among the participants, while 24 were identified as neither of the two. Finally, most of the participants were between 21 and 30 years old, while the least number of participants were those that were older than 50.

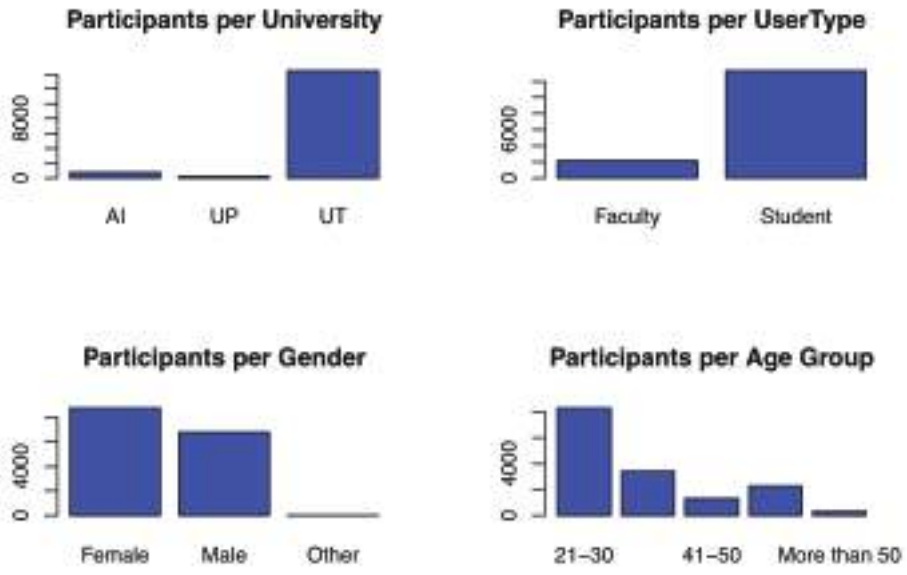


Figure 2. *Bar Plots of Survey Participants*

Data Collection

Two major instruments were used to collect data. The first instrument was an interview protocol containing questions categorized in three areas: general, LMS-technical, and LMS-academic. General questions included university-related details such as the year it was founded, the number of programs, the number of study centers, and when they started using their LMS. LMS (MOODLE) technical questions included server details such as the server RAM and operating system, as well as Moodle installation details such as the theme, version, and the availability of some plug-ins like learning analytics or the mobile application. LMS (MOODLE) academic questions were just a checklist of available academic activities that the LMS provided, such as badges, forums, exams, feedback, quizzes, and attendance. These interview protocols were used to interview the three ICT directors.

The second instrument was a survey questionnaire containing the Delone and McLean IS success model items. The online survey was distributed among students and faculty members of the three universities. Each item was operationalized as a Likert-type statement with 1 representing strong disagreement and 5 representing strong agreement.

Data Analysis

Data from the interview was summarized by the authors. Meanwhile, survey data were processed using R-Studio using the R standard libraries (R Core Team, 2012) for statistical analysis and additional libraries like ***dplyr*** (Wickham et al., 2022) for data manipulation and ***ggplot2***(Wickham, 2016) for sophisticated plotting. The mean and standard deviation of participants from the three universities were computed for descriptive statistics, while an analysis of variance was used to compute for statistical significance. The post-hoc method used to carry out pair-wise comparisons was Tukey's honest significant difference (HSD) as sample sizes were unequal among the three universities.

FINDINGS

We present the findings according to our research objectives.

General and Technical Differences among Universities

The summarized data regarding the general details of each university is presented in Figure 3. AIOU is the oldest among the three universities, while UPOU is the youngest. AIOU is also considered a mega-university with approximately 600,000 enrollments per term, while UPOU only has about 4,000 enrollments. The figure also shows that UT had the most students and faculty members using the learning management system.

General Comparison	AIOU Pakistan	UPOU Philippines	UT Indonesia
Founded	[illegible]	1995	1984
Online / Using MOODLE since	2012	2007	2007
Per Semester Student Enrollments	[illegible]	~4000	382604
No. of Programs	200+	31	38+
No. of Courses	~ 2000	2767	1170
Regional Campuses / Centers	48	3	39 + 1 for Overseas Students
Study / Exam Centers	~ 1170	-	-
Registered Part-time Tutors / Faculty Incharge	~ 10000	445	12000
Online / e-Tutors	400	445	5000
Registered Students on MOODLE	3130	16585	267803
Active Students on MOODLE	1670	6062	120000-150000
Active Tutors on MOODLE	330	253	5000
MOODLE Local Name	OLIVE / AIOU	MyPortal	UT Online

Figure 3. *General Information of AIOU, UPOU, UT*

The summary in Figure 4 presents data regarding technical details of the LMS implementation of each university. Both UPOU and UT used the 3.5 version of Moodle while AIOU used 3.3.1 during the data collection period. AIOU was using an Ubuntu Linux distribution while UPOU and UT were both using CENTOS. Among the three universities, UPOU's server utilized the lowest RAM at 24 GB and hard disk space at 192 GB. It was the only university that used outsourced technical support services regarding server management of the LMS instance. However, it was only AIOU who used their in-house physical servers to host their LMS. Moreover, It was

interesting to note that AIOU had its university website developed using ASP classic while UPOU and UT both utilized content management systems like WordPress and Drupal. Mobile applications for their Moodle instance were available for UPOU and UT. Plagiarism plug-ins like Turnitin were in full implementation only in UPOU. None of the three universities had an accessibility or support plug-in for specially-abled students.

MOODLE Technical	AIOU Pakistan	UPOU Philippines	UT Indonesia
MOODLE Version	3.3.1	3.5	3.5
MOODLE Server Type	Physical	Virtual	Virtual
MOODLE Server OS	Ubuntu 16.04	CentOS	Centos 7.5
MOODLE Server RAM	32 GB	24 GB	4x12GB for DB & 4*64GB Web
MOODLE Server HDD	960 GB / 1 TB	192 GB	8TB
MOODLE Learning Analytics	No	No	Yes
MOODLE Mobile Application	No	Yes	Yes
Turnitin / Plagiarism on MOODLE	No	Yes	Limited
MOODLE Technical Administration	In house	Out-sourced	In House
MOODLE Hosting	In house	Cloud	Cloud
Technical Staff Managing the MOODLE	4	1	3
University Website Platform	Classic ASP / IIS6 Server	Wordpress / PHP / MySQL	Drupal / PHP / MySQL
Accessibility Support for Special Students in MOODLE	No	No	No
MOODLE Theme	Standard	Standard	Customized

Figure 4. *Technical Details of LMS Implementation in AIOU, UPOU, UT*

The summary in Figure 5 presents data regarding academic details of the LMS implementation of each university.

MOODLE Academic	AIOU Pakistan	UPOU Philippines	UT Indonesia
MOODLE Video Conferecing	BBB	Zoom, Google Hangouts	BBB, Skype4Business, MS Teams
MOODLE Badges	No	No	No
MOODLE Competencies	No	No	No
MOODLE Attendance	Yes	No	Yes
MOODLE Quizes	No	Yes	Yes
MOODLE Assignments	Yes	Yes	Yes
MOODLE Chat	No	Yes	Yes
MOODLE Forums	Yes	Yes	Yes
MOODLE Exam	No	Yes	No
Standardization of Learning Resources	No	No	Yes
Liberty for Tutors to reuse or create their own learning resource	Yes	Yes	Limited
Student Feedback on MOODLE	No	No	Yes
Tutor Feedback on MOODLE	No	No	Yes

Figure 5. *Academic Details of LMS Implementation in AIOU, UPOU, UT*

AIOU solely used Big Blue Button (BBB) as the primary tool for synchronous meetings. UT offered Skype for Business and MS Teams as additional tools while UPOU offered Zoom and Google Hangouts. Only UT provided student and tutor feedback via the LMS

Satisfaction among LMS users in Three Universities

Figure 6 shows the boxplot of user satisfaction among three universities.

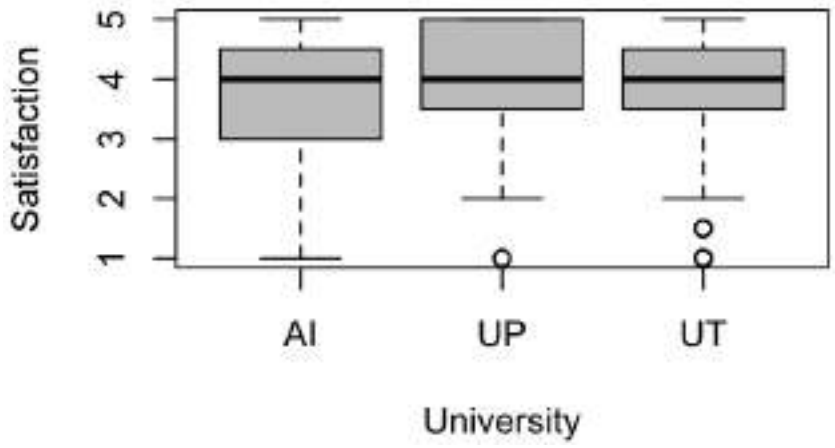


Figure 6. *Boxplots of User Satisfaction in LMS Implementation among Three Universities*

The analysis of variance resulted in a statistically significant difference in the satisfaction ratings among the three universities $F(2, 15{,}563) = 75.57$, $p < .01$. Post hoc comparisons using the Tukey HSD test indicated that the mean of satisfaction ratings given by participants in UPOU ($M = 3.98$, $SD = 0.94$) and UT ($M = 3.98$, $SD = 0.78$) were significantly higher than the mean of satisfaction ratings from AIOU ($M = 3.54$, $SD = 1.26$) both at $p < 0.01$.

However, mean satisfaction ratings from UPOU did not significantly differ from mean ratings from UT.

Intention to Use and Net Benefits among LMS users in Three Universities

Figure 7 shows the boxplot of intention to use and net benefits among three universities. The analysis of variance resulted in a statistically significant difference in the intention to use ratings among the three universities $F(2, 15{,}563) = 12.76$, $p < .01$. Post hoc comparisons using the Tukey HSD test indicated that the mean of satisfaction ratings given by participants in UPOU ($M = 3.88$, $SD = 0.83$) and UT ($M = 3.68$, $SD = 0.79$) were significantly higher than the mean of ratings from AIOU ($M = 3.60$, $SD = 1.07$) at $p < 0.01$ and $p < 0.05$ respectively.

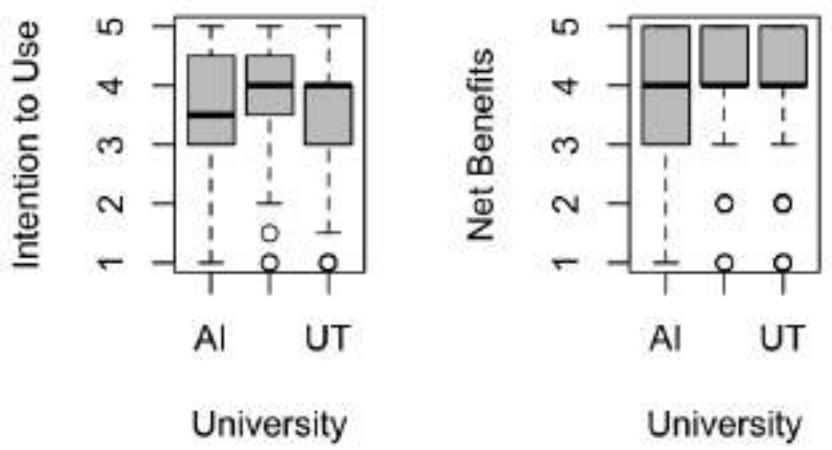


Figure 7. *Boxplots of Intention to Use and Net Benefits in LMS Implementation among Three Universities*

However, the mean intention to use ratings from UPOU did not significantly differ from the mean ratings from UT.

The analysis of variance resulted in a statistically significant difference in the net benefits ratings among the three universities $F(2, 15{,}563) = 57.49$, $p < .01$. Post hoc comparisons using the Tukey HSD test indicated that the mean of satisfaction ratings given by participants in UPOU ($M = 4.07$, $SD = 0.96$) and UT ($M = 4.07$, $SD = 0.82$) were significantly higher than the mean of ratings from AIOU ($M = 3.73$, $SD = 1.35$) both at $p < 0.01$.

However, mean net benefits ratings from UPOU did not significantly differ from mean ratings from UT.

Quality among LMS users in Three Universities

Figure 8 shows the boxplots of information quality, service quality, and system quality in three universities.

The analysis of variance resulted in a statistically significant difference in the information quality ratings among the three universities $F(2, 15{,}563) = 29.17$, $p < .01$. Post hoc comparisons using the Tukey HSD test indicated that the mean of satisfaction ratings given by participants in UPOU ($M = 4.06$, $SD = 0.85$) and UT ($M = 4.00$, $SD = 0.75$) were significantly higher than the mean ratings from AIOU ($M = 3.79$, $SD = 1.08$) both at $p < 0.01$.

However, mean information quality ratings from UPOU did not significantly differ from mean ratings from UT.

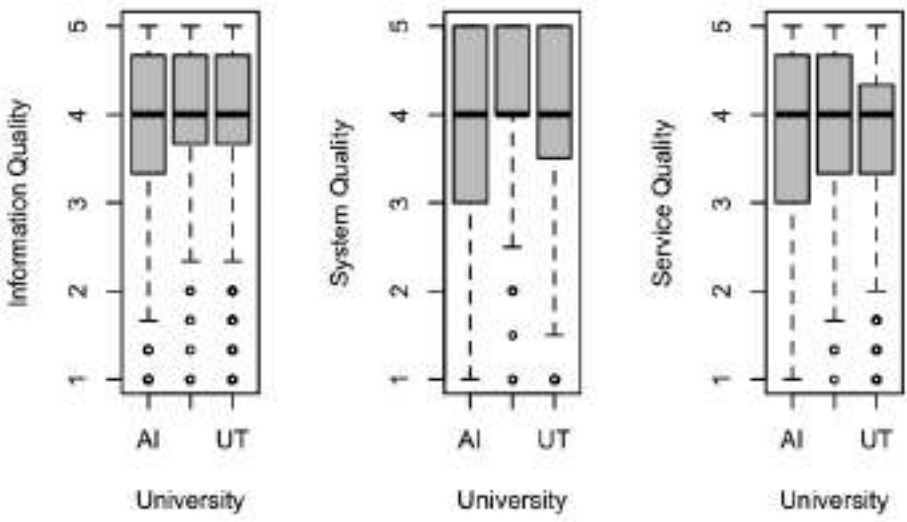


Figure 8. *Boxplots of Quality in LMS Implementation among Three Universities*

The analysis of variance resulted in a statistically significant difference in the service quality ratings among the three universities F(2, 15,563) = 8.40, p < .01. Post hoc comparisons using the Tukey HSD test indicated that the mean of satisfaction ratings given by participants in UPOU (*M* = 3.96, *SD* = 0.82) and UT *(M* = 3.80, *SD* = 0.76) were significantly higher than the mean ratings from AIOU (*M* = 3.73, *SD* = 1.09) at p < 0.01 and p < 0.05 respectively. Furthermore, mean service quality ratings from UPOU were statistically significantly higher than ratings from UT at p < 0.01.

The analysis of variance resulted in a statistically significant difference in the system quality ratings among the three universities F(2, 15,563) = 85.4, p < .01. Post hoc comparisons using the Tukey HSD test indicated that the mean of satisfaction ratings given by participants in UPOU (*M* = 4.14, *SD* = 0.92) and UT *(M* = 4.05, *SD* = 0.77) were significantly higher than the mean ratings from AIOU (*M* = 3.67, *SD* = 1.21) both at p < 0.01.

However, mean system quality ratings from UPOU did not significantly differ from mean ratings from UT.

Relationship between Quality, Intention to Use, and Satisfaction

Figure 9 shows a table of effect sizes of correlations between variables. Satisfaction was found to be positively and strongly correlated with information quality, r(15,564) = 0.70, *p* < 0.01; service quality, r(15,564) = 0.76, *p* < 0.01; and system quality, r(15,564) = 0.69, *p* < 0.01.

Intention to use was found also to be strongly and positively correlated with information quality, r(15,564)=0.55, *p* < 0.01; service quality, r(15,564)=0.62, *p* < 0.01; and system quality, r(15,564)=0.69, *p* < 0.01.

Finally, net benefits ratings were found to be strongly and positively correlated with information quality, r(15,564)=0.63, $p < 0.01$; service quality, r(15,564)=0.66, $p < 0.01$; and system quality, r(15,564)=0.62, $p < 0.01$.

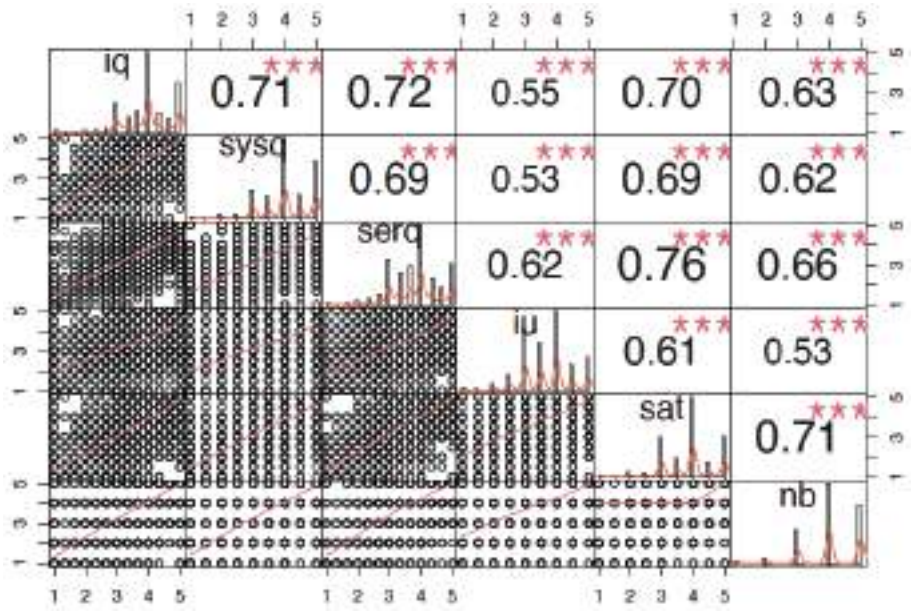


Figure 9. *Correlational Table of Variables*

DISCUSSION AND CONCLUSION

This study investigated the implementation of a learning management system among three open universities in Asia before the COVID-19 pandemic began. It highlighted general and technical differences that may have explained the varying degrees of information quality, service quality, system quality, user satisfaction, intention to use, and net benefits which are indicators of the successful implementation of their learning management system.

General and technical comparison showed that while UPOU was a relatively younger university than AIOU, it was found to be more successful in implementing the LMS based on the significantly higher ratings in all IS success indicators. This could be brought about by the scale by which UPOU started implementing online learning. Rogers (2003) identified time as an important factor for the successful diffusion of an innovation like an LMS. Innovativeness or the type of adopters in a university may have determined the success of its LMS implementation. Since UPOU started with the LMS early in 2007, the innovation might have reached the late majority and laggards. The same could be said for UT, which started adopting the LMS in 2003. As for AIOU, they started only in 2012. This could mean that the innovation must have

only reached the early adopters which was reflected by the huge difference between the number of users who registered in their LMS (2,130) and their total enrollment per semester (~600,000).

Another factor may have been the in-house implementation of the LMS. Even with a good team, the internet connectivity issues in all three countries may have caused the system quality to suffer. This may have been the case for AIOU in 2019. UPOU and UT used virtual servers that offered redundancy and outsourced maintenance for their LMS. Finally, service quality ratings of UPOU were significantly higher than both AIOU and UT which may have been explained by the outsourced technical administration of the LMS. UPOU's ICT center had its key people who handle system administration of the LMS instance. However, its provider was able to help with other technical issues that the university's staff might be too busy to handle. The balance between data privacy and service quality may have been ensured using data privacy, non-disclosure, and other legal agreements. It may also be explained by the population of the university. Both UT and AIOU have been serving a larger population than UPOU. Effective scaling may be a lesson that the smaller university could learn from its more established counterparts.

Moreover, the strong correlations supported the model that was proposed by Delone and McLean. This can be further validated using confirmatory factor analysis and structural equation modeling, but it is currently not in the scope of this study.

The study showed that. AIOU, UPOU and UT may collaborate to develop or enhance their Learning Management System user interface and user experience. Furthermore, accessibility needed to be enhanced.

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Relevance of Digital Technologies in Scaling Education İnnovations: The Case of Tanzania

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Abstract

This study explores the relevance of digital technologies such as apps, learning platforms, online collaboration tools, delivery systems (internet, websites, mobile) or a combination of these in scaling education innovations. An innovation is a new or improved product (good or service), process, or method in business practices. In education, innovations are observed in curriculum, teaching methods, institutional structures, and educational processes (to mention a few). Studies exploring the relevance of digital technologies in scaling education innovations are limited, making the study of interest to explore. Using two education innovations that successfully passed the proof of concept, the study assesses the relevance of technology along the five trajectories of scaling (depth, breath, spread, ownership and problem definition). Study findings establish that digital technologies, particularly learning management systems, mobile apps, WhatsApp and web-conferencing tools (particularly Google meet and Zoom) as applied in these innovations are relevant across all the scaling trajectories. Study findings contribute to the broader theme of scaling education innovation relevant for addressing sustainable development goal 4, of improving access to quality education. Further research regarding the scaling of existing education innovation through partnerships needs to be explored.

Keywords: *scaling, digital technologies, education innovations*

INTRODUCTION

Technology has been integrated in almost all sectors of the economy and has been applied in various education innovations. An innovation is a new or improved product (good or service), process, or method in business practices, that if executed produces results particularly significant positive change(s) to the lives of the beneficiaries. In education, innovations can be systemic and may include new theories, practices, pedagogies, processes (Thomas, Bodilly, Galegher and Kerri, 2004; Findikoglu & Ilhan, 2016; Serdyukov, 2017), as well as institutional structures and programmes (Mykhailyshyn et al., 2018), to mention a few. According to OECD (2016), the education sector is comparably more innovative in some ways compared to other sectors, with most countries having innovations in teaching methods. Besides improving the quality of teaching and learning across settings, education innovations enhance equity of learning opportunities and equality in learning outcomes (OECD, 2016). On the quality of learning, education innovations increase; a) productivity where

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more outcomes (knowledge, skills, competencies, individual behaviour and attitudes) are achieved with less effort and; b) efficiency, the balance between resources and time invested to obtain results (OECD, 2016; Serdyukov (2017). Indeed, educational technologies such as websites, web-conferencing tools, learning management systems and mobile apps have transformed the way innovations are piloted, scaled up and preserved (Van Ouytsel et al., 2014). The transformations are evidenced in the growth of open education resources (OERs) and massive open online courses (MOOCS) (OECD, 2016) making it possible for international collaborations while at the same overcoming geographical and cultural learning barriers. Teachers are also tailoring their approaches to enable learning across different time zones.

Besides diverse technological advancements across sectors, improvements in learning outcomes in terms of students' performance as well as enhanced equality and equity on the provision of quality education are not that significant (OECD, 2016; Zennouche, Zhang & Wang, 2014). On the one hand, teachers as change agents are not involved in the design of the innovations (Vvob, 2021; OECD, 2016; Looi & The, 2015). On the other hand, education innovations that have passed the proof of concept are not scaled up to benefit the broader population due to limited financial resources which affect their sustainability. Indeed, most education innovations are projects and/or programme interventions and hence limited by short term funding that does not allow for scaling up (Teh & Looi, 2015). Scaling refers to the implementation and dissemination of innovative interventions (successful policies, programs, project interventions or designs) that have passed the proof of concept to enable for a wider outreach (Hartmann & Linn, 2008; Ostlin, 2016).

Coburn (2003), Clark & Dede (2009) and Cooley (2016) provides dimensions for visualizing scaling, five of which are adopted for this study; spread (extending the innovation to new geographic locations and new categories of clients); breadth of coverage (extending the innovation to more people in currently served categories and localities); depth of services (extending additional services to current clients); ownership (decentralizing the ownership of the innovation and/or change the innovation and share to other potential adopters); and problem definition (extending current methods to new problems). While digital technologies facilitate coordination among different actors particularly the initiators (founders of the innovation), enablers (supporting system), competitors (other providers of similar related innovation), and the impacted (the beneficiaries) along the scaling system; (Price-Kelly, van Haeren and McLean, 2020), studies exploring the relevance of digital technologies in scaling education innovations along the dimensions are limited, views also shared by Serdyukov (2017) and OECD (2016). According to Cooley (2021) scaling up an intervention requires "drivers" (particularly champions, incentives, technology, market and/or community) to push the scaling process, "enabling conditions" (fiscal, institutional and political as platforms and structures to support the process) and partnerships (collaborations among different actors, institutions, researchers, NGOs) whose presence or absence can significantly spearhead and/or stifle the scaling process.

This study explores the scaling dimensions of two evolving education innovations considering the Tanzanian context to establish how they apply digital technologies along the process. The study will address the question; how do innovations apply

digital technologies to scale up along the five dimensions? The Tanzania education system comprises 2-7-4-2-3+ meaning two years of pre-primary, with one year being compulsory, seven years of primary education, four years of low-level (ordinary) secondary education, two years of high-level secondary education and three-plus years of university education. In this regard, exploring the role of technology as a driver and an instrument towards successful scaling of education innovations is relevant with the findings offering further guidance along the process among different actors, views also supported by Serdyukov (2017).

REVIEW ON SCALING FRAMEWORKS

The literature shows that it is challenging to adapt and scale up successful education innovations to a variety of settings effectively and sustainably (Moore, 1999; Dede, Honan & Peters, 2005; OECD, 2016; Vvob, 2021). According to Vvob (2021), the challenges emanate from the involvement of a high number of decision-makers along the scaling process, with teachers, the centrality to the process being not well integrated, views also shared by OECD (2016) and Looi & Teh (2015). Additionally, the way the innovations are designed, piloted and supported makes it challenging for the government systems (rules and regulations) to adopt and fit them within existing resources, institutional structures and incentives. Indeed, the government systems become adamant to change, especially when additional resources are called to scale up successful innovations (Fuad, Musa and Yusof, 2020). There also exist contextual factors that affect the desirability, practicality, and effectiveness of potential education interventions/innovations in the classroom setting such as teacher's ability to own and practice the innovation in terms of content preparation, pedagogical styles and classroom culture with these contextual factors making it difficult to adopt innovations in new settings (Dede, 2016; Schneider & McDonald, 2007).

Research on the scaling of education innovations further focused on frameworks that offer guidance along designing intervention for scaling (Coburn, 2003; Clark & Dede, 2009; Cooley, 2016; 2021; Price-Kelly, van Haeren and McLean, 2020; Kohl, 2021), the scaling process (Petersen and Smith, 2011) and core functions meant to support the scaling process (Crouch and DeStefano, 2017). Petersen and Smith (2011) view scaling as a sequential process comprising four stages; research, development, evaluation and scaling with each needing separate funding approaches. Crouch and DeStefano (2017) identified three core functions in terms of capacities that education systems should focus on to support large-scale educational innovations, particularly (1) setting and communicating expectations among the innovation actors, (2) monitoring and guaranteeing accountability for meeting those expectations, and (3) intervening to ensure the support needed to assist students and schools that are struggling.

Price-Kelly, van Haeren and McLean (2020) developed four guiding principles for scaling an impact which include: justification, coordination, dynamic evaluation and optimal scale. The justification principle places focus on the need for scientific evidence prior to scaling of an innovation to understand its feasibility including the relevance of the innovation considering the values of beneficiaries. Coordination involves the act of supervising and managing the activities of different actors along the scaling process. Dynamic evaluation

includes conducting on a continuous basis assessment to measure progress and learn best practices along the scaling process. The three principles are key to realize optimal scale of the innovation, which is measured on the impact the innovation has on the magnitude (in terms of size, quality, number beneficiaries, and its importance as judged by stakeholders), variety (health, economic and environmental impacts of the innovation), sustainability (long lasting impacts of the innovation; and equity (benefits and/or harm the innovation brings to different sub-groups based on gender, religion, or class).

There also exist crosscutting issues affecting scaling of education innovations, which include among others the relevance of systems, particularly the decision and system capacity of governments to adopt the innovation, demand-driven innovations and digital technologies (Kohl, 2021). Accordingly, the pillars of the 21st century learning are digital technological innovations ranging from web-enabled information storage and retrieval systems such as MOOCs, wikis, blogs; digital resources, eTutoring, social networking and mobile learning to mention a few (Holmes et al. 2018; Lynch, 2017; Sijing and Lan, 2018). The fourth industrial revolution also integrates artificial intelligence in education as evidenced on the development of customized learning experiences and assessment-based learning outcomes (Becker, Cummins, Davis, Freeman, Giesinger and Ananthanarayanan, 2017; Holmes, Bialik, & Fadel, 2019). According to Groth, Nitzberg & Zehr (2019) and UNESCO (2019), these resources are embedded in infrastructure such as learning management systems and are designed innovatively building on best practices using quality international and national standards.

Building on the frameworks, digital technologies are relevant towards the scaling of education innovations as they enable for realization of four levels of technology integration. According to Puentedura (2013; 2014); the levels also abbreviated as SAMR framework include a) Substitution, the lowest level of technology integration where technology acts as a direct tool. In this regard, curriculum content can be added in a learning management system to substitute a reference list for students without further interaction along the learning process; b) Augmentation, where technology acts as a direct substitute tool with functional improvement such as the use of microsoft word for checking grammar; c) Modification, where technology enables the realization of learning objectives through sharing of resources via google docs, blogs and emails enabling for online collaboration and peer learning among learners; and d) Redefinition, the advanced level of integration where technology allows for creation of new tasks that without it, they could not have been possible to be realized. Typical examples include creation of Open Education Resources (OERs) and online courses that can be shared beyond the physical classrooms. According to McKnight et al (2016), content creation enables the development of the four Cs, critical thinking, creativity, collaboration and communication to students as key skills in the 21st century.

Related Works

Studies linking technology and education innovations have focused on conceptualization of education innovations as products, processes, strategies and approaches that significantly improve classroom practices (see OECD/Eurostat, 2005; OECD, 2016; Bocconi, Kampylis, and Punie, 2012; Pinasu, 2014; Fuad, Musa

& Yusof, 2020). Accordingly, three types of education innovations are observed (see OECD/Eurostat (2005); a) products or services innovations (example new syllabuses, textbooks or educational resources); b) innovations in technology, tools or instruments (new processes for delivering services such as use of ICT in e-learning services, new learning management systems, new online courses, or new pedagogic tools); and c) innovations in knowledge or methods (such as new pedagogies, new administrative management systems for admissions or other formalities, or the use of ICT to communicate with students and parents). Other studies have focused on the types of educational technologies (see Popescu and Crenicean, 2012; Mykhailyshyn et al., 2018), characteristics of education innovations (Wai, 2017), and technology as a driver for innovation (Serdyukov, 2017; OECD; 2016; Ng, 2009). According to Popescu and Creniecean (2012), innovations in education can be a) technical; meaning the use new technologies such as Zoom, learning management systems or mobiles in education to deliver learning, b) conceptual; that is the introduction of new programmes, courses, methodology; and c) relational; meaning bringing better ways of communication interaction among different educational stakeholders within and outside institutions.

Serdyukov (2017) conducted a systematic review regarding education innovations in the US and the related hurdles. The study recommended the need to increase the scale and transformation rate of innovations in the education system using technology among others, given the dearth of research in this direction. A systematic review by Panirsilvam (2017) further established; a) macro factors particularly communicating the scaling strategy, institutional structures (a hybrid approach involving both top-down and bottom-up; and supporting structures (continuous professional development and capacity building to the adopters of the innovation) and b) micro factors (attitude towards the innovation especially among the educators and teachers) to be key towards successful scaling of of education innovations with most innovations having positive students' outcomes as measured based on their academic performance. Zennouche, Zhang & Wang, (2014) further found out that, a) individual factors particularly personality, motivation and cognition ability; b) group level factors (structure, climate, leadership and task characteristics); and c) organizational factors particularly structure, culture, strategy and resources to have influence on fostering or hindering innovations regardless of the context.

The studies came to a conclusion that education innovations are key towards the realization of SDG 4 if they are successfully scaled up. Indeed, education innovations that integrate digital technologies facilitate the teaching and learning processes by providing platforms for improved content presentation (Sedukyov, 2017; OECD, 2016). They also strengthen collaboration and communication among stakeholders (Popescu and Creniecean (2012). Education technologies also enable for expansion of education products and services geographically across different levels of education with this aligning to the "spread" dimension of scaling (Mykhailyshyn et al., 2018; OECD, 2016). Education innovations further enhance individualized learning (Ng, 2009; Smith, 2009) and brings about improved education results (Fuad, Musa & Yusof, 2020) measured at the a) output level considering the number of beneficiaries benefiting from an innovation, example the number of teachers benefiting from a continuous professional development training; b) outcome level which considers

intermediate results particularly when the direct beneficiaries put into practice the knowledge and skills emanating from their direct participation in the innovation activities. For example teachers can train other colleagues about a new improved pedagogy after attending a capacity building training; and c) impact level, also termed as long-term results where all the trained teachers (direct and indirect) change their practice by applying the new improved pedagogy, with changes observed on the learners improved attitude towards learning, improved skills and improved academic performance) as a result of the innovation.

METHOD

Research Design, Study population and Sampling

The study was qualitative and used a case study design. Case study approaches enable in-depth description of a particular case or multiple cases where a researcher gathers detailed data from a small sample with the information enriching the understanding of the investigation at hand (Denzin & Lincoln, 2005; Creswell, 2007; Yin, 2014). The newness and limited awareness among the stakeholders regarding the concept of scaling and the application of technology in the process has also made it relevant to use qualitative approach in this study.

The target population for the study included education innovations that have had impact and have existed in the Tanzanian context over the past ten years. According to Cooley (2016) and Kohl (2021), successful scaling up of a pilot intervention to national application requires multiple projects over a period of 15 years. It was however not possible to get two innovations that existed over the past 15 years, due to sustainability aspects, except for one this study. Likewise, data available to establish the number of education innovations has been a challenge in education systems (Foray & Raffo, 2014). The study therefore selected two education innovations that have been piloted from 2003 (for case 1) and 2012 (for case 2) and have had impact on policy reforms as established from their evaluation studies (HELVETAS, 2022; Shule Direct, 2018). Four participants (2 males and 2 females) were selected to provide data for the study with their selection based on their engagement in the design and piloting of the innovations over an extensive period of time. It was also important to purposively select the innovations that demonstrate the five scaling dimensions (Coburn, 2003; Clark & Dede, 2009 and Cooley, 2016). The selected innovations as well demonstrate diversity on innovations types ranging from improved pedagogies, teacher professional development component, as well as delivery of resources using technology including new assessment forms (OECD/Eurostat, 2005; OECD, 2016).

Data Collection Tools, Data Analysis and Ethical Permissions

In-depth interviews were conducted with the questions aligning to the scaling dimensions of spread, depth, breadth, ownership and problem definition. To establish the validity of the data, documentary review (evaluation reports from the innovations) and observations of aspects demonstrating the impact of the innovations was done. To triangulate the findings, it was important to interview the beneficiaries of the innovations where two participants (equal number of male and female) from each

were conveniently selected for the purpose.

The qualitative data collected were recorded with participants' consent. The audio clips were transcribed verbatim, coded and analysed using MAXQDA 2018, a software for analysing qualitative data. The analysis was based on the scaling dimensions as coding themes with the same guiding the presentation of the findings. Participants' voices are also added to bring rigour to the findings. The study further adhered to the University research clearance committee formalities and ethical standards. Likewise, the data has been used in line with the intended study purpose (Cohen, Manion & Marrison, 2011).

FINDINGS

Study innovations and their features

Case 1: School In-service Teacher Training (SITT)

SITT is a practice-based teacher mentorship and support approach that involves training mentor teachers to coach and mentor fellow teachers through peer learning exchange, model lessons and team teaching. SITT was first piloted in select districts in Tanzania in 2003 and has since gained momentum across Tanzania's primary schools. Since its establishment, a total of 532 from 19 districts in 7 out of 31 regions of Tanzania have benefited from the SITT model, with 507 schools applying the intensive SITT approach (where schools are reached through training organized by national facilitators) and 25 schools the extensive approach (where teachers/schools are reached by Teacher Colleges. Evaluation reports reflect improved academic performance of the schools benefiting from the SITT model (See Table 1). The primary SITT model through funding from the International Development Research Centre is now being adapted and scale up to secondary schools in Tanzania, Kenya and Zambia with the objective of supporting government efforts to implement well-functioning inclusive school-based in-service teacher training programs that are effective in improving the quality of teaching, empower students and enhance the quality of basic education.

Table 1. Improved academic performance in SITT schools

% of pupils that passed with an A or B grade in 56 SITT schools			
	Math	Science	English
2016	13%	39%	16%
2017	19%	31%	15%
2018	44%	43%	29%
% of pupils that passed with an A or B grade, average for all schools in the 3 regions			
2016	14%	32%	16%
2017	19%	28%	14%
2018	37%	35%	28%

Source: Annual Project Review Meeting Report from District Councils, 2018)

Case 2: Shule Direct

Shule Direct (www.shuledirect.co.tz) is Tanzania's premier and leading digital learning platform that aims to improve learning outcomes across Tanzania and in the region. Its mission is to leverage existing technologies to improve access to qualified, local and relevant learning resources that aligns to the national ordinary secondary level curriculum for all young learners in Tanzania at a low cost. Shule Direct also has its digital Teachers' Resource Center as an interactive and responsive learning platform for continuous professional development. Shule Direct works with a number of key education and qualified teachers to create digitized learning notes, tutorials, quizzes and multimedia content and develop technological solutions to deliver comprehensive secondary school curriculum and extracurricular content to learners through any accessible technological device. Since its operationalization in 2013, over 3 million young learners have managed to access the platform and over 50,000 teachers have been registered benefiting from the platform resources. In response to the COVID-19 pandemic, Shule Direct partnered with two of the leading Mobile Network Operators in Tanzania to zero-rate its platforms, thus removing the data cost barrier to their users.

Study innovations along the scaling framework dimensions

Spread

All innovations extended to new geographic locations and have also added new categories of clients aligning to the spread dimension of scaling.

Case 1 innovation for example targets primary school teachers, teacher college tutors, Quality Assessors, Ward Education officers and District Education officers as direct beneficiaries and pupils and student-teachers are indirect beneficiaries.

> *"Last year [2021], we managed to partner with three universities and scaled up the innovation to secondary level currently piloted in Tanzania, Kenya and Zambia expanding its coverage beyond the country and the education level…, 105 secondary schools are benefitting from the innovation…, For the primary SITT, this year [2022], we have added more schools in 9 districts making a total of primary schools benefiting from it to be 588...," (Case 1_45).*

Case 2 innovation started with three secondary schools and later expanded to cover more schools both in rural and urban areas. As narrated;

> *"We started with three schools as we introduced the platform…, the number of customers however grew and we had around 50,000 clients in our learning management system at the end of year one…, we managed to raise the number to over one million within the first three years with the frequency of users being higher during holidays…, the early users were located in big cities…, having created partnerships with telecommunication companies, we managed to reach extremely rural areas…," (Case 2_32-34).*

Breadth

Regarding the extension of services to more people in currently served categories and localities, all the implementers of the innovations admitted that project activities whether having teachers or students as direct beneficiaries are also influenced by the immediate school management and/or leaders particularly Heads of school, the quality assurers, ward education leaders and the community leaders. The existence of these categories made it important to increase the breadth of their services by building the capacity of these categories to ease the piloting and/or implementation of the innovations at the school, as further narrated.

For case 1, besides building the capacity of education leaders along implementing the innovation, researchers and project implementers developed interest to establish how teachers share knowledge after receiving capacity building training. As narrated;

> *"Researchers are interested to establish the extent to which trained teachers share knowledge with their colleagues…, we have also introduced learning and sharing sessions where all the project direct beneficiaries [teachers, heads of schools, ward education leaders, quality assurers and district education leaders] meet and share progress…," (Case 1_24).*

Case 2 targeted students as the initial direct beneficiaries. Later, the need for adding teachers as other beneficiaries arose, where teaching resources such as lesson plans were uploaded in the platform. As narrated;

> *"Students were our main beneficiaries, they were the ones mostly affected as they lacked access to learning content and resources…, through progress monitoring, we received questions and comments from teachers that improved our content…, we finally added some tools for teachers such as lesson plans, tools that enable for interaction with other teachers…, we also added online professional development courses for teachers..." (Case 2_23).*

During the COVID-19 era we further added parents given their new roles towards offering guidance to their children regarding access to learning resources. As narrated;

> *"With the advent of COVID-19 [2020], the role of parents towards supporting their children along learning emerged…, we added in our website a dashboard to enable parents to ask questions…, they could also receive test results for their children…, we also added a content meant for child care for learning and sharing among parents…" (Case 2_33)*

Furthermore, and to enable for inclusion and access to education to the marginalized, the implementers of Case 2 have also added a content for students who are out of school, to enable them access resources to facilitate transition into the formal education system.

Depth

Regarding extending additional services to current clients, all cases have introduced new services to their beneficiaries. For case 1, a WhatsApp group has been created among teachers, college tutors, education leaders including the heads of schools, Ward education leaders, quality assurers and the district education officers to share

progress and communicate new information along with implementing the innovation. The exchange of knowledge in this modality has bridged the gap between teachers and their leaders creating a harmonious working relationship. Schools also conduct exchange visits where school teachers visit each other to observe how the innovation is implemented in their context thus learning best practices. As narrated;

> *"The WhatsApp group has created friendship and linkage among schools implementing the innovation as they learn new knowledge and emulate what others are doing considering their school environment…, teachers have now developed a harmonious working relationship with the ward education officers and quality assurers…, before they used to see them as inspectors…, they were not approachable…, the project has then created a productive working relationship…" (Case 1_16).*

It was also important to introduce learning and sharing sessions among the trained teachers and the education leaders to assess progress and improve further the practice. As narrated;

> *"Learning and sharing started in 2017…, we came to learn that once teachers are trained…, they don't get an opportunity to learn from each other…, it was as if we let them practice on their own…, so we call them with their schools heads…, we also invite the ward education leaders and the quality assurers…, every school present progress report…, so are the education leaders based on their monitoring visits..., the team learn from one another the best practices and areas of improvement…, " (Case 1_34).*

For Case 2, the implementers started using a website to upload its content with learners accessing them in both online and offline modalities. Through research, the implementers came to realize that 7 out of 10 families own mobile phones, with this necessitating the introduction of a new product "Makini[2]" to enable the access of content through mobiles. As narrated;

> *"In 2017, the government statistics show that at least seven out of ten families own mobile phone in Tanzania, we established the sms system called "makini", through which students register for an account and create individual classroom on the subject of interest and start learning…, For example, if algebra as a topic has six sub-topics…, the learner can interact with the content one after the other…, respond to the related questions and receive feedback with support from the system…, at first we started with question and answer…, this was followed by a teacher who could respond to students' questions…, but now we use artificial intelligence, where students receive immediate feedback…," (Case 2_21-22).*

The implementers further developed a content on life skills to enable learners acquire soft skills and thus becoming lifelong learners. As narrated;

> *"We partnered with one NGO and came up with relevant content for learners in the current era…, for example we worked with XYZ bank where capacity building training on financial literacy is offered to primary, secondary and university students...," (Case 2_81).*

2 Literally translated as "Pay attention"

Ownership

Regarding decentralizing the ownership of the innovation to other potential adopters; For Case 1, the implementers conducted an impact evaluation and communicated the results, mostly the achievements realized to different actors along with implementing the project activities. The practice has made other actors develop interest to continue scaling up the innovation to new schools. As narrated;

> *"One funder declared interest to contribute to improving the school environment through mathematical gardens…, [particularly] cultivation of vegetables and fruits to be used for learning purposes…, (Case 1_77).*

The implementers have also managed to get funding that enabled the scaling of the innovation to secondary level in Tanzania, Kenya and Zambia, also a spread component of scaling. The 30 months' project is ongoing and will end in October, 2023. The implementers further encourage district councils to scale up the innovation in schools that have not benefited from the initial piloting. As narrated;

> *"We continued encouraging education leaders to scale up the innovation to schools that did not benefit from the innovation..., two districts managed to scale up the innovation…, district XYZ for example implemented the innovation in 35 schools making a total of 70 benefiting from the innovation…, initially we piloted the innovation in 35 schools of this district…, another district also doubled the number of the initial schools making a total of 40 adding 20 to the ones we piloted…," (Case 1_67).*

For Case 2, the implementers have been working with the institute of curriculum development, teacher college tutors and teachers from the initial design with this making the institutions and participants own the process. As narrated;

> *"We worked with the Ministry of Education through its agency, the Institute of curriculum development, whose role was to approve the online content. Until 2013, the Institute used to deal with book publishers and not producers of online curriculum content…, they then gave us experts who build the capacity of our teachers on how to design online content…, the content was further reviewed and approved for usage…, the institute later created a portal for our content…, to date, six out of our ten subjects have been certified…, An agreement has been entered between us and the Ministry responsible for administration of schools through school improvement system which now integrates our content for public use…, we have over 3.5 million users through our platform, but in their website there are more users…" (Case 2_26-27).*

Problem Definition

Regarding extending current methods to new problems, all innovations managed to address other problems beyond the ones stipulated from the initial design. For case 1; the innovation revitalized the teaching of mathematics. Students now positively perceive the subject of Mathematics, since the innovation module relates mathematical concepts with real life application making the concepts more practical. Through the innovation a committee of local education leaders (Heads of schools, Quality Assurers Trade union, Ward education leaders and district education officers) has also been created to conduct overall assessment of school performance thus coming up with areas of improvement based on the assessment report.

For case 2, while there existed different modalities for providing educational resources to learners in the Tanzania education system, the innovation was the first platform to offer standardized resources that augment the national curriculum at the secondary level through technology. There also exist guidelines for education provisions as provided by the Ministry of Education, Science and Technology, including curriculum and teacher professional development framework. The innovation has now attained the advanced level of technology integration as it enables for learners' interaction with the resources. As narrated;

> *"We came to realize that most of the supplementary education resources as provided by different actors are not regulated…, the responsible Ministry of Education offer guidelines and curriculum, with the delivery content and platform taken care of by the actors…, we wanted to create interactive supplementary resources for secondary school students that conform to the Tanzania education standards and regulated by the national institute of curriculum development…, while at the same time transiting from the traditional model of education to digital model…, students could read, ask questions, receive feedback…, we see this as an opportunity…, so we started working with XYZ teacher college to create the content along the guidelines…," (Case 2_5-6).*

Relevance of Technology in Scaling Education Innovations

The study found out that the study innovations use technology to market their innovation and to communicate among beneficiaries along implementing the project activities, with this dependent on the nature of the innovation. Accordingly, teleconferencing tools particularly Zoom and Google meet, website and WhatsApp as a social media were the ones reported to be mostly used by the study innovations. The relevance of technology is further expanded with illustrations.

Marketing and Dissemination of the Innovation Outputs

The innovations use different social media to market and disseminate their outputs. Case 2 for example uses both the word of mouth as well as technology particularly social media (whatsapp, tweeter) to market the innovation enabling for its spread, depth and ownership. To reach remote areas, the implementers partnered with telecommunication companies and used their infrastructure enabling rural coverage. As narrated;

> *"When we started, we used the word of mouth to market our innovation..., our wish, was to reach the most rural areas..., we partnered with telecommunication companies to extend their services in the rural areas and we extended our services in these areas…, through this we reached 100 schools that are located in very rural areas…," (Case 2_25).*

Accordingly,

> *"During COVID-19, we entered into agreement with telecommunication companies to enable our users to access the platform resources without paying for internet data …," (Case 2_29).*

Technology Integration Along the Samr Framework

For case 2, the platform has replaced some of the tasks that were done on a face to face modality, a typical example is the submission of students' assignments online with this increasing the depth of the innovation. Mobile phones are also used to deliver resources to learners. Furthermore, since the content is interactive, it enables for individualized learning encouraging ownership and learner-centered approach with this reflecting the Augmentation, Modification and Redefinition aspects of the SAMR framework. The design of the content further considered inclusiveness as it addresses diverse learners' learning difficulties. As narrated;

> *"Interactive tasks are now created online for student's access beyond the normal classroom hours, anywhere and anytime…, learners also have different learning difficulties…, some are blind…, others are deaf…, others demonstrate different levels of understanding…, some have learning difficulties yet to be recognized…, so the platform provides for these learning variations enabling diverse learners to learn depending on their ability and learning styles…, they can listen, draw, perform create works, writing and so forth……," (Case 2_14).*

The platform also enables students to do examinations and thus minimize the related costs for printing and administration. As narrated;

> *"If secondary school students are provided with laptops, the platform can be used to administer examinations thus reducing the time for producing examinations and the related costs such as purchase of stationery and the related manpower supervision…," (Case 2_10).*

On the augmentation, teachers can also customize the online resources for classroom usage, with this aligning to the depth aspect of scaling. As narrated;

> *"Teachers can create their own content and questions with reference to the platform content to address the needs of the diverse needs of learners…," (Case 2_18).*

Enhanced Communication Among Project Partners and Beneficiaries

Case 1 for example uses technology particularly WhatsApp to communicate with the project beneficiaries to share progress and monitor project implementation. Technology in this regard, enables for the spread, depth, breath and ownership of the innovation. It also aids data collection during baseline, mid-line and end-line evaluations making it possible to support the implementation of the project activities. As narrated;

> *"Technological tools such as WhatsApp groups are used to share learning resources among participants and new developments. Adverts are also posted in the WhatsApp group to create awareness enabling for immediate feedback from the beneficiaries. Other technological tools include Kobo tool, which is used for data collection in both online and offline modes. SITT also uses BANANA as a tool to monitor project expenses...," (Case 1_45).*

Furthermore, online teleconferencing tools such as Zoom, Google meeting are also used to enable for project meetings, conducting interviews during evaluation sessions as well as team teaching.

DISCUSSION AND CONCLUSION

The study aimed to explore how two education innovations in Tanzania managed to scale up using technology as an enabler along the scaling dimensions of spread, breath, depth, ownership and problem definition according to Coburn (2003), Clark & Dede (2009) and Cooley (2016). The findings show that all the innovations align to the study scaling trajectories and use different technological tools to realize scaling. Study findings further found out that teleconferencing tools such as Zoom and Google meet are used to conduct meetings and coordinate various activities of the innovation along the scaling process. Social media tools such as WhatsApp as well as learning management systems are also used to deliver content as well as sharing progress among the implementers of the innovation and the beneficiaries. Kobo tool is also used to collect evaluation data enabling for real time information, also aiding the analysis process. Studies such as those by OECD (2016), Sedukyov (2017) share similar views that related technological tools are used to facilitate the scaling of education innovations. Indeed, most studies show the application of digital technologies to evaluation the impact of the innovations and strengthening collaboration among actors (Ng, 2009; Smith, 2009; Popescu and Creniecean, 2012;) as well as spreading the innovations geographically (Mykhailyshyn et al., 2018; OECD, 2016).

Besides the application of technology in scaling, the sustainability aspect of education innovations has been a challenge among the actors involved from the design of the innovation, to the process of implementing it and the dissemination aspect. To design for scale, the innovation approaches should be done through government systems in order to reach a significant scale of adoption and thus be sustained within institutional structures and systems (Vvob, 2021). According to Cooley (2016), government institutions are in a better position to fund and deliver either directly or indirectly most innovations sustainably at scale, also facilitating access to the population at risk especially the marginalized. In the process, Dede (2016) concludes that, designing an innovation for sustainability and scaling is iterative and a multi-stage engagement and should aim to empower teacher directed designs that can be adapted to their local circumstances, views also shared by Barab and Luehmann (2003). In this regard, teachers should be viewed as co-evaluators and co-designers in the process. Additionally, the design of education innovations to be scaled should be a) robust through using contextual evidence to retain their effectiveness in the new contexts; and b) flexible to enable for adaptation in a variety of contexts across a spectrum of learners and teachers (Dede & Knox, 2009; Dede, 2016). Indeed, the needs of different education stakeholders considering the supporting structures such as school leadership, culture, administration, parents, communities, and the government should also be considered (Dede, ibid; Fuad, Musa & Yusof, 2020) along the design and piloting processes.

Regarding the quality of scaling education innovations, Vvob (2021, p. 2) recommends for four aspects; a) a strong instructional core that demonstrably improves learning;

b) effective teacher and school leader professional development delivered at scale; c) widely available high-quality low-cost teaching and learning materials to accompany professional development; and d) context-sensitive, long-term capacity development support to government institutions at different levels of the education system. Most of these aspects were adhered to in the study innovations.

On technology, the existing education innovations need to be scaled up to serve many students, teachers and the marginalized populations, with this practice not fully realized in research compared to innovations in other sectors (Shelton, 2011; Serdyukov, 2017; OECD, 2016). Additionally, the implementation of technological innovation should align with the existing leadership, pedagogical theories, and research in education (Fuad, Musa and Yusof, 2020; Serdyukov, 2017). Fortunately, the study innovations managed to create ownership and strong partnerships that enabled the realization of scaling.

Challenges such as supply driven innovations, over dependence of technological solutions to instructional programs, higher expectations from teachers to invest more time and effort than they were willing to provide on the intervention as well as the implementation of the initiatives outside government systems have also been found to negatively affect the scaling process (Piper et al, 2018). Thus, building the institutional capacity of an education system, where the implementers of the innovations such as teachers and school leaders are enabled and supported to integrate the new approaches is the key to realize optimal impacts of scaling (Peurach & Glazer, 2012; Hung et al. 2014).

Study recommendations and areas for further research

The study innovations on the one hand, managed to use technology to scale up their innovations along the scaling dimensions. On the other hand, scaling was possible due the strong partnerships that the implementers created with different stakeholders including the key government agencies, with their presence enabling for scaling and the sustainability of the innovations. Indeed, research shows that scaling education innovation demands financial resources and the government will follow the process for sustainability purposes (Fuad, Musa and Yusof, 2020; Kohl, 2021; Vvob, 2021). Since there exist different innovations that are not scaled up due to various reasons including the aforementioned, there is a need to map all these innovations and the related actors to explore possibilities of soliciting funding to scale up the most promising innovations for wider benefits. Designing for scale further demands integration of scaling along the design process, the aspect that is not considered by many innovations (Kohl, 2021). Capacity building in this regard is important to enable the designers of education innovations to have the scaling mindset along the design process. Different stakeholders, especially teachers as the key towards the implementation of the innovations need also to be involved from the initial stages of the design to enable for ownership and effective implementation of the design (Looi & The, 2015; OECD, 2016).

Regarding the application of technology in scaling education innovations, the study findings show that each innovation uses technology differently. In this regard,

conducting individual case studies of innovations stipulating how each uses technology could provide for a more thorough analysis of the findings.

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Evaluation of Online Informal Education Through Design Learning

Zehra Tugba GUZEL[1]

Abstract

The education and training process has altered per the time requirements, as a phenomenon that has been maintained under the whole circumstances, regardless of time and conditions. Conventional education needs a physical environment, tools, and the student who exists in the classroom, while tangible occasions have been switched by screens, software, algorithms, and visuals, with the transition of the digital environment. Digitalization in education by the invention of the computer and the internet connection has developed online lessons while, online education became a necessity with the Covid-19 pandemic, and the pandemic creates individualized visual classrooms in our homes. With the altered educational approach, formal and informal online courses, which consist of videos and written texts in the past, reformed as the lessons taught with the synchronization of the student-instructor. Thus the education sector also adopts a hybrid learning environment both online and face-to-face learning. Online education environments that increase personalization in education offer new learning environments by online seminars, workshops, courses, certificate programs besides asynchronous videos which are published on common social access platforms within design-based professional disciplines. Informal education for designers has become critical due to the demand for employees with multiple qualifications and the rise in job opportunities on digital design platforms. The study aims to analyze the contribution of online informal education to the professional disciplines receiving design education with examples and to reveal the individual and common advantages and limitations of these educations. Within the scope of the study, examples of computational design were used because of supply convenience in intellectual and physical production in every part of daily life and being prominent in design education. In this context, an online 5-day workshop and 21-day course program were conceptually and structurally examined to comprehend the personalized approach to education. While the course program aims to bring a new perspective to the concept of design and continues its education through various software, the workshop adopts a program-based approach as its structure. Both educational approaches provide new perspective acquisitions in design education through practical and visual opportunities by teaching basic program tricks in a short time according to a university curriculum and a multi-disciplinary discussion environment. However, considering the motto of "Access under any conditions" for the online learning environment, the materials of these courses, which paid a fee, cause personalized education. In addition, since these synchronous educational environments are created by personal opportunities, designers can participate in synchronous programs according to their economic status. This situation builds a competitive environment among designers to be qualified personnel in professional life and does not appeal to everyone in the meaning of inclusiveness. The modifications between

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the trainer's approaches, the course's outcomes, practices, and evaluations also support the competition environment. In addition, the fact that these educations are out of the transcripts due to the lack of precise evaluation conditions causes injustice. As a result, online informal education will assist in gaining unique, global, and harmonious design awareness if equal access, application, and evaluation conditions are provided.

Keywords: *online informal education, personalized learning, design education.*

INTRODUCTION

The education-learning process has consisted of the interaction between lifelong experiences since infancy, and knowledge acquisition from structured and semi-structured environments. A structured education environment occurs from systematically organized courses that determine what they train along the learning process. Formal education within higher education institutions' scope consists of the curriculum with compulsory and elective courses that maintain applied and theoretical courses in student-teacher interaction. This education expects to gain the same learning outcomes and awareness of the students within the framework of the determined courses (Hager, 2012). In addition, structured workshops and courses to support the personal development of individuals as a part of non-formal education have been involved in the learning process. Informal education consists of learning the experiences of experts with unstructured individual practices for a purpose, and random learning in daily routine (Table-1, Association for Cultural Relations, et.al., 2019; Grunzke, 2019; United Nations Educational, Scientific and Cultural Organisation, 2011).

Table 1. *Learning materials by education classification (Association for Cultural Relations et.al. 2019).*

		Education classification			
		Formal	Non-formal	Informal	Random
Compulsory courses					
Optional workshop, courses					
Experiences by observation and practice	**With experts**				
	Individual				

Besides the structured or non-structural classification of the education, this process also diversifies according to the courses' training medium, method, material, and tools. Conventional education is that seminars, courses, or practices are realized through face-to-face teaching with the requirement of physical materials for student-instructor relationships in the classroom (Duff, Gilbert, Kennedy, & Wai Kwong, 2002). Formal and informal education in conventional education takes place with passive learning in which the information obtained from literary sources is transferred

by the teacher. In the educational process, in which students participate as listeners, visual and auditory learning tools are used with tools such as paper and pencil. With the inclusion of digitalization in the education process, the learning media, materials, methods, and processes have brought personalization and globalization (Table 2). In the contemporary distance education process, there are online video, text, and audio recordings and education systems where instructors and learners interact directly in the virtual environment (Moore & Kearsley, 2012). Data accessibility by online networks with Internet connectivity affects the increasing number of learning tools in the education sector. When online education as both a medium and material have developed with the invention of the computer and the internet connection, this learning-teaching approach became a necessity with the Covid-19 pandemic, and the pandemic has created individualized visual classrooms in our homes.

Table 2. *Differentiations between conventional and online education (Wasim, Sharma, Khan, & Siddiqui, 2014; Association for Cultural Relations, et.al. 2019; Dolog, Henze, Nejdl, & Sintek, 2004)..*

	Conventional Education	Online education
Medium	Physical Single media	Virtual Multimedia
Material	Literary, oral presentation,	Video, presentation, audio,
Tools	Pen, paper, chalkboard,	Internet, Applications, Algorithm, Deep Learning
Scale	Isolated/Class	Collaborative/Global
Learning	Teacher based Passive learning	Student based Active learning Life-long learning Personalized learning

Digitalization in Education

After the Second World War, quests to ensure their own security of countries, technological developments by the invention of electronic information tools brought about changes and personalization in all areas of social life such as manufacturing, health, education training. (Mitchell & McCullough, 1994; Commission of The European Communities, 2001). The reflection of digitalization on education is the digitization of existing publications and drawings, and the structural alteration of education (Brennen & Kreiss, 2016). The development of virtual environments enables the foundation of online archives with the digitization of analog data such as books, journals, and magazines (Carpo, 2013), and the opening of written resources to on-campus and off-campus access on a global scale. The libraries of various universities such as England, America, and North Nordic countries have created virtual archives for the protection of publications against security problems and the maintenance of education (Thompson, 2013; Dahlstöm & Doracic, 2009). In order to adapt to the dynamic educational environment, public foundations, as well as universities, have open access archives to universities or global scale. In addition to the written resources

whose form changes, videos, photographs, and sound recordings, produced in virtual, are also used in the education process (Moore & Kearsley, 2012). Including websites, online programs, applications, algorithms, softwares and artificial intelligence in the education process has enabled the use of produced virtual learning data. Thus, intelligent learning environments are created that enable students to reach the desired information with the information-tool-human relationship under every condition (Brusilovsky & Peylo, 2003). The integration of virtual learning environments and information technology with face-to-face education provides personal knowledge management (Paker Kahvecioğlu, 2007).

Personalized learning is determined according to the individual interests, abilities and needs of each student, based on the online education process (Chaichumpa, Wicha, & Temdee, 2021). Algorithms that evaluate students' approach to problem-solving, provide the creation of online courses (Sangineto, 2008), data storage software and machine learning, learning management systems (Dolog, Henze, Nejdl, & Sintek, 2004), simulative virtual classes (Gelsomini, Leonardi, & Garzotto, 2020). However, they allow to increase individual learning performance, shorten graduation times and individualize transcripts in the formal education process. (Maghsudi, Lan, Xu, & van der Schaar, 2021; Xu, Xing, & van der Schaar, 2016; Klašnja-Milićević, Vesin, Ivanović, & Budimac, 2011). In addition, an experience environment is created by observing and imitating the environment with mobile applications in order to understand the pedagogical adaptation of the student according to their personal interests and abilities. This learning, which provides informal and non-formal education, defined as ambient learning, can also benefit from the internet search network (Atif, 2010; Bick, Kummer, Pawlowski, & Veith, 2007; Paraskakis, 2005).

The development of the Internet is an important factor in the formation of the personal learning process. It has provided the development of distance education and online education with training courses, certificate programs, workshops, especially for higher education institutions to access virtual education resources such as videos and pictures (Wasim, Sharma, Khan, & Siddiqui, 2014). Distance education systems started with mobile libraries and continued with educational radio and television channels until the invention of the internet at the end of the 20th century (Saba, 2003). Online education, e-learning or web-based learning, which has become the education vision of the future in the early 2000s, is a lifelong learning tool for individuals as internet-connected knowledge management systems. In this context, the establishment of sufficient infrastructure for online education in Europe, the determination of standards and the preparation of a guide were on the agenda in 2001. It is planned to inform the trainers about the digital world and to develop the course contents (Commission of The European Communities, 2001). In the 21st century, online education has become both a social and commercial sector with internet-enabled applications and websites for the development of applied learning, international education, and various skills related to professional life (Holon IQ, 2021). Online informal learning also provides availability opportunities to the people who want to reach them anytime and anywhere with several tools and materials (Tan, Chen, & Yu, 2022). This learning environment

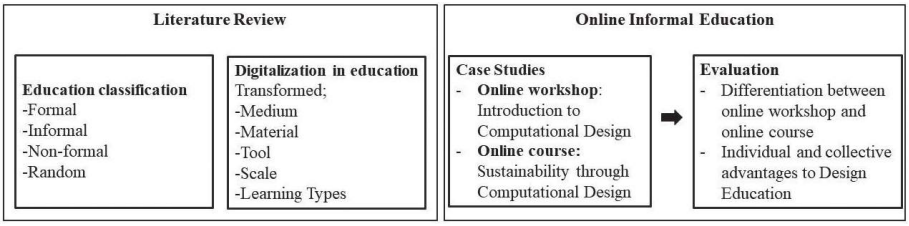
supports the professional disciplines with design and planning approaches by providing synchronous and asynchronous training on many topics related to computer technologies, software-algorithm production. Thus, qualified works emerge through modified and developed learning environments while competition environments occur among businesses (Kim & Park, 2020).

The study aims to analyze online informal education types through examples that contribute to design education and to reveal their individual and collaborative advantages and limitations. In this context, the effect of digitalization in education, and the development of online education is defined in the first section of the study. In the second part, online non-formal education types are examined through examples related to design education, and their advantages and limitations to the design environment are revealed.

METHOD

The study examines the inclusion of informal education as an online workshop and course in personalized learning to indicate the individual and common advantages of design education by the qualitative research method. Main research question is "How do online informal education tools in design courses develop with the phenomenon of "personalization" brought about by digitalization?"

The study is methodologically carried out in two stages according to Figure 1. The literature review determined how education diversified and how digitalization changed traditional education in terms of environment, materials, tools, scales, and learning styles in the first stage of the study. The second stage of the study was carried out through the situation of informal education in design education and the development of the concept of online informal education.



The structural and cognitive system of informal education related to personalization is evaluated through the online workshop titled "Introduction to Computational Design" organized by (Driven by Volumes, 2021), and the online course titled "Sustainability through Computational Design" organized by (Rethinking the Future, 2021). The advantages of online workshops and courses in design education and their limitations were determined (Table 3).

Table 3. *Online workshop and course samples about architectural design education (Driven by Volumes, 2021; Rethinking the Future, 2021).*

	Course	Workshop	
Name	Sustainability through computational design	Introduction to Computational Design	
Type	Online	Online	
Participations	Student-Professional	Student-Professional	
Duration	Each section:120 min/21 day	Each section: 240 min/5 day	
Aim	To teach algorithmically thinking by understanding weather data and performing environmental analysis	To establish parametric design methodology by rethinking existing buildings and implementing new structures.	
Methodology	1-Lecture 2-Demonstrations 3-Assignments 4-Group activity 5-Discussions	1-Lecture 2-Practices 3-Question & Answer 4-Discussions	
Takeaways	Understanding of Basic Building Science Climate Data and Environmental Factors Algorithmic Thinking by Grasshopper Simulated and analysis of LEED, GRIHA, IGBC necessities	Computational design interface (Grasshopper, Rhinoceros) Data manipulation Patterns & Attractors Modeling + Meshes	
1.Section	Introduction to the Course	1.Day	Introduction: Rhinoceros + Course overview Break Introduction: Grassopper Geometry Manipulation I Exercise + Q/A
2.Section	Intro to Rhino Assignment 1 Intro to Grasshopper Assignment 2		

3.Section	Intro to EPW Working with Weather Data Assignment 3	2.Day	Geometry Manipulation II-III Data Manipulation I-II Exercise Break Data Manipulation II Geometry Manipulation IV Exercise + Q/A
4.Section	Comfort UTCI Analysis Assignment 4		
5.Section	Sun Path Analysis Shadow Analysis Assignment 5	3.Day	Display I Data Association I Fields Data Association II Break Data Manipulation III Data Association III Exercise + Q/A
6.Section	Shading Mast Assignment 6		
7.Section	Radiation Analysis Assignment 7	4.Day	Data Management IO Computation Meshes Break Catenary - Kangaroo Interactive & Dynamic modeling Conclusion + Discussion
8.Section	Capstone Project: Discussion		
9.Section	Jury presentation	5.Day	Utilities + tips + common errors Introduction to loop Iterative modeling Break Iterative modeling Iterative modeling Conclusion + Discussion
10.Section	Lecture and Demo		

ONLINE INFORMAL EDUCATION IN DESIGN COURSES WITH "PERSONALIZATION"

Design education, which started with the idea of creating original forms, has a dynamic approach with high instructor-student interaction. The design education process starts with basic design practices to create the perception of space and maintains with multidimensional and long-term concept projects in architectural disciplines. Architectural design education promotes the thinking and questioning of students so that their unique and creative solutions are presented by sketching. This sketching process needs occupying more effort and time for hand drawing until involving algorithms, software, and application the education process that possesses iterative and collaborative environments that enable the formation of the designer's considerations into quotable tangible outputs (Ataman & Lonnman, 1996; Gönenç Sorguç, Kruşa Yemişoğlu, & Özgenel, 2018). Algorithms, computer aided designs, CNC machines in the formal education environment enable students to manage their own projects in terms of materials, equipment and time, both as a design and production environment (Benabdallah, Bourgault, Peek, & Jacobs, 2021).

Workshops, learning-teaching practices, and improving the curriculum in architectural education catalyze to adapt with the "research by design" practice method against the problems related to the built environment (Sipahioglu, Abbas, & Yılmaz, 2021). With the development of digital design tools, workshops and courses benefit in order to exceed the limits of creativity, increase competition, and track the current paradigms between space-human-aesthetics. Informal education, which has examples such as the cultural and spatial perception of cities and the development of hand drawing techniques (Turgut & Canturk, 2015; Polatoglu & Vural, 2012), teaching digital design programs (Akcay Kavakoglu, 2015), both increase the motivation and self-confidence of the students and keep them in a constant state of learning.

Online Workshop

Workshops, occur with collective thinking and discussion environments, gain a multidimensional and interdisciplinary perspective to students about the design (Sipahioglu, Abbas, & Yılmaz, 2021). The studies, which are generally produced face-to-face, have become a separate sector within the online education approach in recent years. Thus, workshops have been published on the websites of universities or private education institutions and become accelerated learning programs with a determined purpose by the video-conference method. Generally, online workshops are prepared related to programming to support design education such as "Research in Architecture & Technology" (https://www.rat-lab.org/home), "Driven by Volumes" (https://drivenbyvolumes.io/).

The online workshop program titled "Introduction to Computational Design" is an example prepared by teaching parametric design tools. The program, which aims to transfer intensive information in a short time as in the face-to-face training process, is completed in 5 days with 4 hours of work per day. Starting with a minimum of 10 students, the program is open to students and professionals. The program, which is implemented with knowledge transfer and exercises via Rhino and Grasshopper software, is completed with questions and answers and discussion environment (Table 3).

The workshop program teaches short-term parametric thinking to perceive design in virtual, except outputs of formal design education. Although the materials, tools and environment required in the traditional workshop approach are prepared by the workshop organizing committee, individuals are required to prepare the Grasshopper and Rhino software programs, computer and internet access in this study. It supports cognitive learning by taking short breaks in certain time zones. Since there is a lack of opportunity for socialization, the program also reveals individualization in the social sense. Workshop programs that provide individual development in terms of environment, materials and tools also provide a person-oriented, active learning process with the opportunity to learn by doing.

While the synchronous processing of the workshop is positive for its practical and direct interactive development, Rhino and Grasshopper's tutorials can be used as asynchronous accessible videos for individuals who have insufficient economic resources. However, since the deficiency of face-to-face experience and discussion environment, the learning of the software and its practice to the design process will not have a tantamount effect as the online education environment.

Online workshops also have an approach in synchronous virtual meetings, where tasks are delivered via e-mail and their outputs are shared via social media (Davies, Seaton, Tonooka, & White, 2021). However, this study approach was not evaluated within the scope of the study.

Online Course

Online courses are learning programs that occur synchronously within the framework of a specific program and purpose through the websites of universities or private online education institutions. Online courses of design disciplines are mainly related to computer technologies. Stanford University (https://online.stanford.edu/search-catalog), Udemy (https://www.udemy.com/courses/design/design-tools/), Rethinking the Future (https://www.re-thinkingthefuture.com/) have certificate programs regarding computational design, AI, deep learning.

The "Sustainability through Computational Design" online course program of Rethinking the Future has an online course program for design education that

aims to think together global environmental problems and the built environment. The program, which brings together building physiology, environmental data, and computational design, provides an analysis of proper conditions for LEED and GRIHA certification. The program is planned to be carried out with a maximum of 25 students or professionals for 21 days and evaluated with assignments and jury presentations to the certificate. (Table 3).

The course program, which has a long-term work schedule according to the workshop programs, ensures the development of environmental awareness of the students. The course demonstrates that creative form, parametric designs can be shaped by analyzing environmental data with Grasshopper and Rhino. The program, which changes the idea of personal design, improves the self-confidence and self-expression of individuals with practices and presentation. With an active discussion environment, permanent achievements can be gained indistinguishable from formal courses. Since the program preparations belong to the individual, there is also a structural personalization. Asynchronous education is possible with Youtube or tutorials of programs. However, if a certificate is desired, it is necessary to receive training from the lifelong learning faculties of universities for a fee.

According to the online workshop and online course examples, there are advantages of online informal education in the development of social, ecological and aesthetic perspectives on the "space-aesthetics-individual" relationship in design education. Programs according to curriculum education, provide transferring complex information in a short time and rapid access to design needs. However, developed perspectives for creative and original designs can increase the competition (Table 4).

Table 4. *Limitations and advantages of online workshops and courses to design education.*

Advantages	Limitations
Shorten term & Applied-based	Individual material
Complex knowledge bundle	Triggering the competitive medium
Multi-disciplinary	Differences in assessment approaches
Discussion environment	Unequal certificates
Open-access	Lack of involvement in formal education
Virtual accessibility	Resource accessibility

Access to needed virtual material in the programs and the creation of a proper environment depend on the social and economic competence of the individual. The differentiation of resource conditions causes a rethink of the "accessibility under all conditions" approach. Although synchronous and asynchronous existence of education is considered, application conditions, evaluation conditions, and quality of outputs may be the main reason for individualization.

Since the design develops by the analysis and discussion of information, the experimental media of these programs encourages critically individuals to think. In addition, the presence of participants from various professional disciplines in the programs assists individual critical thinking. However, the fact that educational environments exist unequal certificates is effective in the preference of informal education and develops the classifier approach.

Workshops and courses as advanced information sources support design education. But they lack involvement in transcripts, training programs, or current reports. Since informal programs can not involve a part of education, they forget in the formation of personal learning.

CONCLUSION

Digitalization provides physical and cognitive personalization by being included in the education process. The invention of the Internet enables the curriculum to be set according to the student, while online and distance education has advanced with virtual education environments. Informal education, which provides the development of formal consciousness, develops personalized learning both cognitively and structurally by being included in the online education process. The educational environment, which provides the development of a personal perspective on the "space-aesthetics-individual" relationship cognitively, becomes individualized in the structural sense with the use of personal resources.

Personal multi-perspectives are critical to developing original thoughts and forms in design education. Online informal education creates a multifaceted design perception with the creation of an active learning environment with different participants. The educational approach, which triggers the competitive environment in the creation of original forms with the perception of personalized design, also causes injustice in education environments due to the individualization in resource access. The diversity of education as a practice and method causes problems in terms of effective knowledge acquisition and diversity of certificates.

As a result, online informal education structurally specialized if equal evaluation conditions are provided will support the awareness of an original but compatible design.

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Under the Digital Umbrella: Informal Digital Learning of English (IDLE) Practices in Turkish Context

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Abstract

Informal Digital Learning of English (IDLE) refers to an individual's learning endeavor occurring in out-of-class environments in a naturalistic way independent from the requirements of formal education programs including assessment. Learners' IDLE experiences in English as a Foreign Language (EFL) contexts is quite important to understand their motives, and the potential ways to improve such practices for enhanced language practice. This study aims to present IDLE practices of Turkish EFL learners in detail and investigate motivations of EFL learners considering their actual endeavors with digital language learning sources. For this purpose, a total of 115 students from an English Preparatory Program at a university in Turkey took part in the study. Within a quantitative research design, the data were collected through a questionnaire developed for the purposes of the study based on rigorous research on IDLE literature to identify EFL learners' IDLE practices, their motivations on using digital sources for language practice, potential difficulties regarding such practices, and the role of guidance. The results of descriptive statistics indicated that the majority of the participants spent their time on IDLE practices mostly for using social networking platforms, music and song platforms, translation sites, video sharing sites, and series and movies on specific network platforms. Findings also showed that teacher's guidance had a great importance on the participants' IDLE practices and learners needed systematic guidance in the vast world of digital sources for effective language practice. What is more, some obstacles hindering EFL learners' IDLE practices were identified such as the expenses related to digital sources (e.g. membership fee, internet bill etc.) which echoed the reality of digital divide. The findings of the study are quite important in understanding the need to use digital sources for learners' informal learning practices.

Keywords: *Informal digital learning of English, IDLE practices, IDLE for language enhancement, the role of informal digital sources in English as a Foreign Language*

INTRODUCTION

The frame of learning outside of the classroom has been continuously changing with recent developments in digital technology including Information and Communications Technology (ICT), online media and other online services. This constantly updated world has led to a new opportunity of Language Learning Beyond the Classroom (LLBC) for learners (Reinders & Benson, 2017). With the appearance

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of digital transformation and digital pedagogy, language learning experiences have started to be examined through online informal learning of English (OILE) (Sockett, 2014; Toffoli & Sockett, 2015) or informal digital learning of English (IDLE) (Lee & Dressman, 2018; Lee, 2019; Lee, 2020). The two views enable to realize the opportunity for language learning beyond the classroom through digital devices and resources and they both value autonomous learning in their relatively unstructured contexts. IDLE in extramural contexts is naturalistic, digital learning of English comes about in unstructured, out-of-class environments and it must be independent from a formal education program. For example, students watch some live videos, make comments during the livestream and interact with other English users from around the world. In this case, there is no external instruction and no assessment for students; instead, they select the digital source and the content to follow on their own. Besides, they concentrate on being the user of the language. In the current study, the term IDLE is preferred as the word 'informal' means that the language development occurs except formal educational settings, that is beyond the classroom (Benson, 2011) and that 'digital' learning emerges as an umbrella concept and as a brand-new approach for learning through technology use (Siemens, 2014).

The place of IDLE has become more apparent with the unexpected fact that most of the people had to switch to a digital world after COVID-19 outbreak. This sudden change, as Chik and Benson (2020) noted, showed that the key point was digital adaptation. Digital practices of people have gained much more importance than ever. The pandemic accentuated the digital divide which refers to the inequalities in access to and use of ICT and in digital skills (Hilbert, 2016; van Deursen & van Dijk, 2018). In some countries like Malaysia, Mexico, Morocco, Peru, the Philippines, and Vietnam, four in five disadvantaged students did not have access to the Internet at home but only at school before the pandemic (OECD, 2021). It is most probable that the digital divide has broadened during the pandemic by making educational conditions worse for disadvantaged learners. This crisis has shown that digital transformation has to be accelerated by highlighting the significance of digital technologies infrastructure. In another worldwide education report, PISA 2018 ICT familiarity survey showed that students' average duration of time per week using digital devices during classroom lessons and outside of classroom lessons for language lessons was 41 minutes across OECD countries. In Turkey, students reported about 39 minutes a week which was quite close to the average (OECD, 2021). This amount of time can be utilized to help learners' needs through digital learning environments. Despite several research on IDLE in various English as a Foreign Language (EFL) contexts around the world, there has not been a previous study, to the authors' best knowledge, conducted specifically on IDLE practices in Turkish EFL context. There is also a scarcity of research related to online English learning outside the classroom in Turkey (e.g., Balbay & Kilis, 2017; Dinçer, 2020; Görgün, 2015). Thus, the purpose of this study is to find out the informal digital learning of English (IDLE) practices of Turkish EFL learners and to investigate motivating and discouraging factors for learners' IDLE practices in their language learning process.

Informal Digital Learning of English

Lee (2017) defines the phenomenon of IDLE as "self-directed, informal English learning using a range of different digital devices (e.g., smartphones, desktop computers) and resources (e.g., web apps, social media) independent of formal contexts" (p. 2). Godwin-Jones (2018) has argued that the concept of complex systems theory (complexity theory) can be useful for searching informal language learning in digital environments. In Complexity Theory (CT), language is "a dynamic system that is constantly being transformed through use" (Larsen-Freeman, 2018, p. 58). Regarding CT paradigm, Godwin-Jones (2018, p. 14) states that "change and development occur within the nested subsystems of language, language development, and L2 online use." Thus, changes in one of the systems can influence other systems and this results in various outcomes. In this respect, language is viewed as constructed through interactions and as patterns emerging from repeated encounters with language in various contexts.

Recently, there has been a growing interest in IDLE which helps learning out of the class in EFL contexts. Several studies have explored the frequency (quantity) and diversity (quality) of IDLE activities used by EFL students in relation to English learning outcomes (e.g., Lee, 2018; Lee, 2019; Ohashi, 2019). In one study, Lee and Dressman (2018) investigated the relationship between the quality of IDLE activities used by 94 South Korean university EFL learners and their English outcomes. Findings indicated that engaging in diverse IDLE activities was found to significantly predict students' English-speaking proficiency. It was also seen that a diverse use of IDLE activities contributed to greater WTC online and higher productive vocabulary scores. With respect to the influence of teacher-led support on English language learners' digital technology use out-of-class language learning, Ohashi (2019) carried out a mixed method study in Japan with questionnaires and interviews. As part of the English writing course, the researcher designed some supportive elements to enhance out-of-class English language learning through digital technologies during a 10-month course. The findings showed the important role of teachers in guiding students in the use of digital technologies, and it was revealed that all students used more online tools during the course than before and the usage increased in a six months period compared to pre-course and post-course results. In the Turkish context, Dinçer (2020) conducted a study to understand EFL learners' out-of-class language learning experiences through digital practices. With a cross-sectional survey design, the study investigated autonomous language learning and out-of-class technology engagement of 512 university students. The findings indicated that more autonomously engaged students tend to have better language learning proficiency. Besides, the more autonomously engaged students spent more time daily and used varied digital tools. Online websites and social media were the most frequently used digital tools for participants. It was also revealed that students benefited from social media, online websites, dictionaries, and intelligent tutoring system applications (apps). Online games, YouTube, Instagram, and other smartphone apps that enable students to practice communication also had an impact on language development. This study highlights the need for more research on language learners' informal digital practices.

Regarding the growing interest and need to identify EFL learners' IDLE practices to help them effectively deal with the digital world and the scarcity of research in this area, this study aims to present IDLE practices of Turkish EFL learners in detail and investigate motivations of EFL learners considering their actual endeavors with digital language learning sources. Hence, the following research question is addressed: What are IDLE practices of Turkish EFL learners to improve their foreign language learning?

METHOD

This study employed a quantitative research design to find out the IDLE practices of Turkish EFL learners along with their motivations.

Participants and Setting

A total of 115 students from an English Preparatory Program at a university in Turkey took part in the study. The participants were 64 males (55.7%) and 51 females (44.3%) whose ages ranged between 17 and 25 with the majority of them between 17-19 (n=66). When it comes to the participants' previous English learning experience, 53 of them declared that they have been learning English for 5-9 years. 34 of them have been learning it for 0-4 years and 22 of them have been learning the language for 10-14 years. Some participants (n=6) stated that they have been learning English for 15 years or more than this. The participants were studying at different levels of the English preparatory program as A1-Elementary (n=83), A2-Pre-intermediate (n=18) and B1-Intermediate (n=14).

In the university, the English Preparatory Program aims B1+ (intermediate +) exit level based on CEFR offering 24-20 hours in a week according to students' levels. The program comprises three modules in total and education is carried out on the levels of A1 (beginner), A2 (pre-intermediate), B1 (intermediate) and B1+ (intermediate+). To reach the required exit level of the program, students attend English courses including integrated skills lessons (12 hours for reading, writing, grammar, vocabulary and 12 hours for listening, speaking, grammar, vocabulary). As part of extracurricular activities, online asynchronous tasks are given. In terms of IDLE, there is no extramural leading for students formally, but some instructors can have spontaneous referral based on their personal observations on students' needs or demands. A higher education ethical committee including experts approved the study and all participants signed consent forms regarding their voluntary participation.

Instrument

An IDLE questionnaire was developed for the purpose of the study based on several previous studies (Arndt, 2019; Ohashi, 2019) and the related literature on IDLE. The questionnaire was revised by a group of experts in language teaching and digital technologies for reliability and the final version was administered to the participants. The questionnaire included parts addressing learners' demographic information (i.e. age, English learning experience, level, etc.), their IDLE practices in detail, the role of guidance in their out-of-the-class digital practices, their motivations on using digital

sources for language practice, and potential difficulties regarding such practices. The questionnaire was administered in Turkish, which is the mother tongue of the participants, to avoid incomprehensibility because of low English proficiency and to increase validity.

Data Collection and Analysis Procedures

Data collection procedure lasted for two weeks. An online questionnaire was used to collect data. Participants were asked to fill out the questionnaire by using Google Forms. After gathering data from IDLE Questionnaire, this data was analysed through descriptive statistics, getting the percentages and frequencies. The findings were interpreted based on the obtained data.

FINDINGS

In addressing the IDLE practices of Turkish EFL learners to improve their language learning process, descriptive data analysis showed that the majority of the participants studied English using digital tools/platforms out of the class about 0-2 hours a day (n=76). This is followed by 2-4 hours (n=26), none (n=10) and 6 hours, and more (n=3). The data indicated that all participants had smartphones (n=115) while 88 of them had their own computers. It was identified that most of them (n=112) had an internet access out of class to study English, but some participants (n=16) asserted that their internet access was not sufficient to practice English out of class. The majority of the participants (n=83) did not own a tablet while 32 of them had this device that they used to connect to the internet.

Findings showed that some digital tools/platforms were widely used with the aim of out-of-the-class language practices while some of them were not preferred. Table 3.1. below summarizes the participants' digital tools/platforms uses. When asked for their preferences regarding digital tools/platforms to study English out of class, majority of the participants stated that they used social networking platforms (e.g. *Twitter, Instagram, Facebook, TikTok*) (M=4.73). The second most preferred choice was music and song platforms (e.g. *Spotify*) (M=4.58). Translation sites (e.g. *Google Translate*) (M=4.54), video sharing sites (e.g. *YouTube, Vimeo*) (M=4.34) and series and movies in the platforms (e.g. *Netflix*) (M=4.33) were other popular platforms used by the participants for their informal digital language practices. Participants stated that they also referred to web-based dictionaries (e.g. *Tureng, Cambridge Dictionary*) (M=4.01), song lyrics (e.g. *Lyricstraining*) (M=3.94), vocabulary apps (e.g. *Memrise, Duolingo, VoScreen*) (M=3.33), online games (M=3.31), and online news sites (e.g. *BBC News, Reuters*) (M=3.26).

Table 3.1. *Summary of Results for Digital Tools/Platforms Used by the Participants*

Digital tools / platforms	$\bar{X}$
Social networking sites (e.g. *Twitter, Instagram, Facebook, TikTok*)	4.73
Platforms for music, songs (e.g. *Spotify*)	4.58
Translation sites (e.g. *Google translate*)	4.54
Video sharing sites (e.g. *YouTube, Vimeo*)	4.34
Series and films on video streaming platforms (e.g. *Netflix*)	4.33
Web-based dictionaries (e.g. *Tureng, Cambridge Dictionary*)	4.01
Song lyrics (e.g. *Lyricstraining*)	3.94
Vocabulary Apps (e.g. *Memrise, Duolingo, VoScreen*)	3.33
Online games (on computer/smartphone/social networks)	3.31
English self-study sites (e.g. *British Council Learn English*)	3.30
Online news sites (e.g. *BBC News, Reuters*)	3.26
Podcasts (e.g. *BBC, Nationalgeographic*)	2.88
Educational Vlogs for Language Learning (e.g. *ETJ English*)	2.75
Writing Apps or assistant (e.g. *Grammarly*)	2.75
Live classes of Edutubers (e.g. *YouTube-English Speaking Success*)	2.63
Comics or Cartoon platforms (e.g. *Webtoon*)	2.60
Blogs (e.g. *Espresso English Blog*)	2.58
Presentation platforms (e.g. *TED Talks*)	2.48
Corpus (e.g. *COCA, BNC*)	2.13
Audiobooks (e.g. *Audible, Scribd*)	2.11

As can be seen from Table 3.1., fewer participants stated that they followed contents specifically designed for language learners like English self-study sites (e.g. *British Council Learn English*) (M=3.30) and writing Apps/assistant (e.g. *Grammarly*) (M=2.75). Similarly, podcasts (e.g. *BBC, Nationalgeographic*) (M=2.88) and blogs (e.g. *Espresso English Blog*) (M=2.58) were preferred by fewer participants. Another finding indicated the number of participants who used educational vlogs for language learning (e.g. *ETJ English*) (M=2.75) and attended live EduTuber classes on language learning (M=2.63). It was seen that while video sharing sites were used by most of the participants (M=4.34), they did not spend their time on educational content designed specifically for language practice. The least preferred digital tools/platforms were identified as comics and cartoons (e.g. *Webtoon*) (M=2.60), presentation platforms (e.g. *TED Talks*) (M=2.48), corpora (e.g. *COCA, BNC*) (M=2.13) and audiobooks (e.g. *Audible, Scribd*) (M=2.11).

Especially for corpora and audiobooks, many participants (n= 52, n=52) stated that they were not familiar with these platforms and never used them. Similarly, some participants stated that they never used presentation platforms (n=39), comics and cartoons (n=39), live classes of EduTubers (n=38), and writing Apps/assistant

(n=35). Other online tools/platforms which were not given in the list but used by the participants to study English out of classroom were *Discord* (n=1), *Cake* (2-3 days a week) (n=1), *Free4talk* (for speaking practice) (n=1) and *Steam* (English groups/ communities in the platform) (n=1).

The participants were also asked about the criteria they followed while choosing a digital tool/platform to improve their English out of the class. Figure 3.1. below displays the criteria used by the participants in their informal digital practices.

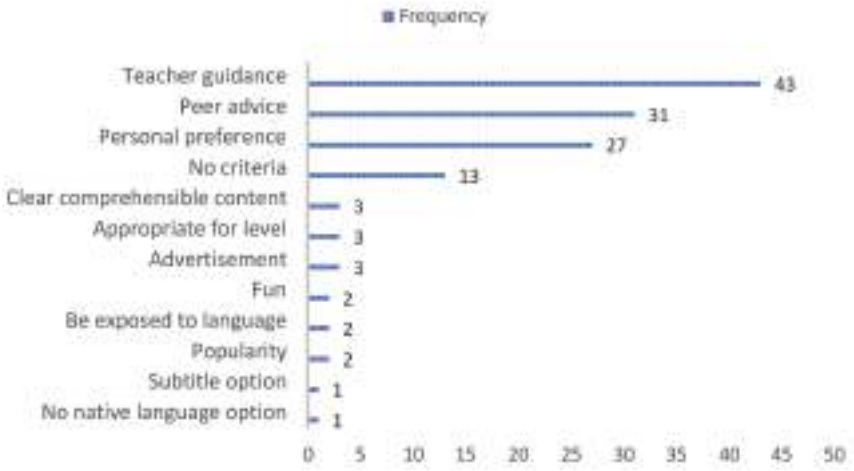


Figure 3.1. *Deciding on IDLE source*

As can be viewed on Figure 3.1., the results revealed that most of the participants decided on IDLE sources following their teacher's guidance (n=43). Secondly, the participants listened to their friends' advice (n=31), or they decided on the source which appealed to their interest (n=27). It was seen that some participants did not have any criteria while choosing a digital tool/platform for informal practice (n=13). Specifically, there were some other criteria items expressed by the participants in selecting the IDLE source such as its having a clear and comprehensible content (n=3), its appropriateness for learner's language proficiency level (n=3), seeing advertisements about it (n=3), its being fun (n=2), its provision of opportunity to be exposed to target language (n=2), its popularity (n=2), its not having a counterpart in their native language (n=1), and its having a caption/subtitle option (n=1).

For the purposes of the study, the participants were asked to state their motivations to use digital tools/platforms in English. The results regarding this part of the questionnaire can be seen on Figure 3.2. below.

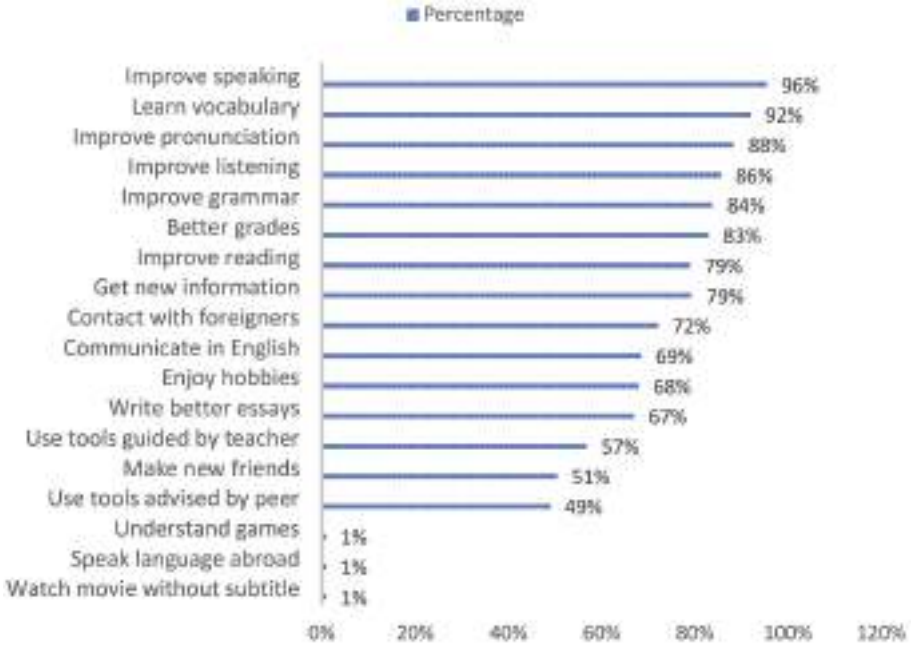


Figure 3.2. *Motivating factors for IDLE*

According to the results of the analysis shown in Figure 3.2., 96% of the participants wanted to improve their speaking skills most. This was followed by goals in other main language skills and use such as learning vocabulary (92%), improving pronunciation (88%), improving listening (86%), and improving grammar (84%). Getting better grades in English classes (83%) was regarded as more important than improving reading skills (79%) by the participants. Getting new information (79%), having contact with foreigners (72%), communication in English (69%), enjoying hobbies (68%), and writing better essays (67%) were other motivational reasons stated by the participants. They also asserted using digital tools/platforms guided by the teacher (57%), making new friends (51%), and using digital tools/platforms advised by a friend (49%) as motivating factors for IDLE. Some participants noted other reasons that motivated them to use digital tools/platforms to study English outside of the classroom such as to understand online games with English stories (n=1), speak the target language abroad (n=1), and watch movies without subtitles (n=1).

The participants were also asked to state deterring factors to use digital tools/platforms in English. As Figure 3.3 below displays, the most discouraging thing for participants was the expenses required for the use of digital tools/platforms (e.g. membership fee, internet bill etc.) expanding their budget (36%). Some participants had concerns about the protection of personal data security, and they did not want to share their personal information online (e.g. real name or profile photo) (19%). A Considerable number of participants declared that they did not know how to use digital tools/platforms for their out-of-the-class language learning (17%) practices. Other deterring factors were listed as limited internet access (15%), not feeling confident using digital tools/

platforms (13%), not having a device with internet for out of class study (10%), and having no time for self-study out of the class (10%). 7% of the participants did not think out-of-the-class study using digital tools was necessary since their efforts were not graded in formal educational contexts. Some participants noted other reasons that discouraged them to use digital tools/platforms to study English out of the classroom as some platforms' not being user-friendly (n=1) and not knowing how to learn through IDLE experience (n=1).

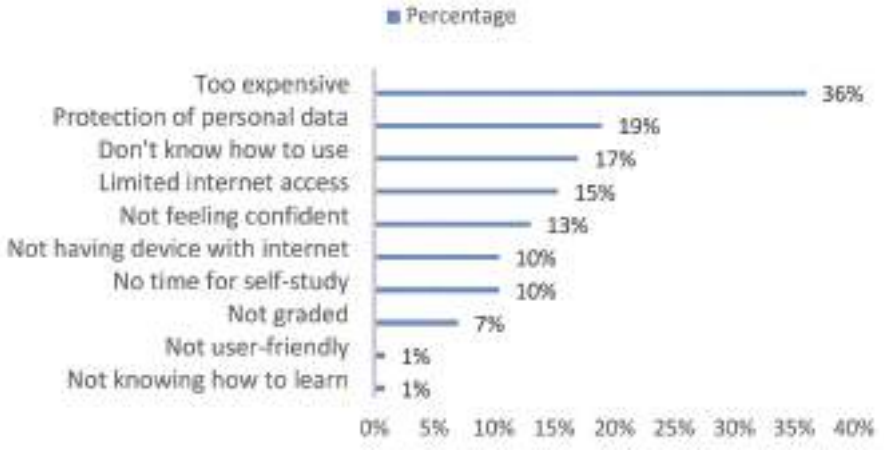


Figure 3.3. *Deterring factors for IDLE*

DISCUSSION AND CONCLUSION

The study has shown that most participants spent approximately 0-2 hours a day on IDLE practices. Among these practices, music and song platforms, translation sites, video sharing sites, and series and movies in the platforms were quite common. Social networking platforms was the most preferred digital tool, a finding consistent with the previous research (Dinçer, 2020) in Turkish EFL context. On the other hand, it was found out that educational content which was designed for language practice like live language classes on YouTube were preferred by fewer participants. It might be concluded that using technology frequently and accessing digital tools easily do not guarantee a conscious use of technology for educational purposes. In this respect, instead of using technology for technology's sake, using technology in a purposeful and an effective manner in language teaching and providing guidance for this perspective is highly crucial. Moreover, there were several platforms which were rarely used by the participants such as audiobooks, corpora, presentation platforms, comics and cartoons, and writing applications. The reasons might stem from the level of students or inadequate information on these platforms. In other words, if the participant was an elementary level student, many books in the audiobook platforms might be difficult for that student due to low level of proficiency. At this point, leading students to free platforms which include different levels of reader contents can be beneficial. In addition, students may not know what corpus is since such tools are

not presented within the formal curriculum content. Hence, guiding students for this kind of supportive platform which presents spoken or written productions of language from real life will be helpful.

Findings also show that teacher's guidance has a great importance on the participants' IDLE practices. This finding justifies previous studies which support the role of teacher's guidance in constructing effective IDLE experiences (Lai, Zhu & Gong, 2015; Lee, 2019; Lee, 2020). Nevertheless, the opposite side of the coin indicates the necessity of learner autonomy and digital literacy through which learners can decide on the right source of IDLE on their own; in other words, without the teacher's assistance. As Sockett and Toffoli (2012) suggest, training learners for the development of communication and media skills would be more valuable than demonstration of specific tools or platforms. Constantly evolving technology necessitates various digital learning tools in the course of time and up-to-dateness change rapidly. Critical evaluation of digital sources as part of digital literacy skill is highly important for learners to navigate in the world of IDLE. Additionally, most of the participants indicated that they wanted to improve their speaking skills in the target language first. However, they had to consider some obstacles to make IDLE a part of their life since the expenses for IDLE (e.g. membership fee, internet bill etc.) were expanding their budget. This finding once again echoes the reality of digital divide regarding financial availability of the digital world for some learners (van Dijk, 2019). What is more, one of the main deterring factors for IDLE was identified as not knowing how to use digital tools/platforms for out-of-the-class language learning purposes. This finding is in accordance with findings from previous research (Ohashi, 2019) indicating the importance of awareness in using technology for educational purposes.

This study presented here had some limitations as well. As Ardnt (2019) pointed out in her study, the findings obtained from the surveys are relatively broad and may not provide an accurate idea to realize how the participants used these tools/platforms for their English learning practices. For instance, using social media websites can cover various behaviors including watching videos, taking a glance at a post or a photo, reading content of different lengths, or producing their own contents through spoken or written language production. Hence, there is a need to investigate IDLE practices in more detail. The results of the current study might shed light on designing an IDLE model to guide learners and teachers to enhance personalized language learning. As Reinders and Benson (2017) suggested, reflective journals might contribute to comprehend learners' engagement in digital environments. Thus, more detailed studies are believed to offer better understanding for the nature of IDLE in EFL contexts.

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Effect of Social Presence on Students' Support Within Open Distance Learning: A Conceptual Framework

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Abstract

This paper explores experiences and reflections from its authors in the engineering teaching profession in open distance and e-learning, besides the perceptive and views presented in relevant literature. The study argues that social presence underpins the relational interactions of student-lecturer, student-student and student-course content. To achieve social presence, the study found that students need adequate support from different levels: academic, administrative and managerial. Among others frustration, desperation, and isolation may characterize students due to lack of social presence. In line with the community of inquiry framework, a multidimensional framework is suggested for the achievement of meaningful teaching and learning by exploring transactional distance. Constructivist connectivism is one of the main ingredients of such a framework, which needs good design, development, implementation/testing and evaluation in an iterative manner.

Keywords: *ODeL, Social presence, teaching and learning, multidimensional interaction*

INTRODUCTION

Distance education (DE) plays a major role in society as it tends to reduce as much as possible space and time issues in teaching and learning. Students can study where they are and whenever they have time. Synchronous and asynchronous modes of learning and even blended mode have characterised DE education. The uniqueness of DE in the current context is to expand the degree of openness in several dimensions of e-learning, among others, accommodate students from various background, develop open educational resources or repository, to have affordable tuition, to make intervention for affordable technological devices, provides an efficient and effective learning management system for virtual environment. The design of course materials is tailored to be interactive and accommodates diverse needs of learners. Despite huge efforts focused on technological aspects, the issue of social presence in open distance learning has been documented. Social presence derives from presence (Kehrwald, 2008), although there is no universal way of defining or understanding of social presence. On the flip side, absence of communication may compromise social presence. For instance, isolation of learners and its linkage to student drop-out from

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university has been noticed, and the situation was contributed by lack of active learning engagement (Khalid & Nasir, 2020). However active learning should not be perceived as ideal for teaching and learning process since students may engage differently. Social presence is instrumental in open distance and e-learning (ODeL) and was perceived as the main contributing factor to course satisfaction (Khalid & Nasir, 2020, Baharudin et al., 2018). Social presence in learning context, especially distance education has been raised in the past, e.g. Garrison et al. (2010a & 2010b). In particular, the community of Inquiry has a framework that was painted by online learning social presence Garrison et al. (2010a). Besides, learning theory on connectivism (Siemens, 2005) resonates with social presence for e-learning. Essentially social presence would imply reducing the distance between the learner and the teacher, between learner and learner, between learner and support systems within the institution of higher learning, learners and other learning communities outside the host institution, between learner and its learning material. This is to ensure online education is supported in a sustainable manner. The purpose of this paper is to propose a conceptual framework of social presence to sustain effective students' support, particularly from engineering education within an ODeL environment. Experiences from the authors of this paper as teachers in engineering shaped this paper and perceptive and views from other relevant studies have been included. The following will be used interchangeably "e-learning", "online learning", "virtual learning, "online education",

Frameworks for Social Presence

It is important to highlight some of the key previous studies. Literature review was drawn from various authors on social presence, covering historical points of view and experiences. The study takes advantage of the contemporary learning theory aspect that is relevant to the different frameworks since the authors are of the opinion that the type of learners should be associated with the learning methods. These contribute as well to the online learning environment that characterize social presence. This section is not by no means to conduct a systematic review. Social presence is achieved in the online learning sphere in the framework of the development of a community of inquiry (CoI) (Garrison et al., 2010b), where learners develop and share their knowledge. Hence students are able to learn new knowledge and construct knowledge as well. This is to move students from a behaviourist learning to a more constructivist learning. In this respect, constructivist learning has been approached with social aspects (Garrison, 1997). Despite the strong merit of the CoI framework, Annand (2011) suggested including the cognitive dimensions in a meaningful fashion. Technology means for interactive online learning was shown to enable social presence (Jamil & Tasir , 2014). This was likely to enhance the connectedness among students to be interactively involved in e-learning (Jamil & Tasir , 2014). A framework for embedding online student support was suggested based essentially on the five cyclic steps of the learning cycle in the Inclusive Student Services Process Model (ISSPM), namely Intake, Intervention Support, Transition, and Measurement (Rota, 2002). Besides, social connectivism as a learning theory (Siemens, 2005), could be understood as a framework to characterise the contemporary online teaching learning environment. Connectivism could appear intuitively in the social presence space. After a critical analysis of connectivism and

current trends of learning theories, Kop and Hill (2008) concluded that connectivism has a role in the new pedagogy development and emergency, where the autonomous role of the learner is stressed. Kehrwald (2008) stressed that the lack of common understanding of social presence may affect the improvement of online teaching and learning as far as this is facilitated in a technology mediated environment. A framework based on relational interactions between lecturer and student, student and students and finally student and course content, was advanced by Moore (1989). These interactions have a degree of complexity (Garrison, 2017), thus multidimensional characteristics of teaching, cognition and social presence have been suggested by Dempsey and Zhang (2019). Annand (2011) argued that a wide scope of combinations in the above-mentioned interactions would be necessary for achieving higher-order cognition. Dempsey and Zhang (2019) supported that CoI remains the most dominant framework depicting social presence.

METHODOLOGY

Main features from existing frameworks related to social presence are used to support the development of the framework as suggested in this study. Numerous aspects of student support from different models were extracted from previous studies and guided by academics' experiences at the faculty of engineering, where students struggled to enjoy appropriate support, due to the wide distance between them and academics. Espousing transactional distance and student centeredness aspects, a conceptual framework was then proposed for further development, testing and implementation at various departments and institutions of higher learning facing similar challenges within the ODeL environment.

Assessments Strategy

The choice of assessment strategy is very important in ODeL, in providing clear instructions on virtual assessments (Robert, 2010). This may reduce learners' worry about their involvement in assessments as opposed to face-to-face students. Students would appreciate having details on the assessment coverage and timeously feedback. In fact, the need for frequent feedback to monitor students' individually and collectively on learning objective assessments completion was supported by (Robert, 2010). In the current dispensation, the authors administer continuous assessments, which has advantages for students to be assessed frequently. However, the feedback may delay since a huge number of assessments may be condensed in a semester. The issue of workload has been a challenge, nonetheless appointing e-tutors and external markers to assist the primary module lecturer was found to have brought some relief to the lecturers' workload.

Online Teaching and Learning Pedagogy

Students are encouraged to attend online lecture sessions, synchronously via Microsoft Teams, and sessions are recorded. This makes provision of asynchronous learning as students can have access to the recording. These modes of learning enhance social presence by promoting the interaction between lecturer and students. Social

presence supports and facilitates communication of students and enables learning in online platforms (Oztok & Brett, 2011). In addition, social presence is proven to be related to student satisfaction and success. Online sessions are meant to prepare students adequately to cover the learning objectives for further assessments. The use of technology has gone beyond the traditional models of instructional design to new approaches of course development (Robert, 2014). The teacher should be aware that using technology is just a tool for mediation and efficiency not the ultimate goal for teaching and learning. Achieving learning objectives and imparting skills on learners are essential. The introduction of technology should be well tested to fit the lecturer's needs as well as students' needs before it is rolled out fully. Students should be at the centre of teaching and learning.

Student Support

The need for assisting students with their queries related to content and any other tuition matter should be proactive rather than reactive (Rota, 2022). Peer learning support is also encouraged as students can learn from each other, through discussions between themselves. Activities related to this type of support can be promoted and monitored via the learning management system. The lecturer normally gives discussion topics or questions that students can discuss or answer and make contributions to their teaching and learning in the form of discussion forums. Over the years, authors learned that students are reluctant to participate in any activity without some kind of grading (Brindley, Blaschke & Walti, 2009). Hence, the importance of providing activities that can add value to teaching and learning should be stressed.

Transactional Distance

It is necessary in the online learning set up to reduce the distance between lecturer and learner by designing interventions and pedagogical strategies to enhance the frequent communication between these two parties. This led to Moore's theory on transactional distance (Moore, 1983). Failure to reduce the distance between the two parties have led to student frustration, desperation and isolation. In some cases, students discontinued the learning process and dropped out of the programme. However, there are proactive measures to maintain social presence between lecturers and students which will encourage and support online teaching and learning. Implicitly, the communication among learners should be enhanced. The lecturer should promote and ensure that students participate on given discussion topics or projects to strengthen collaborative work. Hence, interaction is between lecturer and students, among students and lastly between students and course content (Moore, 1989). İt is of vital importance for lecturers to initiate participation with students without comparing himself or herself with students. Students normally participate when they are acknowledged and honoured. Other lecturers normally introduce themselves in the beginning of the course and encourage students to do the same in order to familiarise themselves with the online platform. Acknowledging students' comments and queries timeously promotes participation and communication with lecturers throughout the course of study.

Learning Management System

The use of LMS Learning Management System (LMS), be it through face to face or open distance learning, has been adopted for decades and is essential to house teaching materials and assessments. Students and lecturers will be able to easily access information and course material at any time. LMS is proposed to provide faculty instructional support in numerous institutions of learning (McGill, Klobas & Renzi, 2008). Administering assessments in the form of a quiz, portfolio, graded discussion forums, and designing marking rubrics are effective and efficient for teaching and learning through LMS. There are a variety of LMS in ODeL, however the authors utilised and gained experience of Sakai (myUnisa) for years, which has been migrated recently to Moodle as a new learning management system. In general learning management systems need a proper Information, Communication and Technology (ICT) department's support for proper transition and implementation. Inadequate support from the ICT department, constant disruptions and system failure has led to frustration from both lecturers and students. This is compromising social presence on student support, especially when these system failures and breakdowns are prolonged.

Connectivism Constructivist Learning

Connectivism as introduced by Symens (2005) has played a major role in social connectedness or social connectivism and combined with knowledge generation by students as theorized by Kanuka and Anderson (1999), this led to connectivism constructivist learning. This is irrespective of the argument by Mattar (2018) that connectivism should be understood as an updated version of constructivism, in the context of technology education. Technology mediation via the web has been a great tool in the virtual learning environment. Siemens (2017) views connectivism as a learning theory in this technological dispensation where students use personalised, online and collaborative tools to learn in various ways as compared to the students in old age. Mafenya (2016) concluded that traditional theories such as behaviourism, cognitivism, and constructivism were with constraints in comparison with connectivism due to the recent technological developments. Notably, Anderson and Dron (2011) are of the view that connectivism embraces teaching and learning as a process that allows students to remain at the centre of learning while constructing knowledge. Students nowadays embrace technology for learning and social networks recreation and for employment as well (Siemens, 2017).

Proposed Framework

The above has led the authors to propose the following framework (Figure 1), that is anchored on the following:

- Course material to be clear in terms of content and learning objectives as the basis of teaching and learning.
- The use of pedagogy to be appropriate to learning needs in line with learning objectives.
- Assessments to be in line with the teaching methodology.

- Communications to be stimulated interactively and meaningfully among students and lecturers, having course material/content as the common point.
- Provision of student support systems both academically and administratively to be provided.
- Constructive feedback of assessments to be done regularly, especially before the next assessments.
- The multi-dimensional interactions should take foundation on the Moore's interaction model: student-lecturer, student-student, student-course content, student-administrative staff, student-community building, student-industry, student-technological platform.
- Student centeredness to be the focus in teaching and learning as well as transactional distance between teacher and students should be always monitored.
- Academic staff support system is essential as this can impact on student support (from the academic staff). Hence academic staff should be well equipped to provide student support satisfactorily.
- Lastly, social constructivist connectivism should be promoted in the ODeL dispensation. This should be comparable to the blood circulating in the system to maintain the health of the teaching and learning process.

It should be noted that there are linkages among parties other than students that are not explicitly shown here.

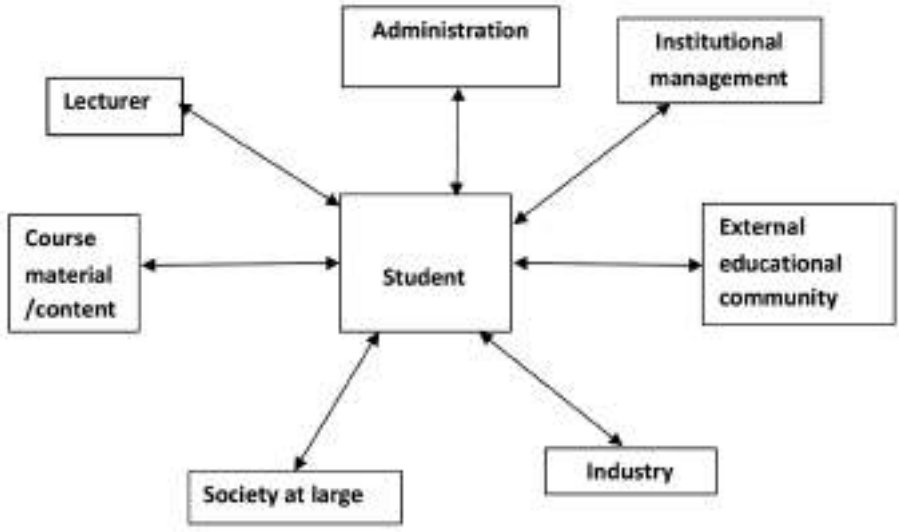


Figure 1. *Framework of social presence based on multidimensional relations between students and other parties. Relations among parties other than students are implicit.*

As said previously, authors' views and experiences coupled with the existing studies, shaped this study.

DISCUSSION AND CONCLUSION

It was noticed that academics did not know to some degree better ways and means to bridge the gap between them and students due to ongoing remote interactions, in an ODeL environment. Nonetheless there has been an endless effort to assist their students emphatically. This could be supported by the empathy theory developed by Holmberg (1983). Most of these academics continue to use their personal experience inherited from face-to-face institutions but expected different outcomes. It would have been better if academics yielded and comprehended the ODeL environment and learned its modalities without resisting any kind of change introduced to them. Few of the academics embrace technology as a tool to assist them to convey their knowledge to students. It is also paramount important for academics to acknowledge that in this digital age, students view technology as an enabler for teaching and learning. In addition, academics believe that they may not have the relevant and adequate tools to provide student support in all aspects. Students could not feel the social presence of their lecturers due to the gap of the nature of distance education, easy access to resources and their familiarity with the physical classroom teaching and learning environment. The framework suggested more professional development activities to capacitate academics to better close the distance education gap so that students began to experience the presence of their lecturers while being supported better. Academics also indicated difficulties of providing adequate student support because they are overwhelmed by the number of assessments, online class discussions and administrative tasks. Academic and associated activities were scheduled on semester basis. The consequence was that the distance between students and lecturers seemed to widen. These findings supported Moore's theory on transactional distance. Finally, student activities that promote active participation and facilitate effective support were identified.

Over the years, research demonstrated that students normally experience isolation and alienation in online learning environments. This has been argued by Khalid and Nasir (2020). İn essence, it should be possible to create flexible learning environments without time and space barriers on the internet and like technologies. In most cases, other dynamics like academics' resistance to adjust to new technology as a current way of life within the teaching and learning environment remain a challenge. Failure of this adjustment deters active learning. The workload distribution and lecturer to student ratio affected student support. This has been a vexing aspect for open distance education mega universities. As a result, students wrote their major assessments without even receiving adequate feedback from previous assessments. Most students experienced learning difficulties due to lack of feedback and become reluctant to engage in teaching and learning. This affected their performances negatively. According to Beaumont, O'Doherty, and Shannon (2011), students' feedback encourages them to perform better when used as a scaffold pathway leading to them learning independently. It should become mandatory that support is provided to academics for them to make feedback available to students timeously. Alternative assessments are also proposed so that academics can spend less time marking but supporting the students.

The current study has the merit to suggest other ways of closing the gap in the interaction between student-academics and beyond. It is important to conduct a risk assessment of the current status among different parties in teaching and learning; and enhance it with the multi-dimensional interaction/framework as covered. Referring to the system development life cycle methodology, the framework suggested would need to be properly designed (based on students' needs primarily) and developed by taking into consideration all necessary variables. Then, the implementation phase at departmental level would kick-in, and evaluation/assessment would determine the actual performance of such a framework. Adjustments would have to be made where necessary. An iterative process would be undertaken for such a framework. Student centeredness should be the focus in teaching and learning as well as the transactional distance between learner and students should be always monitored. It is also suggested to enhance lecturer support, i.e., academics who are very instrumental in facilitating teaching and learning, should receive appropriate support from the institutional management. It is of vital importance for academics to share best practices in teaching and learning to assist those falling behind. Academics should also be encouraged to attend each other's discussion classes in order to adopt working teaching approaches in other spaces. Lastly, social constructivist connectivism should be considered as a pivotal element to sustain the health of the teaching and learning process. It could also assist if academics are encouraged to register for ODeL related qualifications made available by institutions of learning to capacitate them.

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Disruptive Change and Learning Innovations: Challenges and Opportunities for Universitas Terbuka

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Abstract

The Covid-19 pandemic that has hit the world since the early 2020s has overturned people's lives in various fields, including education. Various efforts were made to keep the education process running while still enforcing protocols to prevent the spread of Covid-19, including through physical distancing. Online learning then becomes an option and inevitability for educational institutions to break the chain of spreading the virus. Furthermore, distance education (DE) has become the best choice for educational institutions in carrying out their learning activities. For Universitas Terbuka (UT), online learning is nothing new. As a pioneer of DE in Indonesia which currently reaches the age of 38, UT is one step ahead of having strong experiences in open and distance learning practices and placing online learning as one of the main modes of learning delivery. Thus, UT has succeeded in making various breakthroughs ranging from registration, digital learning materials, synchronous and asynchronous academic support services, up to an online examination system equipped with online proctoring. All available facilities and services are developed by utilizing technological advances, so that UT's reach is increasingly widespread and can be experienced by all students. Therefore, the DE innovation developed by UT becomes a reference for other universities in Indonesia in regards to managing online learning. With an integrated learning management system (LMS) and the number of alumni reaching up to 1.9 million, UT is able to carry out Indonesia's government mandate in opening the widest possible access to education for Indonesian citizens, both domiciled in Indonesia and abroad.

Keywords: *disruptive change, learning innovations, UT's challenges and opportunities*

INTRODUCTION

Disruptive change cannot be separated from the concept of disruptive innovation developed and introduced by Clayton Christensen (Meyer, 2010) which discusses how technology, inventions, and ideas are developed and then oppose traditional knowledge. This term is used to describe the process of changing the simple application of a product or service that can penetrate the top of the market and even replace established competitors. Based on this situation, disruptive innovation has inevitably influenced the rapid development of using technology in higher education in which people, especially educators, have to think in new ways in order to survive and thrive.

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In other words, it is very visible that capabilities in terms of performance relative to alternative approaches in higher education practices have also rapidly changed (Manyika, Chui. Bughin, Dobbs, Bisson, & Marrs, 2013). For instance, the technology innovations are implemented in virtual chemistry labs and continue to increase for four reasons, i.e. continuing improvement, the ability of students, faculty, and parents to select a learning pathway that suits individual learners, teacher shortages, and falling costs (Christensen, Horn, & Johnson, 2008).

During the last three years, the impacts of Covid-19 outbreak have become significant considerations in practicing distance higher education as Bozkurt, et.al (2020) describes the examples, such as limited opportunity for education because of school shutdowns, the online learning practices resulting in "incomplete" learning, and health issues. Therefore, some ways to survive during the pandemic are required by schools and educators, such as building support communities, sharing tools and knowledge, and listening to different voices. This is in line with a study conducted by Masalimova, et.al (2022) in which students stated that online learning has the potential to take advantage of all the limitations caused by pandemic situations. Moreover, a study conducted by Coman, Tiru, Mesesan-Schmitz, Stanciu, & Bularca (2020) shows that the students also asserted that distance learning has also given benefits in their learning process since it enables them to conduct their own learning at any time and from any location as well as benefits both accomplishment and learning.

Universitas Terbuka (UT) is the 45th state university in Indonesia inaugurated by the President of the Republic of Indonesia on September 4, 1984, based on Presidential Decree Number 41 of 1984. UT was designed as an open university to apply distance learning. As a distance teaching university (DTU) applying open and distance learning (ODL), UT is expected to be the pioneer as well as the innovator of DTUs in Indonesia. Since its establishment, there are three main missions carried out by UT, i.e. (1) providing equitable access to higher education for community members, (2) increasing competence and academic qualifications for teachers and other government officials as well as people who are already working, and (3) providing opportunities for high school graduates/equivalent who are not accommodated in other state universities.

An open education system means that UT in providing education prioritizes and emphasizes the openness of the system which is the operationalization of the philosophy of lifelong education (without admission selection, without age restrictions, without geographical location restrictions, does not require a certain educational background, without a high school diploma year limit, without study period limits, and are multi-entry-multi-exit). This concept is in line with Laal & Salamati (2012) discussing lifelong learning as "a continuously supportive process which stimulates and empowers individuals to acquire all the knowledge, skills, and dispositions throughout one's life to foster well-being". Meanwhile, the distance education system means that UT encourages independent learning for students to be able to direct themselves in organizing the learning process and in utilizing the learning assistance services provided by UT. UT's system and operations are designed to offer educational programs that can be accessed in a flexible, borderless and inclusive way. Thus, the open and distance education (ODE) system implemented by UT results in system flexibility and ensures public access to higher education in accordance with UT's missions.

In general, UT education service modes can be categorized into two types. The first type is blended learning, designed as a type of learning service that combines face-to-face and digital approaches. This type is used by students who have low or limited access to infrastructure and ICT facilities that are not yet adequate in utilizing ICT for learning activities. This group of students usually comes from remote or suburban areas and is mostly more than 50 years old. Whereas the second type is fully online which is mostly used by students who have adequate access to ICT infrastructure and facilities as well as literacy and cultural skills. This group of students is usually young and comes from urban areas. As a state university that implements an ODE system, UT continues to improve the quality of both types of services and optimize the practice of modern ODE.

Since 2020, UT's students have been dominated by those who are under 29 years old as illustrated below.

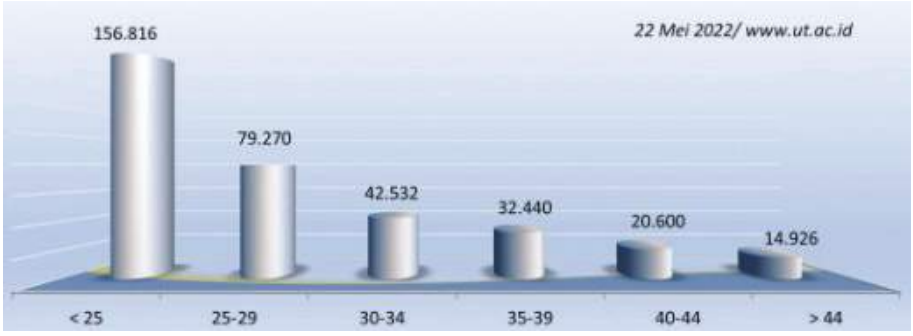


Figure 1. *Student Body Based-on Ages*

Source: *www.ut.ac.id*

From the total active students of 346,584, as many as 156,816 or 42,25% are under 25 years old and 79,270 or 22,87% are between 25-29 years old. This shows that the number of millennial students as well as Generation (Gen) Y and Z of UT are increasing. One of the challenges faced by UT is how to facilitate the learning needs as well as learning styles of those of Gen Y and Z in which online interaction has become their way of life, especially for Gen Z students or known as i-gen (Black, 2010).

After implementing the ODE for 38 years and producing up to 2 million alumni, UT has proven to be able to reach groups of people who are unreachable by the face-to-face higher education institutions which also offer 'limited' access in age and length of study. UT services can be accessed through 39 regional offices spread across 34 provinces to serve students who live in 515 districts/cities in Indonesia and 1 overseas student service center to serve students in more than 50 countries or about 91 cities throughout the world. Furthermore, the ODE system implemented by UT has proven to be able to fulfill the mandate of the 1945 Constitution and embody the Government's obligation to provide access to higher education for all. This is in line with UT's motto "Making Higher Education Open to All".

The Development of e-Learning in Indonesia and its condition during Covid-19 Pandemic

The Gross Enrolment Rate (GER) for higher education in 2021, which only reached 30.85%, shows the low number of people receiving higher education due to the quality of government services in providing access to higher education (Statista, 2022). Therefore, the presence of DTUs is considered to open access to higher education services that existing conventional or face-to-face universities cannot afford. Furthermore, universities are also encouraged to make it efficient in that learners no longer merely rely on the existence of regular classes and conventional learning. Therefore, a blended learning system, online learning, and collaborations with other universities are needed. This allows cost effectiveness to produce more optimal output as well as encourage a revolution in the role of universities, lecturers, and students. Furthermore, organizations also consequently employ the learning management system (LMS) for driving skill development, employee training, and succession planning and are further used as learning platforms for compliance training by a government agency as well as an onboarding tool for new hires (Market Research, 2020).

Additionally, the government has prepared several regulations to encourage the development of the distance education system. Through Law Number 12 of 2012, the government explicitly states that the distance education system can be carried out in single mode and dual mode. This was confirmed by the issuance of Regulation of the Minister of Education and Culture Number 109 of 2013 concerning the Implementation of Distance Education in Higher Education. The regulation provides an opportunity for all eligible universities to offer distance learning. Distance education and online learning are no longer a monopoly market controlled by UT but have been the priority of the government's programs to be implemented in several face-to-face or conventional universities. However, UT has realized that its presence is not a threat to UT but a prospective partner to synergize with each other to build the nation through distance education. Their presence can be a stimulus and trigger to build a better work culture, build learning infrastructure facilities with the support of digital technology, and provide more quality learning programs and services.

The Corona Virus Disease (Covid-19) pandemic has had a real impact on education resulting in the implementation of e-learning that was a necessity and the best choice for the world of education to ensure the fulfillment of student's rights to education. It forces educational institutions to shift the learning process from face-to-face to online mode with limited resources and in a very short time. Regarding this matter, the Indonesian government has taken several precautions to maintain health and safety in preventing the Coronavirus. Among them was the issuance of the Circular Letter of the Directorate General of Higher Education of the Ministry of Education and Culture of the Republic of Indonesia Number 1 of 2020 concerning the Prevention of the Spread of Covid-19 in Higher Education.

The application of social and physical distancing is required in all educational activities. This was further strengthened by the issuance of the Circular Letter of the Minister of Education and Culture of the Republic of Indonesia Number 3 of 2020 concerning the Prevention of Covid-19 in Education Units. Furthermore, the next Circular Letter of the Minister of Education and Culture of the Republic of Indonesia Number 4 of 2020 was launched concerning Implementation of Educational Policies in the Future Emergency Spread of the Covid-19. All educational institutions must implement distance learning by the conditions of their respective universities. Students are encouraged to learn from home with online learning, both synchronously and asynchronously, through various platforms. On March 20, 2020, no less than 832 universities announced that they had moved their classes from face-to-face (classroom) to online learning. Various educational institutions have begun to use technology and implement online learning systems to support learning activities. Moreover, the pandemic situation forced all the students and teachers to do "Learning from Home". There are three important points stated in the regulation. First, learning from home must be conducted through an online platform/distance learning and should give meaningful learning experiences. Second, the learning activities must be focused on life skills. Third, the learning activities must be conducted based on students' motivation and conditions by considering the access and facilities gaps (Moeldoko, 2020).



Figure 2. *Online Learning Portals Officially in Partnerships with Indonesian Government*

Source: *The Ministry of Education and Culture - Indonesia*

This policy has consequently raised several important issues. First, the teaching paradigm has shifted from face-to-face to virtual classrooms for all levels of education. The shift here is not only done by transferring the materials into digital formats but also by applying some rules. Online learning must be formulated and implemented carefully while prioritizing the interests and needs of students. Therefore, online learning apart from being a solution will also pose considerable challenges for lecturers at face-to-face universities. Second, the increasing requests for a synchronous platform. The delay in various activities due to physical distancing policies forced people to work and study remotely from home. This has led to a surge in the use of synchronous platforms such as Microsoft Teams, Zoom, and others. Third, the development of asynchronous learning platforms called learning management system (LMS) was done by institutions, such as Moodle, D2L, Edmodo, Blackboard, canvas, and others.

LMS is software specifically designed to create, distribute, and manage educational content so that it can improve the learning process, and be more productive and cost-effective. Last, educators created resource sharing such as digital learning materials, MOOCs, and OER (MIT's OpenCourseware, UKOU's OpenLearn, SUAKA UT). A study on the practice of online learning in higher education institutions in Indonesia shows that during the pandemic, 91.79% of respondents did online learning, while 7% did blended learning. Furthermore, the following table illustrates the use of LMS during the pandemic.

Table 1. *Online Platforms*

Learning Management System (LMS)	Percentage
Moodle	30.19%
Blackboard	1.81%
TalentMS	2.05%
Dacebo	0.48%
LMS365	11.71%
Unknown	22.46%
Others	31.28%

Source: *Padmo, Ardiasih, & Idrus (2020)*

The table shows the percentage of people applying the LMS to conduct the online learning in which 30.19% of the respondents use Moodle LMS, while 11.71% apply LMS365 for their learning activities. Others stated that they use Blackboard, TalentMS, and Dacebo. From further explanation provided in the questionnaire, some respondents mentioned some other platforms they used during the pandemic situation, such as Microsoft Teams, Google Classrooms, WhatsApp Web, Eldiru (local), Schoology, and internal platforms developed by the institutions. On one hand, many organizations offer free online courses, making it easier for people to gain knowledge. On the other hand, other problems also arise related to infrastructure (internet/access point), equipment, broadband quality, lack of competence (technology literacy & online pedagogy), and financial problems.

The presence of DTUs is to open access and expand the capacity of conventional universities as well as to assist in overcoming conventional universities in terms of numbers that tend to be relatively exclusive, and not inclusive (Hall, 1996). Thus, it is expected that the presence of DTUs can "boost" the GER of higher education institutions in Indonesia which existing conventional universities cannot afford (Ministry of Education, 2019). Previously, the Indonesian government has issued various regulations and guidelines that encourage universities to implement distance and online learning, but not many universities took advantage of them. One of the programs is the Indonesia Online Learning System called SPADA. It is a program launched by the Directorate General of Learning and Student Affairs of the Ministry of Research, Technology, and Higher Education that aims to increase equitable access to quality learning in higher education. This program encourages the development and dissemination of open educational resources (OERs), massive open online courses (MOOCs), and open courses. Furthermore, the establishment of the Indonesia Higher Education and Research Network (INHERENT) in 2004 also played a significant role as a network of universities from various provinces in Indonesia. There are more than 300 universities that are members of INHERENT and allow them to share online learning models that can be enrolled by all students in Indonesia.

The Practice of e-Learning at Universitas Terbuka: Opportunities and Challenges during and Post Covid-19 Pandemic

Along with the rapid development of ICT and its use in learning as well as the Ministry of Research, Technology and Higher Education's policies in increasing access and capacity of higher education services, universities that apply face-to-face mode are encouraged to offer e-learning or distance learning as a mode of learning. UT as an ODL institution with its experiences is mandated by the government to support the implementation of distance learning in other universities, including some responsibilities, such as (1) UT's contribution in accelerating the increase in higher education GER to reach 1 million students, (2) strengthening UT's identity as a Cyber University, and (3) providing supports to other universities and other institutions in implementing distance learning.

The Covid-19 pandemic that occurred in Indonesia in early March 2020 required UT to adapt and modify several learning services for students. These services include adaptation of the delivery of learning materials, student learning support services, and examinations. UT with a history of ODL has shown its readiness to overcome the Covid-19 issue because it has implemented the system for about 38 years. UT provides services to students who have various socio-economic backgrounds, domicile areas, cultures, and needs throughout Indonesia and in various parts of the world. This diversity is responded to by providing various modes of learning services that are accessible and in accordance with the needs of students. Thus, UT must optimize online services to students by taking advantage of advances in information technology. Several strategies carried out by UT during the pandemic were optimizing web-based learning support services for students, both asynchronously and synchronously. With the physical distancing policy launched by the Government, UT has taken a policy to switch from face-to-face services to online services. The policy is stated in UT Rector's

Regulation Number 326 of 2020 concerning the Academic Policy of Universitas Terbuka in the Period of Preventing the Spread of Covid-19 in 2020. Therefore, to improve the quality of the students' independent learning process, UT provides learning supports services in the form of tutorials, consisting of online tutorials (tuton), face-to-face (f2f) tutorials, webinar tutorials (tuweb), radio tutorials, and TV tutorials.

Regarding the implementation of e-learning at UT, some adaptations and modifications were conducted in providing learning support services for students. A significant change is that face-to-face tutorials were not undergone for the first semester of 2020 since this mode of tutorial cannot be implemented during the pandemic and it has been changed to a synchronous online tutorial service, i.e. tuweb. The following table shows the comparison of the number of tutorial services provided before the Covid-19 pandemic in 2019 and during the Covid-19 pandemic.

Table 2. *Tutorial Classes and Students Participating before and during the Covid-19 Pandemic*

Types of Tutorial	Before Covid-19 2019		During Covid-19 2020	
	Number of Class/courses	Number of students/courses	Number of Class/courses	Number of Students/courses
Face to face Tutorial	29,674	593,471	0	-
Webinar Tutorials (tuweb/synchronous)	21	192	26,573	476,703
Online Tutorials (tuton/asynchronous)	12,580	596,010	12,991	605,237

Source: *Center for Student Support Services of UT*

The table shows that during Covid-19 pandemic the f2f tutorials were not conducted and the number of tuton classes as well as the number of students enrolled in the tuton classes increased significantly compared to those before the pandemic.

Table 3. *Number of Tutors of the Faculties (2021-2022)*

FACULTIES	TOTAL NUMBER OF TUTORS/ INSTRUCTORS						NUMBER OF TUTORS/ INSTRUCTORS FROM PROFESSIONALS AND INDUSTRIES					
	TUWEB		TUTON		PRACTICE/ PRACTICUM		TUWEB		TUTON		PRACTICE/ PRACTICUM	
	2021 smt 2	2022 smt 1	2021 smt 2	2022 smt 1	2021 smt 2	2022 smt 1	2021 smt 2	2022 smt 1	2021 smt 2	2022 smt 1	2021 smt 2	1.398
Faculty of Education and Teacher Training (FKIP)	5.561	5.540	1.650	1.724	3.629	3.411	2.245	2.351	358	478	1.404	76
Faculty of Science and Technology (FST)	100	98	451	605	153	148	52	56	179	251	67	35
Faculty of Law, Social and Political Science (FHISIP)	1.473	1.433	2.221	2.416	88	77	658	655	1.391	1.448	35	8
Faculty of Economics (FE)	1.120	1.085	1.638	1.729	46	17	604	603	1.040	1.087	23	1.517
Total	8.254	8.156	5.960	6.474	3.916	3.653	3.559 (43%)	3.665	2.968 (50%)	3.264	1.529	1.529
Postgraduate Programs			432	386	386				70 (16%)	61 (16%)	61 (16%)	

Source: *Universitas Terbuka (2022)*

Based on the table, it is visible that there was a fluctuation in the number of tutors/ instructors from the second semester of 2021 (July-December) and the first semester of 2022 (January-June). Furthermore, due to the absence of f2f tutorials, UT optimized the recruitment of tutors/instructors from professionals and industries, reaching 50% for undergraduate programs and 16% for postgraduates. This is in line with UT's support of the Ministry of Education, Culture, Research, and Technology programs called "Freedom Learning Freedom Campus" in which one of the aims is to involve professionals or industries in order for the learners to gain some knowledge and experiences directly from them.

The e-learning or online learning mode has been applied to almost all aspects of educational services, from registration to graduation. In terms of academic products, students can take advantage of digital teaching materials as well as interactive digital teaching materials besides printed teaching materials. In 2002 United Nations Educational, Scientific and Cultural Organization (UNESCO) introduced the use of Open Educational Resources (OERs) to support online teaching and learning. OERs are any educational resources or learning, teaching, and research materials in

any format and medium that reside in the public domain or are under the copyright that has been released under an open license, that permits no-cost access, re-use, re-purpose, adaptation, and redistribution by others (Butcher, Kanwar, & Uvalic-Trumbic, 2011; UNESCO, 2019). Therefore, there are advantages to using OER, i.e. 1) no need to pay royalties or license fees during the process of teaching and learning, and 2) both educators and learners are more productive. The use of OER has taken important parts in education, particularly in e-learning.

Since OER is highly recommended due to its flexibility and accessibility to support the teaching and learning process, UT as a DTU has applied the use of OERs since 2010. The OERs called Sumber Pembelajaran Terbuka (SUAKA) UT accessed by UT students as well as public provided by UT to support the students' learning activities are in the forms of web supplements, virtual reading room and online journals available in the digital library, UT radio, UT-TV, "Guru Pintar Online" Portal (Portal for teachers), online journals, and MOOCS, as shown in the following table.

Table 4. *Access to UT Open Educational Resources (SUAKA UT)*

Kinds of UT Open Learning Sources	2019	2020	2021	2022 Semester 1
UT Radio	55,933	41,335	36,275	20,696
Web Suplements (Open Courseware)	133,504	99,422	73,612	43,206
"Guru Pintar online" Portal	109,680	3,833,294	2,060,333	1,238,039
Digital Library dan UT-TV	4,030,013	8,742,024	9,557,385	5,043,813
Online Journals	294,264	415,552	551,338	282,870
MOOCs	59,228			95,368
Jumlah	4,623,611	13,131,647	12,278,943	6,723,992

Source: *Universitas Terbuka (2022)*

The table shows that since the pandemic, access to SUAKA UT has increased dramatically. UT provided open access to the main learning materials through the virtual reading room that can be accessed in UT digital library, not only for UT students but also for the public. In 2019, the access to SUAKA UT, especially the digital library and UT-TV reached 4,030,013 and during the pandemic, it increased every year, i.e. 6,723,992 in June 2022 and predicted to be more than 13 million access. Furthermore, the functions of UT-TV are not limited to sharing learning materials but also broadcasting some webinars conducted by UT from the level of study programs to the university. One of the UT webinar series conducted since 2020 by inviting some experts in ODL as well as educational technology from academicians and government officials is called the knowledge sharing forum (KSF) which reached 26 series in August 2022.

To measure students' competency achievement, there are various types of exams provided by UT, such as paper-based exams, online exams, and online proctoring exams. However, during the pandemic, the needs of online exams increased dramatically since all the paper-based exams were cancelled due to the pandemic situation. Therefore,

in the early pandemic students were provided the course assignments to be accessed online as the parts of student evaluation both online tutorial participants and those who learn without being enrolled in online tutorials. In 2021, UT optimized the student exams by providing take-home examinations or THE that can be accessed at https://the.ut.ac.id. The THEs are provided in the form of essay writing and opened book that students have to follow some regulations regarding their integrity, such as avoiding plagiarism. The following is the results of THE in 2021 semester 1 (June 2021).

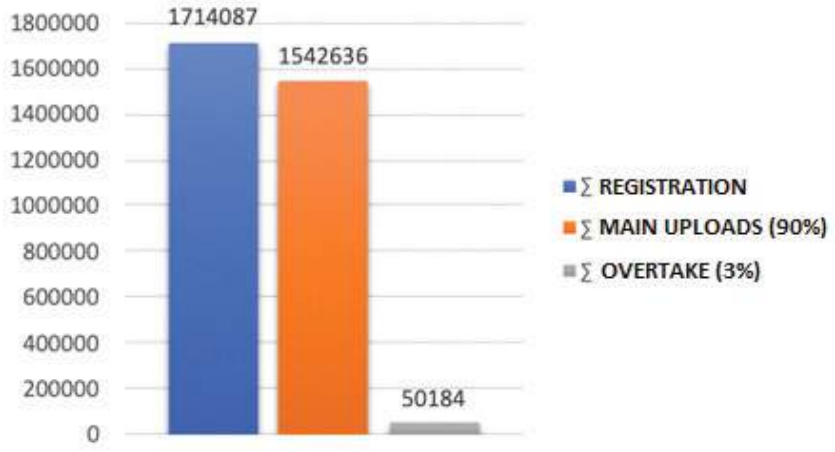


Figure 3. *THE Uploads of the First Semester taken in June 2021*

Source: *Universitas Terbuka (2022)*

It was predicted that tertiary education systems can emerge stronger from the Covid-19 crisis in Asia (Yarrow, 2020). Consequently, governments and institutions need to consider some aspects to build new innovations and possibilities for the recovery from the crisis. All educational institutions are getting their campuses and procedures ready for a "new normal" to welcome staff and students back. However, it seems that online learning will still take place in the new normal era. Therefore, educational institutions need to develop and diversify infrastructure, increase collaboration, and provide flexible learning pathways. Educational institutions must create a more agile and flexible system for digital pedagogy and develop low-tech innovations to give learning opportunities to students who are disadvantaged.

The development of UT as a cyber university aims to make UT strengthen its service network to assist agencies and institutions (colleges, ministries, official universities) that will organize information technology-based programs, as an effort to accelerate the increase in the GER of higher education and to meet various educational needs of the community, both degree and non-degree programs. As the pioneer of DE in Indonesia, UT is one of the most visited state universities in Indonesia, both from within and outside the country to conduct comparative studies on distance learning as well as e-learning. The trust of other universities in the quality of the ODL implemented by UT is also increasing with the number of other university students participating in

the Loose Courses offered by UT. Furthermore, UT was also appointed as the Chair of the Consortium for the development of the Indonesian Cyber Education Institute (ICE Institute) together with 14 leading universities in Indonesia, including the University of Indonesia, Institute of Technology Bandung, IPB University, Gajah Mada University, Institute of Technology Surabaya, Binus University, Diponegoro University, and any others. ICE Institute is an online learning marketplace that offers more than 350 choices of courses in an effort to disseminate knowledge (ICE Institute, 2022). ICE Institute also collaborates with service providers Massive Online Open Courses (MOOCs) such as EDX to provide opportunities for students and lecturers to take part in online learning in this leading marketplace.

Regarding the role of UT as a DTU, UT needs to provide some support to many universities in Indonesia that do not have adequate infrastructure and human resources for online learning. For this reason, UT is committed to actively providing solutions to help other universities in Indonesia in implementing DE. Among other things, this commitment is embodied through some ways. First, by providing an online learning service platform or Learning Management System (LMS) which is intended for state or private higher education institutions in Indonesia based on their needs. LMS is a software application used by educational institutions to manage online learning classes. With this technology, distance is no longer an obstacle in the implementation of education. The LMS used by UT is Moodle. Moreover, UT also provides assistance through training on the use of Moodle and the provision of a data management center for those institutions which want to use it in online learning but are constrained by infrastructure problems. Second, providing open free access and use of more than 1,300 digital teaching materials in the UT Virtual Reading Room (RBV) for students and lecturers from various other universities in the country. This digital BA can be accessed from various places via an internet connection using a laptop, computer, tablet, or smartphone. Third, by regularly organizing online scientific communication forums (webinars) aimed at disseminating knowledge about the implementation of distance education in Indonesia and the world. On a national scale, UT organizes a Knowledge Sharing Forum (KSF) and on an international scale UT collaborates with several experts and institutions from abroad to organize the Asian Association of Open Universities (AAOU) Webinar. This forum aims to explore ideas and best practices of the distance education system in the international world. Consequently, in this uncertain era of the COVID-19 pandemic, UT has also shown empathy and concern by providing relaxation of Single Tuition Fees for students affected by the pandemic, including various kinds of educational scholarships. By 2022, the tuition assistance provided by UT reaches around 16 billion Rupiah.

CONCLUSION

UT in the Era of Adapting to New Habits has strengthened its identity as the leader of Distance Teaching Universities in Indonesia because of UT's 38-year experience in implementing a distance learning system by utilizing advances in information technology. During the Covid-19 pandemic, UT has succeeded in carrying out various innovations in the academic and operational fields. Technology-based distance learning is proven to be able to expand access to quality higher education. The

Covid-19 pandemic is also a challenge as well as an opportunity for UT to continue to provide optimal distance education services to students while maintaining the quality of its services. The increasing trend of UT students in 2021 and 2022 indicates UT's success in carrying out the transformation to respond to the disruption caused by the pandemic.

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A Qualitative Approach to Student Engagement in Online Education[1]

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Abstract

Purpose: Student engagement has always been a hot topic in the field of education since all student behavior, in and out of the classroom, can be influenced by the engagement of students. With the emergence of online education as a result of COVID19 pandemic, students` engagement has started to capture more interest because keeping students engaged with school and courses has become harder than ever. Thus, this study aims to identify a group of EFL students` engagement in online education, the factors affecting their engagement, and also, their relevant attitudes towards online education.
Methodology: To this end, the study embraces a qualitative research approach involving a semi-structured interview. 20 students studying at the department of English Language and Literature at two state universities in Turkey were selected as participants in compliance with the convenience sampling technique. The interviews were conducted through phone mainly due to the constraints of the Pandemic. Content analysis was used to analyze the interview data.
Findings: The results have shown that the students are aware of the pros and cons of online education and they are engaged with school and courses as much as possible. In other words, the students get used to online education and are getting more engaged in time. However, their engagement is limited to doing homework or assignments, which indicates that student engagement in online education needs improvement. The study concludes that online education can be as successful as traditional education if enough time and effort are spent by both students and educators.
Originality/Implications: Since online education has become popular in recent times due to changing life conditions as a result of a worldwide pandemic, this study opens the way for further research to study student engagement in online education. The findings can be used by instructors to understand student engagement, improve it, and create a more productive learning environment in online education.

Keywords: *Engagement, Online Education, Participation.*

INTRODUCTION

When COVID-19 hit the world, Turkey, just like most countries in the world, had to shift its educational system from face-to-face to online teaching. This unexpected change has brought benefits but at the same time challenges, since neither students

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nor teachers were ready for online education that had never been part of the education system. Accordingly, the situation has unlocked new opportunities for researchers to conduct research in the context of online education. During the pandemic, a wealth of research has been generated on different aspects of online education. Student engagement in online courses is one of those aspects which is of great concern to educators. It may be defined as "meaningful student involvement throughout the learning environment" (Martin and Torres, 2016:5), which occurs as a result of devoting necessary time and effort on the part of students. In other words, engagement covers all acts and behaviors of students committed to education in and out of the classroom. Moreover, it is seen as the single most significant predictor in terms of persistence learning (Harunasari and Halim, 2019).

Student engagement occurs when students take active roles and involve meaningfully in education-related activities and when they increase their level of understanding during the learning process (Mohd et al., 2016). Accordingly, the increasing interest in student engagement could be seen as a remedy for decreasing student motivation and academic success (Fredricks et al., 2004). Because of the strong relationship between engagement and the quality of teaching-learning, student engagement is seen as an important element of education (Ciric and Jovanovic, 2016). In other words, to ensure good academic outcomes, students` engagement is essential in learning and teaching, which makes it highly researchable (Mohd et al., 2016). In addition, student engagement has a strong relationship with several other factors such as motivation and participation as well as attitude, which makes it a multivariate concept rather than a univariate one.

In brief, the current study tries to enlighten student engagement by handling it from different aspects, and it reveals its relationship with other variables such as motivation, satisfaction, gender, digital competence, interest, active participation, attendance, and study habits in online education. Participation, for instance, is an indicator of student engagement since it reflects the interest of students in classes. Likely, a student with a high level of motivation is more engaged in class compared to others with a low level of engagement (Nayir, 2017). Students' success in reaching their goals is closely related to their spending time and effort in the activities designed for achieving those goals (Astin, 1999). Moreover, the success of an education system can be judged by the attitudes of the students towards it because when students bear a positive attitude towards the education system, they are more engaged or try to be more engaged. That is, student engagement is a crucial element in the desire to reach academic goals.

For its special role in education, student engagement has been studied extensively in recent years (Barrineasu, 2019; Farrell and Brunton, 2020; Lee et al., 2019; Maia, 2019; Paulsen, 2020; and Vytasek et al., 2020) and highly relevant in educational research. Thus, it is a crucial issue in education, and its importance is getting higher and higher day by day. Not only abroad but also domestically should it be studied to support and increase student success. However, in our country, the studies on student engagement are highly limited such as Cakir and Solak (2014), Öztürk and Ok (2014), and Erarslan and Topkaya (2017).

The ongoing interest in student engagement is one of the driving forces behind this study especially when online education is considered, which is a hot topic during pandemic and needs to be investigated. To this end, the current study aims to examine the engagement of a group of EFL students studying at two state universities in Turkey. The study also examines students' attitudes towards online education and how engagement is impacted by satisfaction and motivation. Accordingly, the research questions are as follows:

1. How are the students engaged in online education?
2. What are the attitudes of the students towards online education?

METHODOLOGY

In nature, this is a qualitative study utilizing a semi-structured phone interview as a data collection tool. Unlike structured interviews, semi-structured interviews offer more flexibility to the researcher with the guidance of some pre-determined questions, where the researcher is allowed to ask any question related to the subject based on the flow of the interview (Klandermans and Staggenborg, 2002). The aim in choosing semi-structured interview was, as Dörnyei (2007, p.136) described, that "*it provides guidance and direction (hence the '-structured' part in the name), but is also keen to follow up interesting developments and to let the interviewee elaborate on certain issues (hence the 'semi-' part).*"

The semi-structured interviews were performed over the phone in participants' native language, Turkish, so that the participants could feel more comfortable and answer the questions in a stress-free environment. The participants of the interview were 20 English Language and Literature (ELL) students, 13 of which were female while 7 of which were male, studying at two state universities. Before all interviews, the participants were informed about the procedure and their consent was taken. They explained that the interview consisted of two sections, one was about online education and the other one was about student engagement in online education, and it might take about fifteen or twenty minutes. It was also stated that their voices would be recorded to be analyzed and reviewed later with a mobile phone, and the data they provided would not be shared with third parties. They were also assured that their identity would be anonymous so they could feel free and relaxed to talk. For the analysis of the qualitative data, the technique of content analysis was used under different themes.

The interviews contained questions regarding their engagement with online learning, their attitudes towards online education, and demographic information such as age, gender and working status. The results were analyzed using content analysis. To create a reader-friendly structure, the results will be shown under separate headlines. Additionally, the results are supported with the statements of the participants. For confidentiality reasons, the names of the participants were not used in the study; on the contrary, they were represented with different letters.

FINDINGS

Defining Student Engagement

When the participants were asked what they understood of student engagement, one of them stated that engagement is to do what courses and school necessitate. Another one says that engagement is to love your work and to improve oneself. A student builds a connection between courses and real life, and claims that engagement is to apply things learned at school to real life. One of the participants believes in engaging in attending courses regularly.

Statements:

K: "When I think of engaged students, I envisioned a student who regularly attended online classes."

M: "Engagement is doing the things necessary for courses."

Engagement Level

The participants were also asked whether they were engaged based on their definition of engagement. At this point, the participants have different levels of engagement. One said that he was engaged at first but later, his engagement level decreased in terms of participation in courses on time. Some also stated that they were more engaged in F2F education. However, there are students who think they are highly engaged.

Statements:

M: "I do not have a high level of engagement because I do not do the things that courses necessitate."

C: "I am engaged 7 out a scale from 1 to 10. It was higher in F2F education." H: "I think I am engaged generally."

Factors Affecting and Supporting Engagement

Later, the students were asked which factors affect their engagement during online education as well as the conditions possibly boosting it. One of the participants states that she is engaged because she has some future goals, and adds that students should open cameras otherwise instructors do not know their faces. Another one finds extra seminars helpful in terms of increasing their engagement and suggests that students may come together for extra activities to see each other. However, one of the participants states that being engaged is about her mood independent from courses and she sees F2F education as a solution. One sees the limited course periods as a negative factor impacting his engagement and he recommends that course periods should extend and courses can be planned for weekends. One of the participants claims that her aim is not only passing courses but learning things and applying them to real life, and this is why she is highly engaged. And lastly, generally, most of the participants recommend that the system through which education is delivered should be improved because it is not sufficient.

Statements:

K: "Internet problems or substructure problems where the student lives may affect engagement as well as not having sufficient technological devices. Also, students may have a job to help parents… To support engagement, course durations should be increased. Courses can be delivered in weekends, too"

M: "If I were at school, everything would be better. When I was at school, I used to feel better and engage well."

The participants also wanted to think about the effects of their instructors, classmates, and online education system on their engagement. While instructors and systems have an important role in students` engagement, classmates are not attributed the same importance. Most of the participants found instructors` teaching style and approach style to students extremely important to their engagement. One says that they might feel more engaged if the instructor opens her or his camera while teaching. However, classmates have been found to be important in terms of engagement by only one participant. When it comes to the education system, some technical or systematic problems such as internet connection failure, microphone failure, and lack of student cameras play an important role in students` engagement.

Statements:

J: "Instructors have an essential role in my engagement but my friends do not. The system through which education is delivered can be changed into a better one… I have instructors that I like but also, I have ınstructors whose course would not change whether it is online or face to face because his teaching style is not very interactive."

K: "Sometimes the instructors of the lessons change. I have never seen the faces of these instructors. Some of them do not turn on cameras. I can't feel any connection with them. The ones who turn on the camera sound more intimate… My friends are also effective because we always discuss topics and share opinions."

The Role of Motivation in Engagement

When the students were asked whether they are motivated and what the biggest motivator is for them in online education, the answers came in diversity. One of the participants complains about his low level of motivation and he does not want to attend some courses because they decrease his level of interest. One of them grades her motivation as 2 between 1 and 5, and the reason for this lowness is that some lecturers do not use their cameras and teaching styles of some are not suitable online, as said by the participant. Unlike them, one participant says that she has a high level of motivation although sometimes assignments may decrease it. Supportively, one participant adds that he can find motivating things because he is in a village and can go out or meet friends. Additionally, one participant states that motivation depends on courses and instructors, which means it changes day to day. Also, one stated that he is highly motivated because he can search on his own and take the responsibility of his own learning.

Statements:

G: "My motivation is always high. My instructors contribute to my motivation. If there are so many assignments, my motivation may decrease.

M: "My motivation level is 2 out of 1 to 5. Face-to-face education leads to discipline and responsibilities, and we have to wake up and go to school regularly. But in online education, we do not have to attend even courses because we can watch the recordings. Time flexibility decreases my motivation… I do not enjoy some courses. Some lecturers do not turn on their cameras. Their teaching styles sound weird online."

The Role of Assignments in Engagement

Additionally, the participants wanted to talk about their assignments, whether they do, why they do, and which type of homework they enjoy most. Interestingly, although all students do not have the same level of engagement, they claimed to do homework at a high rate. When their reasons for doing homework are examined, it is seen that they do homework both for intrinsic and extrinsic motivation. Some of the participants said that they do homework because they want to learn new things and be more engaged with the courses while some want to have grades because they pursue an academic career. It can be said that most of the participants believe that having high grades is not important for them at all because learning is much more essential. Additionally, three of the participants state that doing homework is a responsibility of them as students, and by doing homework they try to repay their instructors` efforts.

Statements:

M: "I do my assignments. Especially, if I love the course, I pay more attention. Having a good grade and learning things are both important for me."

H: "I do my assignments completely by trying to do my best before the due date. I do to reinforce my information. Also, it is my responsibility and duty as a student."

In online education, it is said by the participants that they have more assignments than face-to- face education. The reason behind this increase, as they believe, is that their instructors want them to be engaged with courses out of the virtual classes. The participants are aware of the importance of the assignments for their learning, and they claim that instructors should assign homework for them to study more and to make more searches on the internet or online libraries. However, the participants also remark that the amount of the assignments should be adjusted appropriately before being assigned to the students because this amount can sometimes be too much for them to do in time and attentively. According to the participants, assignments make them feel more responsible for their learning and stay in contact with the courses out of the class. Additionally, they also believe that assignments are more accurate tools than exams to measure their levels since exams are not trustable in their eyes.

Statements:

P: "We should have assignments because it is a kind of practice for us."

G: "I learn different things in each assignment. I enjoy most application assignments. I can see whether I can apply the things I learn."

D: "I do my assignments. I think our instructors should give homework at the same amount as face-to-face education. They should not assign much just because it is online education. They think that we always laze around but it is not true."

The Role of Attendance in Engagement

Most of the participants in the semi-structured interviews state that they generally attend the courses, which means they try to be online in time and join real-time courses because, otherwise, they cannot be active in the courses and keep interactivity. The most important reason for this attendance has been claimed to be the fact that they choose to learn in time and have the opportunity for active participation like asking questions and providing comments. Otherwise, when they watch the course recordings later, they feel like they are watching a TV program or a video on YouTube without any interaction. Only 3 students say that they are not online in real-time because they prefer watching recordings, which are easier to control and take notes.

Statements:

C: "I attend 90-95% of the courses.

D: "I try to attend courses generally. The percentage may be %75."

T: "I attend my courses. I have not attended my courses several times."

Attending live courses may not be sufficient for their learning or guarantee their cognitive engagement. During the online courses, students` attention is highly important for their learning. This is why the participants were asked what they are doing during an online course. The participants indicate mostly that they try to be focused during the course. To do so, they may shut down their mobile phones or close the door of the room. Additionally, they try to take notes to repeat course content later. However, some participants say that it is hard to be focused for a whole course period because course periods are too long for them such as one hour or one + half hour. Hence, they may engage with playing games, searching on social media, chatting with friends, eating or drinking, or even knitting. In general, the participants are focused during courses with exceptions.

Statements:

B: "Sometimes I lose my attention and surf on social media. Sometimes I feel heaviness. Then, I try to re-adapt to the course."

K: "I close my mobile phone because I know myself, and I try to focus fully."

A: "… But it is hard to focus in an online environment. We lose our attention after 20 or 30 minutes and we cannot focus."

The Role of Active Participation in Engagement

The role of active participation in learning is mentioned before. And, it is said that it is an indicator of engagement. At the point of active participation, the participants generally claim to be active or at least they try to be active during online courses. However, it should be added that students may prefer participating actively or listening without oral or written contribution. One of the participants said that active participation, no matter who does it, may distract their focus. So, they may choose only to listen to the lecturer. Also, they claim to learn better when they just listen because they can concentrate without being interrupted. Additionally, they think that there is no time for active participation since the course periods are limited.

Some of the participants also said that some reasons, to be given later, hinder them being active in courses. Even though their activity level may change course to course, some participants believe that active participation should be compulsory in courses since it helps them to learn better. On the other hand, some of them stated that active participation should not be compulsory because all students are not equal and they do not have the same opportunities such as computers, internet connection or a silent or isolated place in their homes. Additionally, it is also stated that learning styles of some students may be different and they may prefer being silent to learn and keep their focus in online courses. One student also states that students should take into consideration the thoughts of other students in terms of oral participation because they may not want to listen to others or get interrupted by others, and they may just want to listen to their instructors rather than their peers. In online education, some participants state that they choose to participate by writing in the chat-part rather than speaking because their houses may not be available at that time or they do not want to interrupt their instructors – they just wait for their instructors to see their messages.

Statements:

B: "I am trying to be active in courses but I am not active in all courses. I am not an active student, much more a listener. It should not be compulsory because people may not have sufficient hardware."

A: "I participate actively in courses. I am normally a talkative person and I do not hesitate sharing my ideas… This is a personal situation. It should not be compulsory. But the ones who want to state their ideas should state them."

As it is stated before, participation may have a critical role in the learning of the students. But there is no consensus about whether this participation should be oral or silent. From the point of view of the participants, it is seen again that students do not have a common point. Some believe that they should be active in courses by asking questions or providing comments to learn while others state that they can learn just by listening and they do not have to participate orally in online courses. And they say that their attention may be distracted while trying to be active and thus, their learning

may fail. On the other hand, some participants specify that they feel more productive when they participate orally. Consequently, the learning styles of the students are determinant in deciding which participation style is the most effective in learning. Thus, this fact should be taken into consideration while lecturing.

Statements:

A: "Active participation is necessary for learning. The more we discuss and comment on a subject, the more this subject is permanent. For example, if my instructor forces me to comment on a subject that I do not understand, I will make an effort on this subject and I will learn it easier."

B: "Active participation is not necessary for our learning. I can learn by listening." D: "Active participation is necessary and essential for our learning."

The participants were also requested to state the possible reasons for their potential inactivity or passivity in online courses. The reasons stated by the participants are listed below:

- Students may not organize their thoughts in enough time to answer the questions or ask questions.
- They may lose time while opening their microphones and in the meantime, other students can speak or the instructors pass the subject.
- Students may not want to interrupt their instructors since they cannot understand appropriately when their instructors stop or start to talk.
- Some technical problems may occur such as connection loss, closure of screen of both students or instructors, and infrastructure inefficiency.
- Students cannot find enough time to participate orally since the course time is limited and the instructors try to finish the curriculum within this limited time period.
- Some students are shy and they don't like to speak.
- Some students may shine out since they are active all the time, and so, others step back because of this reason.
- The attitude of the instructors is also effective; when a student has positive feedback from his instructors like "Yes, it is true, you are good", this student becomes more active in online courses.
- Some students may be concerned about whether their questions are too easy or ridiculous to others or whether they are the only ones who does not understand the course subject (when they say "I do not understand, can you repeat the subject?" to their instructor).
- Some students may get distracted while trying to ask questions or write something during the courses, and they miss come points in the courses.
- Some students may be concerned about standing out because his peers do not participate orally or in written courses.
- Some students may be prejudiced and think that they cannot understand the course anyway because it sounds hard to comprehend.
- Courses may be uninteresting to some students.

- Instructors may ignore questions of the students since their time is highly limited, and this may cause a thought like "Even if I ask questions, my instructor will not answer them, so I better not ask anything" in the minds of the students.

Table1. *Summary of the Factors Affecting Students` Active Participation*

Student-related Factors	Student-independent Factors
Long thinking period Being shy Fear of being laughed at Losing concentration easily Fear of standing out Fear of losing face Learning style	Technical problems Limited course period More dominant peers Attitude of instructor Uninteresting course topics Teaching Style

The Role of Interaction in Engagement

In terms of interaction, the participants have different opinions. One of them said that it changes depending on instructor. While one replies fast, one may reply e-mails after two or more days, and there is a loss of interaction between friends. Another one claimed that he got busier psychologically and stayed away from dialogues. However, one of the participants says that she does not have a problem; she can reach instructors whenever she wants, and she also says that interaction has increased because they do not see instructors and this is somehow encouraging. Another one says that she wants to feel the support of her classmates and this has decreased in online education, which affects her interaction and participation badly. On the other hand, one says that she may feel shy while texting to the instructors by claiming that interaction has decreased.

In general, according to the majority, interaction between students and instructors is in a box, that is, highly limited. Although the class of the students has an impact on this situation, generally, the participants claim that they cannot have a stress-free interaction in online education as in face- to-face education. The fourth grade, third grade or second grade students who had the chance to see their peers and instructors face-to-face stated that they did not have any problem while interacting or communicating with others. However, the first-year students said that they had trouble interacting with their peers and instructors since they did not know them. Additionally, whether they do group assignments was also asked to them to reveal their opinion about interaction with other students. They generally say that they do not have group studies, and most of them claim to prefer studying alone because each student does not carry the same responsibility.

Some participants also specified that interaction is easier in online education because their instructors direct them to send emails and they reply to those emails sooner or later. In face-to-face education, they may not find their instructor in his office or they may not reply to emails. Although some participants claim that there is no problem with in- and out-class interaction with peers of instructors, others say that if they know that person before, they could interact easily but if they do not, they could not

interact properly. Lastly, two of the participants say that some instructors are new or they take their courses for the first time and they do not know those instructors, which makes it harder to interact.

The Role of Grades in Engagement

It is an undeniable fact that grades are important to students. The participants generally state that getting a good grade is important for their future career but they do not do homework or attend courses for only grades; they also want to learn things or participation gives them pleasure. They also state that it changes based on courses. Loving or enjoying courses is a determinant factor.

Statements:

K: "Each student studies for grade, unfortunately. But I study not only for grades but also for learning new things. But I want to have high grades because I am an ambitious person."

M: "It changes depending on the courses. If it is a course I like, I will try to have a good grade. But if it is not, I do not care much."

After-course Engagement

The question about what they do in general for their courses out of the virtual courses has revealed their after-course engagement. In return, the participants` answers include reading course- related books and articles, watching TV series or movies for advancing their language proficiency, doing homework, summarizing the subjects touched in the courses, and taking notes of the courses. These responses represent that the students try to be engaged with courses and improve themselves but not all of them. Some participants state that they do not do much for the courses out of the class, and they just do their assignments if they have to. This is a sign of low-level engagement of those students. And they blame online education for this and say that they would be more engaged if the education were face-to-face. Also, the students were asked how many hours they study for the school daily or weekly. From the general answers, it is understood that students do not have a regular studying program. Only highly-engaged students claim that they study daily. It should be added that the study rate increases when it is exam week.

Statements:

P: "I summarize course notes and read the related books."

W: "I do extra readings. I read sub-sources of the courses, if any. I repeat my previous readings and draw general diagrams, for example, of courses from the beginning of the term to the due date. If I have spare time, I draw diagrams of the subjects of the courses."

The Role of Future Career in Engagement

The connection between courses and future career of the participants was asked to learn whether they think about course content and whether they find courses meaningful, which is a sign of cognitive engagement as stated by Mazer (2013). The participants generally find their courses related to their future but not all of them. Some of them stated that they study ELL because they want to be a teacher or to enhance their language abilities by not guiding a professional concern. This causes a loss in the said-so connection and shows that their cognitive and emotional engagement is low.

On the other hand, the participants who want to make an academic career find courses more related to their future. Also, what they want to be in future or why they have chosen this department were asked to the participants. There are students who study ELL because they love literature and the various courses offered such as teaching methods, linguistics, and translation. In general, it has been seen that the participants make a connection between courses and their future, which indicates their cognitive and emotional engagement is high. Only one participant, who said before that she did not study regularly and attend courses, states that she wants to found her own company. When these two findings are combined, it is seen that she is not engaged at all.

Statements:

A: "There is a connection in fact. I think and plan what I will do in future even now. This is why I study hard and elaborately. I am planning to have an academic career. Hence, I should study harder than other students."

J: "I have chosen this department mistakenly. Although I do not like literature, I enjoy courses because there are different courses such as linguistics and translation. I want to study at a second university in a different department."

The General Attitude of Students towards Online Education

In the semi-structured interviews, the participants were asked what they thought about online education in general, and what the positive and negative sides are for them. They all stated that online education has both positive and negative sides. One of the participants said that online education is good for him because he can manage time better and can attend other online courses, and they do not have to attend courses online since they can watch recordings. He adds that online education is bad because some application courses like translation require high interaction, which cannot be achieved during online courses.

Another participant emphasizes the time advantage of online education but adds that there is not enough opportunity for everyone such as digital devices and internet connection. Believing negative sides of online education are more than positive ones, a participant said that he started to be less concerned about live lessons because they are recorded and he thinks that it is not necessary to attend courses on time. He also adds that being at home every time can be destructive and family members may cause

him to lose his focus. Additionally, he does not believe that assessment is fair because students may cheat easily in online education. The instructors assign homework for exams but the homework may be too much for them this time.

While some say that online education is better than face-to-face education, others state that it cannot fill the place of face-to-face education. It is said to be helpful for the ones who cannot reach physical education normally; however, it is not beneficial for students since they cannot be motivated enough in online education.

When the positive and negative sides of online education were asked to the participants, they claimed in general that it has both advantages and disadvantages. From the point of view of the students, advantages of online education include;

- Students have more time to study and do research about courses. That is, online education leaves students plenty of time which they can spend however or for whatever.
- Attendance is not compulsory.
- They can save time and money since they do not have to go to university, and spend time while waiting for the bus or walking to the school or back to the dormitory.
- They are offered more and various course materials. In online education, the participants stated that more and more course-related materials such as presentations, books, and videos are provided to the students compared to face-to-face education.
- They have the opportunity to join the course from anywhere, which means that there is no place restriction; it can be home, library or even a coffee shop.
- Exams are easier, and they can reach information easily during exams.
- They can watch course recordings later when they cannot join the real-time courses.
- Online courses are easy to access.
- The number of homework is higher than the ones in face-to-face education, which makes students more engaged with the courses.
- Students are more exposed to technology which they already use in their life.
- Students can also join other courses which they are not enrolled as guests.
- Since time is saved in online courses, the students can spare time for self-improvement such as other online courses like music ınstruments.

On the other hand, the participants state that online education has disadvantages as follows;

- Looking at a screen for a long time impacts students` focus and they lose their attention after a while.
- Universities provide a social and city life to some students who come from villages or small towns.
- Lecturers do not have sufficient digital literacy skills.
- Courses requiring high interaction such as translation cannot be lectured properly.

- The students cannot know each other since communication is highly limited.
- They cannot make eye contact with their lecturers, which is claimed to be an important factor for their learning.
- Students may get distracted easily and their motivation dies away in their home environment because there might be many distracting factors such as family members, opening a door, or door bell ringing.
- Home does not provide a disciplined environment. Some participants claimed that being physically in a classroom made them more disciplined.
- Since the course hours are limited (like a course which is three-hour long normally is lectured in less time period like one hour), students may feel under stressed due to rapidly accumulating course topics.
- There is no time for interaction in courses since the course period is highly limited and the instructors should follow a course curriculum in that short time.
- Some students may feel uncomfortable to open their microphones since their homes are not suitable at that moment.
- Some participants also claimed that the instructors do not provide sufficient feedback, and so, they cannot be sure from their success level.
- Looking at a screen for a time period more than 40 minutes causes a decrease in students` attention levels.
- Some participants complained about the difference between online education and face-to- face education that there is not the same interaction among students and lecturers in the virtual environment as in the physical classroom.
- Reaching to instructors with e-mail is not enough because they may reply late.
- Students do not have equal sources for online education like a digital device (smart phone, computer, etc.) and internet access (some students live in villages where there is no internet access).In short, there is no equality or opportunity among students.
- The participants also said that online exams are not trustable since they are highly open to violations like cheating and stealing. All students may get good grades whether they deserve it or not.
- Online exams cannot be a good indicator of whether the students learn.

When online education and face-to-face education are compared, the students seem to prefer face-to-face education rather than online education based on the factors given under the title of disadvantages of online education. Among those reasons, the most prominent one is the desire to socialize with friends.

Statements:

B: "Some people learn by listening and learn by watching. This can be applied in online education but it is not very beneficial for me since there is no interactivity."

A: "Our instructors try to do their best in online education… We cannot speak in online education whenever we want as in face-to-face education because time is limited. This is why we have trouble. But we try to get used to it as much as we can."

Additional questions were asked to the participants about the sufficiency of online education and what could be done to improve it. When it is asked to the participants whether online education is sufficient, they generally state that they do not think that it is sufficient or it could reach success in future. There were some contrary statements. Some of the participants believe that online education is sufficient and helpful because the schools and instructors try their best. But in general, the participants support the lack of sufficiency of online education. Online education is said not to catch up with face-to-face education and the participants claimed that they would not choose online education and they prefer face-to-face education. However, some of them said that online education can be successful if students take more responsibility for their own learning and manage their time efficiently.

One condition for online education to be successful is to provide equality for students in terms of opportunities such as computers and internet access. Otherwise, this inequality continues to hinder in front of online education. One of the participants said that online education can be successful if interactivity is guaranteed, and lecturers should develop themselves because they stop doing it after they become an instructor. Another one recommended the system to be improved or changed with another brand because system failures may happen sometimes, especially in the exams. One of them said that some instructors put extra effort by preparing videos and voice recordings to compensate for the time-limitation of the courses. This can be extended to all courses. Also, tutorial videos may be prepared to teach students how to use the education system. Two of the participants said that students should also open their cameras so that the lecturer may see their faces. Similarly, instructors should also open their cameras. As stated above, some of them are not using their cameras but the students may feel more engaged when they see their instructors.

The participants also remark that online education does not affect their daily lives since it provides an opportunity to watch the courses at any time. Even if the students wake up just five minutes before the course, they can still join it. This flexibility provides them with an ease of adjustment. Moreover, the participants commonly claim that they adjust their daily life to their courses in order not to miss real-time courses. However, some of the participants were normally evening students but they had courses together with normal students at early hours. They claimed that they chose evening education for a reason, and combining these education types did affect them negatively.

Statements:

T: “Actually, online education has a positive impact on my daily life because my sleep pattern is not regular and so, it is useful to me.”

D: “I arrange my plans in accordance with my courses. If I have something to do, I say I will watch it in the evening but generally, I do not watch. Online education makes us stick to houses and antisocial.”

DISCUSSION AND CONCLUSION

As a result of the interviews, it can be inferred that the participants are engaged moderately, which directly answers the first research question. Supportively, the study has revealed that the engagement of the students is generally limited to doing homework and searching for course-related topics. Only a few of the participants stated that they try to enhance themselves in different subjects and course-related issues such as searching for British novels and watching or reading language-booster stuff. This may be a sign of the fact that students do not know how to deal with courses and what to do out of class. The participants were also asked what they understood about student engagement. They see engagement as doing what courses and school necessitate and loving your work and improving oneself. The participants also build a connection between courses and real life, referring to the fact that engagement is to apply things learned at school to real life. When these words are combined, it can be said that students generally understand what engagement is.

To understand the nature of engagement more, the participants were also asked about the factors affecting and supporting their engagement during online education. Among these factors, there are future goals, instructors` approach, supportive activities, personal emotions, limited course periods, education system, teaching style (Rahayu, 2018), feedback (Kuh, 2009), and peer support. If the students have strong career plans, they feel more engaged and connected to the school. Supportively, providing feedback is quite important for student engagement in written form and one- to-one emails as claimed by Lowenthal and Dunlap (2018). Additionally, it is obvious that instructors have a strong impact on students` engagement. This is why their approach, teaching style, and feedback methods are highly essential in keeping students connected to the school.

Although it is hard to increase the level of student engagement (Akbari et al., 2016), the participants recommended several methods to increase it such as extending course periods, asking questions to students (Medaille and Usinger, 2019), and changing or adapting multiple teaching styles (Lent, 2014). Lastly, the more an instructor is interested and engaged in courses, the more students are interested and engaged in courses, too. As supported by Louwrens and Hartrett (2015), the role of instructors in student engagement needs more attention.

The participants were also asked whether they attended courses in time to understand the relationship between participation and engagement in the way of revealing student engagement from every aspect. The participants have stated several reasons for attending in time or watching course recordings. The reasons for attending in time include; to ask questions, to understand course content, to have a more programmed/ disciplined process, to learn on time, to interact with instructors and others, to follow course topics, to keep connection with the school, to keep their interest, to socialize, to share ideas or opinions, to be active which is important for learning, to be motivated, to improve themselves, to save time, and to focus. They also see attending on time as more effective and as a responsibility of students. Some stated that they do not watch recorded courses when they miss courses. These findings have shown that the students

find attending on time as an important factor for learning and keeping motivation, interest, and connection with school and interaction with their instructors and other students. Consequently, attendance is a way of keeping students engaged.

However, there are also students prefer watching course recordings because they may have a job, they want to take notes, which is easier while watching recordings since they can stop, rewind or replay them however they want, and they can understand better and search on the internet when there is something they are confused thanks to this playable feature of the videos. They also may have irregular sleep patterns due to the flexibility advantage of online education. Some students may choose evening education just because of this irregularity or to work and their education has been combined with day education, so they have complaints and dissatisfaction. They may have internet connection loss or other technical/system problems on live lessons but these problems are less common in recorded ones. Being shy or anxious to talk can be included in these reasons. Additionally, some lectures force active participation, which causes students to stay away, and some students may have other responsibilities to do at home and this causes a time shortage for them to attend courses on time. Being at home may not be good at all for most students because there may be other family members using the digital devices and he or she has to wait for his or her order to use these devices.

Although friends are not seen as essential in students` engagement, lack of peer support may affect students` attendance. Also, they may feel more comfortable and focused while watching the recordings and they can modify their own schedule thanks to this feature of online education which is the opportunity to watch courses. Lack of interaction in courses results in a thought among students that there is no difference between attending on time and watching the recordings. At this point, attendance may be compulsory for online courses to make students attend on time. However, when the inequality among students is taken into consideration in terms of digital devices, internet connection, and study environment, making attendance compulsory would not be fair. This is a double bind that necessitates intuitions and policy makers to take some steps in the way of making students more equal across the country. When these reasons are thought together, it can be seen that all students are not the same, and thus, we, as instructors, should not act like they are so. However, if these reasons are investigated deeply and tried to be fixed, more students can be gained in live courses. The importance of attending courses on time cannot be underestimated based on the results, and the students should be encouraged to attend courses providing necessary conditions for them. At this point, instructors should take the responsibility of making students more engaged. This study is a proof for the essential role of them in students` education.

After measuring the attendance level of students, the study also aimed to see their participation style. The importance of participation, especially active participation, has been mentioned before. Moreover, it has been found again that students have different participation styles, which emphasizes that we should not put them into the same equation. It is well known that active participation is a part of engagement and it affects it positively (Barrineau et al., 2019). Although the students are aware of the

importance of active participation, it is also seen that they have different participation styles. While some want to participate actively in courses by asking questions or providing comments, others may prefer remaining silent and listening to instructors.

Although some students cannot feel productive when they are inactive, just listening, in courses, some students can learn just by listening, and active participation causes them to lose their attention. These differences have revealed the fact that they should not be forced to be active during the online courses. This is also highly supported by the participants as they say that students have not got the same opportunities and learning styles. At this point, grading active participation may create inequality of opportunity and make students stay away from live courses. Additionally, the students also have some recommendations for increasing interactivity and active participation in online education, as factors affecting engagement. It is highly advised that students should use their cameras, too. If their cameras are active, they feel more motivated and disciplined. Instructors should use images, videos or multi-media tools to encourage them to participate actively beyond making it compulsory. And, they should also consider their teaching style. Lecturing may not be suitable for student participation, and the teaching style of the instructor may not be suitable for online education.

Assignments are powerful tools in keeping students busy with courses out of class. The results showed that the students do their assignments at a high rate. The interviews have also shown that the importance of the assignments is highly understood by the students and they recommend their instructors to assign homework but also, they should measure its amount appropriately. Assignments keep students engaged with courses but the amount and type of the assignments also matter. The students state that they prefer and enjoy mostly the assignments which necessitate researching and providing their own opinion. However, giving an appropriate amount of feedback is also important because it is a sign for the students that they feel worthy and that their instructors care about them and their work. Nevertheless, when the ratio of necessary readings is concerned, it is seen that they do not read as much as they do assignments. One reason for this can be that generally assignments are graded, but not readings. When the findings are evaluated together that the greatest motivator is passing courses and that having good grades is important, it is a normal finding since readings do not bring grades to students. These findings are in compliance with the ones of the study conducted by Norze (2020). This study says that assignments can be a tool in applying the course content that students learn in real world settings, which is why they should be designed carefully. As supported by Keengwe and Kidd (2010), assignment can be a good tool in the way of motivating and coordinating students.

Whether they enjoy online courses was asked because enjoyment has been found to be important for engagement. In this question, an uncertainty can be seen because the participants stayed neutral with a high percentage. This neutral is followed by disagreement. Here, it can be said that the students are not completely closed to online education. If their needs and wants can be understood well and met appropriately, they can find online education more enjoyable, and thus, their engagement level may increase directly.

In line with the second research question, the participants` attitudes towards online education were tried to be displayed. According to the results of the study, the participants are all aware that online education has both pros and cons. The positive sides of the online education include saving time and money, having more course materials, and watching course recordings while the negative ones include lacking of interaction, limited course periods, and fall in language skills, especially speaking. Although the students try to be focused on the course, home generally offers them destructing factors such as ringing doorbell, family members` voices or siblings around. This indicates the fact that students cannot create an isolated environment for themselves in online education, which causes attention loss and a negative attitude towards this new education type. In short, students have generally negative attitude towards online education in contrast to Al-Qahtani`s study (2019) showing that both students and their instructors have positive attitude towards virtual classes.

In addition, the students do not prefer online education since they do not believe it would be successful and they cannot find the same interaction as in face-to-face education. On the other hand, their daily life is said to remain the same, except little changes. These changes include; they can adapt the time and watch courses whenever they want, they can join the courses wherever they want, and they do not have to go to the school building and lose time in school. As supported by Coman et al. (2020), the participants were highly sure that online education has negative impacts more than positive ones. The findings have shown that students understand the situation of online education in this pandemic period and also, that they can see the advantages of online education beyond this obligation. Among the positive sides, the students state that online education is useful in terms of saving time and money because they do not have to go to the school and the chance of being late to courses is highly limited. Maybe, the biggest advantage of online education is that courses are recorded, and students can watch or listen to them later. This is a good opportunity for students because they may watch these recordings before exams or before doing their assignments. More importantly, they do not generally worry about missing courses because they can compensate for missing courses by watching the recordings.

The students are lucky in terms of the abundance of course materials in online education because when it is compared to face-to-face education, there are more materials provided for students in online education. Also, they stated that reaching information is easier in online education as supported by Khan et al. (2020). However, how they use this opportunity is another subject to be concerned about. The cons of online education include lack of interactivity, lack of discipline, limited course hours, and anti-sociality. Students generally complain that online education cannot provide enough interactivity for them and they cannot integrate into the education procedure. Limited course periods and systematic problems are major factors affecting interactivity of students in courses. Although the students and instructors are wishing for an interactive education, this kind of reason prevents them reaching such.

When we take into consideration all these aforementioned factors, it can be said that these findings comply with the study of Asif et al. (2016) that defends being very flexible, technology shut- down, and less facilitation of faculty affect students` attitudes

towards online education. Consequently, as claimed by Çelen et al. (2011), the system, through which online education is delivered, should be well-designed enough to cover the needs, interest, and attitude of students. By doing so, the negative attitude towards online education may be turned into positive.

Consequently, the findings of the study may help high education authorities to build an ideal online education for the future that includes engagement-targeted resources and supports effective learning, and thus academic success. Since the instructors are not completely aware of the importance of engagement for both teaching and learning (Vaughan et al., 2013), engagement should be understood by them first. Then, they should take some steps to increase it such as being more open to students` questions (Gasiewski et al., 2012). Institutions and instructors should have the responsibility of increasing student engagement since it is closely related to academic achievement. To do so, instructors and institutions may start with a curriculum supporting student engagement in online education (Farrell and Brunton, 2020). Lastly, instructors should be aware of their importance for students and their learning (Lu, 2020). In other words, they should improve themselves and be engaged as well as interested in courses to support students` engagement and learning.

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Reviewing of Video Conferencing Technology in Mobile Learning

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Abstract

The use of mobile applications has been growing in web-based environments. Also, the use of mobile phones, tablets, and laptops being a part of our lives increases each day and has been expected to utilize them much in the future. That is why, users have usually been preferring these devices instead of desk-top computers while researching something, learning a subject, shopping, entering social media applications, and connecting to a web address. Also, It is considered that the becoming of mobile devices is practical, mobile, and easier to use will always impact user preferences in a positive way. So, as mobile devices are utilized in the technological areas, of course, Mobile learning processes within open and distance learning positively will have been impacted by this development as well. In the context of open and distance education, the mobile learning phenomenon seems an important learning model as users will become much more mobilized in the near future. Learners will prefer it due to its openness, flexibility, and easy use. Particularly, mobile users have begun to connect on live cameras and use video conferences on YouTube, Instagram, Facetime, TikTok, Twitter, and WhatsApp applications. Nearly 20 years ago 3G technology began to affect the access speed of the internet, and it is considered that this effect will continue with 5G-6G technology, which will include soon. The World population is nearly 8 Billion. Mobile devices in use have reached 10 Billion connections, and the number of mobile users will improve every day. In this context, it is thought will be able to be impacted positively of mobile learning, there are many learning management systems web-based using video conferences in the scope of instructional designs and distance education.The purpose of this paper is to show the importance of video conference tech in mobile learning. In mobile learning, video call and conference studies within literature have been researched and tried to find information on video conference techs and applications. After all, finds discuss, will be given a result and suggestion. As a method, this paper focuses on the use of Video conferencing in mobile devices in the scope of mobile learning. In the study, related to documents and applications in literature and open resources within-subject, it has been trying to look at the samples of LMS, video conferencing, and social media works for the last 5 years. In the context of open and distance education, I have tried to find mobile learning applications. The findings of the study will be discussed under the titles of Video Conferencing, Technological Tools Used in Video Conferencing and, Video Conferencing in Distance Education and Mobile Learning. In addition, the originality of the study had tried to pay attention. Video conferencing, technological tools used, and mobile learning in distance education are briefly explained and suggestions are made regarding the scope of video conferencing in the frame of mobile learning a conclusion.

Keywords: *Distance Learning, Online Learning, Video Conference, Mobile Learning, Instruction.*

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INTRODUCTION

The developments in information and communication technologies, which have witnessed important developments in business and education life in the last two decades, have begun to shape individuals and societies. In this period, where communication accelerates and information sharing increases, learning processes also develop in coordination and become more practical.

In the historical process of distance education, the learning processes were started and the results were obtained with the information obtained by the learners after the course materials were composed of printed materials and distributed by mail. The process, which first started with the correspondence model, was carried out by the learners responding to the mail they received or subjecting them to measurement and evaluation, and interaction was low. The interaction was not at the desired level. Therefore, learner-teacher interaction is known as the most important point of the learning outcome and process, and efforts are made to increase the teacher-learner interaction. As the process and time progress, and with the development of technology, new learning methods, instructional designs are supported by information and communication technologies. Audio tapes, radios, audio conferences and videocassettes, LMS-learning management systems are used for interaction. In this context, early experiences with video conferencing started on web-based applications, especially with the increase in 3G internet application and access speed in the early 2000s. The most well-known and first launched application for individual and multi-conferencing was the Skype application using VoIP technology over IP. Although video conferencing is a practice that users don't like to be "seen" by a camera at first, over time, such as YouTube, Instagram, Facebook, Twitter, TikTok, Snapchat. With the increase in social media applications, the use of cameras by users and participation in conferences have started to be accepted and the rate of participation has started to increase. As technology developed, interest increased. In particular, higher education stakeholders have been the users with the largest share in video communication. Within the scope of distance education, video conferences in higher education are expected to continue and become widespread. In distance education institutions, video conferences seem to be an alternative technological infrastructure in terms of participants, place, time and financial costs compared to traditional on-site conferences/meetings. In this study, starting from the concept of video conferencing, a brief evaluation will be made about technological tools and applications.

Method

As a review study, this paper focuses on the use of Video conferencing in mobile devices in the scope of mobile learning. In study, related to documents and applications in literature and open resources within the subject have been tried to look at the samples of LMS, video conferencing and social media works for the last five years. In the context of open and distance education, I have been trying to find mobile learning applications. Also at study, video conferencing, technological tools used in video conferencing and video conferencing in distance education and mobile learning are briefly described in the scope of video conferencing.

Findings

As a review study, this proceeding focuses on the use of Video conferencing in mobile devices in the scope of mobile learning. In the study, related documents and applications in literature and open resources within the subject have been tried to look at the samples of LMS, video conferencing, and social media works in the last five years. In the context of open and distance education, it has been tried to look at the basic video conferencing tools, techs, and the relation of mobile learning. It has been tried searching answers for the questions below, discussing findings, and reaching a conclusion.

What is mobile learning?
What are Mobile Devices used in Education?
What is the relation between Multimedia on the Internet and M-Learning?
Is there a difference between Web Conferencing and Video Conferencing?
What are Technological Tools Used in Video Conferencing?
What is the effect of Video Conferencing and Mobile Learning affected by technology-based?
What is compared to Video conferencing software apps, M2M, and devices tech results?

As a proposal instead of a conclusion, video conferencing technology and tools used in video conferencing, and video conferencing impact on distance education and mobile learning are briefly described in the scope of video conferencing.

Mobile Learning (m-learning)

Mobile learning means a kind of mobility while learning independently. Media and technology impact the education system in a positive way in this scope with mobile phones, tablets, and Laptop devices. One of the four skill areas of the twenty-first century is information, media, and technological skills. Today, one of the most widely used tools to meet the requirements of this field is mobile learning tools (Rogers, 2011: 16). Learning activities such as in-class exercises and practices can be carried out in the classroom environment, thanks to the fact that mobile devices collect many technologies on a single device and that these tools are easily portable (Saran, Seferoğlu, & Çağıltay, 2009). Today, the increase in the volume of information, its rapid transformation, and the frequent use of mobile devices by individuals in in-school and out-of-school learning has increased the importance of lifelong learning (Ağca, 2012). It is seen that mobile learning has evolved from e-learning with a natural process and, as it is economical and easily developed, it precedes e-learning in many areas (Rogers, 2011).

Mobile Learning method increases in the last term as the e-learning system develops in distance education by the Information Communication technology support. Learners started to prefer m-learning because of the use of practicality and learning mobility. In this context, Mobile learning environments (m-learning environments) enable students to learn their own learning (Özer, Ö, 2017).

M-Leaning tools and environments present many platforms and applications for learners. It can be accessed easily and quickly by mobile devices. Also, It provides

crucial educational opportunities as open educational resources. This case motivates all learner's learning capacities. Actually, It may be said to be a kind of digital revolution for mobile learning. This digital revolution has been transforming the distance education system by using information and communication technologies (ICTs) to improve student's learning outcomes. In the last few years, as it is known people are affected technologically in every field as social, cultural, and economic. Internet access speed and web-based applications provide easy-use infrastructures in other areas including the current educational model.

According to Criollo-C, S, et al (2021). Nowadays, learning using portable digital devices, such as mobile learning (m-learning), expands into all daily activities that are related to acquiring knowledge. The study of educational innovations has become increasingly important in educational research. Mobile devices, clearly, are growing faster than the world's population. Cisco, in its Annual Internet Report (2018–2023) published in March 2020, forecasts that smartphones will have the second-fastest growth by the end of 2023. As seen in Figure 1, mobile subscriptions will increase at a 2 percent annual growth rate. This means that more than 70% of the world's population will have a mobile phone in 2023. Certainly, the penetration of mobile devices has a direct impact on the way young people access information. Mobile devices allow students to improve the way they acquire knowledge. Education is there to ensure all students can benefit from a learning experience. To do so, when considering our ever-changing world, teachers and educational institutions should embrace technology, as an innovative new methodology, to enable their students to achieve their goals. This does not mean the introduction of technology in the classroom is a guarantee of success. In theory, these new technological methodologies can be easily adopted by the new generations of "digital natives." This is due to the easy handling and adaptation to new technologies since this generation grew up with access to the Internet, mobile devices, and social networks.

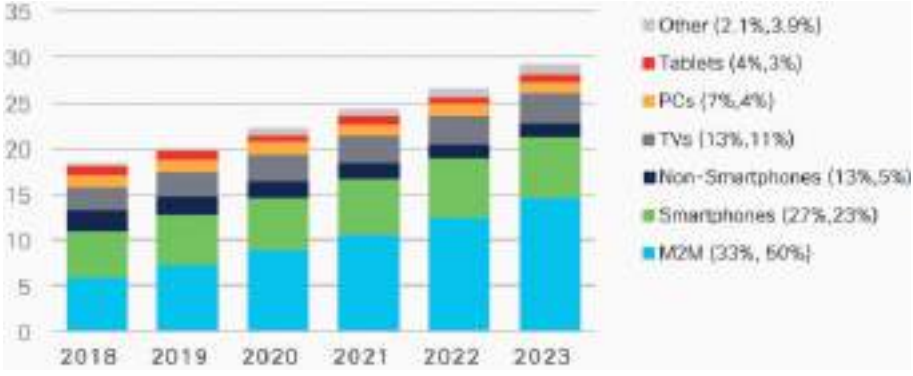


Figure 1. *Global device and connection growth (Cisco Annual Report 2018-2023).*

The use of m-learning in the teaching and learning process would be a more natural and effective way of learning for this generation. In many places, mobile technology may, possibly, be the only platform available to access educational information. It is for this reason that m-learning systems are allowing people and vulnerable groups

to access knowledge. Technological advances have accelerated the development of multiple applications, among which those that can be used as support in education stand out (Criollo-C, S, et al, 2021). The use of mobile learning tools affects how we access education and our lifestyle greatly changed (Ally & Prieto-Blazquez, 2014: 145). It is very important that technology is intertwined with every aspect of life and learning by making use of a foreign language is extremely important (Criollo-C, S, et al, 2021).

Use Of Mobile Devices in Education

According to Kukulska et al., students use mobile devices mainly for learning, social interaction, entertainment, and work. In general, the most prominent uses in the area of learning are: immediate access to information and answers, reading e-books, listening to podcasts, using applications for learning purposes, educational videos, educational games, serious games, accessing documents or document libraries, participating in online lessons and tutorials, receiving live-streamed lectures, accessing video clips or audio libraries, reading asynchronous publications, participating in virtual learning communities, etc. Less frequent uses of these devices include creating an educational resource, listening to television programs and educational documentaries, recording the voice of a presentation, taking pictures in reference books, socializing with experts in different areas of knowledge, feeding a blog, and interacting in an educational way in social networks. Language learning is also a popular activity among students. As cell phones combine the functions of audio and video playback, the use of GPS, sensors and gyroscopes, the world of learning has become more mobile, more ubiquitous, more flexible, and much more exciting. In recent years, the educational model has benefited from the incorporation of technologies that enrich the teaching-learning process. An advanced m-learning technique is augmented reality (AR). This technique shows digital information on images captured by a mobile device. AR allows the display of stored Data and 3D images, making any educational environment interactive and innovative. In the same way, virtual reality (VR) contributes to an entirely immersive learning style. This characteristic, surely, allows for improving the understanding of specific educational topics (Criollo-C, S, et al, 2021).

Multimedia on the Internet and M-Learning

Both internet and m-learning areas cover multimedia incorporating text, graphics, and audio media (often with real video or animations) and combine them, using a computer. Almost every personal computer built today is capable of delivering multimedia presentations for entertainment, advertising, or education. Edutainment is a word for applications that incorporate multimedia entertainment with educational objectives. *Streaming audio, streaming video, audio chat and voice-over-internet protocol, instant messaging, hand and held wireless Technologies, peer-to-peer file sharing, web blogs, RSS feeds, wikis, virtual worlds, digital games, learning objects, and web conferencing* are some multimedia applications on the internet and mobile learning. (Mayer R.E, 2009)

Web conferencing is a form of graphic teleconferencing, used in combination with VoIP as a single tool in general web applications that support real-time collaboration. The "whiteboarding" feature emulates writing or drawing on a blackboard. With a

whiteboard, both teachers and learners can create, manipulate, review, and update graphical information online in real-time while participating in a lecture or discussion. Using a mouse, an electronic stylus with a tablet, or even a large electronic classroom-sized whiteboard, users can annotate by writing, cutting and pasting, or clicking, dragging, and dropping. In web conferencing, content can be saved and used in future presentations. Imported graphics can be used as underlays that the user can trace over, using an "onionskin," "placed" on top of the image; for example, routes can be drawn and redrawn on maps. The providers listed in the Recommended Links section below sell or rent virtual classrooms, with size (i.e., the number of simultaneous logins permitted) determined by the license and the bandwidth available at the central site. These products are now incorporating small video images, "web safaris" in which the teacher leads the class to visit various sites, and application sharing which allows any of the distributed users to control a single application.

Video Conferencing

Video Conferencing in Distance Education synchronous conferencing offers two ways of communication; students and teachers hear each other (Oranburg, 2020). For better video conferencing, it is essential to consider the quality of video and audio, official time, teaching strategies, and opportunities for face-to-face meetings (Grant & Cheon, 2007). In the literature, there are some studies that concluded positive and negative results of video conferencing related to interaction, success, and views of students and teachers.

These studies proved that video conferencing had a positive effect on education (Candarli & Yuksel, 2012; Turgut, 2011). This improved the potential for interaction (Pattillo, 2007). Increased the attitude of students (Townsend, Demarie, & Hendrickson, 2001); on the other hand; video conferencing in distance education negatively affected students' attitude due to technical problems like audio and visual (Candarli & Yuksel, 2012) and it didn't enable students and teachers to have effective teaching and learning (Knipe & Lee, 2002).

Recently video conferencing technology has been used extensively in education and business life. It is usually a live interactive application made Online through applications web-based. It is able to be recorded to watch again later.

Experienced and ongoing developments in information and communication technology have positively affected the learning processes in distance education. Video conferences are one of the most important learning tools. Globalization in business and education fields seems to support this phenomenon. That's why it has been extensively started to be used in Online learning. But the traditional face-to-face education model in educational institutions has been combined with the Online learning model of distance education. Also, the distance education system can program the Online learning processes as a single structure, completely in its own infrastructure as the open and distance education. As the demands for Online learning are increasing day by day, video conferencing applications that work with technological infrastructures over internet addresses appear as a supportive factor.

In distance education courses, video/audio conferences and various meeting and presentation methods are used. Especially in Online courses, video conferences have been used intensively. Video conferencing is considered the most effective interactive communication tool within the scope of Online learning. It offers video conferences over the Internet, simultaneous webinar meetings, training, seminars, and conferences. Company employees in business life and academics in higher education can instantly share information with the other party. It is an efficient system in terms of time and cost.

Video conferencing systems have been turned into an open TV channel for doing business, education, live games, entertainment, socializing, and sharing instant events. It has been turned into a structure that rivals the corporate media under a certain authorization, where completely original and free individual shares are made, which everyone can use as their own media. The fact that it provides individuals with the opportunity to share their own will can be seen as the most important proof of its transformation into an effective tool in the context of learning processes. Any person can open their own channel on social platforms such as Youtube and Instagram at their own will and organize synchronous and asynchronous video conferences and video shares on any topic, for any purpose. For these reasons, the use and impact of video conferencing on many platforms have increased day by day.

Technological Tools Used in Video Conferencing

According to technological definition Video Conferencing is a meeting with two or more attendees interviewing in the live environment from different locations.

Needs an internet and a computer connection, audio, and video system to connect. Can be used for team meetings, webinars, product demos, job interviews, Distance learning, Online learning, Mobile learning and more.



Figure 2. *Video Conferencing Meeting (Owllabs.com, 2022)*

For Video Conferencing basic equipment is needed. The most commonly used video conferencing equipments; **Displays** like Laptop, desktop monitor, tv screen. **Microphones and Cameras** including built-in microphones, USB microphones and webcams. **Speakers** including built-in computer speaker, external speaker, VoIP (Voice over IP) conferencing phone. **Internet Connection** covers Wifi, Ethernet. and **Video Conference Software** covers video conferencing tools, and apps (Owllabs.com, 2022).

Video Conferencing System types can be occured the telepresence video conferencing system, desktop video conferencing system, room-based video conferencing system.

Telepresence Video Conferencing System: Multiple screens or monitors are used to make everyone feel like they're joining the meeting in person (Owllabs.com, 2022).

Desktop Video Conferencing System: All the video conferencing Hardware and Software is built-in to a computer or Laptop (Owllabs.com, 2022).

Room-Based Video Conferencing: The video conferencing technology is built-in to the room itself (Owllabs.com, 2022).

Video conferencing technology is used on Team meetings, Webinars, Product demos, one-on-one training and support, job interviewing and distance learning, and mobile learning.

In the context of technological tools, it seems appropriate to evaluate the subject in terms of IP (Internet Protocol Address), VoIP (Voice over Internet Protocol), Application, and User.

IP (Internet Protocol Address) internet address where access and communication are provided,

VoIP (Voice over Internet Protocol) technological infrastructure that works over Internet/computer networks where voice, video, and messages are sent over the Internet,

Application, Software that uses IP and VoIP technologies to mediate web-based video, audio, message sending,

User Individuals or groups who download web-based applications from Google Play, and IOS infrastructures to their devices and use video conferencing systems.

With the installation of a video conference, the cost structure, and communication costs are able to be estimated. A conceptual understanding of the technology involved in a video conference is required. Video conferencing applications typically:

- Cameras to capture images of local attendees,
- Screens to view images of remote participants,
- Microphones to capture local sound and
- There are substructures formed with speakers to replay the distant sound.

In its simplest form, video conferencing comprises devices and locations at two points. The point-to-point connection can be made with video conferences. As can be seen in the Figure 3 below, one or more participants can be found anywhere with the connection (Caladine et al., 2010). In Figure 3, it is often possible to connect to networks in more than two, tens, or hundreds of locations in the same video conference (Caladine et al., 2010).

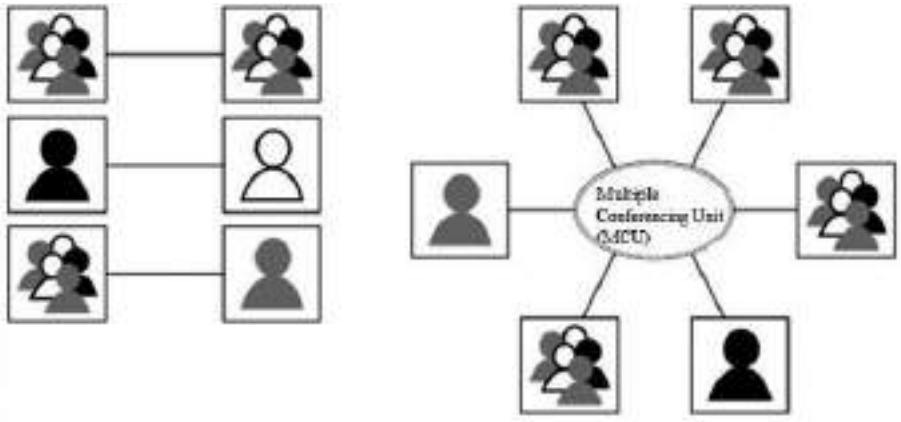


Figure 3. *Multiple Conferencing Unit (MCU) (Caladine et al., 2010)*

With the increase in 3G internet application and access speed in the early 2000s, as the most known and first application for individual and multi-conferencing, which started on web-based applications; The Skype application using VoIP over IP technology is known. The number of similar applications is increasing day by day due to demand. Along with technological developments, the 4.5G system is used today. It is predicted that video conferences will become more effective in an environment where the speed of wireless internet access increases with 5G and 6G in the future. Especially during the COVID19 pandemic process, live meetings, webinars, conferences were organized within the scope of emergency distance education and for the continuation of the meetings in business life, and video conferences have become a regular situation. In this context, Skype, Zoom, Microsoft Teams, Webex etc. The use of applications and the number of users have increased. These applications used in the context of distance education have become an indispensable part of instructional designs. The most used web conferencing applications are Zoom, Microsoft Teams, Cisco Webex, GoogleMeet, Skype, Adobe Connect, Gotommeting, Livestorm, BlueJeans, ezTalks, Houseparty, Jitsi, Google classroom, Click meeting, Slack, WhatsApp, FaceTime (Caladine et al., 2010).

Live lessons were supported with these applications within the LMS (Learning Management System) Learning Management System Software, which educational institutions started to use in distance education. In addition, as a supporting element in distance education, technological tools with which the user can communicate with instant shares in applications such as Whatsapp, Twitter, Instagram, Facebook, Youtube have also taken their place as a supporting element. In this context, the most important technological equipment has been mobile devices, mobile phones, tablets and desktop computers. Therefore, it has become easier to organize and participate in seminars, conferences, and meetings. Participation in any desired training, lecture,

meeting, seminar, conference, anywhere in the world can be achieved easily through video conference applications (Caladine et al., 2010).

When it's compared, some apps like Zoom, Google Meet, Gotomeeting, Bluejeans, Ciscowebex, Skype's Video Conferencing quality can be different from each other according to their technological specifications.

Table 1 has explained all apps' by overall ratings of their video conferencing system. As for technology, there is no difference between them. Zoom comes out of front one step ahead from others by 91% performance and reliability rating (Owllabs.com, 2022).

Table 1. *Video Conferencing apps overall ratings (Owllabs.com, 2022)*



Otherwise, when looking at a brief overview of the standards used for video conferencing technology. In addition to the standards listed in Table 2 in accordance with, special standards refer to internet standards related to video conferencing. Particular attention is also paid to standards related to security and encryption, multimedia control, etc.

Table 2. *Names of standards for video conferencing Technologies (Anderberg, 2008)*

Technology	Name of the standard
Signal transmission	H.310, H.320 (ISDN Networks) H.321, H.323 (since 1996) H.324 (PSTN) H.324m (3G or UMTS) SIP (VoIP and Video Calls)
Video codecs	H.261 (introduced in 1988) H.261 Annex D H.263 H.264 (MPEG 4 AVC)
Audio codecs	G.711, G.722 and modifications G722.1 G.722.1 Annex C G.723.1, G.725 G.728, G.729, G.703

Notes: PSTN- Public Switched Telephone Network,
UMTS - Universal Mobile Telecommunications System,
SIP - Session Initiation Protocol,
VoIP - Voice over Internet Protocol.

The Standard makes recommendations for basic equipment:

Camera. Particular attention should be paid to the positioning of the camera (cameras). Another aspect is related to the quality and functionality of the camera (the existence of the zoom option and resizing) (Gladovic et al., 2019).

Sound. Audio quality is immensely important in video conferencing. A delay in sound transmission of only 0,5 seconds leads to a discrepancy between speech and body movement, which impedes teacher-student interaction. According to, a delay of only 0,15 seconds results in interference with the natural flow of communication (Gladovic et al., 2019).

Lighting and Background. Particular attention should be paid both to the place from which it is aired and the place where the listeners are. Many video conferencing features are algorithms that have been ratified by the ITU-T (International

Telecommunication Union, Telecommunication Standardization Sector) standards. This allows seamless connectivity between different products or networks, eliminating thus any interoperability issues (Gladovic et al., 2019).

Video conferencing can take place in point-to-point configuration (2 locations) or multiple points (3 locations or more). All video conferencing sites require a proper codec (A decoder is a special program. Used to play and compress video and audio files). All locations participating in multiple calls must be "bridged" by using the built-in multipoint capability or the Multipoint Control Unit (MCU). Many codecs have the built-in ability to "bridge" up to 4 locations, i.e. 3 other locations and their own. The codec initiates a multipoint call, which may also require additional network bandwidth to make or "host" the call. Using an MCU is usually a requirement in conferences with 4 or more points. The MCU is a Hardware solution that allows you to connect multiple locations to video, audio, and the Web. During a multipoint conference, all participants can hear each other at any time (Figure 3). What participants see, depends on how the conference is set up through the MCU:

- Voice Activated: Participants see the current or the last spoken location.
- Continuous Presence: Participants see all locations in different window layouts on the monitor screen. Examples of possible multiple window layouts are given in the following figure.

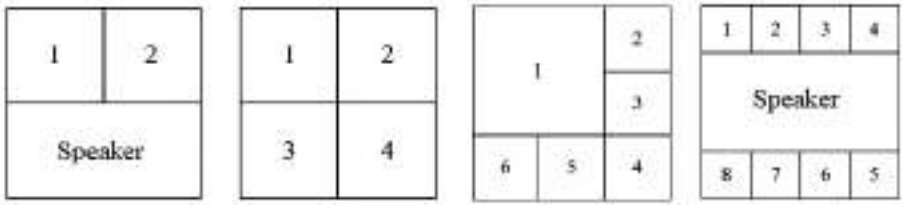


Figure 3. *Possible multiple window layouts (VSGI, 2005), (Gladovic et al., 2019)*

Video conferencing technology is used extensively for an interactive educational process. The use of video conferencing to support teaching and learning is becoming increasingly possible with many young people and adults owning computers or mobile devices that can support video and audio connections (Gladovic et al., 2019).

Otherwise, in some video conferencing having smart Systems is able to get easier its applications. In this app can dynamic and proprietary AI-driven softwares. That can have regular upgrades to make video conferencing even more immersive and inclusive. Wirelessly can sync all devices in conferencing spaces for seamless meetings.



Figure 4. *Smart coverage for every space (Owllabs.com, 2022)*

As seen in Figure 4.

Can enable two paired Meeting to detect the active speaker in large rooms.

Can Modulate speaker volume for an Optimal remote listening experience.

Effortlessly can improve features and capabilities with routine upgrades.

Can be provided smart coverage and full Room Solution for every space.

As tech support, other types of equipment used are digital signage, monitors, video walls, touchable screens, and portable projection devices for video conferencing systems. Also, they can use hybrid equipment with desktop computers, laptops, tablets, and mobile phone devices.

Video Conferencing (VC) in Distance Education and Mobile Learning

Video conferences are used extensively as a method in distance education. Within the scope of planned instructional designs, video conferences are used in live lesson applications within Software such as LMS learning management system. In addition, optional video conferencing (VC) applications such as Zoom, Teams, and Webex can be included in the process. Lessons can be recorded and, by creating a basis for re-watching, they can be made supportive towards reinforcing the information shared in the learning process.

Within the scope of the development of e-learning materials, video conferences can be considered the most effective technological communication and interaction tool in teaching processes. Today, the learner generation's proximity to technology and their preference to learn by watching have paved the way for the development of video conferencing (VC) technology. With the interaction of the learner, video conferences accelerate his learning process, provide support in understanding the concepts with the given information, and are preferred by the learner. For this reason, distance education course applications such as Future Learn, Edx, Coursera, Udemy, Eba, and Akadema are highly preferred in addition to Youtube, which is generally used for free. Although there are mostly asynchronous courses in these systems, there may also be simultaneous video conferences within the curriculum. In every channel of distance

education, including LMS-learning management systems such as Moodle and Canvas, video conferences are important in Online (MOOC) courses.

The awareness and use of distance education processes post-pandemic has been increasing for the last few years. This situation has accelerated the use of information and communication technologies by both providers and users. The increase in new developments in the technology field has also prepared the ground for the development and intense demand for the distance education system. Thus, video conferences are used as the most effective learning method on both mobile devices and other devices. Educational institutions have been trying to adapt their corporate Software infrastructures to the demands of users in order to intensify video conferences application in Online learning processes.

According to Themelis and Sime (2020), video conferencing (VC) can assist Online learning and teaching through supporting, watching, and interacting with teachers and learners from anywhere. Interactions via VC can be both informal and formal. Informal Online interactions have been shown to help lecturers and students "establish better social relationships with their instructor and classmates" (Contreras-Castillo, Favela, Perez-Fragoso, & Santamaria-del-Angel, 2004, p. 164).

Devices in mobile learning are smartphones, laptops, tablet PCs, and PDAs. Access to all devices may be wireless when the learners, even on a walk, have a seat or stand anywhere outside of campus as long as they are learning. Learners in the learning process are free because of this flexibility. They can participate in any hybrid course and live video conferencing.

The benefit of mobile learning is that; all instructional facilities of school can be provided through the web-based mobile devices for video conferencing including all instruction modules. So, learners and educators can connect to the Server of the school from mobile devices and use a database for benefiting, and get results for courses as long as they are learning.

A disadvantage of mobile learning is that; learners can enter social media apps during the learning process, and their concentration can be broken down. In some cases, maybe they can not connect to video conferencing and not be interacted with. Despite this, the advantages are much greater due to the increased use of mobile devices and the mobility of instructors and learners.

DISCUSSION AND CONCLUSION

When these findings are evaluated, the use of video conferencing technology related to technological developments is increasing in every field. It can be considered as the most effective infrastructure of learning methods. It has a structure that will support traditional and distance learning methods. Today, when mobilization is increasing, its practicality is preferred by users. With the acceleration of internet access, accessibility has increased from place to place. Everyone has mobile devices in their hands, and the possibility of using computers and video conferencing can be realized without time/place barriers. While the user potential is increasing in the world and in Turkey, there are available a huge business and education group that can do their work and work with video conferencing. With the

support of video conferencing technology and Online learning applications, it is thought that the learner potential will increase and change the way of doing business.

Video conferencing technological application tools have been and will continue to be one of the learner-centered and most used interactive learning tools in the context of distance education. Video conferencing applications, which also provide opportunities for the learner to transform into the role of a teacher, offer great technological opportunities. Lessons, meetings, and seminars with the right content created through video conferences will prepare the ground for simultaneous/ instant interactive sharing and learning. In order to increase efficiency in distance education processes, it is also important to have learner-centered video conferencing applications organized by learners practically. "Connectivism", which is the learning theory of the digital age, will positively affect the learning process on networks within the scope of the learning approach. With such practices, it is possible to increase the learning loyalty of the learners and to create their own learning environments according to their needs. Increasing the intensity of academic studies and learner-centered applications by using video conferencing technologies will also increase interaction at the Global level as well.

In this context, mobile learning with mobile devices comes out in the front. When looking at figures for the use of mobile devices in the World. The figures have been indicating the development field of mobile learning.

The need just maybe is to adapt video conferencing applications to Google Play and IOS stores for use freely. Generally, websites don't seem proper for the use of learners. In spite of some websites being responsive on mobile devices. Detailed learning content is sometimes unable to be seen on the screen of mobile devices.

It should be video conferencing tools and edutainment mobile applications on the App-Store being suitable for the interaction of learners. Video conferencing in social media and other web conferencing tools should be used instantly and adapted to Learning management systems. Should be created new instructional designs in the video conferencing content for learners.

Learning Management Systems (LMS') is crucial for Video Conferencing in distance education and mobile learning fields. A few video conferencing Technologies are suitable for embedding into LMS Software like Moodle, Canvas, etc. If LMS' are able to be fit and adjusted accLearning Management Systems (LMS') is crucial for Video Conferencing in distance education and mobile learning fields. Most video conferencing technologies are suitable for embedding into LMS Software like Moodle, Canvas, Articulate360, easygenerator etc.

The Learning Management Systems using mobile devices can be fit and adjusted according to the screen of mobile devices. Video Conferencing techs can present all details of education resources via mobile devices. In this case, both LMS and VC use can increase. Thus, Learners can use mobile learning more on mobile devices.

Traditional and distance learning will be supported by mobile learning covering video conferencing technologies soon. Also, social media apps such as WhatsApp, Instagram,

Telegram, and FaceTime, TikTok, Snapchat with their live cameras and games, and video conferencing will be included on the screen of mobile devices. Live Video Conferencing in mobile learning will take place in all detail of tech in mobile learning. So, In every case, both LMS and VC use will increase. Learners can prefer mobile devices used more like mobile phones. In the near future, traditional and distance learning will improve, supported by mobile learning covering video conferencing technologies, and mobile learning will take a place in importance.

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Student Digital Literacy in Online Learning Before and After the Covid Pandemic

Mukti AMINI[1]

Abstract

Learning at the Universitas Terbuka that applies Open and Distance Learning (ODL) requires students to study independently using various learning materials and services that have been prepared. During the covid pandemic, almost all self-study materials and services were converted into an online form to break the chain of covid spread. This condition forces students to develop digital literacy that will be used both in learning and in everyday life. The early childhood education (ECE) program student had the status of an early childhood teacher before becoming a student. During the covid pandemic, they also have to do Learning from Home (LFH) which relies heavily on digital literacy. This study aims to look at the digital literacy that exists in ECE students at the Universitas Terbuka, Indonesia. The research was conducted in 2021 using a survey method with an instrument in the form of a questionnaire on 550 students spread across several areas of Indonesia. The results of the study found that: (1) most students had their first experience of online learning since the covid pandemic, (2) mastery of certain applications increased rapidly due to the challenges of assignments during online learning (3) the majority of students have email but it is not used optimally, (4) most students think that online learning can be applied as a variation or combination with offline learning in the post-pandemic period. The suggestion from this research is that further research is needed to improve students' digital literacy in online learning.

Keywords: *Digital literacy, online learning, open and distance learning*

INTRODUCTION

The Covid-19 pandemic that has hit almost all countries in the world demands rapid adjustments in various fields. One of them is in the field of education. Study assistance services at the Universitas Terbuka, which can usually be provided in the form of face-to-face tutorials, during the pandemic must be carried out online both synchronously and asynchronously. The change in this tutorial service also requires readiness from students, especially in mastering digital literacy.

One of the study programs at the Universitas Terbuka is the Early Childhood Education (ECE) department. ECE-UT students are all already Early Childhood Care and Education (ECCE) teachers when they register as ECE-UT students. This means that they study at ECE-UT as a form of in-service training to improve competencies according to the demands of ECCE teacher competency standards. During the pandemic, they must also carry out Learning from Home (LFH) as an implementation

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of policies from the Indonesian government to break the chain of the spread of Covid 19 for their students. This LFH also demands mastery of digital literacy. So at the same time, during the pandemic, ECE-UT students as teachers had to do online learning for their students in kindergarten, and also take part in online learning for themselves as ECE-UT students. This study aims to determine digital literacy in ECE students at the Open University, Indonesia.

Digital Literacy

Digital literacy is defined as an individual's ability to search, find, evaluate, and compose clear information through typing, writing, tapping, and using other mediums (e.g., multimedia videos, video calling, and messaging) on various digital platforms, which requires a basic level of computer competency (Bawden, 2008). Belshaw (2011) stated that there are eight elements of digital literacy, namely: (1) Cultural, namely understanding the various contexts of users of the digital world; (2) Cognitive, that is, thinking power in assessing content; (3) Constructive, that is, the creation of something expert and actual; (4) Communicative, that is, understanding the performance of networks and communications in the digital world; (5) Responsible self-confidence; (6) Creative, doing new things in new ways; (7) Critical in responding to content; and (8) Be socially responsible. Meanwhile, another expert state that there are eight components of digital literacy, including creativity, critical thinking and evaluation, cultural and social understanding, collaboration, finding, and selecting information, effective communication, e-safety, and functional skills (Hague & Payton, 2010).

Online Learning

Online learning is defined as the experience of learning in synchronous or asynchronous surroundings using distinct gadgets (e.g. cellular telephones, laptops, and so on) with net access. In these surroundings, students may be anywhere (impartial) to examine and interact with teachers and other students (Singh & Thurman, 2019). Online learning is a way to learn that uses the internet and other important technologies to develop material for educational purposes, instructional delivery, and program management (Adedoyin & Soykan, 2020). One interesting thing, judging by its effectiveness, is the research that shows that online learning is as effective as or more effective than face-to-face learning (Soffer & Nachmias, 2018). In terms of safety and protection of human lives, the online learning process can help reduce parental concerns about children who go to school, but it's important to manage the process well with materials that are easily accessible, easy to understand, and simple (Agarwal & Kaushik, 2020).

Open and Distance Education

The definition of Open Education by The European Commission refers to "a way of carrying out education, often using digital technologies. It aims to widen access and participation to everyone by removing barriers and making learning accessible, abundant, and customizable for all. It offers multiple ways of teaching and learning, building and sharing knowledge. It also provides a variety of access routes to formal and non-formal education and connects" (Rolfe, 2017). The concept of open education emphasizes the

importance of system flexibility, especially in eliminating constraints of place, time, and aspects caused by student characteristics such as economic conditions (Belawati, 2010).

Wedemeyer in Simonson, Smaldino, & Zvacek presents several important characteristics of distance education, namely: (1) children and teachers are separated; (2) the learning process is carried out in writing or through other media; (3) learning is individual; (4) learning takes place through children's activities; (5) learning is making it comfortable for students in their environment; (6) students are responsible for the pace of their progress, with the freedom to start and stop at any time (Santo, 2011). In adult education, the use of interactive learning environments in ODE contributes to the development of self-direction (Rurato & Gouveia, 2014).

The importance of distance education in the context of equity access to education for all citizens is not only been suggested by developed countries but also has long become an important concern and program in countries growing, including Indonesia (Darojat, 2020). The implementation of distance education in developed and developing countries is usually quite different. In developed countries, distance education is usually done to train human resources in the face of economic growth. Distance education is also used to offer enrichment to the curriculum within the scope of non-traditional education. While distance education in developing countries is usually carried out as an alternative to the implementation of traditional education, degree education programs are even used to overcome illiteracy problems. The distance education program is essentially done to overcome problems related to limited capacity or access for the community to obtain education (Murphy, 2018).

In Indonesia, open and distance education is implemented by UT. UT students are expected to be able to implement learning activities independently. Independent learning requires students to carry out the learning process on their initiative. Independent learning in many ways is determined by the ability to learn effectively and efficiently. (Afshar, Mohammad Afshin; Jafari, Alireza; Heshmati, Fariba; Movahedzadeh, Farahnaz; Cherif, 2019). Learning ability depends on the speed of reading and the ability to understand the contents of the reading material.

To be able to carry out self-learning activities effectively and efficiently, UT students are required to have self-discipline, initiative, and strong learning motivation. In addition, students are also required to be able to manage their time efficiently. Independent learning can be done alone or in groups, both in study groups and tutorial groups.

METHOD

This research was carried out in the second semester, from July to December 2021 using a survey method using a questionnaire instrument. The aspects studied include the tools used in accessing online learning, the ownership and utilization of email, mastery of social media applications in online learning, and online learning opportunities in the post-Covid-19 pandemic period. Respondents were ECE-UT students from semesters 1 to 9. There were 550 respondents from various UT branches in Indonesia who were netted online by accidental sampling.

FINDINGS

Respondents' Profile

According to the island of the region of his residence, the respondents can be described as follows

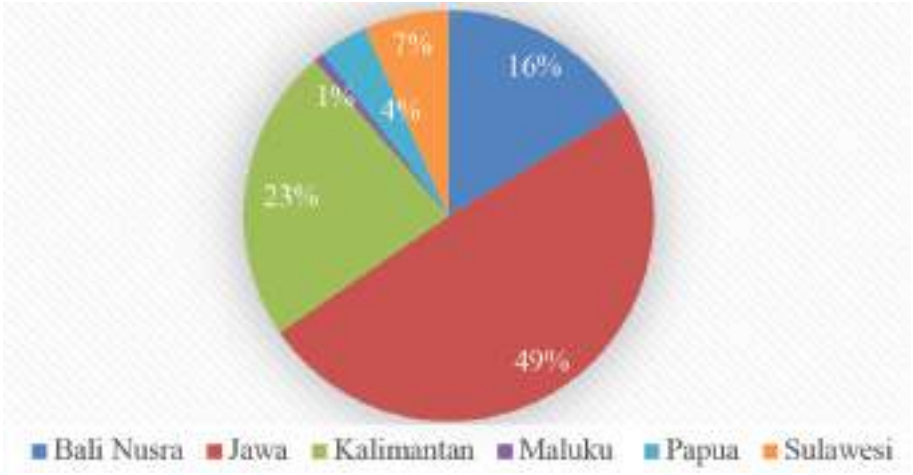


Chart 1. *Respondents' Area of Residence*

Based on Chart 1, it can be seen that the majority of respondents on the island of Java (49%), are almost half of the overall respondents. This is natural because the majority of ECE-UT students are indeed from the island of Java, and represent western Indonesia. Interestingly, quite a lot of students from the central part of Indonesia, namely Bali and Nusa Tenggara (16%), Kalimantan (23%), and Sulawesi (7%). Meanwhile, the Maluku region (1%) and Papua (4%) can be considered to represent ECE-UT students in the eastern part of Indonesia.

Judging by age, it can be described in the following table.

Table 1. *Age of Respondents*

Current age	Percentage
Under 20 years old	1
20 - <25 years old	21
25 - < 30 years	16
30 - < 35 years old	25
35 - < 40 years old	18
40 - < 45 years old	11
45 - < 50 years	6
Over 50 years old	2

Based on Table 1 it can be seen that most of the respondents were aged 20-40 years. While respondents over the age of 50 are only 2% and under the age of 20 years are only 1%. This is related to the status of ECE-UT students who are required to have become teachers at ECCE institutions first before becoming ECE-UT students, with at least 1 year of teaching experience. If the average age of high school graduates is 18-19 years old, in the next year (19-20 years) and have taught at an ECCE institution, he/she can become an ECE-UT student. The scarcity of respondents at the age of more than 50 years also corresponds to the age of ECE-UT students who are rarely over 50 years old. The majority of ECCE teachers in Indonesia are also aged 20 to 45. It is very rare for ECCE teachers in Indonesia aged 50 years and over to be active, except for civil servant teachers who have a retirement age of 60 years according to government regulations.

Regarding the experience in online learning since the COVID-19 pandemic and the internet access used, ECE-UT students have a variety of experiences as follows.

Table 2. *Experience in Online Learning and Internet Access used*

Access to Online Learning	Online learning experience									
	Inexperienced		First experience		Ever a few times		a Lot of times		Other	
	Sum	%	Sum	%	Sum	%	Sum	%	Sum	%
Mobile phone	5	1%	320	58%	74	13%	42	8%	6	1%
Wifi at home	1	0%	48	9%	12	2%	8	1%	0	0%
ECCE institutions where to teach	1	0%	11	2%	1	0%	0	0%	0	0%
Internet Cafe	0	0%	4	1%	0	0%	1	0%	0	0%
Free wifi in the public area	0	0%	9	2%	1	0%	1	0%	0	0%
Other	0	0%	1	0%	1	0%	2	0%	1	0%
Sum	7	1%	393	71%	89	16%	54	10%	7	1%

Based on Table 2, it can be seen that the majority of students (71%) stated that online learning during the pandemic was the first experience of those who had previously studied through face-to-face or teaching material books. Of these, 320 out of 393 students access online learning from smartphones.

An interesting finding still found that 1% of respondents stated they did not have an online learning experience. This may happen because the student concerned feels not digitally literate so when he has to take part in online learning, both synchronous meetings, asynchronous meetings, and uploading assignments will ask for help from the closest person who is considered more capable of adjusting the necessary tools. Usually, students who feel that they are not digitally literate are those who are 45 years old and above.

When viewed, the mastery of social media applications before and after the pandemic, can be seen in the following table.

Table 3. *Social Media Applications that Have Been Mastered and Just Mastered During Online Learning*

No.	Applications	Pre-Mastered (n)	Mastered Since Online Learning (n)
	Google Classroom	64	117
	Whatsapp	402	93
	Zoom	27	106
	Google Forms	46	46
	Hang Out	3	1
	Google Meet	19	39
	Webex	19	35
	Youtube	195	70
	Skype	11	7
	Facebook	231	39
	Instagram	150	25
	Microsoft Teams	80	324
	Other	23	24

Based on Table 3, it can be seen that the most mastered applications before participating in online learning are Whatsapp, Facebook, Youtube, and Instagram. This is the following survey data that the four applications above are widely used by the Indonesian population in 2020 (Jayani, 2020). Meanwhile, applications that experienced a fairly high increase in usage by ECE-UT students during the Covid pandemic were the Zoom and Microsoft teams applications.

Regarding the use of email as a means of communication, you can see the following table.

Table 4. *Utilization of Email by Students*

No.	Aspects of Email utilization	n (%)
	I don't know my email address	1%
	I've never sent or received an email	3%
	I know I have an email but I don't know how to use it	11%
	I'm often using email to send or receive digital data	20%
	I have an email but only sometimes use it	46%
	I can upload or download attachments via email	16%
	Other	2%
Total		100%

Based on Table 4, it can be seen that there are still 11% to 14% of students who do not know their email address, have never sent or received an email, or do not know how to use email.

Relating to the opinion that online learning can also be applied as a variation during ordinary lectures, not only during a pandemic; then the student's answer is as follows.

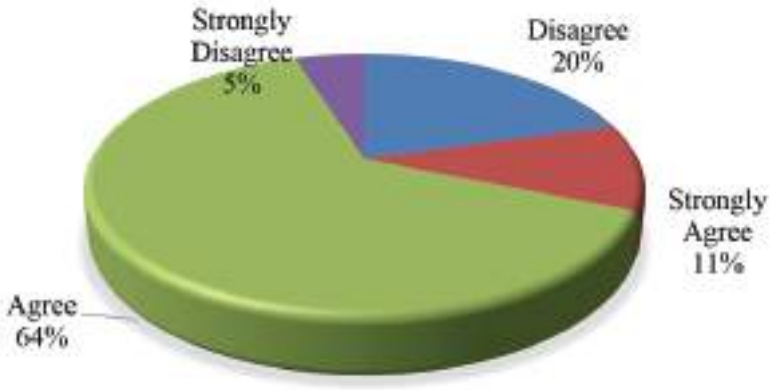


Chart 2. *Opinions About Implementation of Online Learning in the Future*

Based on Chart 2, it can be seen that most of the students believe online learning can be implemented even though the covid 19 pandemic is over, but there are still about a quarter of students who are still unsure about the implementation of online learning after the covid 19 pandemic.

DISCUSSION AND CONCLUSION

Discussion

Intensive online learning was implemented at all levels of education in Indonesia when the covid-1 outbreak began. This online learning is also applied to ECE-UT students who work as ECCE teachers daily. This learning requires digital literacy from its users. The findings of this study show that 71% of students get their first experience of online learning during the Covid-19 pandemic. Of the 71% of students, more than 81% of students use smartphones to access the internet. This shows that ECE-UT students at this time already have smartphones that can be used to access various online services including learning.

Another internet access option that is widely used apart from mobile phones is the use of paid internet which is subscribed to by the ECCE institution where they teach (Nurhadi et al., 2018). This is natural because their daily job is to teach in the place, so while setting up the teaching administration they can also simultaneously access the internet to complete coursework or to follow web tutorials. Usually, the owners of ECCE institutions already understand this and they allow their teachers to use the internet at these ECCE institutions to increase their knowledge as well. However, there are still around 1% of students who state that they do not have an online learning

experience. This seems to be related to the low digital literacy of students so they still have to be helped a lot by those closest to them when participating in online learning. As a result, students do not feel the atmosphere of online learning directly (Karakis, 2022).

Internet access facilities that are very rarely used by students today are through internet cafes (Powell, 2021). The existence of internet cafes is also not much longer as it used to be along with the increasingly sophisticated cellphones and the cheaper internet subscription fees. Free wifi in public places is also rarely used by students although now many are provided in various public places such as shopping centers, stations, office lobbies, and others. This is because to access the wifi, students certainly have to come to a location that is affordable wifi, so in terms of time and cost it is inefficient (Haryanto et al., 2018).

Survey data conducted in early 2021 shows that the number of internet users in Indonesia reached 202.6 million or 73.7 percent of the total population of 274.9 million people. Almost all internet users in Indonesia (98.3 percent) have mobile phone devices, both smartphones and feature phones (Pertiwi, 2021).

Meanwhile, social media applications that are widely used by students before and after the Covid 19 pandemic in a row are Whatsapp, Facebook, Youtube, and Instagram. ECE-UT students who are also ECCE teachers do use Whatsapp a lot. The results of observations in several ECCE institutions show that the Whatsapp group application is most widely used by ECCE teachers in Indonesia as a bridge of communication between teachers and children and parents. ECCE teachers in Indonesia also use this Whatsapp group to manage parental involvement in the care of their children (Amini, 2018). Currently, printed communication books are still used by teachers, but for information that is urgent and immediate, the Whatsapp application is an option (Wasserman & Zwebner, 2017). This situation is increasing during the covid pandemic as physical contact is minimized. The other three applications, namely Facebook, Youtube, and Instagram, are widely used by ECCE teachers to socialize their activities that will or have been carried out in kindergarten. Meanwhile, the three applications that are most rarely used by students are HangOut, Skype, Google meet, and Webex. Not only by students, but these four applications are indeed not among the top 10 social media applications that are most often used by the Indonesian population (Jayani, 2020).

One interesting thing is the increased use of the Zoom and Microsoft Teams applications after students take part in online learning. The Zoom application is indeed very widely used during the Covid-19 pandemic at almost all educational levels in Indonesia. Zoom is widely used by teachers in ECCE institutions to bridge synchronous meetings between teachers and children or parents (Wickett, 2019). The Microsoft Teams application has also increased rapidly because during the COVID-19 pandemic UT changed its face-to-face tutorial learning service to a web tutorial based on the Microsoft Teams application (Al-Adwani and Al-Fadley 2022).

When viewed from the use of email, almost half of students know that they have an email account but rarely use the email. This can happen because it seems that the Whatsapp application on the smartphone owned by students is equipped with facilities for sending various media and documents (Shahid, 2018). So Whatsapp is still a favorite application by students for transferring data. The email is usually only used for sending a large enough capacity data that is difficult to send with Whatsapp. UT implements a policy that every student gets a campus email as a supporting facility in learning (Sembiring, 2018). The email is created based on the student's ID number. But after several semesters as the students, it turns out that there are still many students who do not understand this facility. This is an input for the ECE-UT department to socialize about email facilities since students are officially registered (Hardini & Andriani, 2018).

There are still about a quarter of respondents who are unsure about the implementation of online learning after the covid 19 pandemic. This may happen because during the pandemic students have not been carefully prepared in advance to take part in online learning. They are immediately asked to participate actively in online learning related to conditions that do not allow physical contact. As a result, some students find it difficult to take part in online learning, including collecting various assignments, all of which must be done and collected digitally. For example, for a simulated teaching practice assignment, ECE-UT students must practice the simulation, make a video recording, edit the video, upload it to their youtube accounts and then send a youtube link to be assessed for the assignment by the tutor. This kind of thing is certainly not easy for beginners who are just learning to be digitally literate. This is what causes some students to doubt their own ability to be able to follow online learning well if it is to be implemented on an ongoing basis. Especially for ECE-UT students who have many practical courses, and have been accustomed to getting study assistance services in the form of face-to-face tutorials for these practical courses (Amini, 2020). ECE-UT students are asked to do 3 kinds of tutorial assignments for each course at ECE-UT. Assigning all the course assignments at once demotivates the students and incites them to search for alternative ways to finish their assignments rather than improving their performance (Yassin, M.; Buddharat, C.; Singhasuwan, 2022).

Most of the students believe online learning can be implemented even though the covid 19 pandemic is over. This means that most students are ready that in the future, learning will not be purely face-to-face anymore but at least it is carried out in blended learning. This is following the trend of education during the new normal period. Armed with the experience of online learning during the pandemic, many educational institutions have decided to carry out blended learning in the future, not returning completely to face-to-face learning as it was before covid 19 (Sofroniou & Premnath, 2022). Meanwhile, UT as an open and distance education has implemented online learning as one of the learning services for a long time before there was covid 19 (Broto, 2019). The online learning that UT has done so far has been largely carried out asynchronously, with several slippages of synchronous meetings. Since covid 19, synchronous learning through the tutorial web as an alternative to face-to-face tutorials has also been intensely carried out by UT.

Conclusion

Based on the discussion above, several things can be included, namely: (1) most students get the first experience of online learning since the Covid pandemic, (2) mastery of certain social media applications has increased rapidly due to the demands of assignments during online learning, and the applications most widely known by students are Whatsapp, Facebook, Youtube, and Instagram, (3) the majority of students have email but are not used optimally, and (4) most students argue that online learning can be applied as a variation or combination with offline learning in the post-covid 19 pandemic period.

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Effectiveness and Challenges of Massive Open Online Courses (Moocs) Integration in Learning as Experienced by Students in the College of Education in China

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Abstrack

Utilizing computers as a tool in education appears to be gaining momentum specifically at the onset of the 21st century and even expedited by the presence of the COVID-19 pandemic. Varying levels of interest in the method of online classroom learning continually grows as an essential for higher education institutions to be armed with a myriad of teaching online strategies in order to meet the needs of all students. The Republic of China's higher education strives to learn about the most recent and efficient techniques through the integration of Massive Open Online Courses (MOOCs) in learning with the objective of giving students the education they deserve. Taking advantage of the chance to further improve its implementation and use, notably the universities in China, relying on the existing practices particularly anchored on five MOOCs considerations such as: MOOCs Content for Learners, Presentation of the Lesson through MOOCs, Presence of the Facilitators in MOOCs, Promotion of Active Engagement in MOOCs and Infrastructure Consideration. Time management, internet connectivity, language barriers, and interest in MOOCs are some of the issues/problems and challenges that its execution has thematically categorized from an open-ended question. The research was descriptive-quantitative, and the researcher used Cochran's method to come up with a sample size of 338. A proportionate sample design was utilized with the colleges or institutes of instruction at the three higher education institutions in China. As a tool for gathering data, Google Form was used to distribute the questionnaire. The results for the profile and the issue of the implementation of MOOCs were presented using Frequency and Percentage, Mean. While the Mann Whitney U Test and Kruskal Wallis H test are used to examine differences and compare between two independent groups. To obtain a statistically significant result and ascertain the true source of differences between variables, a post hoc test is utilized.

Keywords: *MOOCs Integration in Learning, Massive Open Online Courses, online learning, Polytechnic University of the Philippines, College of Education in China, Doctor in Education Management*

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INTRODUCTION

Global adoption of technology in the teaching and learning process was sparked by the COVID-19 epidemic. This has forced the education industry to make significant changes to the "new normal" framework in order to keep up with the quick development of digital media and the technology that underpins it. The pandemic's development has resulted in a fundamental educational reinvention that tests the framework of the present educational system. While accepting the challenges posed by the spread of technology and the Covid-19 pandemic, Educational leaders' top concerns at this time focused on optimizing the resources available to ensure a healthy and productive workforce, regardless of physical location.

Every year and for every course, more students are enrolling in MOOC-based online learning platforms like Coursera, Edx, Udacity, MiriadaX, and IITBombayX. As a result of the unique features of a relatively centralized process for the development of educational policies, China is positioned to become a MOOC powerhouse and rethink the direction of education in the twenty-first century. One of the first Asian universities to join edX is from Tsinghua University in China when edX announced its officially in 2013. The contracts with Coursera and Peking University were signed after that by Fudan and Shanghai Jiao Tong Universities. The largest Chinese MOOC learning community, Guokr released its MOOC Academy, which offers more than 1,500 courses from all the main MOOC platforms. On this platform, half a million students can review courses, exchange notes, and have discussions about them. The same year, Tsinghua University launched the "Xuetang Online" portal formally, opening up its online courses to the entire world. Then, in 2014, Xuetang Online and edX entered into a partnership to offer top-notch MOOC courses from prestigious colleges including Harvard, MIT, Berkeley, Stanford, and others. 2015 came next with Nanjing University for MOOC on Coursera to become the fifth university in China to join the international MOOCs platform.

According to records from 2013, Coursera had about 130,000 Chinese users registered, making it the ninth-largest platform in the world. In 2014, it had grown to 650,000 users with the addition of NetEase Cloud Classroom, which took over the Ministry of Education's national high-quality open courses and launched the "Chinese University MOOC" project in collaboration with Aicourse.com. However, a significant share of MOOC students in China are concentrated in first-tier cities and cities with advanced educational systems.

China's government thinks that online education may help with the following four things: (1) stabilizing the educational system; (2) changing the way that education is delivered; and (3) turning a crisis into an opportunity. And finally, in order to spread love via education, China has currently steadily implemented a distinctive development model, reasonable and scientific curriculum standards, and an open and cooperative framework for shared development. Quality and fairness are most important aspects considering students and teachers as the center, openness and sharing, and win-win collaboration are the six valuable experiences that have been studied and developed. However, there hasn't been much data gathered to judge if MOOCs really do offer a useful mechanism for achieving desired educational objectives.

Hence, this study examined the actual objectives of organizations developing MOOCs or incorporating them into the delivery of programs, and it reviewed the most recent research and best practices to determine whether or not using MOOCs is effective. There is no denying, however, that the emergence of MOOCs has forced many Chinese educational institutions to reevaluate or reconsider their implementation techniques as this study is aimed to assess the success of MOOC implementation in the universities in the Republic of China by taking into account the following features: learner-focused MOOC content, lesson delivery through MOOC, facilitator participation, encouragement of active engagement through MOOC, infrastructure considerations in MOOC, and challenges encountered during implementation.

LITERATURE REVIEW

According to studies on the effectiveness of MOOCs, this ground-breaking phenomena in education has long been recognized and is a result of ongoing development to address difficulties brought on by technology and the global COVID 19 pandemic.

Technology integration, MOOCs, and distance learning are key features of 21st century education (Lui, 2008; Hannafin & Glazer, 2008; L. Chen et. al, 2009; Jenner, 2014; Churchill, 2015; and Standeford et. al, 2020). This was a significant development for the beginning of the globalization era, which was tied to the internationalization of the educational system (Dash, 2015; and Stensaker, 2021). With this, a few factors are being focused on access, quality, excellence, and sustainability, or otherwise known as the trends (UNESCO, 2002; Bali, 2014; Jones, 2015; Suhardiyanto et al. 2015; and Almautairi et al. 2018). These factors are suitable for the nature of the current educational system, which is described as the future of education (Harden, 2015). These factors were established through gaining online experience (Varghese, 2015), using eportfolio (Ferguson & Sharples, 2014) and other flexible and interactive web or online activities (Mora, 2013; Rollins, 2018; Bodenham, 2019 and Akbulut et al, 2022) to attain high level of engagement (Baloran et al, 2021), and practical knowledge and professional competence (Olcek, 2022).

Even though there are studies that support DE, MOOC, or online learning integration (Abelbisi et al., 2022), as well as alternative methods of delivering instruction and innovation (Bralic and Divjak, 2018 & Adair et al., 2014), they also take into account their positive effects during the spread of the COVID 19 pandemic (Karaka and Ilkim, 2021) with the provision of borderless education from knowledge acquisition (Francl, 2014), reasonable.

Numerous educational institutions may reevaluate their implementation strategies in light of the introduction of MOOCs as studies have demonstrated the importance of content in terms of retention (Hone & El Said, 2016; Ab Jalil, 2015); the promotion of active engagement through activities (Chen and Chen, 2015; Lan and Hew, 2020); the role of facilitators (Wan, 2020); and the need for support on resources and other logs (Zhu et al., 2018).

At the beginning of the implementation of online classes, there is still a sense of excitement and trepidation (Baykal & Tutuncu, 2022) due to challenges with enrollment

(Lwin et al, 2022) and some reported average performance through MOOCs (Wang and Zhu, 2019); the possibility of an expanding digital divide (Denga et al, 2018); However, the researcher shares Conjin and Cuijpers' (2018) opinion that completing a course through a MOOC or with online integration would be successful if proper design and facilitation for attitudinal change (S.L. Watson et al, 2016); and other risks and challenges where quality is at risk with online cheating, other plagiarism issues, and academic procrastination (Valizadeth, 2022; Bayran & Tikman, 2022; and Bozkurt and Richeter, 2021). Continuous encouragement to use online learning (Mahande et al., 2022); recognition of the critical role of teachers (A. Khan et al., 2021) in order to prepare teachers' competence (Baretto et al., 2022) through their professional development (Ugur et al., 2021) in order to gear towards sustainable learning and, as a result, lessen the likelihood of the future widening of the digital divide (Rohs and Ganz, This has also aided in pursuing efficient online education (Nguyen, 2015), using certain online techniques (Baig, 2011; and, Darius et al, 2021).

Regarding the current study, one of the theories used, The Commonwealth of Learning (COL), Canada's Theoretical Considerations in Creating a MOOC at the Wawasan Open University (WOU) in 2014, defined the traits and goals that have been established as ideal for an efficient e-learning course (Goh, 2016). The WOU plan specifically mentioned the three components of infrastructure, content, and facilitation (presentation of the lessons through MOOC, presence of facilitators, and promotion of active engagements). The three elements of infrastructure, content, and facilitation—in particular, the delivery of lessons through MOOCs, the presence of facilitators, and the encouragement of active engagement—were essential for achieving the best possible learning outcomes in online learning.

In the meantime, the connectivist approach has greatly aided in the adoption of MOOCs in education. "The MOOC model promotes creation, creativity, autonomy, and social networked learning, which may be read as to the notion of connectivism that MOOC engages the learner more actively than MOOC with traditional methodologies," (Siemens, 2012). The goal of connectivist MOOCs is to create network effects that promote learning. Network effects are demand-side economies of scale in which the increasing use and demand of a good or service increases its value (Stewart, 2013). The massiveness of MOOCs is important insofar as it offers an expanding diversity and density of potential connections among its participants, information nodes, tools, and resources, in accordance with the logic of network effects.

Since this era demands the use of technology and is characterized by the proliferation of the distance education phenomenon, the researchers have undertaken the assessment of MOOC effectiveness in learning as implemented in the College of Education students at the three Universities in the Republic of China.

Results and Discussion

The study was undertaken in China using the three universities' School of Education, namely: Hubei University, Hefei University and Jiangxi Normal University with a population of 2706 students enrolled in the College of Education. The Cochran formula

was used to calculate the sample size of 338. This formula allows the researcher to establish the appropriate sample size given a desired level of precision, a desired level of confidence, and the expected proportion of the attribute present in the population. The study design was descriptive-quantitative with proportionate sampling design. The questionnaire was distributed through google form as a tool for data collection. Frequency and Percentage, Mean were used to present the findings for the profile and on the question of effectiveness MOOC implementation. Kruskal Wallis H test and Mann Whitney U Test to assess the significant difference of two or more groups and to compare differences between two independent groups as well.

The study focused on the following results: the profile of the respondents as to the year level, age, sex, internet connectivity used and the devices used in classes via MOOCs. While, second part on the evaluation of MOOCs effectiveness considering the following features: MOOCs content for the learner, Presentation of the Lessons through MOOCs, presence of the facilitators in MOOCs, Promotion of Active Engagement through MOOCs and Infrastructure consideration. The third part is on the Problems/ Issues/ Challenges Met in the course of Learning through MOOC were identified. To wit:

1. **Profile of the respondents in terms of the following variables.**

Year Level	**Frequency**	**Percentage(%)**
First Year	117	32.3
Second Year	116	32
Third Year	51	14.1
Fourth Year	78	21.5
Age	**Frequency**	**Percentage(%)**
18 years old	43	11.9
19 years old	91	25.1
20 years old	90	24.9
21 years old	138	38.1
Sex	**Frequency**	**Percentage(%)**
Male	42	11.6
Female	320	88.4
Internet Connectivity Used	**Frequency**	**Percentage(%)**
Wired Connection	15	4.1
Wireless Connection(Wifi)	139	38.4
Mobile Data	208	57.5
Device used to access MOOCs	**Frequency**	**Percentage(%)**
Iphone	167	46.1
Desktop Computer	169	46.7
Ipad/Tablet	26	7.2

Thirty-two percent (32%) are mostly from the first year level; with the largest group of 38% under the age of 21. Respondents who were female were 88% more numerous than those who were male; 208 (58%) used mobile data while 169 (46.7%) used desktop computers.

2. **Effectiveness of MOOC in learning.** Rated using this Likert Scale of 5- (4.51-5) Extremely Effective, 4 (3.51-4) Very Effective, 3 (2.51-3) Moderately Effective, 2(1.51-2) Slightly Effective, 1 (1.00-1.50) Not at all Effective

In Terms of Content of MOOC for the Learners

ITEMS	Mean	Verbal Interpretation
Able to understand the concept as explained by the facilitator	3.48	Moderately Effective
Learn the ways to write online report, action research and etc.	3.47	Moderately Effective
Add to my knowledge about online assignments being undertaken	3.65	Very Effective
Learn about reflection while doing online activities	3.53	Very Effective
Can use the platform for the expression and contribution of artistic and cognitive understandings and meanings of the courses undertaken	3.56	Very Effective
Assignment was relevant and helped me practice new concepts and skills	3.60	Very Effective
Presentations (slides, audio, video) were clear and audible	3.87	Very Effective
Modules are available composing of different "elements" including: text documents, multimedia documents (videos, photos, PowerPoint documents, flash animations, Google Docs, Prezi, etc.), or questions	3.78	Very Effective
The organization of the course contents is in accordance with the stated objectives of the course	3.78	Very Effective
Grand Mean	3.64	Very Effective

In Terms of Presentation of the Lessons through MOOC

ITEMS	Mean	Verbal Interpretation
There are available notes to familiarize students with the learning environment	3.82	Very Effective
There is an introductory and welcome messages by course facilitator to properly instructed students	3.73	Very Effective
The delivery of the course was consistent with its stated objectives	3.76	Very Effective
The organization of the course site is user-friendly for the students	3.75	Very Effective
There is 2+1 weeks duration per module presented	3.62	Very Effective
The visual design and layout of the website feels comfortable for the students.	3.73	Very Effective
There is an interactive course contents via multimedia documents uploaded	3.69	Very Effective
There is an award of badge for each module completion that enhances students' motivation to continue	3.63	Very Effective
There is an available tracking system of student accomplishments, learning assessment, learning testing	3.69	Very Effective
There is an available MOOC's reminder system during a scheduled exam	3.73	Very Effective
Grand Mean	3.72	Very Effective

In Terms of Presence of Facilitators in MOOC

ITEMS	Mean	Verbal Interpretation
The facilitators were knowledgeable on the use of MOOC and can integrate activities	3.74	Very Effective
The facilitators were responsive in providing feedback to the students' queries and other concerns	3.74	Very Effective
The facilitators were able to contribute knowledge building even during offline and online sessions.	3.77	Very Effective
The facilitators were accommodating and easily be communicated	3.97	Very Effective
The facilitators' regular postings encouraged communication	3.77	Very Effective
The facilitators were able to handle issues concerning learning	3.84	Very Effective
The facilitators enabled individual interactions through emails	3.66	Very Effective
The facilitators were able to moderate the discussions	3.81	Very Effective
The facilitators were able to initiate direction for online discussion	3.80	Very Effective
The facilitators have the ability to coordinate course registration, scheduling, learning programs	3.67	Very Effective
Grand Mean	3.78	Very Effective

In Terms of the Promotion of Active Engagements

Items	Mean	Verbal Interpretation
Availability of interactive sharing of thoughts and ideas with other participants	3.77	Very Effective
Enabled reading comments posted by other participants	3.77	Very Effective
There is an schedule online engagement with facilitators	3.80	Very Effective
The availability of reading responses posted by facilitators	3.65	Very Effective
Provision for reading the suggested answers from the facilitators	3.74	Very Effective
Provision of accessing the learning resources	3.69	Very Effective
Availability of schedule for the completion of the assignments in the module	3.84	Very Effective
Availability of the course learning material for reading purposes	3.79	Very Effective
Provision of doing/completing the quizzes self-assessment and other learning activities	3.78	Very Effective
Availability of online conferencing and other collaborative tools	3.76	Very Effective
MOOC platform can be used as a medium of collaboration, conversation, discussions, exchange, and communication of ideas	3.76	Very Effective
Grand Mean	**3.76**	**Very Effective**

In Terms of Infrastructure Considerations in MOOC

Items	Mean	Verbal Interpretation
The interface is easy to use	3.77	Very Effective
The system has no unnecessarily complexities	3.73	Very Effective
The student does not need a technical support when using the system	3.71	Very Effective
The various functions in this system were well integrated	3.61	Very Effective
The student feels confident when using the system	3.69	Very Effective
The online MOOCs courses complements live classes	3.59	Very Effective
General Weighted Mean	**3.69**	**Very Effective**

The use of Presentations (slides, audio, and video, were clear and audible) seemed to be very effective for MOOCs Content for the Learner with 3.87 mean score. The availability of notes to make students familiarized with the learning environment is also very effective with a 3.82 mean score when presentation of the lesson via MOOCs is considered. Being accommodating and easily communicated is very effective when the presence of the

facilitators has to be considered with the highest mean score of 3.97. It is also evident in the effectiveness of the availability of schedule for a completion of certain tasks

in the module in the promotion of active engagement via MOOCs with 3.84 mean score. Lastly, a well-designed website reduces the amount of additional cognitive burden on students by being simple to use and requiring minimal instruction as it interface when infrastructure has to be considered is also very effectively been maximized by the respondents earning the highest mean score of 3.77.

Problems/Challenges Encountered in MOOC. Evaluated through this Likert Scale: 5- (4.51-5) Strongly Agree, 4 (3.51-4.50) Agree, 3 (2.51-3.50) Somewhat Agree, 2(1.51-2.50) Disagree, 1 (1.00-1.50) Strongly Disagree

Issues/Problems/Challenges Met in the Implementation of MOOC

Items	Mean	Verbal Interpretation
TIME MANAGEMENT	**3.04**	**Agree**
- Not enough time to complete the requirements	3.70	Strongly Agree
- Lost of momentum as the course progressed	2.73	Somewhat Agree
- did not receive timely information about the course details	2.69	Somewhat Agree
INTERNET CONNECTION	**2.78**	**Somewhat Agree**
- poor or slow internet connections	2.88	Somewhat Agree
- access to course materials via online	2.85	Somewhat Agree
- Site not user friendly	2.76	Somewhat Agree
- No enough online support	2.65	Somewhat Agree
LANGUAGE BARRIERS	**2.64**	**Somewhat Agree**
- Not able to follow the course in English Language	2.67	Somewhat Agree
- Course content difficult to understand	2.62	Somewhat Agree
INTEREST IN MOOC	**2.60**	**Somewhat Agree**
- Not interested in the available courses	2.64	Somewhat Agree
- merely curious about the modality	2.58	Somewhat Agree
- Personal issues due to unforeseen circumstances	2.66	Somewhat Agree
- Not motivated to complete the course	2.63	Somewhat Agree
- irrelevance of the course content	2.49	Disagree
Grand Mean	**2.75**	**Somewhat Agree**

The actual scenario in the MOOC's implementation has also identified issues or challenges among the students at the College of Education in China, which are categorized into four categories where respondents agree on Time Management (3.04), but partially agree on Internet Connectivity (2.78), Language Barriers (2.64), and Interest in MOOC (2.60), as these features may be issues/problems or challenges in the MOOC's implementation for learning in China.

4. On significant Difference Test where Kruskal-Wallis H – Test and Mann Whitney U test were particularly employed

4.1 Effectiveness of MOOC and the Profile Variables

Effectiveness of MOOC for Learning	Year level	Mean Rank	Kruskal-Wallis H	p-value	Decision	Remark
MOOC content for the learner	First	173.48	103.618	0.000	Reject Ho	Significant
	Second	241.36				
	Third	68.83				
	Fourth	178.18				
Presentation of the MOOC	First	123.65	115.977	0.000	Reject Ho	Significant
	Second	256.27				
	Third	127.75				
	Fourth	192.23				
Presence of Facilitators for MOOC learning	First	219.16	154.719	0.000	Reject Ho	Significant
	Second	243.72				
	Third	92.13				
	Fourth	90.91				
Promotion of active engagement in online learning	First	180.52	92.170	0.000	Reject Ho	Significant
	Second	239.84				
	Third	77.34				
	Fourth	164.31				
Infrastructure Considerations	First	247.93	229.429	0.000	Reject Ho	Significant
	Second	235.24				
	Third	54.87				
	Fourth	84.73				

Effectiveness of MOOC for Learning	Age	Mean Rank	Kruskal-Wallis H	p-value	Decision	Remark
MOOC content for the learner	18 years old	227.78	94.013	0.000	Reject Ho	Significant
	19 years old	156.32				
	20 years old	257.17				
	21 years old	134.33				
Presentation of the Lessons through MOOC	18 years old	193.52	157.548	0.000	Reject Ho	Significant
	19 years old	95.68				
	20 years old	282.85				
	21 years old	168.25				
Presence of Facilitators in MOOC learning	18 years old	295.00	163.345	0.000	Reject Ho	Significant
	19 years old	178.86				
	20 years old	247.40				
	21 years old	104.90				
Promotion of active engagement in MOOC	18 years old	261.72	127.458	0.000	Reject Ho	Significant
	19 years old	139.03				
	20 years old	261.19				
	21 years old	132.54				
Infrastructure Considerations	18 years old	319.49	267.278	0.000	Reject Ho	Significant
	19 years old	201.99				
	20 years old	253.33				
	21 years old	78.15				

Effectiveness of MOOC for Learning	Sex	Mean Rank	Mann-Whitney U	p-value	Decision	Remark
MOOC content for the learner	Male	200.87	5906.500	0.189	Retain Ho	Not Significant
	Female	178.96				
Presentation of the Lessons through MOOC	Male	219.7	5115.500	0.010	Reject Ho	Significant
	Female	176.49				
Presence of Facilitators in MOOC learning	Male	104.26	3476.000	0.000	Reject Ho	Significant
	Female	191.64				
Promotion of active engagement in MOOC	Male	193.3	6224.500	0.428	Retain Ho	Not Significant
	Female	179.95				
Infrastructure Considerations	Male	100.36	3312.000	0.000	Reject Ho	Significant
	Female	192.15				

Effectiveness of MOOC for Learning	Internet Connectivity Used	Mean Rank	Kruskal-Wallis H	p-value	Decision	Remark
MOOC content for the learner	Wired Connection	16.90	81.752	0.000	Reject Ho	Significant
	Wireless Connection (Wifi)	145.99				
	Mobile Data	217.10				
Presentation of the Lesson through MOOC	Wired Connection	78.53	17.140	0.000	Reject Ho	Significant
	Wireless Connection (Wifi)	192.81				
	Mobile Data	181.37				
Presence of Facilitators for MOOC learning	Wired Connection	28.80	93.905	0.000	Reject Ho	Significant
	Wireless Connection (Wifi)	135.40				
	Mobile Data	223.32				
Promotion of active engagement in online learning	Wired Connection	84.93	39.697	0.000	Reject Ho	Significant
	Wireless Connection (Wifi)	151.40				
	Mobile Data	208.58				
Infrastructure Considerations	Wired Connection	24.50	225.689	0.000	Reject Ho	Significant
	Wireless Connection (Wifi)	96.01				
	Mobile Data	249.95				

Effectiveness of MOOC for Learning	Device used to access MOOCs	Mean Rank	Kruskal-Wallis H	p-value	Decision	Remark
MOOC content for the learner	Smartphone/ Iphone	196.14	9.428	0.009	Reject Ho	Significant
	Desktop Computer	173.91				
	Ipad/Tablet	136.79				
Presentation of the lesson through MOOC	Smartphone/ Iphone	152.86	28.060	0.000	Reject Ho	Significant
	Desktop Computer	211.29				
	Ipad/Tablet	171.83				
Presence of Facilitators for MOOC learning	Smartphone/ Iphone	219.96	55.202	0.000	Reject Ho	Significant
	Desktop Computer	158.88				
	Ipad/Tablet	81.56				
Promotion of active engagement in online learning	Smartphone/ Iphone	193.24	4.712	0.095	Retain Ho	Not Significant
	Desktop Computer	173.78				
	Ipad/Tablet	156.25				
Infrastructure Considerations	Smartphone/ Iphone	242.46	123.413	0.000	Reject Ho	Significant
	Desktop Computer	139.74				
	Ipad/Tablet	61.35				

On testing the significance difference on the effectiveness of MOOC implementation, the Kruskal-Wallis H test found that year level, age, sex, Internet connectivity, and Device Used were significant factors. However, in a post-hoc analysis, the Sex variable did not prove to be a significant factor on MOOC Content for the Learner and promotion of active engagement with computed p-values of 0.189 and 0.428, respectively. Additionally, the p-value for the device used, which was computed to be 0.095, focused in particular on the promotion of active participation through the usage of an iPad or tablet was also not significant.

4.1 Issues/Problems/ Challenges Met in the Implementation of MOOCs and the Profile Variables

PROBLEMS/ ISSUES/ CHALLENGES MET IN THE IMPLEMENTATION OF MOOC FOR LEARNING	Year level	Mean Rank	Kruskal-Wallis H	p-value	Decision	Remark
Time Management	First Year	234.84	182.837	0.000	Reject Ho	Significant
	Second Year	229.52				
	Third Year	52.5				
	Fourth Year	114.42				
Internet Connection	First Year	146.53	116.873	0.000	Reject Ho	Significant
	Second Year	209.22				
	Third Year	84.59				
	Fourth Year	256.09				
Language Barriers	First Year	273.32	252.517	0.000	Reject Ho	Significant
	Second Year	206.42				
	Third Year	91.5				
	Fourth Year	65.55				
Interest in MOOC	First Year	116.52	160.889	0.000	Reject Ho	Significant
	Second Year	159.97				
	Third Year	208				
	Fourth Year	293.65				

PROBLEMS/ ISSUES/ CHALLENGES MET IN THE IMPLEMENTATION OF MOOC FOR LEARNING	Age	Mean Rank	Kruskal-Wallis H	p-value	Decision	Remark
Time Management	18 years old	322.86	243.712	0.000	Reject Ho	Significant
	19 years old	181.98				
	20 years old	250.83				
	21 years old	91.92				
Internet Connection	18 years old	224.85	61.523	0.000	Reject Ho	Significant
	19 years old	118.96				
	20 years old	224.45				
	21 years old	181.22				
Language Barriers	18 years old	337.79	292.890	0.000	Reject Ho	Significant
	19 years old	237.29				
	20 years old	210.91				
	21 years old	76.83				
Interest in MOOC	18 years old	154.47	161.465	0.000	Reject Ho	Significant
	19 years old	90.37				
	20 years old	171.69				
	21 years old	256.41				

PROBLEMS/ ISSUES/ CHALLENGES MET IN THE IMPLEMENTATION OF MOOC FOR LEARNING	Sex	Mean Rank	Mann-Whitney U	p-value	Decision	Remark
Time Management	Male	100.69	3326.000	0.000	Reject Ho	Significant
	Female	192.11				
Internet Connection	Male	253.24	3707.000	0.000	Reject Ho	Significant
	Female	172.08				
Language Barriers	Male	43.31	916.000	0.000	Reject Ho	Significant
	Female	199.64				
Interest in MOOC	Male	331.86	405.000	0.000	Reject Ho	Significant
	Female	161.77				

PROBLEMS/ISSUES/ CHALLENGES MET IN THE IMPLEMENTATION OF MOOC FOR LEARNING	Internet Connectivity Used	Mean Rank	Kruskal-Wallis H	p-value	Decision	Remark
Time Management	Wired Connection	57.30	175.492	0.000	Reject Ho	Significant
	Wireless Connection (Wifi)	106.81				
	Mobile Data	240.37				
Internet Connection	Wired Connection	274.47	21.446	0.000	Reject Ho	Significant
	Wireless Connection (Wifi)	159.51				
	Mobile Data	189.49				
Language Barriers	Wired Connection	12.50	296.685	0.000	Reject Ho	Significant
	Wireless Connection (Wifi)	84.68				
	Mobile Data	258.39				
Interest in MOOC	Wired Connection	352.5	152.061	0.000	Reject Ho	Significant
	Wireless Connection (Wifi)	240.47				
	Mobile Data	129.76				

PROBLEMS/ ISSUES / CHALLENGES MET IN THE IMPLEMENTATION OF MOOC FOR LEARNING	Device used to access MOOCs	Mean Rank	Kruskal-Wallis H	p-value	Decision	Remark
Time Management	Smartphones/ Iphone	228.43	91.917	0.000	Reject Ho	Significant
	Desktop Computer	154.54				
	Ipad/Tablet	55.27				
Internet Connection	Smartphones/ Iphone	166.31	7.786	0.020	Reject Ho	Significant
	Desktop Computer	192.56				
	Ipad/Tablet	207.15				
Language Barriers	Smartphones/ Iphone	264.40	241.644	0.000	Reject Ho	Significant
	Desktop Computer	125.41				
	Ipad/Tablet	13.65				
Interest in MOOC	Smartphones/ Iphone	104.96	209.208	0.000	Reject Ho	Significant
	Desktop Computer	233.91				
	Ipad/Tablet	332.40				

There are issues/problems and challenges met in the implementation of MOOC in Learning that were openly presented by the researcher to be properly addressed in this study such as: Time Management, Internet Connection, Language Barriers and Interest in the Implementation of MOOC. Results show that Year level, age, sex, internet connectivity used, and the device used in online learning were all regarded significant factors confronting MOOCs integration in learning, but mostly on the issue of time management.

Recommendations

Based on the conclusions drawn from the study, the following are the recommendations provided:

1. Although MOOCs have been around for a while and initially served only as a technologically enabled form of instruction, it is suggested that their introduction has really acted as a catalyst for changes in education. It is expected of an institution of higher learning to constantly seek the best ways to improve the outcomes of online learning, and MOOCs have changed over time. Just like other online platforms, MOOC has demonstrated its potential to have a significant impact on the teaching and learning process. Therefore, implementers or educators using MOOCs must make the most of presentations with available slides, video, and audible audio along with comprehensive and

simple instructions; provide notes that students can access via asynchronous sessions; accommodate students' questions; provide a schedule for the completion of certain tasks or assignments; and ensure that a well-designed website is accessible.

2. In order to have adequate time for online courses, students who are interested in pursuing an online education need to pay particular attention to learning effective time management skills. Whether a student used a wired connection, wifi, or mobile data, it is suggested that the success of online learning and its implementation are highly dependent on time management because you are in charge of your own learning and pace. The remaining requirements are there to help students develop into responsible adults. As the most important aspects of taking online courses, it is advised to utilize a timetable, set an alarm one week before due dates or deadlines, and take the schedules offered in online learning seriously.
3. The higher education institutions in China may also think about improving and providing a well-designed infrastructure to help students easily access the learning process. Newer technology must be enhanced through continuous online training of the faculty members in higher education in China to handle MOOCs classes since its effectiveness in implementation is highly dependent on the faculty members to handle classes via online, which also implies that utilization of the most modern software has the potential to maximize the effectiveness of online learning.
4. The academic workforce in China's universities may also reexamine the use of MOOC classes in order to be mindful of the type and quantity of activities and assignments given to the students, especially taking into account internet connectivity and the devices available to the students, and strengthening the students' communication skills in English and other languages through the improvement of the curriculum. The Chinese Ministry of Education may also think about enabling students to use their own smartphones that have been configured to support MOOC classes. If the budget warrants, first and second year students may receive more advanced classes via MOOC while the upper years may be considered for retraining in the use of online learning.
5. Further research may be considered along the implementation of a highly sophisticated online learning platform considering the advantages and disadvantages of transforming into online learning.
6. In order to successfully distribute the results of this study, particularly for adaptation in China, it is also urged that the entire publication be translated into Chinese.

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Development of Independent Instructional Material Models in the Open Distance Learning (ODL)

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Abstract

Instructional materials are a very important component in Open Distance Learning where the main function is to become a substitute learning resource for lecturers for students to study independently. The instructional materials developed must meet the criteria for independent instructional materials for use by students in the open distance learning system. The results of a study conducted by experts indicate that the instructional materials currently used by UT are not in accordance with the characteristics of students and do not meet the standard quality criteria. Therefore, the purpose of this research is to produce instructional materials used by students in accordance with student characteristics and standard quality criteria. This research uses the Research & Development (R&D) method approach (Gall, Joyce & Borg) (2007), which can carry out a complete formative evaluation process, that is development-oriented by validating the model or design of educational programs through systematic scientific procedures, and field trials that have certain standard quality criteria. The focus in this research is the quality of instructional materials that have been used by students at the Open University (Universitas Terbuka-UT). Formative evaluation trials consist of steps one to steps seventh. Field trials have been completed from step one to step seventh, which resulted in instructional materials for the Educational Research Methods Course. In the formative evaluation field trial, the instructional materials were reviewed by experts in their field (One to One Evaluation by Experts) and tested on six students (One to One evaluation by learners). After the instructional materials were perfected by the Development Team, field trials were conducted again for 20 students. The input from the test results is refined by the Development Team. After the instructional materials were perfected, field trials were again conducted on 60 students in two locations by holding a pretest. Two weeks later, the Posttest was held in the same place, the aim was to see how far the improvement in learning outcomes obtained by students after the instructional materials were perfected. The test results showed an increased (added value) student learning outcomes, an average of 3.6 (28.49%). Therefore, it can be said that this instructional material shows high effectiveness to be used by students in accordance with the goals that have been set. Based on the input from the fourth field trial this time, the instructional materials were recommended again to be refined by the Author and the Development Team. Through the Focus Group Discussion, the instructional materials were refined again. Furthermore, the final step is carried out in the seventh step, namely, dissemination and implementation of instructional materials that can be used by students independently in accordance with the characteristics of open distance learning students and the standard quality criteria required after validates.

Keywords: *The Open Distance Learning, Research & Development, Independent Instructional Materials, Research Methods Education, Formative Evaluation.*

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INTRODUCTION

In the learning process of Open Distance Learning (ODL), it is very important to provide instructional materials that can be used independently by students and tutors. Without instructional materials it is difficult for students and tutors to improve the effectiveness and quality of the learning process. Instructional materials are developed based on the principles of Open Distance Learning (ODL), to enable students to learn independently. Therefore, the instructional materials for ODL are designed based on the assumption that students have a high degree of heterogeneity among each other. The development of instructional materials requires creativity to make something else, which requires knowledge and various learning activities or learning experiences for the developer. Recognizing the importance of instructional materials for open distance learning, there must be continuous efforts to improve the quality of the content and materials of instructional materials prepared for students. Because in the Open Distance Learning system, the main key to student success in the learning process is the instructional materials used by students. Therefore, instructional materials must first be designed by a team consisting of material experts and learning media experts, before being used by students. According to Suparman (2019), there are eight characteristics of instructional materials that are designed to be used by Open Distance Learning students. The eight characteristics are as follows: ***1. Self Instructional,*** instructional materials are designed based on the arrangement of instructional content into a special format so that students can learn independently (independently). As for what is meant by independent learning is the process of educational interaction between students and instructional materials without the physical presence of the lecturer either individually or in groups. ***2. Self-Explanatory Power,*** Open Distance Learning instructional materials must have the power to explain the learning materials themselves, arranged very clearly, so that students do not need further explanation assistance. instructional materials prepared must contain a systematic, complete and complete description accompanied by examples and non-examples, appropriate exercises, both intellectual, motor or effective in accordance with the needs of learning objectives. ***3. Self-Paced Learning,*** well-designed Open Distance Learning instructional materials can be studied according to the student's own pace and ability. This instructional material is able to facilitate students according to their own abilities and pace. That is, if the student is intelligent, talented and has higher initial abilities, has high learning motivation and has a higher learning effort, he can quickly complete his studies in a short time compared to other students whose learning motivation and abilities are lower. ***4. Self-Contained,*** instructional materials designed for students in the Open Distance Learning system, must be complete and intact, in accordance with the learning objectives that have been determined. The goal is that students can master all the material, without studying other material. The instructional materials are well designed and systematic regarding the achievement of the final competencies of learning, as well as the presentation of the material equipped with examples to clarify the materials and concepts that are prepared. Clear coverage of well-designed exercises to help students' reasoning process when students study the material, summaries as reinforcement of the essence of the material being studied, and tests to measure mastery of the material. **5. *Individualized,*** the instructional materials for Open Distance Learning are specially designed, individualized in accordance with the

learning styles of students. The goal is that students can learn on their own according to their learning style. The learning strategies used usually apply varied methods and media in order to facilitate the various variations of these learning styles. ***6. Communicative and Interactive,*** communicative instructional materials used by Open Distance Learning students, enable student learning activities to be more effective and efficient, if the instructional materials are designed interactively. This concept creates as if there is an atmosphere of direct (*interactive)* dialogue between students and developers of instructional materials. In line with this concept, Homberg (1983), said, in writing instructional materials for Open Distance Learning students must pay attention to the principle of *"guided didactic conversation*" so that the separation between activities teaching with learning activities that create a psychological distance and communication in the learning process can be minimized with the principles that exist in this *"guided didactic conversation*". ***7. Multimedia, Computer-Based Materials,*** so that the learning process is more effective, the Open Distance Learning system should use various kinds of multimedia consisting of visual media, audio media and print media. The Open University still uses print media, due to the geographical conditions of students that do not allow them to use *Full Online Learning.* The Open University in selecting and determining the media used accommodates student limitations, such as the use of *Full Online Learning or Blended Learning Programs*. This program, if given to students, not all students can use it. This is because, due to geographical conditions, not all students have internet access, there are still many students who do not have internet access. ***8. Supported by Tutorials and Study Groups,*** all components in the Open Distance Learning system process are integrated into a single unit as a learning system, including *Face-to-face Tutorials, Blended Learning* and so on. This research does not discuss in depth the *Face-to-face Tutorial* learning program, *the Blended Learning Program* used by UT or the *Study Groups* that provide support to UT. In the context of Open Distance Learning, such as at the Open University, students have very varied and heterogeneous learning styles so that certain considerations are needed in choosing to use these various types of media, according to the student's geographical conditions. When developing Open Distance Learning instructional materials, UT as the organizer faces a big challenge if it does not pay attention to the eight characteristics described above. The biggest challenge faced by UT is the emergence of problems with student learning difficulties in the implementation of the learning process later. The biggest problem is the possibility of an increase in UT student drop-out problems. Therefore, it is very important to pay attention to the eight characteristics to design an ideal Open Distance Learning instructional material. In line with this opinion, according to Suparman (2019), in the concept of future *Educational Technology,* there are ten principles that must be considered in preparing Open Distance Learning instructional materials as follows: 1. Effective Open Distance Learning instructional materials are designed based on certain learning strategies that are developed creatively, not just general presentation of information. 2. Instructional materials use a variety of interactive multimedia as well as facilitators that enable creative and dynamic interactions. 3. The learning strategies used are very complex to ensure social connections between students who are diverse in their academic and social abilities. 4. Instructional materials used can facilitate the occurrence of high-level cognitive processes through a shift from cooperative learning to collaborative

learning to solve problems and challenges of modern life. 5. Open Distance Learning students have a bigger role to play in managing their own learning process and demand Open Distance Learning technology as a provider and servant of the learning process. 6. Open Distance Learning instructional materials focus on learning processes that apply creative problem solving by utilizing educational technology. 7. Preparation of Open Distance Learning instructional materials, including the implementation of evaluation practices capable of assessing high-level cognitive processes and actual problem solving in accordance with real-world needs in the modern era. 8. Open Distance Learning institutions are able to revise their rules and roles to suit the evolving needs of students, teachers, and other stakeholders. 9. Open Distance Learning 's instructional materials are able to display learning that focuses on instructional design based on student motivation. 10. The learning experience design paradigm will have a different impact from the routine design of learning experiences because the problems facing future society are rapidly changing and many of which cannot be anticipated in advance. Based on the above description and conditions regarding independent instructional materials, UT continuously strives to improve the quality of the instructional materials used by students, by looking for various patterns of thinking and looking for the best alternative to improve the quality of the learning process in the Open Distance Learning system. By designing instructional materials based on instructional design that is recognized by the latest Open Distance Learning system experts, it contains all components of instructional strategies that refer to instructional goals, and these components are arranged based on instructional theory, motivation theory, learning theory, communication theory and theories that are relevant. In addition, the instructional materials are designed in accordance with the 8 characteristics of instructional materials and 10 principles of future Educational Technology concepts and the opinions of material experts, learning experts and Open Distance Learning system experts with today's standards.

Problems, Objectives and Benefits of Research.

The problems in this research are as follows: 1. How to design the final format of instructional materials in the Research Methods Course that is in accordance with the current characteristics of UT students. 2. How to design the final format of instructional materials that are recognized by material and learning design experts, and in accordance with the latest Open Distance Learning concepts. 3. How to *Identify Instructional Goals* for learning in accordance with the current characteristics of UT students and at the same time can be used to develop the latest instructional materials for UT students. 4. How to *Conduct Instructional Analysis* for instructional materials that are in accordance with the current characteristics of UT students and at the same time can be used to develop UT printed instructional materials. 5. How to *Analyze Learners and Contexts* (Identifying the initial behavior and characteristics) of students for instructional materials that can overcome UT learning problems so far that are in accordance with the current characteristics of UT students and at the same time can be used to develop UT instructional materials. .6. How to *Write Performance Objectives* for instructional materials that match the current characteristics of UT students and at the same time can be used to develop UT instructional materials. 7. How is the *Developed*

Assessment Instrument that will be used to measure student success in accordance with the competencies that have been determined in the performance objektive. 8. How to *Develop Instructional Strategy* for instructional materials that are in accordance with the current characteristics of UT students and at the same time can be used to develop UT instructional materials.

The objectives of this research are: 1. Be able to design the final format of the instructional materials for the Research Methods Course according to the student's characteristics. 2. Able to design the final format of instructional materials recognized by material and learning design experts, and in accordance with the latest Open Distance Learning concepts. .3. Identify *Instructional Goals* for learning in accordance with the latest characteristics of UT students and at the same time can be used to develop UT instructional materials.5. Be able to *Analyze Learners and Contexts* to compile instructional materials that can overcome UT learning problems so far that are in accordance with the latest characteristics of UT students and can be used to develop UT instructional materials at the same time. 6. Able to *Write Performance Objectives* for instructional materials that are in accordance with the current characteristics of UT students and can be used to develop UT instructional materials. 6. Able to *Develop Assessment Instruments* students will use to measure student success in accordance with the competencies that have been determined in the *Performance Objective* 8. Able to develop *Instructional Strategy* for instructional materials that are in accordance with the latest characteristics of UT students and can be used to develop UT instructional materials at the same time. The benefits of this research are, 1. Produce quality instructional materials because it is followed up with validation and field trials in the third year of research. 2. To meet the need for instructional materials in accordance with the latest environmental conditions for all students from any study program registered at the Open University throughout Indonesia. 3. Provide inspiration for other researchers within the Open University and outside the Open University to develop models of instructional materials 4. Provide inspiration for other researchers to develop instructional materials with various learning models for educational institutions outside the Open University.

METHOD

According to Suparman (2014), in the book "*Modern Instructional Design*" the Educational Experts and Practitioners finally found a research method that was able to answer the need for increasing instructional programs, namely, formative evaluation research methods. Walter Dick and Lou Carey since the early 1980s introduced the concept of formative evaluation through their work in the book "*The Systematic Design of Instructional*". Furthermore, Gall, Joyce & Borg, (2007), adapted the instructional design model into a research and development model and called it: *Step of Systems Approach Model of Educational Research and Development.* Distance Learning experts and practitioners (Simonson, Smaldino, Albright, and Zvacek, 2012) adapted the instructional design model as a model for developing Open Distance Learning instructional materials.

In this study, the researcher uses this method because according to Gall, Joye & Borg (2007), Research & Development, is a development-oriented process by validating the

model or design of educational programs through a research approach. To become a new product that is scientific to meet the needs in accordance with the times. The stages of this research can be seen in the R&D research development chart, in the third-year position as follows:

Step of Systems Approach Model of Educational Research and Development.



Figure 1. *Position of Independent Instructional Material Development -UT Research Methods Course (Gall, Joyce & Borg, 2007)*

The chart above shows the research steps that have been carried out starting from the first step to the seventh step. Next, carry out step eight until it's finished. This article is written as the result of the third year of research starting from step 9 to 15.

Population and Instrument

The population of this study were all graduates of the *Elementary School Teacher Education* S1 program, and graduates of *Non-Educational Programs.* class of 2016-2018. The sample consisted of six experts in the field of expertise, namely, *Content Experts, Instructional Designer, Web Design, Online Program Learning, Language Experts, and added with 4 face-to-face tutors for Educational Research Methods.* One-to-one evaluation was tested on 6 South Tangerang students. Coupled with 80 students for field trials, namely: Bandung 20 students, Jakarta 30 students, and Bogor 30 students.

Researchers conducted interviews with experts and tutors one by one, according to their respective fields of expertise, and according to the program being tested, equipped with interview instruments and guidelines which were the reference for the contents of the interview blueprint. Instruments for all Experts use several standard

UT formats according to their expertise which have been used to measure the quality of instructional materials that will be used by students. Prepared interview guidelines and instruments that use a checklist format for several questions that must be filled out by respondents.

Steps of Formative Trial Activities.

One of the stages in the "*The Systematic Design of Instruction*" model which became known as the "Dick and Carey" model was the "*Formative Evaluation*" stage. The model was modified by Gall, Joye & Borg (2007) with the name, *Step of Systems Approach Model. of Educational Research and Development.* In the form of a chart, the steps of formative testing and revision can be described as follows:

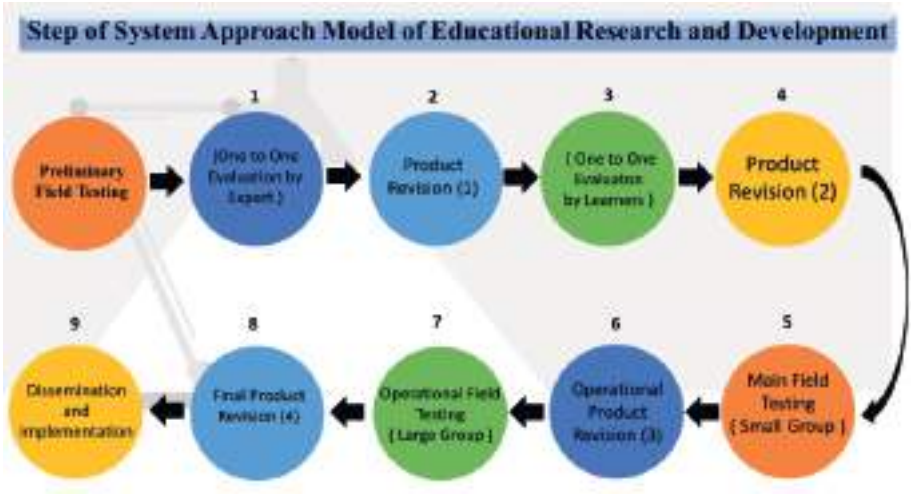


Figure 2. *Four Steps of Formative and Revised Evaluation in the development of a model of instructional materials for an Educational Research Methods course. (Dick & Carey Model, modified by Gall, Joyce and Borg (2007).*

The first step: is conducting *Preliminary Field Testing* (*One to One Evaluation by 10 Experts)*. Asked for input from 6 experts in accordance with their field of expertise and added 4 tutors to revise the instructional materials that had been completed by the writing team in the previous year.

The second step: is to carry out activities, *Product Revision (1)* the existing instructional materials are refined by the Research / Developer Team based on the input and suggestions given by 6 experts and 4 tutors according to their expertise. The position of instructional materials becomes the second final instructional material.

The third step: then, is to conduct *Preliminary Field Testing (One-to-One Evaluation by 6 learners)* using the second final instructional material that has been refined by the Research/Development Team. To carry out this second evaluation field activity, the Research/Development Team selected six students as respondents who had

good, moderate, and poor qualifications by looking at their *Grade Point Average* in the Research Methods Course last semester. Students were asked to be willing to rate the quality of the second final instructional material. which has been refined by the Research/Development Team. All instructional materials are provided to students. The materials that were evaluated mainly were the most important concepts in the description, audio-visual media, web design, exercises, and formative tests. The goal is to be understood and evaluated by students. with a learning time limit that is in accordance with the speed of each learning. Next, the Research/Development Team interviewed students one by one to measure their understanding of the instructional materials they had read, about pleasant and unpleasant learning experiences, and other important/interesting events while students were studying the instructional materials.

Fourth step, conducting activities, *Preliminary Product Revision (2)* Based on the results of the interview (*One to One Evaluation by 6 learners)*, the entire process of the results of the interview was carefully revised by the Research/Development Team, part by part according to the recommendations given by the students. Furthermore, the Research/Developer Team refined the instructional materials that had been revised in the first and second revisions based on input from the field trials conducted by the 6 students. Instructional materials are in the third final position.

The fifth step: is to carry out activities, *Main Field Testing (Small Group Evaluation)* the selected sample is carried out at the Regional Office (Bandung) with the criteria that internet access is very good, coupled with the criteria for the largest number of students. In the pilot activity of this research, it involved the respondents (twenty students) actively. The trial conducted was to review the instructional materials using evaluation instruments in the form of questionnaires, checklists and interview guidelines that were relevant to the research objectives.

The sixth step: is to carry out the following activities: *Operational Product Revision (3)* Then, with the same procedure, the Research/Development Team makes revisions and improvements to the instructional materials in accordance with the previously applicable procedures. The test results obtained through the instruments provided by students including suggestions and improvements were revised by the Research/ Developer Team who worked in groups and discussions to perfect the instructional materials even more. Fourth final instructional materials position.

Seventh step: carrying out activities: *Operational Field Testing (Large Group)* research is carried out in two selected Regional Offices namely: Bogor, and Jakarta as selected samples. For this study, through the same procedure, researchers met with thirty students at Regional Office Bogor and thirty students at Regional Office Jakarta. (at different times).) by conducting the following research procedure, selecting thirty students at Regional Office Bogor and thirty students at the Regional OfficeJakarta Distance Learning Program Unit to test the instructional materials for the Research Methods Course. The selected students have an average qualification which can be seen from the Grade Point Average (GPA) for Research Methods Courses last semester. The selected sample is Module 4 and Module 6 which are in the Educational Research Methodology instructional materials. Furthermore, the researcher immediately held

a pretest before the students read the instructional materials. After the Pretest was carried out, the researcher delivered the selected instructional materials, namely, Module 4 and Module 6. Next, asked the students' willingness to assess the quality of the instructional materials that had been made by the Experts and Tutors of the previous Educational Research Methods Course. All materials in Module 4 and Module 6 are evaluated by students, preferably material consisting of the most important concepts in the description, audio-visual media, web design, exercises, and formative tests. The meeting will be held in two weeks, and the learning time is controlled remotely by the Tutors as facilitators. After two weeks of running time, students were invited back to meet in class and a Posttest was immediately held by the Research/Developer Team. For two weeks students are given the opportunity to study Module 4 and Module 6 material in the *Educational Research Methods* instructional material. With a maximum study time limit of two weeks or according to the learning speed of each student.

Eighth step: carry out activities; *Final Product Revision (4)*. After the results of the *Pretest and Posttest* were collected, and added with input and suggestions from the collected students, according to a predetermined procedure, the data was analyzed and then revised to improve the instructional materials for the *Educational Research Methods Course* which had been implemented four times. The results of the revision of this stage are the final product of independent instructional materials that are ready to be disseminated and implemented to students whose use is wider.

The ninth step: is to carry out **Dissemination and Implementation** activities. which is planned to be disseminated internally through national seminars in the area at the Regional Office by presenting at least 50 local stakeholders, has not been able to materialize due to the constraints of Covid 19.

FINDINGS

The results of the *Pretest and Posttest* tests showed that there was an increase in value of 3.5 for UPBJJ Jakarta and 3.7 for UPBJJ Bogor. The average added value was 3.6. This shows that the instructional materials used by students meet certain quality criteria or standards, in terms of effectiveness and efficiency. This article is written in the third year of research using the R&D method. This research produces the final independent instructional material after going through a formative evaluation field trial which includes validation and testing, such as the provisions in steps 9-15 in the R&D model. In this study, it was found that instructional materials were designed according to the latest characteristics of UT students, and were designed according to the final format of instructional materials that met the criteria by material and learning design experts, as well as in accordance with the latest Open Distance Learning concepts. through several stages in formative trials in the field. The results of the interviews were analyzed, and concluded in the form of suggestions for improvement which were used as the basis for the Research/Development Team to revise the format of instructional materials. Furthermore, the Research/Development Team collaborated with the Experts through Focus Discussion Groups to refine the instructional materials according to the input from the instructional materials experts.

Table 1. *Output Results from Experts.*

The data were obtained from the results of in-depth interviews to get focus in the finalization of the model, and the data were analyzed descriptively qualitatively and quantitatively which can be seen below.

No	Statements	Answer	Fre quency	Answer presentation
1	Whether the designed instructional materials are in accordance with the truth and up-to-date content according to the field of science and their relevance to the Instructional Objectives.	Already appropriate	10	100%
2	Is the correctness of using technical terms appropriate?	Already appropriate	10	100%
3	Is the formulation of the General Instructional Objectives used is correct?	It" s right	10	100%
4	Have you. adequate preparation of Instructional Analysis	It's enough	10	100%
5	Is there any relevance of Instructional Objectives with Instructional Goal?	relevance between Instruc Objec and Instruc Goal	10	100%
6	Is it appropriate to use the formulation of Instructional Objective?	Very suitable	10	100%
7	Is there any relevance between the Test and the Instructional Objectives?	There is relevance	10	100%
8	Is in compiling the Student Learning Outcome Assessment Tool to measure student success in accordance with the competencies specified in the Instructional Objectives.	Very suitable	10	100%
9	Is there any relevance between Instructional Strategy and Instructional Objectives?	There is relevance	10	100%
10	Is there any relevance of the Instructional Materials to the Test and Instructional Objectives?	There is relevance	10	100%
11	Is the technical quality of Instructional Materials in accordance with the latest characteristics of UT students?	Very suitable	10	100%

Table 2. *Statements given by 80 respondents (students)*

No	Statements	Answer	Fre quency	Answer Presentation
1	Are you very easy to understand the subject matter you just studied?	Very easy	70	87,5%
2	Is this instructional activity interesting and systematic?	Interesting and systematic	80	100%
3	Is the allocation of time specified for learning and mastering the material in accordance with the time specified in the instructional strategy?	Already appropriate	75	93,75%
4	Do the existing graphic/illustration images help understand the instructional materials?	very helpful	70	87,5 %
5	Is there any material in the instructional materials difficult to learn?	Nothing is difficult	75	93,75%
6	Is the formative test used to measure the competencies that have been determined in the objectives?	very measuring	80	100%
7	Whether the available test materials are compiled from existing instructional materials.	Tests are prepared from existing instruc materials	80	100%
8	Are the examples contained in the instructional materials helpful in understanding the instructional materials?	very helpful	70	87,5 %
9	Whether the exercises contained in the instructional materials help in understanding the concepts of the instructional materials.	very helpful	75	93,75%
10	How about the practice questions you did, Is there an answer in the instructional materials?	the answer is available in the instructional materials	75	93,75%

Specifically, for the 60 respondents who took the pretest, the respondents were very heterogeneous in their initial competence, but in general 50 respondents from 80 respondents answered differently about the Research Methods subject they mastered. For respondents who took the Posttest, 60 respondents stated that there were no tests that were not relevant to the material presented, and 60 respondents stated that there were no test items that were too difficult. Based on the observations of researchers in general, students are quite happy in carrying out this instructional activity. Furthermore, regarding Dissemination, in accordance with applicable UT policies, instructional materials for the *Educational Research Methods Course* can be used by current students after field trial validation has been carried out,

DISCUSSION AND CONCLUSION

The use of *Formative Evaluation* is seen as very important and has strategic value. Its use in the world of education is very interesting and very popular. On the other hand, in the global era, quality conditions are a very big challenge for educators, both now and in the future. Various experts, education experts are constantly looking for various research methods and the best thinking patterns to meet the needs of improving the quality of programs and the quality of instructional materials, so that the learning process used by students in the Open Distance Learning System increases. Independent instructional materials provided in the ODL System are one of the learning innovations provided by UT to make it easier for students to improve their learning outcomes. UT as an ODL Organizing Institution is not difficult to carry out the development of quality and independent instructional materials for use by students, if its users, especially students, find many conveniences and enjoy benefits that cannot be mentioned one by one. The use of independent instructional materials is first designed by a team consisting of material experts and learning media experts, before being used by students. The goal is that instructional materials can be designed to become instructional materials that can be used independently by students. Because of this designed learning design, through a learning process that has certain quality standards. The manufacturing procedure is planned systematically and correctly in accordance with the R&D research concept used in this study. ***The first activity*** is conducting *Research and Information Collecting,* which is conducting preliminary research by collecting information about instructional materials that have been used so far, conducting literature studies, collecting materials supporting material regarding research methods. Conduct needs analysis and describe the analysis of findings. Furthermore, the data findings from the results of the pre-survey and needs analysis are analyzed to get an idea of the instructional materials that will be developed. ***The second activity,*** *Identify Instructional Goals* is a learning outcome that is expected to be mastered by students after completing instructional activities. The main purpose of writing *Instructional Goal* is to achieve competencies that have not been studied before or have not been carried out well by students. ***The third activity,*** *Conduct Instructional Analysis*, is a procedure used to determine the skills and knowledge that are relevant and needed by students to achieve competencies or learning objectives. Research methods. Knowledge of students' initial characteristics is very necessary in determining instructional strategies, especially instructional methods, media and

learning tools and aids. ***The fifth activity,*** *Write Performance Objective,* is the goal to be achieved from teaching a subject that is specific and operational in nature. In general, learning outcomes are always associated with predetermined *Performance Objectives.* ***The sixth activity:*** *Development Assessment Instrument* learning designers must be able to develop learning outcomes assessment tools that will be used to measure student success in accordance with the competencies that have been determined with the competencies contained in the *Performance Objectives.* ***The seventh activity,*** *Development Instructional Strategy,* learning strategy is closely related to how to deliver subject matter so that students can learn. Therefore, the methods chosen must be planned systematically, to achieve maximum learning outcomes. The approach in managing the content and instructional process comprehensively aims to achieve one or a group of predetermined instructional goals. On the other hand, in developing these instructional materials, the developer paid close attention to the eight characteristics of writing instructional materials and ten principles of future *Educational Technology* concepts. Therefore, as a teacher, it is necessary to make innovative efforts to improve the quality of learning outcomes and the learning process through independent instructional materials specifically for the *Open Distance Learning System.*

Suggestions

Suggestions from researchers for the development of independent instructional materials used for Open Distance Learning students, each instructional material that will be developed should do the following:

1. Continuously conduct institutional research by evaluating instructional materials on a regular basis.
2. Conduct an assessment (reviewer) of the instructional materials used by the experts according to their expertise.
3. The organizing body takes further action from the results of monitoring and evaluation of the results of the reviews from the experts.
4. Each semester conducts a student satisfaction survey of the instructional materials used by students.

In accordance with the R&D training material provided by Prof. Dr. Atwi Suparman to researchers, in developing quality instructional materials, they must first conduct research using the R&D method by considering the following matters:

1. An initial research step (step 1) is needed in the form of research and information collecting as a rationale for the need for R&D to produce quality instructional materials.
2. It takes detailed, systematic and systematic learning design steps (step 2-8) to produce a detailed, systemic, systematic, and valid blueprint for learning strategies and learning outcomes measurement tools to serve as a blueprint in developing quality instructional materials. .
3. The final products of R & D in the third year in this study are: *Independent Instructional Material Model*, which requires the development of an initial validation draft, and formative evaluation trials through field trials involving experts, students, tutors, and UT managers to produce instructional materials quality ones. which is ready to be used by UT students throughout Indonesia. (Ste

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A Bibliometric Analysis of Studies in TOJDE

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Abstract

This study aims to examine the studies in TOJDE with the bibliometric analysis method. The sample of this research consists of TOJDE publications in the Web of Science database. In this context, from 2005 to 2022, a total of 1295 publications, including 1099 articles, 115 book reviews, 62 editorial materials, and 19 reviews, were analyzed by bibliometric analysis. We used the R-Studio program to obtain the findings related to the articles reached within the scope of the research. The author with the highest number of publications is Yuzer T.V. The university that publishes the most is Anadolu University. The most cited works were Lee's studies in 2007 and Basal's in 2015. The most frequently used author keyword is distance education. This keyword is followed by e-learning. Education, online learning, and distance learning follow these keywords. It was seen that there are 4 clusters according to the author's keywords. It was seen that there are two clusters in the Co-Citation Network between the authors.

Keywords: *Distance Education, TOJDE, Bibliometric Analysis*

INTRODUCTION

Technological developments have significantly affected every aspect of social life (Roblek et al., 2018). One of the areas affected by these developments is the field of education (Raja & Nagasubramani, 2018). Today, an intense effort is being made to integrate communication technologies into the field of education. Because communication technologies can effectively use the resources allocated to education, providing flexibility to learning environments and increasing the quality of learning (Hawkridge, 2022). One of the applications formed by integrating information and communication technologies into education and training processes is distance education.

Distance education, which has been in practice for many years, experienced a significant breakthrough, especially in the 1980s (Jung, 2019). As a result of this breakthrough, many distance education providers have emerged, many more people have had the opportunity to learn, and different learning needs and demands have begun to be met (Rumble, 2019). The basis of these developments is the inability of traditional education technologies to meet the increasing educational needs and demands and the effects of results in different fields, especially information technologies (Sewart et al., 2020). For example, The developments in television and computer technologies have enabled

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the realization of extra distance education applications more than traditional teaching methods. The researches in the literature and the applications in the field show that the developments related to distance education will increase with an increasing speed. The widespread use of the Internet and the importance of online education practices and activities support this view (Shiratuddin et al., 2004; Yuzer T.V., 2007).

Distance Education

Education is a living process that is constantly evolving. Education, which has an important place in human life, is affected by all fields that affect people. In this direction, it is seen that technology has a profound effect on every aspect of our lives today (Nichols, 2020). Individuals are faced with more and more information every day through technological tools. Suppose today's economy is to be called the information and technology economy. In that case, all societies aim to develop human resources by using information technologies in every field, from education to health, and to try to get a place for themselves by prioritizing lifelong education (Ellis & Goodyear, 2019; Hawkridge, 2022). Another tool and element that can be used in this process is distance education (Visser et al., 2012). The term distance education includes different terms that are not entirely synonymous. Some of these terms are within the scope of distance education; letter education, homework, outside work, distance learning, distance learning, distance learning, or distance learning (Simpson, 2018).

Distance education is the systematic arrangement of self-study carried out by a team of teachers. Each of them takes responsibility for student counseling, monitoring and protecting student achievement, and demonstrating learned material. In addition, distance education is education in which most of the educational communication between teachers and students is not met; two-way communication between teachers and students is provided remotely to support and structure the educational process, and technology is used in two-way transmission (Kononets et al., 2020; Kurzman & Littlefield, 2002).

Distance education is a system model in which students and instructors in different environments carry out learning-teaching activities with communication technologies and postal services (Palvia et al., 2018). According to Saykili (2018), a large part of the learning-teaching processes of the source and the receiver in distance education are in separate (remote) environments. It provides learners with the opportunity for "individuality, flexibility, and independence" in teaching age, goals, time, place, and method. Materials, tools, technologies, and techniques such as written and printed materials, audio devices, technologies, and face-to-face education are used in learning-teaching processes (Afify, 2020; Firat & Firat, 2020). Distance education is a planned and systematic educational technology application in which the communication and interaction between the teacher and the learner are provided by integrated interactive technologies (Bates, 2005; Evans, 1994).

Distance education is a term that combines teaching and learning elements (Cacheiro-Gonzalez et al., 2019). Distance education and distance learning describe both halves of the distance education process. Distance learning describes the course development

process of a remote institution that prepares learning materials for students. Likewise, this process evaluated distance learning or distance learning from the student's perspective. There is a particular need for remote systems incorporating the chosen term with a student learning invention angle and distance learning.

In distance education applications that can fully use these features, students start, continue and complete their studies without being dependent on any restrictions encountered in group learning or classroom teaching. This result shows two different views of schools in distance education. One strongly emphasizes self-study and individuality and is based on independent teaching to large audiences. The other is the schools that generally use classroom or group teaching as a common element and show parallelism with the established working logic (Kaya, 2002).

When evaluated in terms of students, the student is in an independent state. The student determines the organization, place, and time of the learning activities himself. Target groups that will benefit from the training to expand the equality of opportunity are determined. These are generally working adults. Regarding the economic aspects of the application, it is advantageous to produce printed texts, TV broadcasts, and other audio-visual tools from a center. There is the possibility of taking advantage of the highest convenience from locally provided sources, e.g., teachers, communication systems, etc. Thus, the current cost per student is considerably reduced. Regarding learning materials and methods, it is important to have learning materials planned to enable the individual to learn on their own (Özdil, 1986).

Turkish Online Journal of Distance Education (TOJDE)

TOJDE is an open-access, peer-reviewed academic journal of distance education. Even though distance education has been around for more than 150 years, there has been an ever-increasing need for professionals and knowledge due to the incredible advancements in digital technology and new paradigms (Yuzer, 2022).

Credible knowledge of state of the art today and future predictions based on facts is necessary to comprehend the complicated world of distance education as it exists now. As a result, it necessitates the ability to see trends and recurring issues and connect specific demands, problem-solving techniques, and desired outcomes. In line with this, TOJDE aims to give readers access to academic viewpoints and research in distance education (Yuzer, 2022). Table 1 shows TOJDE's index scores, number of articles, and number of citations.

Table 1. *Index Information of TOJDE*

Journal	h_index	g_index	m_index	Total Citation	NP	PY_start
TOJDE	18	26	1.000	3443	772	2005

Aim and Importance of the Study

Countries that have reached a certain level of development prioritize education in innovation and development movements (Bagapova et al., 2020; Sharma et al., 2019).

These countries pay special attention to acquiring desired behaviors by guiding and educating their citizens in line with their interests and abilities. Thus, efforts are made to ensure that all individuals constituting society receive an education compatible with their interests and skills. However, all individuals in countries can't acquire the desired behaviors and receive an education consistent with their interests and abilities. We can state that individuals cannot gain the desired behaviors adequately, and education cannot be provided for the problem encountered in educational practices (Cavus et al., 2021).

Distance education applications can help reduce or eliminate these problems by providing solutions to these problems (Qayyum & Zawacki-Richter, 2019). There are various problems for many individuals in traditional education. The most important of these is the distance from the school and the inadequacies such as institution, capacity, and trainer. For this reason, many countries have made arrangements for distance education and enabled it to be implemented. In addition, technological progress and the rapid production and sharing of knowledge have revealed the concept of "lifelong learning." Everyone with access to technology, including grandparents, continues their learning throughout their lives (Moore & Fodrey, 2018; Tulanovna & Mamirdjonovich, 2021). Distance education is important for everyone; it provides equal opportunity in education. Everyone can benefit from distance education, such as children, young people, the disabled, those who cannot go to school because they work, those who cannot go to school due to geographical reasons, and those who want to improve themselves in various subjects (Perraton, 2020).

While distance education solves these problems, it also needs to renew itself. Distance education needs to adapt to new developments and trends in information technologies. In the case of Turkey, TOJDE stands out in terms of using these current trends in distance education and sharing the effects. For this reason, examining the articles in TOJDE with bibliometric methods will guide research in distance education. For this reason, this study aims to explore the studies in TOJDE with the bibliometric analysis method. In this context, the research questions are as follows:

1. Who are the most influential authors publishing in TOJDE?
2. Which are the most influential universities publishing in TOJDE?
3. Which are the most influential countries publishing in TOJDE?
4. Which are the most influential articles published in TOJDE?
5. What are the trends of publications in TOJDE according to author keywords?
6. What are the results of the Clustering by couple analysis of the publications in TOJDE?
7. What are the results of the Co-occurrence network analysis of the publications in TOJDE?
8. What are the results of the co-citation network analysis of the publications in TOJDE?

METHOD

Bibliometric studies, which examine scientific research in any field with a realistic approach, are a frequently used method today. It is a method that reveals the recording, definition, classification, and qualitative analysis of written documents belonging to the related science branch. Since this type of research facilitates systematic work, it is accepted as a field of study that researches, defines, and classifies written documents.

Sample of the Research

The sample of this research consists of TOJDE publications in the Web of Science database. In this context, from 2005 to 2022, a total of 1295 publications, including 1099 articles, 115 book reviews, 62 editorial materials, and 19 reviews, were analyzed by bibliometric analysis.

Data Collection Process and Data Analysis

We used the R-Studio program to obtain the findings related to the articles reached within the scope of the research. The R environment provides many packages used for bibliometric analysis through its official repository https://cran.rproject.org/. These package programs used in bibliometrics are beneficial for quantitative research (Aria & Cuccurullo, 2017). In the research analysis, we used the R program because it is used in bibliometric studies and has content with many findings and detailed representations.

In this study, 1295 publications were reached as a result of the search made by filtering TOJDE from the Web of Science database in the context of the purpose of the research. The data file of the study is respectively; We obtained it by selecting export, other file formats, records from (1-500), and record content (Full Record and Cited References). In the study, since the data file covers 1295 documents after the "article" limitation and the system can download up to 500 works, the "Bibtex" option was selected, and the documents between 1-500, then 501-1000 and 1001-1295 were downloaded as Bibtext, respectively. It has been combined into a single Bibtex file using the Code Editor program. Later, the "bibliometrix" package was downloaded and activated via the R-Studio program. The downloaded "bibliometrix" package has been run. The R-Studio program was then redirected to a bibliometric analysis page with its online interface. RStudio allows the user to make additional limitations on the data retrieved from the database. We loaded the "Bibtex" file taken from the database into the data section of the biblioshiny interface directed by R Studio, and analyzes were carried out.

FINDINGS

In this section, the findings related to the research questions are given. After the descriptive findings were given, the findings related to the research questions were presented sequentially.

Descriptive Findings

The descriptive data of the publications in TOJDE were given in Table 2. The table includes publication year range, number of authors, author collaboration status, and publication types.

Table 2. *Main Information About Data*

Description	Results
Timespan	2005:2022
Sources (Journals, Books, etc)	1
Documents	1295
Annual Growth Rate %	-1.05
Document Average Age	8.82
Average citations per doc	2.659
References	29672
DOCUMENT CONTENTS	
Keywords Plus (ID)	459
Author's Keywords (DE)	3031
AUTHORS	
Authors	1868
Authors of single-authored docs	440
AUTHORS COLLABORATION	
Single-authored docs	600
Co-Authors per Doc	1.9
International co-authorships %	7.181
DOCUMENT TYPES	
Article	1099
Book review	115
Editorial material	62
Review	19

When Table 2 is examined, it is seen that a total of 1099 articles were published in TOJDE from 2005 to 2022. In addition, 115 book reviews, 62 editorial materials, and 19 reviews were made. Four hundred forty publications are single authored. A total of 1868 separate authors have published studies in TOJDE. 7% of the studies have emerged due to the collaboration of authors from different countries. The average number of citations of the studies is 2.65. Data on the number of articles published annually, the number of citations per article (MeanTCperArt), the annual average of citations per article (MeanTCperYear), and the number of years in which the report can be cited (Citable Years) are presented in Table 3.

Table 3. *Data on Citations of Publications*

Year	N	MeanTCperArt	MeanTCperYear	Citable Years
2005	55	1.44	0.08	17
2006	71	2.75	0.17	16
2007	65	5.08	0.34	15
2008	71	3.70	0.26	14
2009	79	1.27	0.10	13
2010	78	2.08	0.17	12
2011	97	1.29	0.12	11
2012	109	2.99	0.30	10
2013	103	2.56	0.28	9
2014	83	2.54	0.32	8
2015	54	4.17	0.60	7
2016	52	3.27	0.54	6
2017	64	5.11	1.02	5
2018	67	3.70	0.93	4
2019	64	3.36	1.12	3
2020	64	1.84	0.92	2
2021	73	1.11	1.11	1
2022	46	0.09		0

When Table 3 is examined, it is seen that the highest number of publications was in 2012 (N=109). 2013 was the second year with the highest number of publications (N=103). The year with the highest number of citations per article was 2017, with 5.11. The year 2007 is in second place with 5.08 citations per article. Considering the annual average number of citations of the articles, 2019 ranks first with 1.12. This year is followed by 2021 with 1.11.

Most Influential Authors

The descriptive data of the 20 authors who published the most in TOJDE were given in Table 4. In the table, the authors were listed according to the number of articles.

Table 4. *Most Influential Authors*

Authors	Articles	Articles Fractionalized
Yuzer T.V.	22	21.00
Demıray U.	21	17.58
Hargıs J.	14	7.58
[Anonymous] A	11	11.00
Akbulut Y.	10	9.50
Yee K.	9	4.50
Aydın C.H.	7	4.42
Kurt A.A.	7	5.17
Ozan O.	7	6.50
Ozarslan Y.	7	5.83
Capacho J.	6	5.33
Fırat M.	6	4.33
Karal H.	6	1.78
Azeta A.A.	5	2.17
Chalak A.	5	1.83
Gujjar A.A.	5	1.83
Hussaın I.	5	4.50
Kuzu A.	5	3.50
Mosalanejad L.	5	1.67
Numan S.M.	5	1.83

According to Table 4, the author with the highest number of publications is Yuzer T.V., with 22 articles. Demiray U. is in second place with 21 articles. There are 11 Turkish writers in the top 20. The publication distribution of the top 10 authors by years is given in Figure 1.

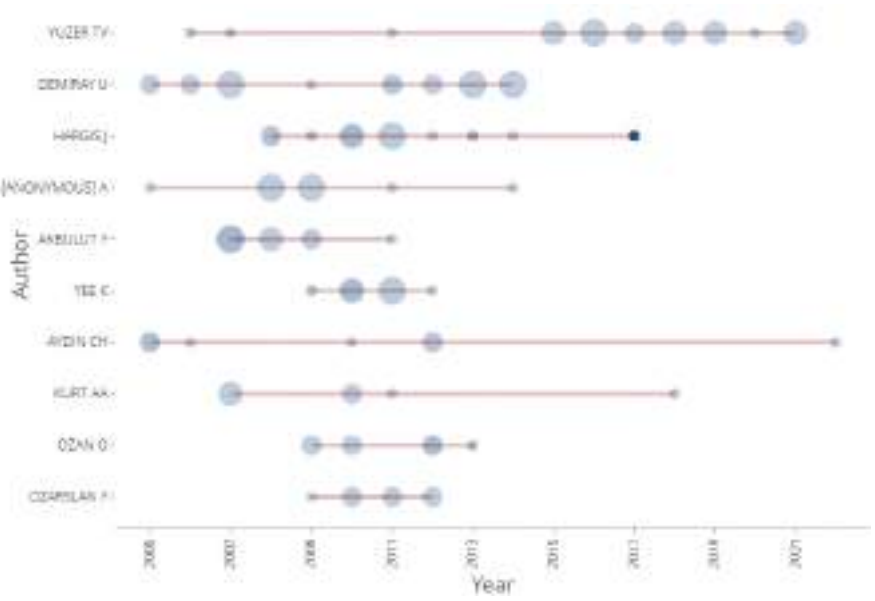


Figure 1. *Top 10 Authors' Publications by Year*

Most Influential Universities

The descriptive data of the 20 universities that make the most publications in TOJDE were given in Table 5. In the table, universities were listed according to the number of articles.

Table 5. *Most Influential Universities*

Affiliation	Articles	Affiliation	Articles
Anadolu Univ.	416	Zimbabwe Open Univ	30
Univ. Terbuka	76	Univ Kebangsaan Malaysia	26
Bangladesh Open Univ.	52	Covenant Univ.	25
Indıra Gandhi Natl. Open Univ.	46	Bangkok Univ.	23
Hacettepe Univ.	41	Islamıa Univ. Bahawalpur	22
Karadenız Tech. Univ.	39	Hellen Open Univ.	21
Eskisehir Osmangazi Univ.	35	Univ. South Africa	20
Allama Iqbal Open Univ.	34	Univ. Norte	19
Islamıc Azad Univ.	33	Abant Izzet Baysal Univ.	18
Natl open Univ. Nigeria	32	Akdeniz Univ.	18

According to Table 5, the university that publishes the most is Anadolu University, with 416 articles. Universitas Terbuka is in second place with 76 articles. 6 Turkish

universities took place in the top 20. The distribution of publications by the top 10 universities by year is given in Figure 2.

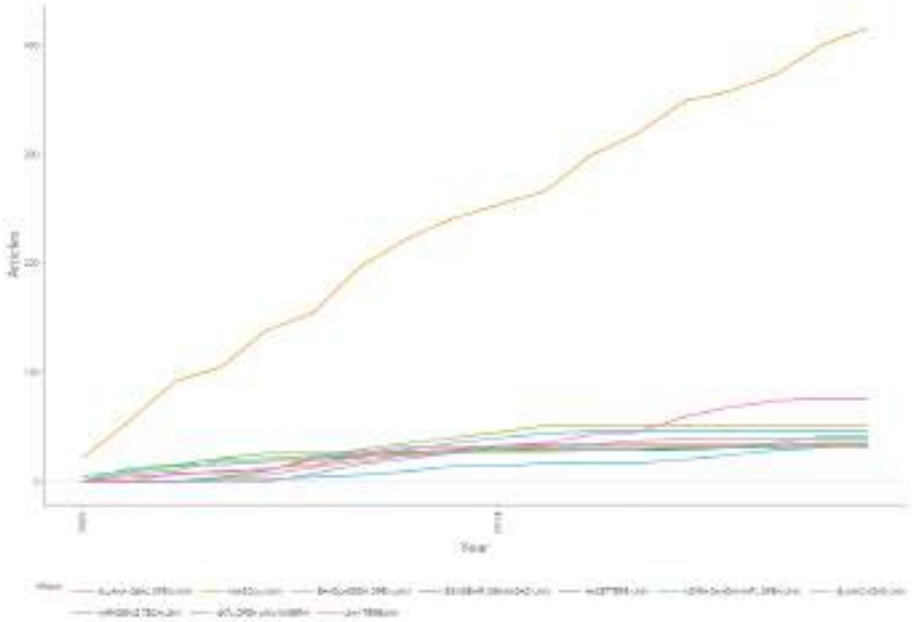


Figure 2. *The Distribution of Publications by the Top 10 Universities*

Most Influential Countries

The descriptive data of the 20 countries with the highest number of publications in TOJDE are given in Table 6. In the table, universities are listed according to the number of articles.

Table 6. *Most Influential Countries*

Region	Freq	Region	Freq
Turkey	1187	Brazil	66
USA	238	Saudi Arabia	66
India	230	South Africa	49
Iran	187	UK	45
Malaysia	157	Australia	41
Pakistan	154	Thailand	40
Indonesia	146	Spain	38
Nigeria	107	Canada	30
Bangladesh	78	Zımbabwe	30
Greece	76	Mexıco	29

According to Table 6, the country with the highest number of publications is Turkey, with 1187 articles. The USA is in second place with 238 articles. India follows these countries with 230 articles and Iran with 187 articles.

Corresponding Author's Country

The descriptive data regarding the corresponding author data in the studies conducted in the 20 countries with the highest number of publications in TOJDE are given in Table 7. The table lists countries according to the number of articles by the corresponding author.

Table 7. *Corresponding Author's Country*

Country	Articles	SCP	MCP	Freq	MCP_Ratio
Turkey	485	465	20	0.375	0.041
India	86	85	1	0.066	0.012
USA	79	70	9	0.061	0.114
Iran	58	54	4	0.045	0.069
Malaysia	57	52	5	0.044	0.088
Pakistan	52	51	1	0.040	0.019
Nigeria	46	43	3	0.036	0.065
Indonesia	41	39	2	0.032	0.049
Bangladesh	31	25	6	0.024	0.194
Greece	24	22	2	0.019	0.083
Saudi Arabia	22	18	4	0.017	0.182
Brazil	17	17	0	0.013	0.000
Thailand	17	16	1	0.013	0.059
South Africa	16	16	0	0.012	0.000
UK	15	9	6	0.012	0.400
Australia	14	14	0	0.011	0.000
Canada	12	10	2	0.009	0.167
Colombia	10	8	2	0.008	0.200
Spain	10	10	0	0.008	0.000
Zimbabwe	10	10	0	0.008	0.000

According to Table 7, the country with the highest number of corresponding authors is Turkey, with 485 articles. India is in second place with 86 corresponding authors. The USA follows these countries with 79 corresponding authors and Iran with 58 corresponding authors. Turkey produced the most single-authored study with 465 articles. India ranks second with 85 single-author studies. These countries are followed by the USA, with 70 single-authored studies. Turkey produced the highest number of

single-authored studies, with 465 articles. India ranks second with 85 single-authored studies. These countries are followed by the USA, with 70 single-authored studies. Turkey has ranked first by producing 20 articles with multiple corresponding authors. The USA is in second place with the nine most co-authored articles. These countries are followed by Bangladesh, with six multi-authored studies. Considering the rate of articles with multiple corresponding authors, it is seen that the UK ranks first with 40%. Colombia follows this country with 20% and Bangladesh with 19%.

Most Cited Countries

The descriptive data on the total number of citations and the average number of citations per article in the 20 countries with the highest number of publications in TOJDE are given in Table 8. In the table, countries are listed according to their total number of citations.

Table 8. *Most Cited Countries*

Country	Total Citations	Average Article Citations
Turkey	1281	2.64
USA	266	3.37
Malaysia	201	3.53
Indonesia	148	3.61
India	142	1.65
Iran	135	2.33
Nigeria	131	2.85
Australia	124	8.86
Pakistan	108	2.08
Greece	82	3.42
Thailand	69	4.06
Bangladesh	67	2.16
UK	66	4.40
Saudi Arabia	63	2.86
Brazil	46	2.71
Canada	41	3.42
Mexico	38	4.75
South Africa	33	2.06
Spain	33	3.30
Ghana	30	3.33

The descriptive data on the total number of citations and the average number of citations per article in the 20 countries with the highest number of publications in TOJDE are given in Table 8. The table lists countries according to their total number of citations.

Most Global Cited Documents

The data on the total number of citations and the number of citations per year of the 20 most cited articles in TOJDE are given in Table 9. In the table, the studies are listed according to the total number of citations.

Table 9. *Most Global Cited Documents*

Paper	Total Citations	TC per Year
Lee M.J.W., 2007	58	3.63
Basal A., 2015	58	7.25
Edirisingha P., 2007	41	2.56
Akkoyunlu B., 2006	37	2.18
Iwamoto D.H., 2017	32	5.33
Sahin I., 2007	31	1.94
Habibi A., 2018	31	6.20
Baki R., 2018	31	6.20
Ekmekci E., 2017	30	5.00
Gerogina Gomez-Zermeno M., 2016	26	3.71
Nicholas-Omoregbe O.S., 2017	25	4.17
Albelbisi N.A., 2019	24	6.00
Lim T, 2010	23	1.77
Machado-Da-Silva F.N., 2014	22	2.44
Wang J., 2013	21	2.10
Ilter B.G., 2009	20	1.43
Reushle S., 2008	19	1.27
Pettenati M.C., 2007	19	1.19
Bozkurt A., 2016	18	2.57
Tatli Z., 2012	18	1.64

According to Table 9, the most cited works were Lee's studies in 2007 and Basal's in 2015, with 58 citations. These studies were followed by an article published by Edirisingha in 2007 with 41 references. Basal (2015) ranks first with 7.25 in the annual average number of citations per study. Habibi (2018) and Baki (2018) are in second place with a yearly average of 6.20 citations.

Trends of Publications in TOJDE

Figure 3 shows the 30 most frequently used author keywords in the articles published in TOJDE. We took the number of uses and percentages of author keywords into account.

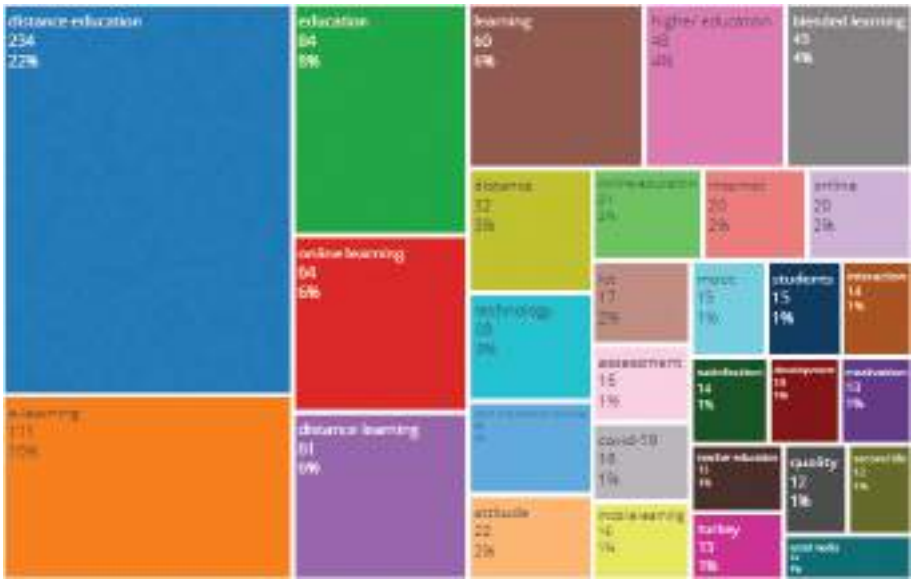


Figure 3. *Trends of Publications in TOJDE*

According to Figure 3, the most frequently used author keyword is distance education, with 234 (22%). This keyword is followed by e-learning with 111 (10%) usage. Education, online learning, and distance learning follow these keywords.

Clustering by Coupling

Clustering by coupling results of articles published in TOJDE is given in Figure 4. While Clustering by Coupling, We took author keywords into account.

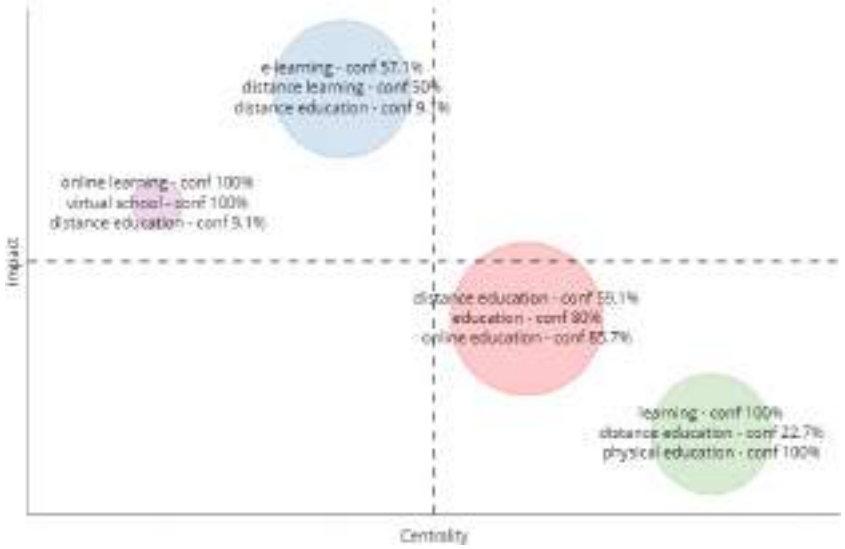


Figure 4. *Clusters of Author Keywords*

When Figure 4 is examined, it is seen that there are 4 clusters according to the author's keywords. It is seen that distance education is included in all four clusters. Figure 5 shows the network of authors in these four clusters.

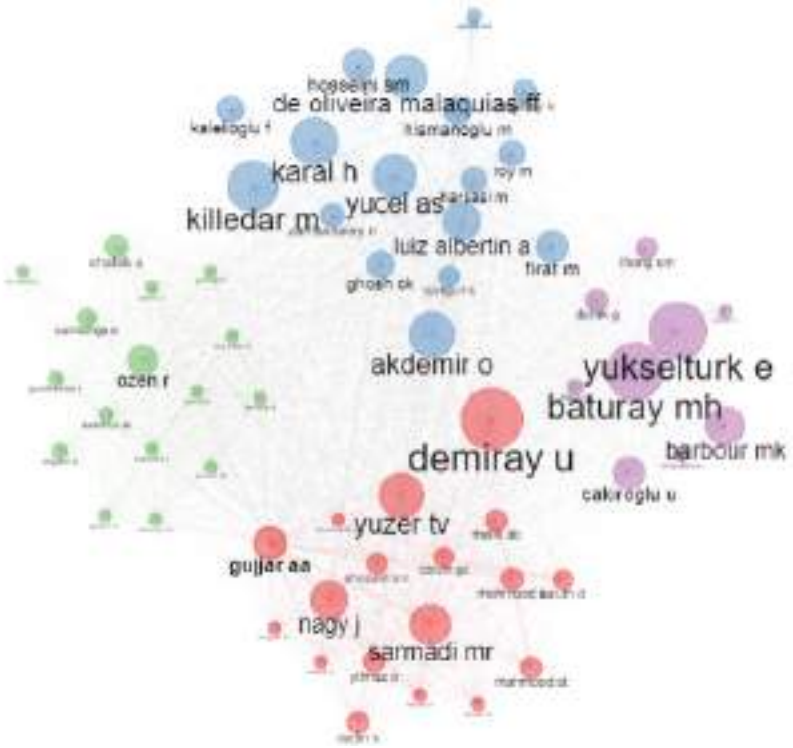


Figure 5. *Cluster by Coupling*

According to Figure 5, Demiray U, Yuzer T.V., and Sarmadi M.R. can be said to have come to the fore in the red cluster. Yukselturk E. and Baturay M.H draw attention to the purple cluster. In the blue cluster, many researchers, including Killedar M., Akdemir O., and Yucel A.S., are at the center of the network. In the green cluster, it is seen that Ozen R. N is in the center.

Co-Occurrence Network

The Co-occurrence Network of author keywords is given in Figure 6. There are 30 author keywords in the figure.



Figure 6. *Co-Occurrence Network*

When Figure 6 is examined, 4 clusters were formed according to the author's keywords. In the blue cluster, the keywords distance education and education are associated with all clusters. The purple cluster has e-learning in the center. The green cluster includes MOOC, satisfaction, and students. In the red cluster, it is seen that assessment and open and distance learning are included.

Co-Citation Network

The Co-Citation Network of the authors is given in Figure 7. There are 30 authors in the figure.

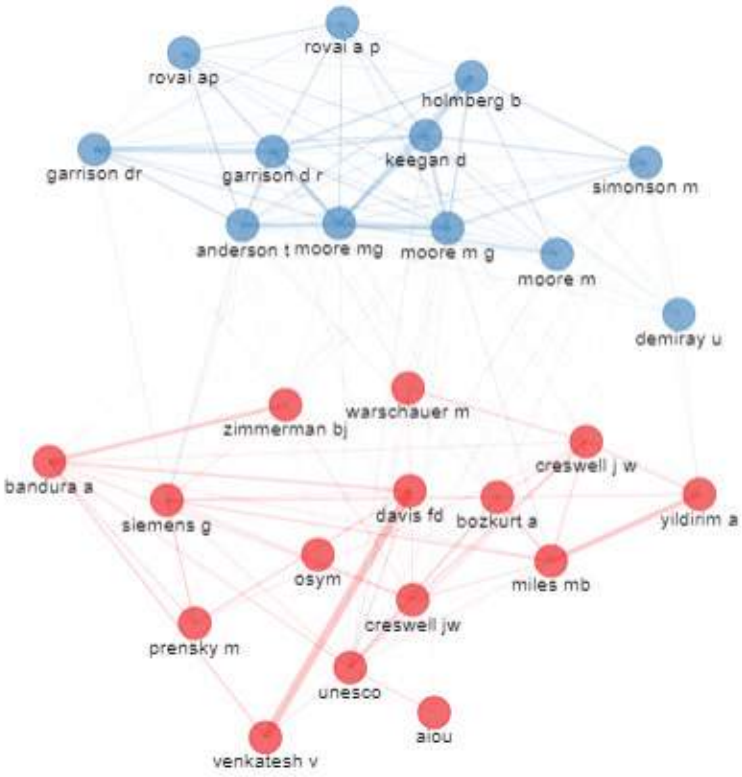


Figure 7. *Co-Citation Network*

When Figure 7 is examined, it is seen that there are two clusters in the Co-citation Network between the authors. There are 18 authors in the red and 12 in the blue clusters. It can be said that the authors show similar weight in the Co-Citation network.

CONCLUSION

The author with the highest number of publications is Yuzer T.V. Demiray U. is in second place. There are 11 Turkish authors in the top 20. The university that publishes the most is Anadolu University. Universitas Terbuka is in second place, with. 6 Turkish universities in the top 20.

The country with the highest number of publications is Turkey. The USA is in second place. India and Iran follow these countries. The country with the highest number of corresponding authors is Turkey. India is in second place. The USA and Iran follow these countries. Turkey produced the most single-authored study. India ranks second. The USA follows these countries. Turkey produced the highest number of single-authored studies. India ranks second. The USA follows these countries. Turkey has ranked first in this regard by producing multiple corresponding authors. The USA is in second place. Bangladesh follows these countries. Considering the rate of articles with multiple corresponding authors, it is seen that the UK ranks first. Colombia and Bangladesh follow this country.

The country with the highest number of citations in articles is Turkey. The USA is in second place. These countries are followed by Malaysia and Indonesia. Considering the average number of citations per article, it is seen that Australia ranks first. This country is followed by Mexico and the UK.

The country with the highest number of citations in articles is Turkey. The USA is in second place. Malaysia and Indonesia follow these countries. Considering the average number of citations per article, it is seen that Australia ranks first. Mexico and the UK follow this country.

The most frequently used author keyword is distance education. This keyword is followed by e-learning. Education, online learning, and distance learning follow these keywords.

It is seen that there are 4 clusters according to the author's keywords. It is seen that distance education is included in all four clusters. Demiray U, Yuzer T.V., and Sarmadi M.R. can be said to have come to the fore in the red cluster. Yukselturk E. and Baturay M.H draw attention to the purple cluster. In the blue cluster, many researchers are at the center of the network, including Killedar M., Akdemir O., and Yucel A.S. In the green cluster, it is seen that Ozen R. N is in the center.

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It is seen that there are two clusters in the Co-citation Network between the authors. There are 18 authors in the red and 12 in the blue clusters. It can be said that the authors show similar weight in the Co-citation network.

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Integration of Learning Management System in Graduate Exam Meetings: The Example of Eskişehir Osmangazi University

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Abstract

Exam Identification System (EIS) was designed for graduate and associate professorship exams within the scope of the research. During the design process, the needs for the software to be developed were determined by making preliminary interviews with the relevant units (faculties, institutes). After the initial design of the software was carried out, the software design was finalized by receiving feedback from the users (staff and unit officials logging in via the interface) and by holding meetings when deemed necessary. With the EIS system, data fields that cannot be supplied from the Student Information System (SIS) and require manual information entry into the LMS system have been made possible to be defined directly by the relevant units (faculties, institutes) to the EIS system, preventing data loss, incorrect data entry, wasting time and effort. Thus, the creation of data suitable for the LMS infrastructure and the definition of courses for graduate meetings became automatic. As a result of the research, implications for current practices and suggestions for future research are included.

Keywords: *Learning Management Systems, Distance Education Technologies, Design-Based Research, Developmental Research*

INTRODUCTION

With the Covid-19 pandemic, it has become compulsory to give undergraduate and graduate courses with distance education methods, and the need to hold graduate-level academic exam meetings online has emerged. Although it is possible to carry out exam meetings such as postgraduate thesis defenses, thesis monitoring meetings, associate professorship oral exams through the Learning Management System (LMS), which is currently used, it is necessary to prepare data or transfer data from other information systems to such systems. However, in some cases, the absence of the necessary data for such online meetings in digital media causes manual data entries and course activations.

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The main purpose of this research is to design a new third-party software for the optimization of the activities in the background of e-learning environments and to question its operability in a circular fashion. The research was carried out through design-based research, which has become an important research field in e-learning processes. According to Kuzu, Çankaya, and Mısırlı (2011, p. 20), researchers often do not question the quality of the developed environment. A researcher examining the effect of user control in e-learning environments usually prepares two separate e-learning materials with high and low user control. She/He then applies these materials to the students with the experimental research method and examines which one is more effective. This researcher mostly does not question the design and development processes of the e-learning environment she/he has developed. However, a researcher working with a design-based research method focuses on how user control should be in e-learning environments, instead of making empirical comparisons and searching for the best case for how user control affects learning by making changes to the design in an iterative fashion. Considering these two examples, it can be said that design-based research will contribute more in practice.

DESCRIPTION OF THE PROBLEM

In the 2020-2021 academic year, due to the necessity of the Covid-19 pandemic, undergraduate and graduate courses had to be given by distance education methods. In the relevant period, there are students enrolled in graduate programs within ESOGU (Eskisehir Osmangazi University). In addition to all the courses of these students, the need for academic exam meetings such as thesis defenses, thesis monitoring meetings, associate professorship oral exams, in addition to the graduate courses to be held online has emerged. Although it is possible to carry out exam meetings through the Learning Management System (LMS), which is currently used, it is necessary to prepare data for these systems or to transfer data from other information systems. However, in some cases, since the necessary data for such online meetings is not available in digital form, data entries and new identifications are made manually.

As ESOGU Education Research and Application Center, basic data items such as students, instructors and course information were obtained thanks to the services provided by the technical infrastructure of our University, and distance education was carried out almost without any problems in this process. However, due to the fact that the user information of the jury members participating in the graduate academic meetings from outside of our university is not naturally available in our data systems. The problem of planning these meetings, defining the relevant courses and web-based meetings arose. The problem here is that the identification information (username, password, etc.) is required for the jury members to enter the LMS system securely cannot be obtained from digital sources (SIS), and repetitive and even incorrect records occur due to the manual entries.

METHOD

In this research, which follows a developmental path in the design cycle, Type 1-developmental research proposed by Richey, Klein, and Nelson (2003) was employed. Richey et al. (2014) suggest that developmental research can be categorized as a type of *applied* research, which is conducive to offer immediate solutions to the practical problems. The authors reveal that the starting point of the term *developmental research* is around the 1960s and 1970s, where research-based product and program development had improved in the field of education. Two types of developmental research are defined as Type2: The focus is the study of design, development, or evaluation processes, tools, or models in general; Type1: Study of specific product or program design, development, and/or evaluation projects (Richey et al., 2014; p. 1103). Type1 searches for context-specific solutions, while Type2 look for generalized conclusions:

> *Type I aims at developing instructional systems or instructional product and making context-specific conclusions (such as developing an e-Course), while Type II aims at conducting instructional development to answer research questions and generate new scientific knowledge about new evaluation processes, new instructional models, new design variables of instructional systems and learning environments, new learning and teaching models, and innovations to make generalized conclusions (Elgazzar, 2014, p.30)*

Van Den Akker, 1999 posits that developmental research is often appropriate for *the situations the image and impact of the intervention to be developed is often unclear* (p.7). The aim is to come to prototypes that gradually develop that increasingly meet the targeted requirements. In this sense, the process follows a cycle: *analysis, design, evaluation and revision activities are iterated until a satisfying balance between ideals and realization has been achieved* (Van Den Akker, 1999; p.7). During the design process of Exam Identification System (EIS) within the scope of the research, the needs for the software to be developed were determined by making preliminary interviews with the relevant units (faculties, institutes). After the initial design of the software was carried out, the software demo was shared with stakeholders. Then they tried the system for a certain period of time. Then, successive meetings were held with the relevant units and their feedback received for improvement. Design was finalized with the necessary modifications based on the feedback from the users (staff and unit officials logging in via the interface) and by holding meetings when deemed necessary.

INFRASTRUCTURE AND NEEDS OF THE LEARNING MANAGEMENT SYSTEMS

Learning Management Systems is a web-based software system which is designed to meet the needs of distance education and manage the interaction between students and teachers, serving in a digital environment, including database and application tools. LMS systems users can be divided into two groups in terms of usage, those who manage the system and those who use the system. LMS systems are essential for the beneficiaries of education and training tools, however, LMSs should have some basic features such as easy management, providing necessary reporting features, and

having a secure and reliable software system. When compulsory distance education was carried out, many paid or open source LMS software, which offered basic or more opportunities, were used by educational institutions during the Covid-19 pandemic period. When we look at the infrastructure of these systems, it includes many components such as load balancers, application servers, media servers, video conference tools, student information systems, single password management services and database systems (Yetik et. al., 2019; see Figure 1 for the structure of Eskişehir Osmangazi University LMS system). Database systems, which are one of the basic components of learning management systems, serve as structures that record and store all the data forming the interaction between students, teachers and store them for a long time. Also, for the LMS system to be able to provide efficient and comprehensive service, user information must be defined to the system and course identifications, which are the environment that creates the interaction, must be made. This data can be uploaded to LMS and indirectly to databases, manually or in the form of files or with 3rd party software.

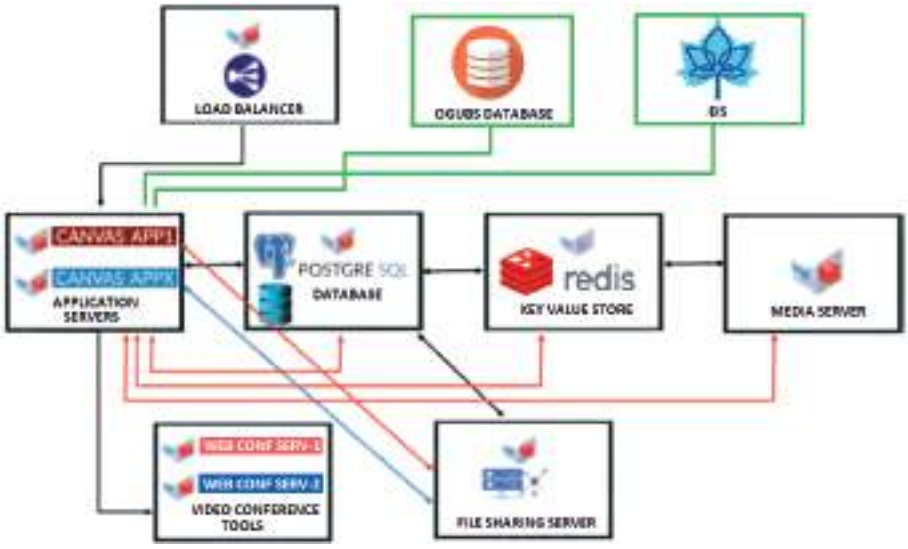


Figure 1. *Infrastructure of the Learning Management System*

FINDINGS

Within the scope of the research, the Exam Identification System (EIS) was designed for graduate and associate professor exam meetings. Thanks to the EIS system, data fields which cannot be supplied from the Student Information System (SIS) and require manual information entry into the LMS system have been made possible to be defined directly by the relevant units (faculties, institutes) to the EIS system, preventing data loss, incorrect data entry, wasting time and effort. Thus, the creation of the data of the jury members in accordance with the LMS infrastructure and the definition of the courses required for the graduate meetings on the LMS have been automated. In addition, it has become possible to send the user name, password and reminder information required to attend the meeting to the jury members who attend the academic meetings from outside of our university, via the EIS system. Since the system began to be used, approximately 1940 meeting definitions have been made, username and password information have been automatically sent to external users who will attend the meeting via email.

DISCUSSION AND CONCLUSION

This study, carried out by the ESOGU Distance Education Application and Research Center, facilitated the use of LMS separately for user groups and prevented the occurrence of repetitive and even incorrect registrations. The implemented software can be an example for other educational institutions with similar needs. Some practical issues may arise within the context of designing the EIS system. Data should be checked with a good number of entries since a new system is being used. While integrating meeting data with user information, validity of the e-mails should be checked and this approach can be a precaution for the rest of the user information.

For future applications of such systems aiming at meeting a university's needs, centralization of the data from each faculty or institution is an important attempt to achieve the systemic goals of the LMS understanding. Recent teaching pivots showed the universities a new approach for managing massive online processes and more and more universities tend to automate any subsystem to be capable of meeting professional needs. It is suggested to promote staff readiness to provide any information for centralized data logging and direct faculties and/or institutions to help data management.

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Examod: Digital Exam & Assessment Software With AI Supported Proctoring

Ozan KARACA[1], Kadir DEMİR[2]

Abstract

Examod: Digital Exam and Assessment Software (examod.com) is a digital exam and assessment platform designed for educational institutions, enterprises, and competent licensing authorized institutions as part of the TUBITAK TEYDEB 1512 Techno-Entrepreneurship Capital Support Program (Project no: 220037).

Examod enables institutions to digitize all summative assessment and evaluation activities undertaken in-person (paper-based exams, skills exams, clinical performance exams, and so on) or online (remote or e-exam centers). This solution is available from Examod as Software as a Service (on Examod Cloud Servers) and On-Premise (on the institution's own servers).

For each course, institutions can generate multimedia supported question banks with multiple choice, multiple response, open-ended, matching, hot spot, and coding question types. These questions can be associated with course learning objectives and question attributes like Bloom's Taxonomy or clinical problems learning levels etc. that are tailored to the institution's needs.

The conservative list or blueprint method can be used to generate exam sets by matrixing the questions vertically and horizontally according to the required variables (topics, learning objectives or question attributes). Paper-based exams can be generated from these exam sets and imported to the system for use in face-to-face environments. Furthermore, online exams can be delivered remotely or at e-exam centers. They can review the advanced exam, item, and distractor analysis created in accordance with Examod's scientific measurement-evaluation in education norms, and they can constantly check the measurement performance of the course or question. They can make adjustments to the measurement's quality and consistency if necessary. These results are also personalized for candidates/students based on subject, learning objective, and so on, and they are displayed independently in the context of all candidates based on the criteria, and they receive automated thorough feedback following the exam.

Objectively structured (using rubrics) performance criteria associated with course learning objectives can be used to evaluate face-to-face oral, clinical performance, or skill assessments. During these performance exams, candidates are evaluated instantly on a tablet or computer, and the audio just-in-time feedback provided during the exam is recorded and displayed in a way that the candidate can access again in the results to be given to the candidate.

Examod records the outputs of the assessment device's camera, audio, screen recording, and peripherals to assure online exam security. In this context, candidate recognition, multiple faces entering the screen, the behavior of the candidate getting off the screen, full screen forcing, single tab and screen use, virtual machine detection, phone and headset usage controls are documented before and during the exam by using artificial intelligence and reported to the examiner.

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The COVID-19 pandemic has served as a driving factor for the digital transformation of measurement-evaluation procedures, particularly online education. In this context, the vision of this product, which was developed entirely with local and national capital and TUBITAK support, is to produce more accurate, comprehensive, and longitudinal results from measurements of current and previous learning, rather than completely remote measurement-evaluation. In other words, it is to provide a more complete, mass, and labor-effective assessment option with various forms of questions and assessments. At the same time, it aims to assist institutions in doing full merit placement/licensing by decreasing location and expense issues in student recruiting, recruitment, or qualification licensing processes through the secure remote examination opportunity.

Keywords: *Digital exam, Assessment Software, Proctoring*

INTRODUCTION

Examod: Digital Exam and Assessment Software (examod.com) is a digital exam and assessment platform designed for educational institutions, enterprises, and competent licensing authorized institutions as part of the TUBITAK TEYDEB 1512 Techno-Entrepreneurship Capital Support Program (Project no: 220037). Examod has been developed to restructure your assessment and evaluation processes, to support the digital transformation of your institutions, to enable you to produce sustainable, qualified, holistic, and high-performance questions, and to enable you to take exams that measure both knowledge and skills.

Examod intends to offer two types of services: Software as a Service (on Examod Cloud Servers) and On-Premise (In the Institution themselves). In this way, paper core exams, skills exams and clinical performance exams will be administered face-to-face, distance and e-exams will be administered as online.

THE NEED FOR EXAMOD

Examod was created as a solution to a variety of problems. Today, depending on the circumstances, face-to-face, distance, or hybrid exams can be administered. As a result of the pandemic, precautions are being implemented in a timely manner. The evaluation process is one of the most influenced by the uncertainty that educators face. Problems develop from the past or are exacerbated by current circumstances. These issues include assessments without goals or gains, subjective assessments, traditional question types, pencil, paper, and workload, non-inclusive numerical results, untraceable candidates, and the test procedure.

Functionality, adaptability, compliance with the general expectations and standards of the state and society, applicability, scientific, fit for purpose, and economic compatibility are just a few of the essential criteria that must be considered while establishing a curriculum. Curriculum aspects include goals/outcomes, content, educational circumstances/learning-teaching procedures, and evaluation/testing situations.

From this vantage point, measures without target acquisition will have a detrimental impact on the evaluation of the created curriculum. Subjective judgments are regarded to harm learners' views in fairness and equality currently of mass education. Furthermore, it might have a detrimental impact on poor motivation and respect for the institution. Traditional question types are another issue addressed. Advanced information processing technologies continue to have an impact on all fields of study. This condition alters the way we do research and has an impact on educational settings and procedures. The continuance of evaluation with solely traditional question forms causes an issue, particularly in instructional procedures using multimedia content and technology.

It is known that more than 10 million people are tested annually by the Measuring, Selection and Placement Center (The Measuring, Selection and Placement Center, 2022). Anadolu University, which offers the open education system widely in our country and abroad, has more than one million active students as of 2021 through the Open Education Faculty (Anadolu University, 2022). According to 2021-2022 Higher Education Statistics, there are more than eight million students enrolled in associate, undergraduate, graduate, and doctoral programs in Turkey (Higher Education Council, 2022). Considering that each student is given at least four exams a year, it is seen how the size of pencil, paper and workload creates a problem in the light of all these figures. This situation also leads to the inability to follow the candidates and the examination process adequately, as the non-comprehensive numerical results that do not contain feedback are presented to the candidates.

THE SOLUTION OFFERED BY EXAMOD

The Examod platform, which is still being developed, is being used to try to find answers to the issue situations. The following are some solutions to problems that have taken on new dimensions because of the introduction of modern technology, rising population rates, pandemics, and other similar occurrences into our lives:

- Multimedia-enabled question banks with a variety of question types associated with learning objectives and question attributes.
- Remote or on-site online evaluations with artificial intelligence-assisted proctoring options.
- All performance tests, including clinical skills, practical, and oral examinations
  - digitization with e-rubrics,
  - giving voice feedback,
  - sharing the results with the stakeholders
- Question bank with diverse question kinds,
  - development of printable paper-based exams in different booklet forms,
  - comprehensive analysis of questions and candidates by transferring OCR outputs to Examod

THE CORE OF EXAMOD

Examod, as an assessment software, is built on questions. Examod enables institutions to adjust to changing demands by using several sorts of questions. For each course, institutions can develop multi-choice, multi-correction, open-ended, matched, point-marked, and coding question types and question banks (Figure 4.1.).

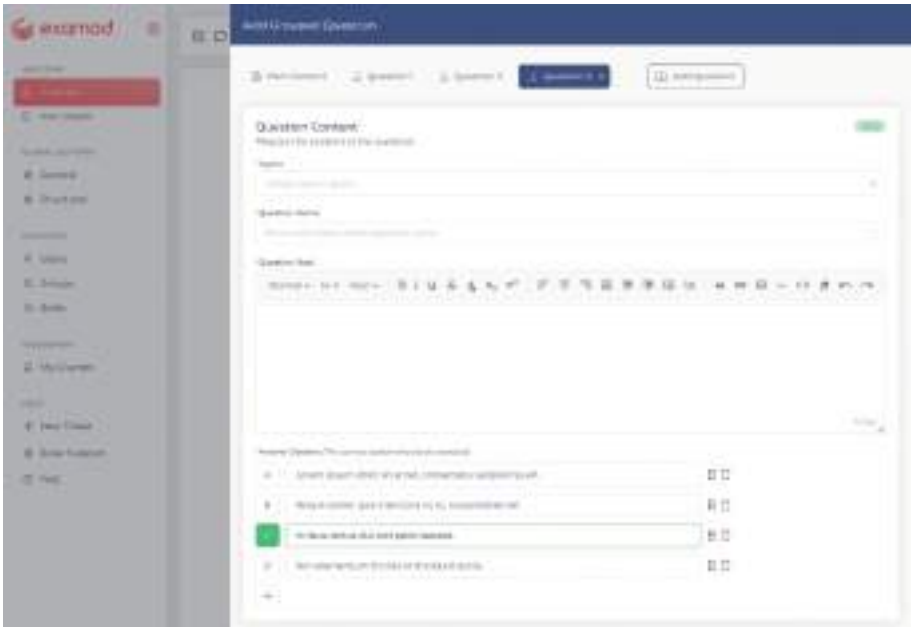


Figure 4.1 *Add Question Screen*

It may generate test sets in combination with the established question banks by matrixing the questions vertically and horizontally according to the required variable using the traditional list or blueprint technique. Paper-based tests can be constructed from these exam sets and transferred to the system for use in face-to-face scenarios. Furthermore, online tests from these exam sets can be taken remotely or at e-exam centers. Following the test, the advanced exam, item, and distractor analysis provided by Examod may be evaluated, as well as the measurement performance of the course, educator or question. Furthermore, under the direction of the rubrics developed before the exam, written or audio feedback can be provided just in time (Figure 4.2.).



Figure 4.2 *Just in Time Feedback*

These results are also personalized for candidates/students based on subject, learning purpose, and so on, and are displayed independently in the context of all candidates based on the criteria (Figure 4.3.).

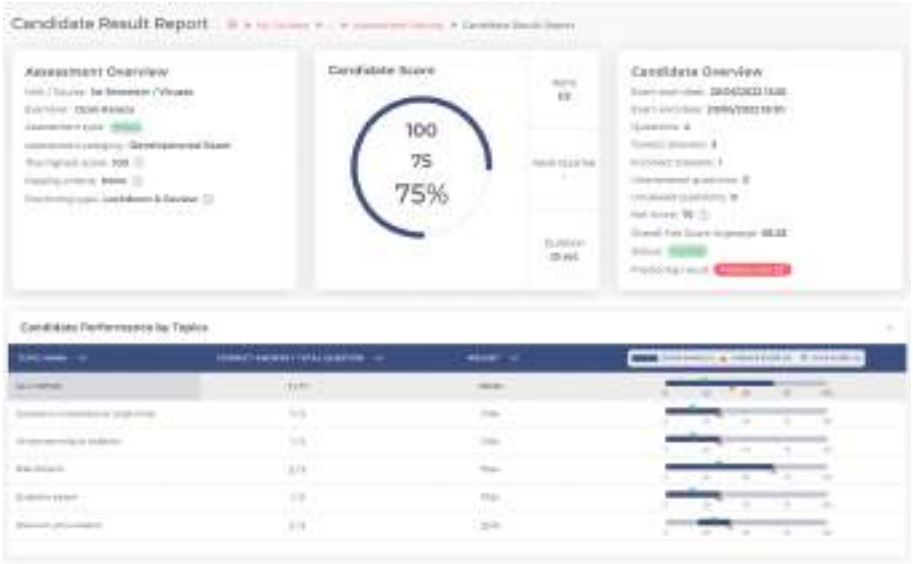


Figure 4.3 *Candidate Result Report*

THE AI AND EXAMOD

It can tackle the problem of exam security, which affects the validity of online exams, with the help of Examod artificial intelligence proctoring. It determines the recognition of the candidate's face, analyzes his behavior and comparable situations for this purpose, and offers it to the evaluator as a complete report (Figure 5.). Face recognition, video recording, network traffic monitoring, screen sharing control, full screen, one monitor only, one tab only, computer access only, virtual machine, right click, cut, copy, paste, print, screen capture, and replay input functions are among the Examod exam surveillance rules.

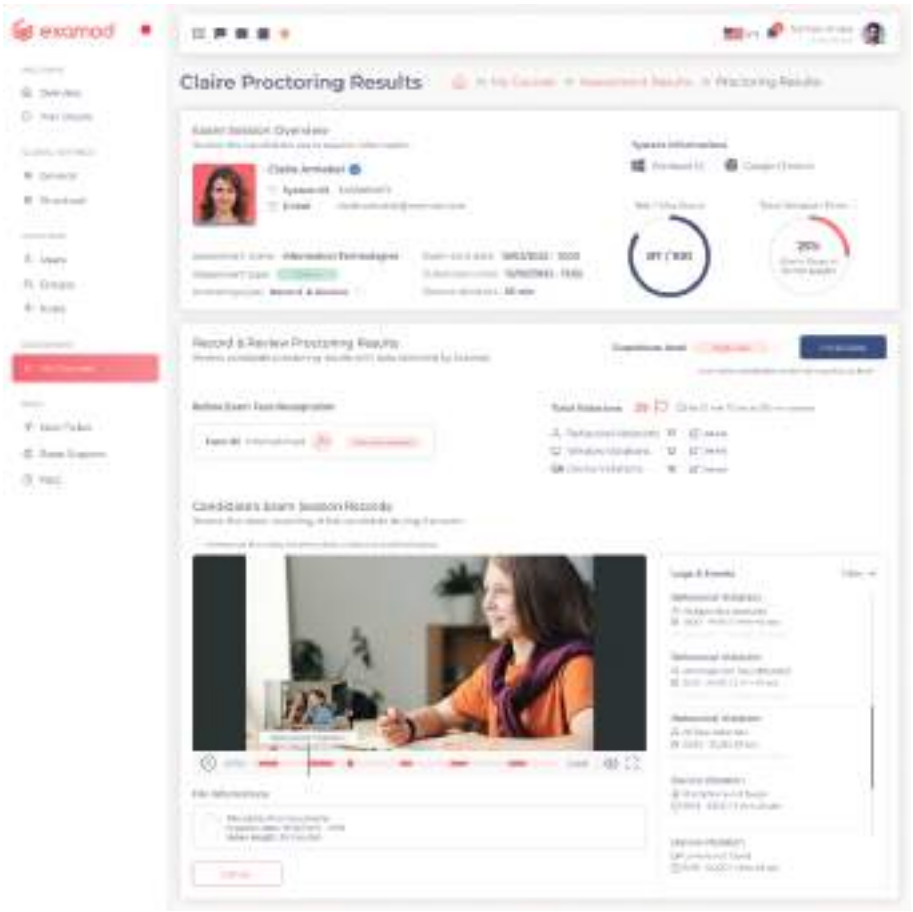


***Figure 5**. Candidate Proctoring Results*

DISCUSSION AND CONCLUSION

Examod, which enables artificial intelligence-supervised online tests and paper-based exams to be carried out, permits question banks to be produced with multiple question kinds to build a sophisticated and current exam environment. As is well known, evaluation processes are critical, particularly during the accreditation phases of higher education institutions. Examod has the ability to aid higher education institution accreditation procedures by enabling the development of valid and reliable tests as well as multidimensional analysis of these tests. Also, because of the way it is set up, which emphasizes academic honesty, it makes it possible for many subjects to have performance tests that are based on facts.

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Exploring Learners' Self-Regulation Skills and Readiness for Online Learning in Open and Distance Education

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Abstract

Open, online, and distance learning environments offer learners a free and flexible learning experience by breaking the chains of time and place. On the other hand, learners must have certain characteristics and skills in order to achieve effective outcomes during the online learning process. Being ready for online distance learning and having self-regulation skills are one of the most important factors that online learners should have. To explore these factors within the context of the online distance learning environment, this study used a cross-sectional quantitative research method to examine the differences in self-regulation skills of open and distance learners in terms of readiness for online learning in the Open Education System of Anadolu University. For the purpose of the study, an online survey was used. The participants of the study comprised 466 online distance learners. Results indicated that learners with high online learning readiness levels have higher self-regulated learning skills compared to learners with low online learning readiness levels. It was found that self-regulated learning skills did not differ in terms of the gender of the learners. However, results show that the self-regulated learning skills of the learners differ in terms of the time they spend on the learning management platform. Implications for practice are discussed and future research directions are given.

Keywords: *Open Education System, Online Learning, Online Learners, Self-Regulation Skill, Readiness For Online Learning*

INTRODUCTION

The idea behind open access to education is to liberate learners from location and time restrictions and provide equal and flexible learning opportunities. Playing an important role in meeting this need, online distance learning environments enable learners to gain certain knowledge and skills through internet based synchronous or asynchronous applications by using information and communication technologies. Within this context, learners in online distance learning environments gain flexibility in where and when they learn and have more control over when and how they complete course-related activities.

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However, this flexibility requires learners to have different qualifications such as technology usage knowledge, time management, effective interaction with other learners, content, and teachers (Joosten & Cusatis, 2020). On the other hand, learners are expected to have certain competencies in the learning process. These competencies are basically self-learning, having intrinsic motivation, being able to set one's own learning goals and taking action persistently to put these goals to work (Berigel & Çetin, 2019). Taking this into account, it becomes increasingly important for learners to be prepared for online learning, it is also critical that they possess self-regulated learning skills.

Readiness for online learning is a concept that is frequently discussed in many disciplines based on education, especially in distance education. As a matter of fact, learners' readiness for online learning is accepted as a determining factor that plays an important role in taking online courses and being successful in these courses (Wei & Chou, 2020). In addition, readiness is seen as an important input for the learning process, as it creates significant changes in the behavior of learners, especially in the learning process (Wei & Chou, 2020). Besides, among the definitions made for the concept, it is emphasized that the learners' self-confidence in using the internet and accordingly computer technologies while fulfilling their individual tasks, and the learners' ability to take responsibility for learning in online learning environments (Ilgaz & Gülbahar, 2015). Similarly, there is a definition that emphasizes learners' ability to use technological tools and equipment and their access to technological tools in terms of their digital literacy (Hung et al. 2010; Uçar, 2022).

However, although online learning provides some important benefits to education, it has been shown in studies that learners' satisfaction with online learning is relatively low compared to traditional face-to-face learning (Bovermann et al. 2018). In addition, the rate of attending or completing online courses is lower than face-to-face learning (Bovermann et al. 2018, p. 13-14). For this reason, it is necessary for distance education researchers to understand learner readiness for online learning, in order for online learning to increase the academic success of learners. Similarly, in the literature, it is underlined that universities, especially within the context of higher education, should analyze and understand the needs and concerns of learners and take their readiness for online learning into account before switching to online learning processes (Ilgaz & Gülbahar, 2015; Wei & Chou, 2020).

Achieving success in open and distance learning depends on the learner's ability to take control of the learning process. This skill is conceptualized as a self-regulated learning skill (Zimmerman, 2002). In the literature, self-regulated learning skills have been comprehensively scrutinized in order to determine the factors affecting learner success (Alqurashi, 2019; Çakır et al. 2019). For example, Pintrich (2000) defined self-regulated learning as "an active, constructive process whereby learners set goals for their learning and then attempt to monitor, regulate, and control their cognition, motivation, and behavior, guided and constrained by their goals and the contextual features in the environment" (p.453). In this process, the learning objectives determined by the learners themselves serve as a standard in monitoring the learning process and in making the decision to organize when necessary. In other words, learners try to benefit from the learning environment and materials offered to them according to their

learning objectives in line with their own needs. On the other hand, when compared to traditional face-to-face learning environments, online learning environments have a more important role in terms of self-regulated learning skills as they offer learners more autonomous thinking and action opportunities (Sitzmann & Ely, 2011).

It is emphasized that some strategies must be employed in order for learners to be successful in distance learning environments. These strategies include setting goals in reaching information, making self-assessments in putting goals into practice, planning the progress steps as a result of the evaluations, and following a road map. These strategies become more possible with self-regulation skills. In this context, learners can manage their own motivation and reveal their learning strategies through self-regulation skills in distance learning environments (Alqurashi, 2019).

In the self-regulated learning skill, attention is drawn to the interaction between the individual characteristics of the learners and the qualities of a learning environment. In this respect, it is accepted that this skill is an important predictor of the academic success of the learners (Zimmerman, 2002). On the other hand, it is underlined that learners with high academic achievement have higher self-regulated learning skills compared to learners with low academic achievement (Sitzmann & Ely, 2011). In addition, studies on self-regulated learning have yielded many supportive findings showing the relationship between self-regulated learning skills and academic achievement (Richardson et al. 2012; Sitzmann & Ely, 2011; Puzziferro, 2008). For example, Puzziferro (2008) determined that learners who have effective time management, which is a part of self-regulated learning skills, have higher course success grades. In the meta-analysis study conducted by Sitzmann & Ely (2011) in which the variables affecting academic achievement were determined, the variables of learning goal, continuity, effort and self-efficacy were emphasized. Finally, a study conducted by Richardson et al. (2012) determined that setting goals and directing personal effort towards these goals greatly determined the average academic achievement. In summary, self-regulation skill facilitates individuals' inability to adapt to different environments with various conditions. In fact, learners with this skill can regulate their learning when they are involved in a different learning environment while acting according to their own learning styles and pace. Consequently, learners can make the best use of the learning opportunity offered to them (Zimmerman, 2002).

Purpose of Study

In the light of the review of related literature, the current research aims to examine self-regulated learning skills in terms of readiness for online learning of learners using Anadolum eKampus platform within the scope of 2021-2022 Academic Year Summer School Term at Anadolu University Open Education System. The study is important in that it provides a general assessment of learners' readiness for online learning within the scope of the 2021-2022 Academic Year Summer School Term and examines self-regulated learning skills within the framework of demographic characteristics of learners. As a matter of fact, through the findings obtained here, various suggestions have been made both in theory and in practice. Thus, it was aimed to contribute to the research and development studies carried out within the scope of the Open Education System. Therefore, the study sought answers to the following research questions:

- How are learners clustered in terms of readiness for online learning?
- Do self-regulated learning skills differ significantly in terms of learners' readiness for online learning?
- Do self-regulated learning skills differ significantly in terms of learners' demographic characteristics?

METHOD

Research Design

For the purposes of this study, a cross-sectional survey design based on the quantitative research method was used. The cross-sectional survey model directly reveals the current trends and status of units related to a population or sub-samples taken from this population through various methods (Creswell, 2014, p. 13). Using this research design, the readiness for online learning and self-regulated learning skills in terms of demographic characteristics of learners using Anadolum eKampus platform within the scope of 2021-2022 Academic Year summer school term were examined.

Participants

Participants for the study were learners who use Anadolum eKampus platform in 2021-2022 Academic Year Summer School Term at Anadolu University Open Education System. The said period lasted between July 4, 2022 and August 13, 2022, and a total of 300.966 learners enrolled in the summer school. These learners were provided with an online questionnaire via the Anadolum eKampus platform and the learners who entered the platform were asked to fill in the questionnaire voluntarily. In this context, the purposeful sampling method was used in the study. In fit-for-purpose sampling, accessible units in the population that are suitable for the purpose of the research are included in the sample (Başaran, 2017). In total, the participants of the study comprised 466 online distance learners.

Data Collection Tools

In the study, readiness for online learning scale, self-regulated learning skills scale, and a questionnaire to collect the demographics of the participants were used to gather the data. The data collection tools are presented in three parts. In the first part, readiness for online learning scale was used (İlhan & Çetin, 2013). The scale was measured in a 5-point Likert type format, it consisted of five sub-factors and a total of 18 items. In the second part, a scale measuring the self-regulated learning skills of learners was used (Tuğtekin, 2022). While the related scale was measured in a 5-point Likert type format, it consisted of three sub-factors and a total of 27 items. However, the scales were adapted in accordance with the purpose of the research and were used in the study after content validity was made by two experts in the field of distance education. In the third part of the questionnaire, demographic questions were included. The survey was created online through Google Surveys and was available on the Anadolum eKampus platform throughout the summer school period.

Data Analysis

Microsoft Excel program was used to clean and organize the data, and SPSS 25 program was used to analyze the data. Validity and reliability analysis for the scales used were performed with exploratory factor analysis and Cronbach's α alpha coefficient. In addition, frequency analysis, k-means cluster analysis, independent samples t-test and one-way analysis of variance (ANOVA) statistics were used to answer the research questions.

FINDINGS

Data were collected from 466 participants. As a result of the pre-check on the collected data, it was seen that repetitive response marking was not done. Subsequently, the univariate normality assumption was checked using the approach suggested by Kim (2013), and as a result of the necessary examinations, it was observed that the absolute curvature and absolute kurtosis values of the items of the scales used did not exceed the recommended threshold value ranges (2.0, and 7.0 respectively). As a result, it was determined that the data did not pose a problem in terms of univariate normality. Then, the approach suggested by Arifin was used to control the multivariate normality assumption and the Mahalanobis distance for the items of the scales used in the study was calculated. As a result of the distances obtained, a total of 78 data sets exceeding the threshold value determined with a significance of 0.001 were removed (Arifin, 2015). With the remaining 388 data, it was seen that the data set provided both univariate and multivariate normality.

54.1% of the participants were female and 45.9% were male. The participants mainly consist of individuals at the age of 29 and under (40.6%). In Anadolum eKampus, participants spend mostly 3-4 hours a day (36.1%). These findings are presented in Table 1.

Table 1. *The demographics distribution of the participants*

Variable	Grup	n	%
Gender*	Female	173	54,1
	Male	147	45,9
	Toplam	320	100,0
Age*	29 and below	130	40,6
	30-39	72	22,5
	40-49	67	20,9
	50 and over	51	15,9
	Toplam	320	100,0
Daily Time Spent on Anadolum eKampus	Below 1 hour	42	10,8
	1-2 hours	132	34,0
	3-4 hours	140	36,1
	5 hours and over	74	19,1
	Toplam	388	100,0

**There are missing data of 68 participants in these variables.*

The Validity, Reliability, and Descriptive Results of the Scales

Exploratory factor analysis (EFA) was performed to determine how online learning readiness (OLR) and self-regulated learning skills (SRLS) scales used in the study were distributed according to factors in the study sample (principal components analysis/ varimax). The results obtained are presented in Table 2 and Table 3.

Table 2. *The validity, reliability, and descriptive results of the OLR scale*

Item	Mean	SD	FL	VE	EV	CA
OLR Computer/Internet Self-Efficacy (KMO = 0,713; x^2 = 717,42; p<0,001)						
I feel confident in my knowledge and skills of how to manage software for online learning.	4,04	0,99	0,939			
I feel confident in using the Internet (Google, Yahoo) to find or gather information for online learning.	4,30	0,92	0,905	82,22	2,47	0,889
I feel confident in performing the basic functions of Microsoft Office programs (MS Word, MS Excel, and MS PowerPoint).	3,91	1,05	0,875			
Arithmetic Mean	***4,08***	***0,89***	-			
OLR Self-Directed Learning (KMO = 0,896; x^2 = 1530,60; p<0,001)						
I set up my learning goals.	4,14	0,90	0,928			
I carry out my own study plan.	4,23	0,94	0,909	77,79	3,89	0,927
I manage time well.	3,88	1,01	0,875			
I have higher expectations for my learning performance.	4,03	0,96	0,855			
I seek assistance when facing learning problems.	4,12	0,94	0,839			
Arithmetic Mean	***4,08***	***0,84***	-			
OLR Learner Control (KMO = 0,629; x^2 = 345,06; p<0,001); ***In an online context,***						
I can direct my own learning progress.	4,11	0,93	0,881			
I repeated the online instructional materials on the basis of my needs.	4,21	0,88	0,875	67,44	2,02	0,717
I am not distracted by other online activities when learning online (instant messages, Internet surfing).	3,19	1,31	0,694			
Arithmetic Mean	***3,83***	***0,85***	-			
OLR Motivation for Learning (KMO = 0,859; x^2 = 1268,9; p<0,001); ***In an online context,***						
I am open to new ideas.	4,32	0,87	0,926			
I improve from my mistakes.	4,24	0,89	0,923	82,92	3,32	0,931
I have motivation to learn.	4,19	0,91	0,904			
I like to share my ideas with others.	4,22	0,92	0,889			
Arithmetic Mean	***4,24***	***0,81***	-			

OLR Online Communication Self-Efficacy (KMO = 0,742; x^2 = 707,8; p<0,001)						
I feel confident in expressing myself (emotions and humor) through text.	4,18	0,99	0,928			
I feel confident in posting questions in online discussions.	4,05	0,99	0,901	82,87	2,49	0,896
I feel confident in using online tools (email, discussion) to effectively communicate with others.	4,08	1,02	0,901			
Arithmetic Mean	***4,10***	***0,91***	-			

As a result of the EFA in Table 2, it is observed that the KMO values for the sub-factors of the OLR scale range from good to very good, while the results of Barlett's Test of Sphericity are significant in all sub-factors. In addition, while the variances explained for the scales are well above the 40% threshold, the eigenvalues meet the threshold criterion of being at least 1.0. These results provide sufficient evidence for the interpretation of EFA (Hair, Black, Babin, & Anderson, 2014). Loads on the factors range between 0.694 and 0.939 and are above the 0.50 threshold (Hair, Black, Babin, & Anderson, 2014). Finally, since the Cronbach's Alpha coefficients for the sub-factors exceed the 0.70 threshold value, it was concluded that these factors were reliable (Hair, Black, Babin, & Anderson, 2014).

Table 3. *The validity, reliability, and descriptive results of the SRLS scale*

Item	Mean	SD	FL	VE	EV	CA
SRLS Self-Regulation in Interaction between Learner and Content (KMO = 0,945; x^2 = 3117,05; p<0,001)						
I try to do my best to master the learning content in this course.	4,24	0,84	0,850			
I regularly check the course guidelines to be successful in this online course.	3,96	0,95	0,838			
Before I start learning a subject, I try to understand the learning objectives of the subject.	4,01	0,93	0,837	63,84	7,02	0,938
I monitor my own progress to make sure that I am on the right track in this online course.	4,07	0,93	0,835			
I plan to repeat the topics that I learned in an online course to consolidate.	3,99	0,96	0,832			
I frequently reflect upon what I learned in this online course.	3,95	0,96	0,825			
Before starting assignments, I check what I already know, what I do not know, and what I need to know.	3,88	0,98	0,809			
I set up my own due dates so that I do not procrastinate for studying.	3,90	1,00	0,806			

I regularly check the online courses to keep up to date with the course topics.	3,93	0,99	0,784			
Before starting studying, I plan what I will study.	4,11	0,92	0,745			
Arithmetic Mean	***3,96***	***0,77***	-			
SRLS Self-Regulation in Interaction between Learner and Instructor (KMO = 0,951; x^2 = 5178,26; p<0,001)						
I ask the instructor to clarify information if it is not clear to me.	3,57	1,33	0,956			
I do not hesitate to share concerns about my progress with the instructor.	3,54	1,34	0,948			
If I need to, I explain my understanding about content to the instructor as thoroughly as possible.	3,52	1,33	0,948			
I ask the instructor to clarify learning materials if I get confused.	3,58	1,33	0,944	84,22	7,58	0,976
I ask my questions as clearly as possible for effective communication with the instructor.	3,56	1,33	0,939			
I seek assistance from the instructor if I need it.	3,44	1,34	0,927			
When unexpected situations arise that influence my participation or performance in this online course, I inform the instructor as soon as possible.	3,46	1,35	0,924			
I express my opinions to the instructor in a respectful manner in this online course.	3,87	1,28	0,849			
I ask the instructor questions if needed.	3,22	1,35	0,814			
Arithmetic Mean	***3,53***	***1,22***	-			
SRLS Self-Regulation in Interaction between Learner and Learner (KMO = 0,912; x^2 = 2489,22; p<0,001)						
I provide constructive feedback to other students' contributions in a discussion.	3,39	1,33	0,903			
I seek assistance from other students if I need it.	3,39	1,34	0,892			
I attempt to help others online when given the opportunity.	3,45	1,32	0,890	78,99	5,25	0,944
I would interact with other students even if it was not related to the course.	3,06	1,40	0,884			
I plan to interact with other students online.	3,06	1,40	0,875			
I try to match other students' conversation style when participating in this online course.	3,39	1,37	0,854			
I respond to other students in a timely manner when they send a message to me.	3,79	1,16	0,756			
Arithmetic Mean	***3,36***	***1,15***	-			

As a result of the EFA in Table 3, it is observed that the KMO values for the sub-factors of the self-regulated learning skills scale range from good to very good, while the results of Barlett's Test of Sphericity are significant in all sub-factors. In addition, while the variances explained for the scales are well above the 40% threshold, the eigenvalues meet the threshold criterion of being at least 1.0. These results provide sufficient evidence for the interpretation of EFA (Hair, Black, Babin, & Anderson, 2014). Loads on the factors vary between 0.745 and 0.956 and are above the 0.50 threshold (Hair, Black, Babin, & Anderson, 2014). Finally, since the Cronbach's Alpha coefficients for the sub-factors exceed the 0.70 threshold value, it was concluded that these factors were reliable (Hair, Black, Babin, & Anderson, 2014).

The Clustering Process

Cluster analysis was performed in order to group the study participants in terms of OLR levels. The analysis was carried out in two stages. In the first stage of the analysis, Ward's technique, one of the hierarchical clustering methods, was used and the pattern of the participants within the framework of OLR was closely scrutinized. The results of the Ward technique indicated that a cluster consisting of two groups would be appropriate.

In the second stage of the analysis, k-means technique, one of the non-hierarchical clustering methods, was used to test the reliability of the two-group cluster obtained as a result of the Ward technique (Hair, Black, Babin, & Anderson, 2014). It was understood that the item averages obtained from both the Ward technique and the k-means technique were fairly similar to each other. Therefore, the results of the analysis showed that it would be appropriate to use a cluster consisting of two groups with low and high OLR levels in this study. Descriptive information about the obtained cluster is shown in Table 4.

Tablo 4. *The distribution of the participants' OLR levels*

Factor/Item	OLR Level			
	Low (n = 208; %53,6)		High (n = 180; %46,4)	
	Mean	SD	Mean	SD
Computer/Internet Self-Efficacy	**3,64**	**0,90**	**4,59**	**0,55**
I feel confident in performing the basic functions of Microsoft Office programs (MS Word, MS Excel, and MS PowerPoint).	3,48	1,03	4,40	0,84
I feel confident in my knowledge and skills of how to manage software for online learning.	3,58	0,98	4,57	0,69
I feel confident in using the Internet (Google, Yahoo) to find or gather information for online learning.	3,86	1,00	4,82	0,43

Self-Directed Learning	**3,59**	**0,81**	**4,65**	**0,38**
I carry out my own study plan.	3,74	0,96	4,80	0,48
I seek assistance when facing learning problems.	3,66	0,96	4,65	0,58
I manage time well.	3,39	0,97	4,44	0,73
I set up my learning goals.	3,63	0,88	4,73	0,47
I have higher expectations for my learning performance.	3,51	0,91	4,63	0,59
Learner Control	**3,38**	**0,77**	**4,36**	**0,59**
I can direct my own learning progress.	3,59	0,91	4,72	0,47
I am not distracted by other online activities when learning online (instant messages, Internet surfing).	2,81	1,12	3,62	1,39
I repeated the online instructional materials on the basis of my needs.	3,74	0,90	4,75	0,46
Motivation for Learning	**3,77**	**0,82**	**4,79**	**0,30**
I am open to new ideas.	3,86	0,91	4,87	0,36
I have motivation to learn.	3,70	0,90	4,76	0,50
I improve from my mistakes.	3,77	0,91	4,78	0,44
I like to share my ideas with others.	3,75	0,94	4,77	0,49
Online Communication Self-Efficacy	**3,56**	**0,87**	**4,74**	**0,41**
I feel confident in using online tools (email, discussion) to effectively communicate with others.	3,56	0,99	4,68	0,68
I feel confident in expressing myself (emotions and humor) through text.	3,61	0,98	4,83	0,45
I feel confident in posting questions in online discussions.	3,50	0,95	4,69	0,55

When Table 4 is examined, it is seen that 53.6% of the study participants had low OLR levels and 46.4% had high OLR levels. When the sub-factors of the OLR scale are evaluated, it is observed that the arithmetic averages of all sub-factors are high in the participants with high OLR levels, while these averages remain low in the participants with low levels. In this context, it can be evaluated that the participants with high levels of computer and internet usage self-efficacy, self-learning, learner control, learning motivation and online communication self-efficacy abilities are higher than the participants with low levels.

The Examination of SRLS in terms of OLR Level

Independent samples t-test was conducted in order to determine whether the sub-factors of the self-regulated learning skills scale differed significantly in terms of OLR level of the study participants. As a result of the analysis, the significance of the unequal variances option was used as the Levene test showed that the variances were not homogeneously distributed in terms of the self-regulation factor in the interaction between learner and content. On the other hand, the significance of the equal variances option was examined, as it showed that the self-regulation in the interaction between learner and instructor and the self-regulation factors in the interaction between learner and learner were homogeneously distributed (Pallant, 2011). The results obtained are presented in Table 5.

Table 5. *The examination of SRLS in terms of OLR levels*

Variable	Level	*n*	Mean	SD	*t*	*df*	*p*
Self-Regulation in Interaction between Learner and Content	Low	208	3,59	0,73	-11,794	384,26	***
	High	180	4,38	0,59			
Self-Regulation in Interaction between Learner and Instructor	Low	208	3,09	1,15	-8,341	386	***
	High	180	4,04	1,09			
Self-Regulation in Interaction between Learner and Learner	Low	208	3,04	1,10	-6,270	386	***
	High	180	3,74	1,10			

*(1 = Never; 5 = Always); ***p<0,001.*

In Table 5, in terms of OLR level, self-regulation of the SRLS scale in the interaction between learner and content ($t(384.26) = -11.794$; $p<0.001$), self-regulation in the interaction between learner and instructor ($t(386) = -8.341$; $p<0.001$), the factors of self-regulation in the interaction between learner and learner ($t(386) = -6.270$; $p<0.001$) differ significantly. Therefore, the findings show that participants with high OLR levels have higher self-regulated learning skills in the interaction between student and content, learner and instructor, and learner and learner, compared to participants with low OLR levels. In summary, participants with high OLR levels have high self-regulated learning skills. However, participants with low OLR levels also have low self-regulated learning skills. These findings are presented in Figure 1.

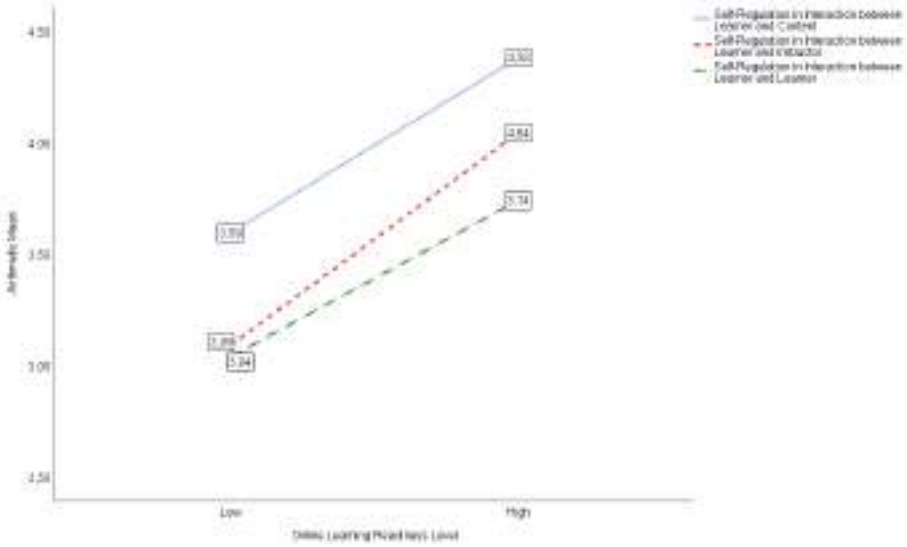


Figure 1. *The examination of SRLS in terms of OLR levels*

The Examination of SRLS in terms of Demographics

Difference tests were carried out in order to determine whether the sub-factors of the self-regulated learning skills scale differed significantly in terms of the demographic characteristics of the study participants. In this context, one-way analysis of variance (ANOVA) was performed to determine age and time spent in Anadolum eKampus, while independent samples t-test was used to make the determination in terms of gender. As a result of the analysis, when the Levene test showed that the variances were homogeneous, the significance of the equal variances option and the significance of the ANOVA statistic were used. On the other hand, the significance of the unequal variances option and the Brown-Forsythe option were examined when it showed that the variances were not homogeneous. The findings are presented in the following headings.

The Examination of SRLS in terms of Gender

It was examined whether the sub-factors of the self-regulated learning skills scale differed in terms of gender, and the results of the analysis were presented in Table 6.

Table 6. *The examination of SRLS in terms of gender*

Variable	Group	*n*	Mean	SD	*t*	df	*p*
Self-Regulation in Interaction between Learner and Content	Female	173	3,92	0,82	0,013	318	0,990
	Male	147	3,92	0,76			
Self-Regulation in Interaction between Learner and Instructor	Female	173	3,38	1,33	-0,795	318	0,427
	Male	147	3,49	1,14			
Self-Regulation in Interaction between Learner and Learner	Female	173	3,17	1,20	-1,121	318	0,263
	Male	147	3,32	1,11			

When Table 6 is examined, it is noteworthy that the sub-factors of self-regulated learning skills do not differ significantly in terms of gender (p>0.05). It can be said that the sub-factors related to self-regulation skills show similar levels of distribution in both male and female learners.

The Examination of SRLS in terms of Age

It was examined whether the factors in the self-regulated learning skills scale differ in terms of age, and the result of the analysis is presented in Table 7.

Table 7. *The examination of SRLS in terms of age*

Variable	Group	*n*	Mean	*SD*	*F*	*p*	*PH Tukey*
Self-Regulation in Interaction between Learner and Content	1. 29 and below	130	3,87	0,89	0,983 BF	0,401	-
	2. 30-39	72	3,92	0,75			
	3. 40-49	67	3,89	0,75			
	4. 50 and over	51	4,08	0,62			
Self-Regulation in Interaction between Learner and Instructor	1. 29 and below	130	3,66	1,17	4,022	**	1-3 1-4
	2. 30-39	72	3,49	1,21			
	3. 40-49	67	3,10	1,31			
	4. 50 and over	51	3,17	1,28			
Self-Regulation in Interaction between Learner and Learner	1. 29 and below	130	3,50	1,12	5,821	**	1-3 1-4
	2. 30-39	72	3,32	1,15			
	3. 40-49	67	2,87	1,12			
	4. 50 and over	51	2,94	1,18			

*(1 = Never; 5 = Always); PH = Post-Hoc; **p*<0,01.

As shown in Table 7, a significant difference related to self-regulation in the interaction between learner and instructor ($F = 4.022$; $p<0.01$) and self-regulation in the interaction between learner and learner ($F = 5.821$; $p<0.01$) was found. However, the self-regulation factor does not differ significantly in the interaction between learner and content ($p>0.05$). Tukey test, one of the post-procedure tests, was used to determine between which groups the difference was. According to the Tukey test, there is a significant difference between younger learners and older learners. Accordingly, younger learners have higher self-regulation skills in the interaction between learner and instructor as well as the self-regulation skills level in the interaction between learner and learner. These levels are lower for older learners.

The Examination of SRLS in terms of time spent on Anadolum eKampus

It was examined whether the factors in the self-regulated learning skills scale differ in terms of the time spent in Anadolum eKampus, and the result of the analysis is given in Table 8.

Table 8. *The Examination of SRLS in terms of time spent on Anadolum eKampus*

Variable	Group	*n*	Mean	*SD*	*F*	*p*	*PH Tukey*
Self-Regulation in Interaction between Learner and Content	1. Less than 1 hour	42	3,65	1,03	4,155 BF	**	1-4 2-4
	2. 1-2 hours	132	3,89	0,79			
	3. 3-4 hours	140	4,00	0,68			
	4. 5 hours and over	74	4,17	0,67			
Self-Regulation in Interaction between Learner and Instructor	1. Less than 1 hour	42	3,38	1,22	0,290	0,833	-
	2. 1-2 hours	132	3,55	1,20			
	3. 3-4 hours	140	3,52	1,22			
	4. 5 hours and over	74	3,60	1,27			
Self-Regulation in Interaction between Learner and Learner	1. Less than 1 hour	42	3,30	1,20	0,219	0,832	-
	2. 1-2 hours	132	3,40	1,18			
	3. 3-4 hours	140	3,38	1,11			
	4. 5 hours and over	74	3,29	1,18			

*(1 = Never; 5 = Always); PH = Post-Hoc; **p*<0,01.

Table 8 shows that the self-regulated learning skills scale differs significantly only in the interaction between learner and content in terms of the time spent in Anadolum eKampus ($F = 4.155$; $p<0.01$). Tamhane test, one of the post-procedure tests, was used to determine between which groups the difference was. According to the Tamhane test results, there is a difference between learners who spend less than 1 hour a day and those who spend 5 hours or more in Anadolum eKampus. There is a difference between learners who spend 1-2 hours a day and learners who spend 5 hours or more.

Accordingly, learners who spend more time per day in Anadolu eKampus have more self-regulation skills in the interaction between learner and content than learners who spend less time. In other words, it is seen that learners who spend more time on the platform will interact with the content more and have more self-regulation skills in the context of content.

DISCUSSION

In this study, self-regulated learning skills of learners using Anadolum eKampus platform within the scope of 2021-2022 Academic Year Summer School Term at Anadolu University Open Education System were examined in terms of readiness for online learning. First of all, the readiness levels of learners using Anadolum eKampus platform for online learning were determined in the context of summer school term and these participants were divided into groups by applying cluster analysis. Later, while examining how self-regulated learning skills differ in terms of these groups, it was tried to determine how self-regulated learning skills changed within the scope of learners' demographic characteristics. For example, in Akyıldız's (2020) study, it was determined that as the class level of the learners increased, their self-regulated learning skills also increased. Similarly, Tuğtekin (2022) stated in his study that online learning experiences of learners may increase with grade level and implied that learners' readiness for online learning may increase in this process. In this context, it can be said that the readiness for online learning may also increase, considering that the online learning experiences of the learners may increase each year with their grade levels. It can be stated that learners with high readiness for online learning in the Open Education System have a high level of self-regulated learning skills. In this regard, practitioners are advised to employ various practices that will increase learner readiness. For example, textual and visual-based content about what new learners who enroll in the Open Education System can do in the online learning process and how they can improve themselves can be prepared and presented to the enrolling learners online or physically.

The findings of the study showed that self-regulated learning skills did not differ in terms of the gender of the learners. Therefore, within the scope of the study, both female learners and male learners have similar levels of self-regulated learning skills. While this finding overlaps with some studies in the literature (Basol & Balgalmis, 2016), it does not overlap with some studies (Artsın et al., 2020). In their study with learners in an online learning management system, Basol and Balgamis (2016) found that both male and female learners have similar levels of self-regulated learning skills in technology-mediated environments. On the other hand, in their study conducted in the context of massive open online courses, Artsın et al. (2020) found that female learners on the AKADEMA platform have higher self-regulated learning skills compared to male learners. Researchers explained this situation with female learners being more organized and better at acting in an organized way and planning. The reason why the findings of this study do not overlap with the findings of the related study is thought to be due to the application of the current study in the context of the Open Education System.

According to the results, self-regulated learning skills differed significantly in terms of learners' age. This difference showed that younger learners had more self-regulated learning skills compared to older learners. This finding is in parallel with the studies in the literature. It has been determined that especially young learners have more self-regulated learning skills compared to older learners (Artsın et al., 2020). Although it is considered that older learners can have more learning experience compared to learners in other age groups, it is known that older learners have some problems in allocating time to the learning process and their control over the learning process is reduced (Castel et al., 2013). As a matter of fact, considering that young learners have the ability to direct themselves and process information very quickly, it is considered that self-regulated learning skills may also be higher (Artsın et al., 2020). In this context, it is recommended to investigate applications that will improve self-regulated learning skills of older learners in further studies.

The results also revealed that the learners' self-regulated learning skills differ in terms of the time they spend on the Anadolum eKampus platform. According to the related difference, learners who spend more time on Anadolum eKampus platform have more self-regulated learning skills compared to learners who spend less time. The relevant finding is in line with the studies in the literature. Cho and Shen (2013) found that learners who spend more time studying in an online learning environment have higher self-regulated learning skills. However, they also underlined that learners with high self-regulated learning skills spend more quality time in online learning environments by making academic efforts. In this context, it is recommended to design both in-class and extra-curricular activities and learning materials that will improve learners' self-regulated learning skills in online learning environments such as Anadolum eKampus platform, which can be supported by academic effort and ultimately increase academic success. Finally, it can be recommended to increase learner-learner, learner-instructor and learner-content interaction in Anadolum eKampus so that learners have a good learning experience within the scope of self-regulated learning skills. In addition, it is thought that instructional designs related to learning content should be planned to include learners in activities and information-communication technologies that allow interaction at the highest level in online learning should be employed.

Even though the study has an acceptable sample size, it is relatively small. Taking this as a limitation, future research may replicate a study with larger samples in the same or different contexts. Furthermore, the study examined the readiness for online learning and self-regulated learning skills of all learners throughout the Anadolum eKampus, not in a specific course. Future studies can be carried out comparatively each semester, especially for the courses in which the most learners are registered within the Open Education System. In addition, through the findings, support can be provided to research and development activities that can be carried out specifically for Anadolum eKampus.

CONCLUSION

The present study explored the self-regulated learning skills of learners using Anadolum eKampus platform at Anadolu University Open Education System in terms of their readiness for online learning. The findings show learners with high readiness for online learning have also a high level of self-regulated learning skills. However, the results also demonstrate that self-regulated learning skills did not differ in terms of the gender, but differ in terms of age. The results also stated that learners who spend more time on the online learning platform have more self-regulated learning skills compared to learners who spend less. Overall, the results indicate that learners who are highly prepared for online learning also possess a high level of self-regulated learning abilities. It is important to remember that this point may positively affect the success of the learners, which is the ultimate goal in the learning process.

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Determining of the Attitudes of the Sport Science Faculty Students Towards Distance Education at the Pandemic Period*

Şeyhmus USLU[1], Sevil ÖZCAN[2]

Abstract

It is aimed at determining the attitudes of the students towards distance education and the factors affecting these attitudes in this study. This research was carried out with 457 students who aged 18 years and over on a voluntary basis. Participants of the study were students in four Departments which are Physical Education and Sports Teaching, Coaching Education, Sports Management and Recreation in Aydın Adnan Menderes University, Faculty of Sports Sciences in the spring term of the 2020-2021 academic year. In the research, "The Attitude Scale towards Distance Education" which consists of 5 likert type and 35 items was used. The dependent variable of the study was the attitude towards distance education. Age, gender, department, class, income status, place of distance education, weekly online course hours, computer access and the number of individuals receiving online education in the family were the independent variables. The obtained data were analyzed with t-test, Anova and Tukey tests in the SPSS package program. The results were considered significant with $p<.05$ at the 95% confidence interval. When the attitude scores of the students who received compulsory distance education during the pandemic period were examined, 45.1% (n=206) were undecided about distance education, 27.8% (n=127) had a positive attitude, while 27.1% (n=124) had a negative attitude has been determined. A statistically significant difference was found in favor of the students' attitudes towards distance education and the age variable in favor of the 23 and over participants, and in the class variable in favor of the first grade students ($p<.05$). There was no difference depending on gender, department, monthly income, distance education place, weekly course hours, computer access and other online participants in the family ($p>.05$). When the results of the study are evaluated, it can be said that the rate of positive and negative attitudes of students towards distance education was close to each other, but the majority of them were undecided. On the other hand, attitude scores of students who aged 23 and over and parallel to this, 4th grade students were significantly higher. We believe that in the event of a transition to distance education due to pandemics or disasters in the future, developing different strategies for students studying in departments where such applied courses more than theoretical lessons will contribute to the development of a positive attitude towards distance education.

Keywords: *Pandemic, attitude, distance education, student of sports science.*

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(*This study has been derived from Şeyhmus Uslu's Master Thesis.)

INTRODUCTION

Technological developments and the concept of globalization have made the world more accessible. Although this is a positive development in terms of education or another issue, but it can cause negative effects as well as positive effects in some areas such as health. Namely, an infectious disease seen in any part of the world due to international travels can easily and quickly reach far away places and turn into an epidemic that affects the whole world (Aksakoğlu, 2008). As a matter of fact, humanity had faced the threat of the virus that emerged in Wuhan, China at the beginning of 2020. It required maintaining social distance and reducing mobility because of the rapidly spreading feature of the COVID-19 virus and the fact that it has become more dominant than the policy of immunization (Telli and Altun, 2020). This situation brought distance education to the agenda and made it necessary to switch to distance education in order to ensure the sustainability of education despite have many question marks in the minds. Thus, distance education has ceased to be an alternative and has become the single solution. This is why many institutions and countries that have prejudices against distance education have had to started to online education.

In some literature studies done, it was stated that the sleep pattern, which is one of the biggest factors in the psychological resilience of people, was highly disrupted during the pandemic process (Demir, 2020). It has been reported that students' anxiety levels increase in other work (Acar et al., 2020), and also the inability to access technical opportunities is one of the main problems related to distance education (Serçemeli and Kurnaz, 2020). It's thought that the students' interest in lessons, preparation for exams or concentration on homework will be different from the situations of the formal education conditions, hence all these factors may affect students' attitudes towards distance education. Attitude is a tendency attributed to an individual and regularly forming his thoughts, feelings and behaviors about a psychological object (Kağıtçıbaşı, 1999). It is worthy of research and examination, the concept of the attitude, which is one of the determinants of human behavior. Because our attitudes affect our social perceptions and behaviors. If there is a desire to increase or make consistent the success level of students in distance education during the pandemic process, it is necessary that they have positive attitudes towards distance education. There are many studies in the literature showing that a high attitude positively affects academic achievement (Erden, 1995; Gardner, 1985; Tavşancıl, 2002).

Based on all this information, in this study, it is aimed to determine the attitudes of Aydın Adnan Menderes University, Faculty of Sports Sciences students towards distance education during the pandemic period in the spring semester of the 2020-2021 academic year. For this purpose, a survey study was conducted, and answers were sought to the following questions:

1. What are the attitudes of Faculty of Sport Science' students towards distance education?
2. Do students' attitudes towards distance education show change according to their demographic characteristics?

METHOD

This research was carried out with the students of Aydın Adnan Menderes University, Faculty of Sports Sciences, Department of Physical Education and Sports Teaching, Department of Coaching Education, Department of Sports Management and Department of Recreation in the spring term of the 2020-2021 academic year. The population of the research is 1647 students and our sample group consists of 457 students who have completed the age of 18 on a voluntary basis.

The Questionnaire Form, consisting of two parts and 45 questions, was applied to the students who participated in the survey study online at " https://www.onlineanketler.com/s/2fbec77 ". The first part, consisting of ten questions to determine the socio-demographic characteristics of the students participating to the survey, was developed by the researchers using the literature (Okyay & Abacıgil, 2016; Aslan & Korkmaz, 2019; Keskin & Derya, 2020; Serçemeli & Kurnaz, 2020). In the second part, there is "Attitude Scale Towards Distance Education" in a 5-point likert type and consisting of 35 items in order to determine students' attitudes towards distance education prepared by Tarık Kışla (2016).

The survey results were entered into the SPSS package program and frequency, percentage, average and attitude scores were calculated. While calculating the attitude score, the scores of positive questions from 1 to 5, the scores of negative questions from 5 to 1 were given. The t-test and Anova were used to determine whether there is a correlation between Total Attitude Scores and socio-demographic characteristics.

FINDINGS

Findings Regarding the Demographic Characteristics of the Participants

In this section, the participants' age, gender, education department, class level, income status, place of distance education, weekly online course hours, computer access opportunities and the number of individuals in the family who receive online education are included.

In accordance with, 70.2% (n=321) of the participants were 22 years old and under, 29.8% (n=136) were 23 years old and over. The gender distribution of the participants is 49.2% (n=225) female and 50.8% (n=232) male. Considering the departments, they received education, it distributes as Physical Education and Sports Teaching Department 29.1% (n=133), Coaching Education Department 28.9% (n=132), Sports Management Department 29.5% (n=135) and Recreation Department 12% (n=57). It was determined that, the students who participated in the survey 26.7% (n=122) were in the 1st grade, 25.6% (n=117) were in the 2nd grade, 25.2% (n=115) were in the 3rd grade and 22.5% (n=103) were in the 4th grade. Three different alternatives were given about their income status. According to this, while the majority of them 50.1% (n=229) selected the income is equal to expenses alternative, 38.5% (n=176) of them selected the income is less than expenses, and the income is more than expenses alternative were selected by 11.4% (n=52) of them. Considering the distribution of the places where the students attended the classes, it was determined that the highest

45.1% (n=206) attended from the city center, 39.2% (n=179) from the district center and 15.7% (n=72) from the village. It was seen that when the weekly online course hours were examined 36.1% (n=165) of the students got 21-30 hours online classes, 33.7% (n=154) of them got 0-10 hours and 30.2% (n=138) of them got 11-20 hours online classes. In the evaluation of the possibilities of access to the computer, 45.7% (n=209) of the participants stated that they have regular computer access. But 34.1% (n=156) of them have partially regular and 20.1% (n=92) of them stated that the computer access was irregular. When the answers given about how many other people in their families were receiving online education were examined, 37.4% (n=171) stated that there was no one else. While 37.2% (n=170) of them were two people, 15.1% (n=69) of them were three people and 10.3% (n=47) stated that four or more people took online training in the same home.

Correlation Analysis Results of Participants' Attitude Scores Based on Socio-Demographic Characteristics

When the attitude scores of the students participating in the survey study were examined, it was found that it ranged from the lowest 36 to the highest 175, the average of the attitude scores was 91.1 and they showed a normal distribution (Figure 3.2.1).

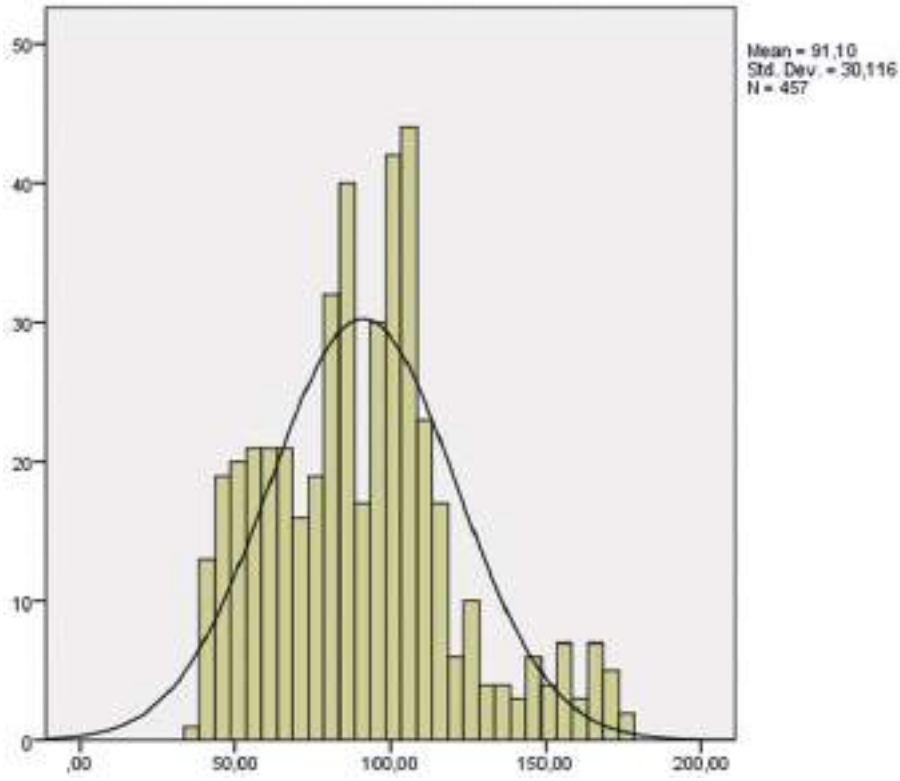


Figure 3.2.1. *The Attitude Score Distributions of The Participants*

In the literature, it is stated that in the range of (-1.5) – (1.5) skewness and kurtosis values indicates the normal distribution (Tabachnick, Fidell & Ullman, 2007). In order to determine the reliability level of the data, Cronbach's alpha value was calculated on the SPSS program and it was found as α= 0.94.

Table 1. *Normality Distribution of Data.*

	n	Mean	sd	Skewness	Kurtosis
Total Attitude Score	457	91,10	30,19	,540	,162

The answers to the attitude questionnaire were analyzed as negative attitude (between 35-70), undecided neither positive or negative (between 71-105), and agree and totally agree (106 and above) as positive attitudes. When the results were examined, it was seen that 45.1% of the students did not have a positive or negative attitude towards distance education, and the ratio of those who had a positive attitude and those who had a negative attitude was very close to each other (Figure 3.2.2).

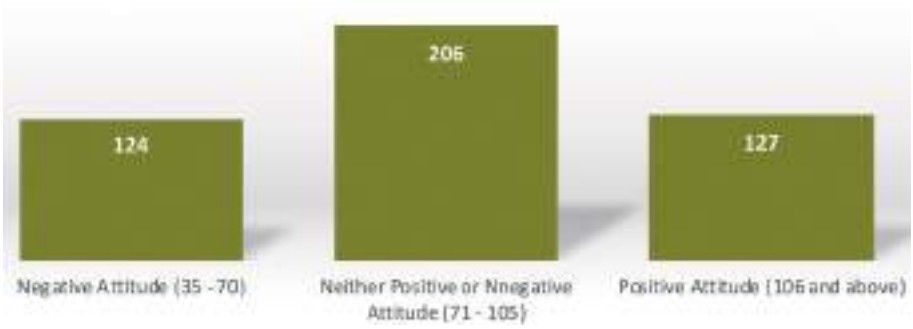


Figure 3.2.2. *Distribution of participants' attitudes towards distance education*

These attitude scores were analyzed with the t-test for those with two alternatives such as age and gender, and the one-way Anova test for other demographic characteristics, in which there were more than two situations. It has been concluded that there is no statistically significant difference in attitude scores (AS) towards distance education depending on the variables of gender, department, monthly income level, place of distance education, number of weekly course hours, having regular computer access and the number of people receiving online education in the family (p> 0.05).

When the data were evaluated, it was determined that the AS average of male students (92.2) was higher (90.2) than female students. When evaluated on a departmental basis, it was seen that the Physical Education and Sports Teaching department students had the lowest AS average (86.7), followed by the Recreation department (89.5). The Coaching Education department (93.8), and Sports Management departments (93.9) had the highest AS average. Considering the results depending on the monthly income levels; it is seen that the students whose income is higher than the expenditure (99.0) have the highest AS average. AS scores of the

participants whose income is equal to the expenses (89.9) and the income is less than the expenses (90.5) were so close to each other and lower. When the AS averages of the university students based on the variable of where they participate in distance education were evaluated, it was determined that the AS average of the participants who live in the city center (94.2) higher than those who participate from the villages (88.3) and districts (89.0). It was determined that, when AS average of the students were evaluated according to the variable of course hours attended by the students per week it shows increasing parallelly to weekly class hours. It was observed that university students' AS for distance education did not differ significantly depending on their computer access opportunities, but those who had regular access had a higher attitude score (93.0) than those who had irregular (90.7) and partially regular (89.0). Although the AS average does not show a statistically significant difference depending on the number of people who receive online education, it was determined that the AS was the lowest (87.0) of the participants who had four and more people joined online training in the family.

As a result of the analyzes made, it was concluded that the mean AS only changed statistically significantly depending on the age and class level of the participants ($p<.05$). Accordingly, the mean AS of students aged 18 - 22 (88.0) was significantly lower than those aged 23 and over (98.8) (table 2).

Table 2. *T-Test Results of Students for Distance Education Between Attitude Scores and Ages.*

	Age	n	x̄	sd	t	p
Attitude Towards Distance Education	18 - 22	321	88,00	30,64	-3,52	,000*
	23 and over	136	98,77	27,77		

* p<0,05

Parallel to this result, when the AS averages of the students were compared according to the class level variables for distance education, it was determined that the highest AS average was in fourth grade (97.7) students, and the lowest AS average was in first grade (83.6) students (table 3).

Table 3. *Attitudes Towards Distance Education and Class Variable Anova Test Results.*

		n	x̄	sd	f	p	diff
Attitude Towards Distance Education	1st Grade	122	83,64	32,11	4,937	,002*	1< 2, 4
	2nd Grade	117	94,89	30,60			
	3rt Grade	115	89,67	29,32			
	4rt Grade	103	97,68	26,39			
	Total	457	91,21	30,19			

As a result of the multiple comparisons between the groups to determine between which groups the differentiation occurred, it was seen that the mean AS of the first graders differed significantly from the mean of the second and fourth grades.

DISCUSSION AND CONCLUSION

During the COVID-19 epidemic, studies on distance education have also intensified. Such as while investigating the contribution of distance education given to the knowledge level, general culture and professional practice skills of university students by Keskin and Kaya (2020); the problems experienced by nursing students in distance education were examined by Kurtüncü and Kurt (2020). In our study too, especially in some departments, Physical Education students whose most of the education curriculum consists of practical lessons, were selected and their attitudes towards online education during the pandemic were tried to be determined. In addition, it was examined whether this attitude score changed significantly depending on different socio-demographic characteristics.

When the attitudes of the students towards distance education were examined according to the age variable, it was found to be significantly high in favor of the 23 and over participants ($\bar{x}$ = 98.7). In parallel with our study, Yıldız (2016) found a significant difference in the age variable in their attitudes towards distance education, with regard to younger ones. On the other hand, Gökbulut (2021), Korucu and Biçer (2018), and Elçiçek and Karal (2019) reported that there was no significant difference in age variable evaluation in their studies. In the light of these findings, it can be thought that the younger ones are more prone to technology, it can be said that the increase in responsibilities with increasing age is a result of being more success-oriented too.

A significant difference was determined between the students' attitudes towards distance education and the class level variable. It was observed that 2nd grade ($\bar{x}$ = 94.9) and 4th grade ($\bar{x}$ = 97.6) students had higher positive attitudes towards distance education than 1st grade students ($\bar{x}$ = 83.6). Contrary to our study, Ateş and Altun (2015) reported that there was no significant difference in class variable evaluation in their study in which the attitudes of computer teacher candidates towards distance education were examined in terms of various variables. It is thought that this finding may be related to the higher level of awareness and lower graduation anxiety, or it may be due to the high level of anxiety of first-year students who have not yet received education in a classroom environment at a university.

In the future, it is envisaged that similar studies can be performed in different faculties that have varying education programmes that offer practice-based courses. Thus, more effective data about online and distance education can be obtained. In the event that distance education is switched due to pandemics or disasters in the future, it is thought that it will contribute to the development of different strategies and solutions, taking into account the students of the departments where these applied courses are predominant.

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The Systems' View of Quality Management: A Higher Education Perspective

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Abstract

This study explores quality management philosophy to improve the educational system, by targeting better performance of students in institutions of higher learning. This can bring equity and justice in the current unequal set up of the educational system in South Africa and this is a reality for most parts of the developing world. The fragmented approach of the current system needs to be reduced substantially to move towards sustainability, through quality culture. The study argues that the bar should be raised to have an integrated educational system where students should achieve the desired outcomes, through the educational system. This should be characterised by teaching and learning processes in line with required skills for the job market, at the same time responding to entrepreneurial ventures. Hence, compliance of institutions of higher learning with quality assurance (as guided by the Council of Higher Education); both internal and external should be promoted for the success of the educational system.

Keywords: *quality, system's view, higher education, distance education*

INTRODUCTION

Teaching and learning constitute the focus in higher education; however, its quality is paramount important. The type of graduates should be a consequence of quality continuous improvement of teaching and learning. However, many other aspects are taken into consideration to achieve the desired output of the education system. Hence a robust quality management of the whole system should be designed, implemented and monitored and improved whenever necessary. The connection between outcomes and the process by which outcomes are achieved can be provided by quality management (Goldberg & Cole, 2000). The fragmentation of the educational system may hamper the desired outputs, i.e., impacting negatively on teaching and learning process as well as negatively affecting the quality of students and furthermore of graduates. Hence a holistic approach of the education system needs attention such that different parties (students, government, civil society, industry, etc.) should be invited to play an impactful role that contributes to quality education. For instance, the government through the Ministry of Education, under its national leadership ensures that the different education

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institutions adhere to enrollment plans, and have financial and human resources that include academic staff. Besides, the interactions of institutions of higher learning with industry, society at large, and national and international collaboration should be maintained. All of this makes sense when the core activities related to teaching and learning, research, community engagement and academic citizenship are promoted in each institution of higher learning. It is in the lenses of the wholeness of the education system that it could be possible to respond to higher education quality, promoted by the initiative with sustainable development goal (SDG) 4. Hence knowledge capacity, creation and acquisition is concerned under this SDG. However, to sustain reforms in the educational system, strategic issues in the implementation of policy should be taken into consideration and they include among others consultation, sequencing, compensation, negotiation, and communication (Bruns et al., 2019). Most educational systems in the world have adopted both online learning and face-to-face mode of teaching and learning. In the recent past, Covid-19 has forced institutions of higher learning to adopt a blended mode of teaching and learning. In this context, information and communication technologies (ICT) have played an unprecedented role. Therefore, a component of distance education (DE) is seen to be present in universities, which make use of different learning management systems to create an enabling environment for teaching and learning. Quality management in line with higher education tries to make the teaching/learning process, hence it focuses on what needs to change. It can try sometime to improve on what exists, not to create something new necessarily. For example, institutional culture change can be evoked here.

The current paper espouses the ideology of the systems' view of quality which entails international quality practices through benchmarking, national quality practices driven by the Council of Higher Education (CHE) of South Africa, and institutional quality practices including governing bodies. These practices are a challenge when organizations embrace a silo and fragmented approach which denies the organization the ability to take a holistic view. Since the authors are teaching practitioners in an open distance and e-learning mode, arguments and reflections may cover this mode of education in this study. In what follows, the word "system" will mean "education system", "institutions of higher learning" and "university" will be used interchangeably.

LITERATURE

By implementing quality management in education, different aspects such as curriculum design, development, and alignment, staff training, support services for both students and staff, assessments, etc are designed to leverage each education system by targeting student learning needs and lecturer's support such that the student goes successfully through the educational system.

Role of Assessments

Ramsden (1992:182) mentions that "… assessment is a way of teaching more effectively through understanding exactly what students know and do not know. Assessment is about several things at once. … It is about reporting on students' achievements and about teaching them better through expressing more clearly the goals of our curricula."

The mega university in South Africa and Africa, i.e. University of South Africa, in its distance education perspective, its assessment policy approaches assessment as the systematic evaluation of a learner's ability to achieve the learning goals for a specific curriculum and is the structural form of assessment (Unisa, 2008). The policy also covers formative assessment in the open distance learning (ODL) context and its essence is the provision of contact, support, and structure that creates a focus on learning and is seen as a motivating link of assessment thereof. Assessments targets a means for student evaluation progress using well-designed activities in achieving the learning objectives. Since the world is seen to be complete at a larger scale, cognitive skills through learning are not being exempted, and the appropriateness of assessment may be challenged (Barnet, 2000). İn this respect the issue of accountability and standards, a formalized structure cannot be neglected in higher education.

To make sure assessments reach their desired results, assessment strategies can be in the form of the following: take-home exams (non-venue-based assessments), continuous assessment, portfolios, multiple choice questions, and summative assessments. The effectiveness of formative assessment seems to enhance student learning taking into consideration several elements such as learning outcomes and objectives, the level of the course, etc, by paying attention to the quality of the feedback given to learners (Black and William (1998). The dialogic aspect of formative assessment has been stressed as an advantage of this form of assessment (Letseka & Pitsoe, 2013), whereas summative assessment is a summation of achievement such that there is an alignment between assessment criteria and evidence provided by the learner. Besides, open book assessments are included (Brown & Race, 2012). Since both lecturers and students are involved in the assessment process, collaboration and making expectations public between these two parties are required to achieve the best results (Letseka & Pitsoe, 2013). It should lead to a common understanding of appropriate criteria and standards by which quality learning will be assessed.

Teaching and Learning Within a Dynamic Environment

Devlin and Samarawickrema (2010) engage with effective teaching which encapsulates the following principles:

- Methodologies to teaching that captivate students' learning
- The development of curricula that reflect the discipline and are stakeholder related
- Assessment and feedback that enables reflection and learning
- Student support that enables learning
- The scholarship of teaching and learning that promotes research and continuous improvement.

According to Hamutoglu et al, 2020, there are positive and negative views on the quality processes in higher education. Positive views include standardization of procedures, the inclusion of students in the process, elimination of arbitration, and improvement of achievement. Negative views include lack of standardization, processes remaining as a formality, failure to meet different demands of students, and cause workload. Technology barriers to quality processes in higher education are lack of infrastructure, power and internet cuts, internet speed, systemic errors, limited facilities and space, lack of budget, and failure to provide required hardware.

Role of Council of Higher Education (CHE)

The CHE ensures that all qualifications have the appropriate policies and procedures for internal and external assessment, moderation, the evaluation of student progress, clarity on the reliability and validity of assessments, and assessment practices through quality-related criteria that serve the Higher Education Quality Council (HEQC) and the accreditation process. This would enable higher education to reflect on quality assurance matters to enable continuous improvement. These principles are outlined in the CHE assessment template of the program evaluation document and depicted in the assessment strategy (Kotecha & Luckett, 2000).

Letseka and Pitsoe (2013) argued that assessment should lead to a common understanding between teachers and students such that a set of appropriate criteria and standards are used for assessing students.

Organizational Assessment Policy

The assessment policy guides the education system to have an alignment between assessment practices and the Department of Higher Education and Training (DHET) policy framework in a way to arrive at an integrated teaching and learning process. Limited conversations regarding assessments in institutions of higher learning, across faculties, departments, and colleges for unified strategies may constitute a bottleneck for the good implementation of assessments.

To meet the assessment criteria requirements of higher education, the Assessment Policy is aligned to the requirements of the higher education bodies and other external bodies such as the Engineering Council of South Africa (ECSA). Institutions of higher learning use their staff as assessors and moderators (internal and external) to ensure adherence to quality assurance. This is done in line with CHE requirements. From an experience perspective, ongoing training is provided to assessors and moderators on assessment matters. Quality assurance measures related to assessment have been in place for decades, however, several challenges do not make the educational system run perfectly, however, efforts for education quality compliance have been noticed. For change, there needs to be a concerted effort to improve curriculum design, teaching and learning, and assessment. There are committees under a specific entity or directorate to ensure assessments and teaching and learning comply with quality assurance.

Challenges in the Education System

Cloete (2014) mentions three challenges that higher education faces and they are listed below:

- The creation of learning environments that would allow individual growth and contribute to social cohesion
- The development of institutional communities that can be used as a model
- Employing strategies that are sustainable and institutionalized

These challenges stifle the intellectual growth of students and this needs to be researched and strategies formulated to address the issue.

Human Resources and ICT İnfrastructure

There are two categories of institutions of higher learning in South Africa; one has undergone a merger of institutions and the other one that did not. However, both streams respond to the transformation process to harmonize academic cultures and more. In post-merger, institutions inherited substantial resources in the form of infrastructure, and human and intellectual capital, among others - that make it possible to invest in innovation and technology development. For instance, from experience, universities have several National Research Foundation (NRF) rated researchers and subject experts in a wide variety of academic fields. For instance, institutions of higher learning with regional campuses have a regionally distributed infrastructure set up that can be leveraged to enhance student support and community engagement initiatives.

The academic offerings are considerably more affordable than those of competitors both in the public and private higher education sectors. This ensures that the university is in a strong position to deliver on its mandate to broaden access to previously disadvantaged students. It remains attractive to vast numbers of students for this reason (Luckett, 2006).

METHOD

This paper adopted a case study methodology that a systems' view of quality management is imperative in the drive to optimize the teaching and learning agenda. South African Higher Education is at the center, through the Council of Higher Education, which works hand in hand with institutions of higher learning. Although case studies may have weaknesses, their strength includes among others, suitability for a complex situation, by giving a round picture of the situation since several evidence sources may be used (Noor, 2008). They are popular since they may give insights that other approaches may not achieve. Hence this research strategy deals with quality management in higher education, which is complex and achieves the purpose of the study (Rowley, 2002). It was natural for the authors to reflect on their views and experiences based on the context in which they operate.

The systems view evaluates quality in terms of the interactions of variables that constitute the input, the process, and the output that enables interaction among various departments. It is important to note that the student may be considered part of the input. The educational process from 1st year to completion may be considered as the transformation process and the output is the successful student. Therefore, the quality of the input will be a key factor in determining the quality of the output. The quality of the interaction of these variables would ultimately determine the quality of the learning experience. It is relatively easy to judge the tangible variables that interact with one another in comparison to the less tangible aspects such as the learning process. The quality aspects of open distance learning are fourfold and include:

i. Quality of products such as the development of study materials
ii. Quality of processes that include the teaching and learning processes, communication with regional centers, and so forth

iii. Quality of production includes delivery systems, print production, multimedia production, scheduling, podcasts, vodcasts, teleconferences
iv. Quality of philosophy encompasses the vision, mission, values, policies, governance, institutional culture, and public image.

CHE uses its quality assurance (QA) as a barometer for quality compliance of higher education institutions.

FINDINGS

It is found that external demands for quality assurance mechanisms will continue to influence the quality of higher education provision in South Africa into the distant future. A clear understanding of improvement and accountability as distinct concepts are required at national and institutional levels as there is much more focus on separating these concepts. Accountability deals with the 'who and how in terms of a consistent and transparent flow of information to stakeholders. External quality assurance is important to drive internal quality strategies which enable dialogue and the development of an internal quality culture. However, changing the external quality culture is a daunting task. There are currently huge discrepancies among universities in the following key performance areas: teaching and learning, and research. Even resources are not equitably distributed. The quality of graduates is differentiated among these institutions. There is still room for improvement to be working increasingly on quality in all institutions of higher learning such that no one is left behind.

Limitations in conversation/communication regarding assessments in institutions of higher learning may cause ununified strategies that derail the implementation of assessment. Hence collaboration is needed among institutions of higher learning to achieve quality education for our students, as supported by CHE.

The dominant method of assessment is the summative assessment which constitutes the year/semester examination.

All institutions of higher learning have quality assurance mechanisms in place. From experience; in an ODL dispensation, the Directorate for Strategic Planning and Quality Assurance is responsible for the maintenance and administration of the policy on behalf of the senate and corporate governance in the institution. The colleges and schools are required to interpret the policy and put in place appropriate mechanisms to ensure compliance. The implementation is monitored by all managers, hence the senate takes the ultimate responsibility.

The university strives to address teaching and learning issues every month through teaching and learning seminars. Teaching and learning seminars provide an opportunity for academics to be reflexive of practices as well as enable discourses with experts from the field. The university has now reassessed how the quality of learning programs is promoted, managed, and assured.

For an effective quality system to be implemented in institutions of higher learning, culture change is viewed as a pivotal component (O'Mahony & Garavan, 2012). For that, good planning and management are required. Hence a certain number of strategies should be revised and harmonized.

DISCUSSION AND CONCLUSION

The Role of Quality Concerning Assessments

Institutions of higher learning have created platforms to deal with issues related to tuition and learning. They created a platform to address teaching and learning issues regularly through teaching and learning activities such as workshops and seminars. Teaching and learning seminars provide an opportunity for academics to be reflexive of practices as well as enable discourses with experts from the field. In this way, the quality of learning programs is promoted, managed, and assured. For instance, at Unisa, as of 2015 there has been an introduction of additional reviews introduced, in addition to the modular reviews. This would entail the review of whole learning programs using a panel of experts from outside Unisa. There is now focus attention on the conditions of program delivery in all contexts. The university has benchmarked the various implementations of the first-year experience model and is currently redefining processes and structures through the 'plan/do/check/act philosophy. These aspects are a reality in the higher education system, hence may apply to institutions other than Unisa.

As a point of departure, this study recommends QA mechanisms be developed to address quality issues in institutions of higher learning.

Institution-wide training on the assessment policy and its imperatives and through this address the following:

- Design – curriculum design that aligns purpose, learning outcome, content, and assessment.
- Enhancement of assessment through discourses on the purpose of assessment, the importance of quality of assessment, assessment of and for learning, and the like.
- Development of criteria in the formulation of examination papers
- Rigorous training of new academics in the assessment process
- Examination of the moderation process

Support Services

These services are very important in an ODL context. It is imperative to begin by analyzing some of the key constraints that affect the ability of support departments to provide effective services to support the implementation of colleges' pedagogical strategies (Ramdass & Masithulela, 2016)

Support services may be categorized as follows:

- ICT
- Library
- Disability Unit
- Counseling
- Academic literacy
- Department for the despatch of study materials

In many institutions, the current organizational structure and the accompanying lines of reporting encourage support units to operate in silos. However, this may be

exacerbated in a very large institution of higher learning, e.g. an ODL institution. This makes collaboration and communication across the silos difficult while reducing incentives for such collaboration. It also means there is no common vision or plan for the work of support units across the institution. Connected to this, regional structures are not always effectively integrated into the main structures of the institution. The silo-based structure of support services also means that support staff are often unaware of what other support units do or how they might work together effectively. Combined with a lack of ongoing communication, this creates significant potential for duplication of functions.

In addition, the absence of coordination between support units makes scheduling support services difficult. Because these services are fragmented, support service requests tend to operate on a relatively small scale and are often ad hoc in nature (most often at the level of modules). This further inhibits effective planning and scheduling. The focus on providing support to individual modules within colleges and the accompanying tendency to respond to ad hoc requests from academics makes coordination more difficult.

With a high level of administrative bureaucracy within the organization, a problem noted in most discussions conducted impedes collaboration and coordination, as well as reduces productivity. Several systems and processes (for example, procurement and appointment of human resources) move very slowly, which negatively affects planning and coordination. Likewise, the manual nature of several institutional processes means that there is often significant repetition in reporting and documentation, which reduces the available time to provide effective support. Related to this is the problem that supporting workflows are not underpinned by ICT systems that help to automate and coordinate support operations. ICT systems should be capable of providing adequate and required support. Finally, the high frequency of meetings within the institution adds significantly to workload pressure, as it removes significant amounts of productive time from the working weeks of staff.

Testing of innovations of different kinds becomes problematic within this context, as there is no scope for structuring the process of testing new approaches or technologies, measuring their relative effectiveness, and then systematically widening their use should they prove successful. Instead, innovations tend either to be tested in the absence of a mechanism to scale them should they prove successful or innovations are scaled too rapidly with no structured plan to accommodate growing demand. A more structured approach to testing innovations, based on identified priorities within colleges, is thus required.

Streamlining Decision-Making

Institutions of higher learning reflect a certain level of complexity, which inevitably creates a certain level of complexity in terms of structure, culture, and agency where decision-making is problematic and takes a long period (months). The situation can be exacerbated for instance for an ODL institution, which has diverse students scattered across the globe. However, the researchers believe that it remains important

to pursue simplicity whilst retaining the rigor that will ensure good governance and effective decision-making. There needs to be a delicate balance that would ensure agility without loss of rigor about decision making. Furthermore, it will enable the universities to effectively pursue its strategic objectives in implementing their vision and mission. Given the analysis of these structures, it is proposed that a consultative committee review processes to simplify, as well as verifying, decision-making policies and procedures.

Financial and Human Resources Implications

Linked to this, the most significant omission across the university is any reference to financial analysis of new teaching and learning strategies. It will become increasingly important to analyze the financial and human resource implications of introducing new teaching and learning strategies, particularly those that enable direct contact between students and university personnel (tutors, academics, or administrators). It requires the introduction of greater interactivity of more human capacity, but seems to assume that this will be a given, rather than proposing more structured and rigorous processes of analysis in which choices are explored and some are ultimately excluded because their cost is too high or their educational return on investment is considered inadequate to justify their use. Importantly, the financial analysis should serve to avoid this slow drift towards modes of learning more suited to face-to-face universities, which will undermine the economic logic of functioning as an ODL institution.

The Function of External Bodies and Partners

The function of external bodies and partners should be taken into consideration when the management of quality is introduced or enhanced. New thinking to approach problems, alignment of skills to the job market, in addressing societal problems should be pursued and mechanisms of internal quality assurance should be enhanced such that CHE principles are adhered to. Institutions of higher learning should strive to maintain the accreditation of their programs to ensure the quality of teaching and learning.

From the foregoing, collaboration, teamwork and perseverance are fundamental to igniting change in a huge university. The fundamental requirement for the implementation of quality assurance (QA) is management commitment toward the development of a culture of quality. To achieve this, senior leadership requires an understanding of the impact of quality in institutions so that QA can move from a compliance mode to that of continuous improvement. The mandate for QA as espoused by the CHE and higher education institutions require transformation into enhancement. The CHE requires an understanding of enhancement and needs to develop a framework that would enable this process. Culture change in the CHE would influence institutions positively. The current practice requires a change in mindset from CHE and institutions. A sectoral approach in the implementation of quality management to the whole educational system could be feasible rather than doing it to the whole system, as this can be risky if it fails. A type of phase-in approach could be recommended. This could be supported by (O'Mahony & Garavan, 2012).

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Bringing Moocs Into Efl College Classrooms: Lessons Learned

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Abstract

This research includes the first cycle of an application based on the integration of a MOOC given in the field of "writing" into the formal education curriculum in order to reinforce the classroom teaching and support the learning process in order to improve the English writing skill. In this study, in which the qualitative research method was adopted, the action research design was applied. The participants of this research, which was carried out in the spring semester of the 2021-2022 academic year, consist of 14 students studying in the English preparatory program at a state university. The application was carried out within the scope of the Reading/Writing course in the program in question. Accordingly, in the first week of the term, students in the class were asked to choose one of two specialization packages (determined by the researcher) in Writing offered on Coursera, one of the largest MOOC provider platforms. One of these packages contains three lessons and the other four lessons. The students were expected to follow this task, which is a performance assignment spread throughout the course of the class, systematically until the end of the semester, fulfill the requirements and complete it successfully. As data collection tools, students' course completion scores in their chosen MOOCs, an online questionnaire developed to determine their views on MOOC experience and achievements, and a semi-structured interview form were utilized. In addition, to support the research data, the articles written by the students at the end of the term within the scope of classroom evaluation were used. The first data obtained in this direction show that the majority of the participants could not go beyond the course selection and registration stage. For this reason, these MOOCs could not be used to support writing skills. Although the students mostly did not have problems in accessing technology and showed self-directed learner characteristics, they did not follow these courses because the MOOC assignment was not compulsory and they could not spare time from other course loads.

Keywords: *MOOC, foreign language learning, writing skill, preparatory program, university students*

INTRODUCTION

The educational deficiencies caused by the prolonged lockdown during the Covid-19 pandemic were tried to be compensated with open and distance teaching-learning methods such as online courses and tele-courses (Ferri et al., 2020; Hazaea et al., 2021), supported by social media (Erarslan, 2021; Muftah, 2022), discussion forums (Bailey et al., 2021), and MOOCs (Amalia et al., 2021; Tlili et al., 2022). Despite the transition to

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face-to-face education with the removal of educational restrictions due to the pandemic, hybrid models that adopt blended teaching have begun to be preferred instead of moving away from online learning in many developed countries of the world (Cobo-Rendon et al., 2022). In such practices, the classes are carried out by using face-to-face teaching in the classroom together with information and communication technologies and/or online environments. Open educational resources are frequently used to increase learning opportunities in blended teaching. In this respect, massive open online courses (MOOCs) are preferred because they are an open course model that promises free and open access to quality content without prerequisites to anyone with internet access and suitable devices. The interest in these courses, which are mostly based on individual work, has increased even more during and after the pandemic period (Tlili et al., 2022). While MOOCs can often be followed as a stand-alone course, they can also be used to support different teaching models and approaches. As a matter of fact, the present research includes the first cycle of an application based on the integration of a MOOC given in the field of "writing" into the formal education curriculum in order to reinforce the classroom teaching and support the learning process in order to improve the English writing skill. The investigation of any compensative instructional implementation is thought to suggest a constructive course of action for future probable emergency cases.

LITERATURE REVIEW

MOOCs, which was introduced as a modality of distance education without charge at the outset in 2008, became popular in 2012, thus enabling learners worldwide to join courses asynchronously in accordance with their individual learning pace (Siemens, 2013; Thompson, 2021). MOOCs were soon hailed due to the merits it claimed to provide particularly for learners falling behind the mainstream education. MOOCs were regarded to be a major breakthrough in the early 2010s on the grounds that they made a reduction in the effect of economic and geographic inequality, by allowing people with low-income and in remote areas to get access to the best learning content (Vodolazskaya, 2020). It is discernible from the current literature that MOOCs have been preferred as a supportive and compensative teaching/learning modality besides synchronous online education in various higher education disciplines since the outbreak of the pandemic (AlQaidoom & Shah, 2020; Bhattacharya et al., 2020; Impey & Formanek, 2021; Salas-Rueda et al., 2022; Singh & Sharma, 2021; Tlili et al., 2022).

Studies report several major reasons for learners to take a MOOC, such as advancement in their jobs, employment opportunities, personal challenge and curiosity (Beaven et al., 2018; Christensen et al., 2013; De Boer et al., 2013). However, drop-out seems to be a great challenge in front of the popularity of MOOCs (Bárcena et al., 2014; Gütl et al., 2014). Thus, there are some salient prerequisite factors playing a determinative role in sustainability, successful outcomes and completion of a MOOC study such as a high-level of voluntary participation and intrinsic motivation (De Barba et al., 2016; Romero-Frías et al., 2020; Semenova, 2022), learner autonomy (Ding & Shen, 2022), self-regulation (Reparaz et al., 2020), course content (Henderikx et al., 2018), and instructor presence (Koseoglu & Koutropoulos, 2016). Having autonomy over one's own learning is reported to be the keystone for benefiting from MOOCs at the utmost. In that, it is emphasized that besides computer literacy, the learner should be highly self-regulated

and directed, and personally interested in pursuing and fostering his/her learning in a MOOC (Chacon-Beltran, 2017). Motivation is shown to have affected and been affected by learners' participation throughout the course (De Barba et al., 2016). Moreover, it is reported that some learners may not regard a MOOC as a course, since it does not provide teacher scaffolding every time the students need it (Barcena et al., 2015; Orsini-Jones et al., 2015). The fact that there may not be enough interaction between students and content is also shared as a possible reason for the drop-outs (Yıldırım, 2015).

Previous Research and the Present Study

In fact, while the research on integration of MOOCs into learning environments in general has distinctly increased, this case cannot be observed in terms of foreign language education, which is also articulated in the relevant literature (Palacios Hidalgo et al., 2020; Ding & Shen, 2021; Beaven et al., 2018; Caner et al., 2019; Nethi & Murray, 2014). This problem of research scarcity has been doubled with the emergence of some researchers who are of the opinion that MOOCs are not suitable for language learning because of the fact that MOOCs cannot address the two basic requirements for foreign language learning: live communicative interaction with a native speaker and proactiveness (Romeo, 2012; Barcena et al., 2014). Rubio (2013) in this sense underlines the difficulty of designing and running a MOOC for foreign language teaching on the grounds that the learners do not have extrinsic motivation as they do not pay for these courses and do not get grades; and together with a low level of completion, only some of the materials on a MOOC are utilized. Moreover, Stevens (2013) thinks that MOOCs may not be conducive to the teaching of grammatical structures unless learners are assigned to learn grammar deductively and from each other. Some other researchers (Nethi & Murray, 2014) emphasize in this regard that MOOCs can provide satisfactory opportunities for receptive skills, yet fewer chances of learning productive skills. In that, MOOCs provide students with the opportunity of acquiring knowledge about a foreign language, but they rarely offer opportunities of practice by using this knowledge (Nethi & Murray, 2014).

On the other hand, more researchers have now revealed that MOOCs can be effective in promoting the development of language competences (Barcena & Martin-Monje, 2014; Conde Gafaro, 2019; Panagiotidis, 2019; Nethi & Murray, 2014; Perifanou & Economides, 2014). In this sense, Dolores Castrillo (2014) suggests that the most suitable MOOCs for learning a foreign language are the connectivist MOOCs (cMOOCs) since they provide possibilities for interaction in the negotiation of meaning and for practicing various required language skills. It is claimed that integrating MOOCs into conventional language classes might bolster language learners' practice of their language skills, and assist them in achieving an acceptable level of self-regulation (Conde Gafaro, 2019). This emerged as the foremost incentive for conducting the present study. As a matter of fact, after the students successfully complete the four skills courses offered in the English preparatory program, and are entitled to take the proficiency exam, when they pass that exam successfully and move on to their departments (the medium of instruction is English), they follow the courses there and experience problems because they cannot use the language correctly/sufficiently, especially in written homework and exams. The most common problem that the instructors who teach in this preparatory program hear in their interviews

with the students who transfer to their departments, and the feedback received from the instructors who teach in the departments about the students, is in this direction. For this reason, it was concluded that the students of the current preparatory program have limitations in acquiring the necessary English in their departments and that the language skills of the students should be supported more in the program. Moreover, the clear observation that the relevant studies in the literature display contradictory results in terms of the use of MOOCs in language learning necessitates the conduction of more research. Thus, the present study is believed to make a contribution to enlighten the practitioners and policy-makers and direct the future research in this regard.

Research Questions

In line with the literature above, this study aimed to reveal the general consequences of an attempt to integrate MOOCs into traditional face-to-face English as a Foreign Language (EFL) classroom. To this end, the following research questions were raised:

1. To what extent the students of the present study self-direct their own learning?
2. Are there any significant differences among the students' self-directed learning scores in terms of such variables as their gender, department of study and their course completion rates?
3. What are the reasons for partly completing, or not completing their MOOCs?

METHOD

Research Design

This research was designed according to the action research pattern of the qualitative research method. Mills (2003) defines action research as "any systematic research conducted by teachers, administrators, counsellors, or persons interested in the teaching and learning process to collect data on how a school is going, how teachers teach, and how students learn". This type of research is an approach to improving existing practice in order to correct an existing problem. As a matter of fact, in this study, action research was used because it was aimed to find solutions to the points where the standard curriculum is insufficient in order to improve the writing skills of students enrolled in the English compulsory preparatory program of a state university. Action research is a cyclical process. This process begins with the identification of the problem and the planning that will help solve the identified problem. In the second stage, this plan is put into practice. In the third stage, data on the implementation process and its results are collected and the process is closely observed. As a result of the analysis and interpretation of the data obtained in the fourth stage, the process is evaluated as a whole. As a result of this evaluation, the action plan is reviewed and the process is re-planned, and this cyclical process continues until the desired result/solution is reached (Johnson, 2014; Köklü, 1993).

Similar steps were followed in this study. Accordingly, a direct data collection process was not applied to determine the problem, and a decision was made based on one of the researchers' experiences and observations, since she had been working as a lecturer in the preparatory program for many years. In addition, the negative feedback received over the years from the faculty members who teach in the departments of the students

who have completed the compulsory English preparatory program have also been effective in shaping the problem of the research. In line with the problem, an action plan to be implemented as a solution was designed and necessary permissions were obtained from the ethics committee of the higher education institution in order to implement the application. In order to understand the effects and effectiveness of the application, the data collection techniques and tools to be used were determined and applied at the beginning and end of the research. Afterwards, the obtained data were analyzed and the outputs of the application were interpreted and evaluated in line with the researcher's experiences in the observation and application process. In line with the results reached, inferences regarding the changes and developments to be made in the next implementations of the action were reached.

Participants

While deciding on the participants of the research, convenience sampling method was preferred. Convenience sampling is a non-random sampling method in which the sample to be selected from the population is determined by the judgment of the researcher. In this type of sample selection, data is collected from the population in the easiest, fastest and most economical way" (Aaker et al., 2007: 394, Zikmund, 1997: 428). Accordingly, students studying in the English preparatory program of a state university -in the class where one of the researchers taught the Reading/Writing lesson- were chosen as the participant group. There are 15 students enrolled in this class. However, since two of these students did not attend the classes due to absenteeism, a total of 13 students, who regularly attend the classes, constitute the participant group. These students have an English proficiency level of B1(+) (Intermediate/Intermediate plus). Table 1 gives the descriptive information pertaining to the students:

Table 1. *Distribution of the Participants by Demographic Characteristics*

Demographic Variable	Groups	n	%
Gender	Females	4	40
	Males	6	60
Department	English Language & Literature	8	80
	Translation & Interpretation	2	20
How did you access the internet during the course?	Smart Phone	4	40
	Smart Phone & Laptop	5	50
	Smart Phone, Tablets, Laptops & PC	1	10
How many hours per day did you use the internet on average during the course?	0-2 hours	2	20
	3-5 hours	6	60
	6-7 hours	1	10
	8-9 hours	1	10
Did you complete your chosen course on Coursera?	No	6	60
	Partly Did not even sign up	3 1	30 10

According to Table 1, 60 % of the students participating in the research were male and 40 % were female. 80 % of the participants study in the department of English Language & Literature, 20 % in the department of Translation & Interpretation. 50 % of the students accessed the Internet via both smartphones and laptops, while 40 % of them had only smart phones. The average daily internet usage time of 60 % of the participants is 3-5 hours, while for 20 % of them 0-2 hours. While 60 % of the participants reported that they did not complete their MOOCs, 30 % said they only completed it partly, and 10 % did not even create an account to join the MOOCs.

Data Collection Tools and Procedure

The implementation process of the research started in the second week of the Spring semester of the higher education institution where the study was carried out. In order to carry out the application, first permission was obtained from the Scientific Research and Publication Ethics Committee of the institution in question. After the approval, platforms such as Coursera and Edx, which are among the world's leading MOOC providers, were scanned and courses prepared to improve writing skills were determined. In addition, an interview was made with the students during the lesson to understand which aspect they had the most difficulty in writing and that they had problems with. Accordingly, it was determined that the students mostly experienced the correct and appropriate use of English phrases and expressions and article writing rules and techniques while writing articles or compositions. The detected MOOCs were examined in terms of their content, learning outcomes, starting date, weekly time that participants should allocate for these courses, and fees.

In the light of the information obtained, considering the needs and characteristics of the research participant group, two specialization packages were selected that were expected to support them in developing their writing skills. One of these packages is more focused on English grammar and the correct use of the language, while the other consists of lessons that focus on the requirements for advanced and effective article and composition writing. Both of these course packages are offered on Coursera, and one consists of three courses and the other four. Before this MOOC task was introduced to the students, the Self-directed Learning Scale was conducted. Afterwards, the Coursera platform was introduced by projection during the lesson and it was explained in practice how to create a membership and log in. Afterwards, the two selected course packages and their features were introduced by showing them. The access links of these courses were shared on the WhatsApp group of the class, and the students were asked to review the courses and decide on the more suitable course package for them within a week. In this respect, students are given the flexibility to choose the most suitable package for them and the courses they deem necessary, taking into account the aspects that they lack or think they need to improve. These specialization packages and the number of students who choose them are shown in the table below.

Table 2. MOOC Specializations and Course Types

Field of Specialization	Number of Learners	Courses	Number of Learners
Academic English: Writing Specialization	4	Grammar and Punctuation	3
		Getting Started with Essay Writing	3
		Advanced Writing	3
		Introduction to Research in Essay Writing	1
Learn English: Writing Effectively with Complex Sentences Specialization	6	Writing with Adverb Clauses	2
		Writing with Adverbial Clauses	2
		Writing with Noun Clauses	4

It was announced to the students that MOOC courses would affect their performance scores and they were given 12 weeks in total to complete them. During this process, the instructor of the course received feedback by asking the students on a weekly basis which lesson/topic they were and whether they encountered any problems. In the last four weeks before the completion of the MOOCs, she sent weekly messages from the WhatsApp group, reminding the deadline. As a result of not receiving any response from the students after a point, and receiving feedback on the low follow-up and completion rates when asked in the classroom, she asked the students for their e-mail addresses and passwords that they used to access the courses on Coursera. In this way, their progress in the lessons could be observed closely. At the end of the designated 12-week period, the deadline has been extended by one more week. Finally, short individual interviews were conducted with the students and they were asked whether they completed the courses on Coursera and their opinions on the reasons for this.

Self-Directed Learning Scale

The Self-directed Learning Scale (SDLS) is a questionnaire developed by Lounsbury et al. (2009) for determining learners' self-directed learning skills. The scale was adapted into Turkish by Demircioğlu et al. (2018). This is a ten-item and one-factor 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). The learners who get higher scores are associated with stronger self-directed learning. The test–retest correlation of the SDLS is reported to have been 0.82, whereas Cronbach alpha coefficient of the scale was found to be 0.85 in the Turkish adaptation process (Demircioğlu et al., 2018). According to the test carried out in order to ensure the reliability of the scale within the present study, the Cronbach Alpha coefficient of the scale was determined as 0.92, which means a high degree of reliability.

Data Analysis

Content analysis techniques were applied in the analysis of qualitative data, and the data were analyzed manually. Both researchers coded the data independently, and then these codes were compared and an agreement was reached on the categories and

themes. While reporting the qualitative data, students were named as K1, K2, K3... K10 and direct quotations were used to support the credibility and reliability of the findings. In the analysis of quantitative data, the SPSS 21.0 program was used. Data on demographic information obtained using descriptive statistics are shown in the table as frequency and percentage. The skewness coefficient (skewness) and kurtosis (kurtosis) coefficients were taken into account in the normality test of the Self-Oriented Learning Scale scores. Parametric tests can be used by making square root, logarithmic or inverse transformations of scores that do not show normal distribution (Büyüköztürk, 2011). In this direction, two independent samples t-test was used to compare the scale scores according to gender, department, and MOOC completion status by making appropriate transformations of the scores that did not show normal distribution (Table 4), and the ANOVA test was used to compare the internet access devices and the average daily time spent on the internet. When a significant difference was observed in the ANOVA test, the LSD post hoc test was used to determine between which groups the difference was. Finally, quantitative and qualitative data were interpreted together.

FINDINGS

Findings Regarding the Self-directed Learning Scale

Table 3. *Descriptive Statistics*

Variable	N	Min.	Max.	$\underline{X}$	sd	Skewness	Kurtosis
Self-directed Learning Scale	10	1.30	4.40	3.25	1.06	-1.12	0.23[1]

[1]: Logarithmic transformation done.

According to Table 3, the SDLS mean score of the learners who participated in the research was determined as 3.25±1.06, and considering the lowest (1) and highest (5) points that can be obtained, it can be said that the students directed their own learning at an average level. In order to identify whether the learners' SDLS scores differed significantly in terms of their gender, an Independent-Samples t-test was carried out. Table 4 gives the results of the test:

Table 4. *Comparison of Scores in Terms of Gender*

Variable	Gender	n	$\underline{X}$	Sd	t	p
Self-directed Learning Scale	Female	4	3.50	0.60	0.67	0.520
	Male	6	3.08	1.31		

According to Table 4, it was determined that the learners' SDLS scores did not differ significantly according to their gender ($p>0.05$). In order to identify whether the learners' SDLS scores differed significantly in terms of their department of study, an Independent-Samples t-test was carried out. Table 5 gives the results of the test:

Table 5. *Comparison of Scores in Terms of Departments of Study*

Variable	Departments	n	X̲	Sd	t	p
Self-directed Learning Scale	ELL	8	3.51	0.91	1.72	0.123
	T&I	2	2.20	1.27		

ELL: English Language & Literature; T&I: Translation & Interpretation

According to Table 5, it was determined that the learners' SDLS scores did not differ significantly according to their departments of study (p>0.05). In order to identify whether the learners' SDLS scores differed significantly in terms of their MOOC completion rates, a One-Way ANOVA test was carried out. Table 6 gives the results of the test:

Table 6. *Comparison of Scores in Terms of MOOC Completion*

Variable	MOOC completion	n	X̲	Sd	F	p
Self-directed Learning Scale	A-No	6	3.31	1.08	0.62	0.564
	B-Partly	3	2.80	1.17		
	C-Did not even sign up	1	4.20	-		

According to Table 6, It was determined that the learners' SDLS scores did not differ significantly according to their MOOC completion rates (p>0.05).

Qualitative Findings of the Study

In the final stage of the action plan, a short semi-structured interview was held with the students individually to determine why the implemented plan did not work, and the reasons for not completing the MOOCs were asked. Accordingly, the themes and categories reached are shown in Figure 1 below:

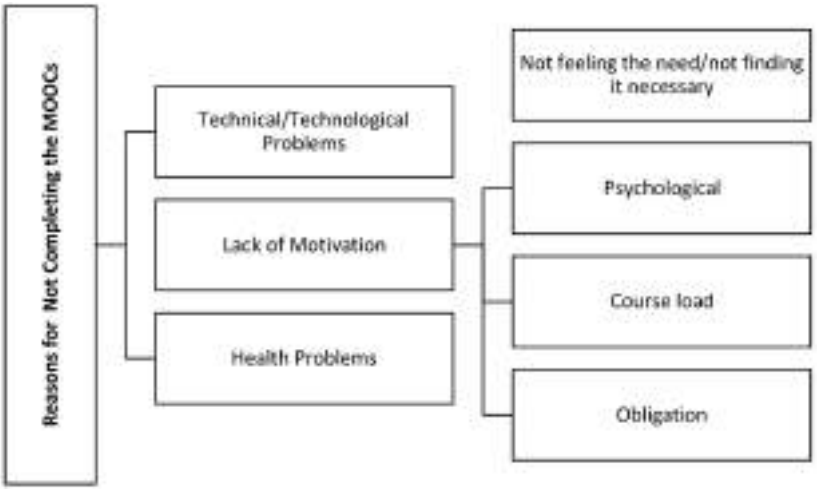


Figure 1: *Themes related to the Reasons for Not Completing the MOOCs*

It was determined that the reasons why students did not complete the MOOCs they chose were mostly motivational. Students mostly explained this as "lack of motivation and laziness". Accordingly, the motivation-based reasons for these students not completing the MOOCs can be listed as not seeing it as necessary, psychological reasons, course load and homework being compulsory. Students who did not complete the courses because they did not consider it necessary indicated that they considered the courses and assignments in the curriculum alone sufficient in order to be successful in the preparatory program and that they could get the grades they wanted with their individual studies. The following views of some students can be given as an example of this finding.

> *"I did not spare enough time for this practice as I found our activities and studies in the course sufficient and I also studied the subjects myself." (K2)*

> *"If I wanted to, I would go to the library and find a way to complete the courses, but I didn't think it was something to focus on because I didn't see it as necessary to complete the semester. Of course, it would definitely add something new, but there was no need for all that effort and sacrifice, at least for that period." (P5)*

> *"…I think students who haven't completed Coursera don't bother because they don't need to complete it." (P9)*

Some students stated that they see the necessity of the MOOC task as a factor that negatively affects their motivation to complete the courses. One student said, "The difficulty of these courses also causes students to attend the course only so that they can be seen in the system, rather than learning something like I saw in my own roommate." The expression (K1) supports this finding.

The student number 3, who evaluated this situation from a psychological point of view, expressed his situation as "I have absolutely no idea, herd psychology I guess". Another student complained that the course load in the preparatory program was already heavy and attributed this to his failure to complete the MOOCs. The student expressed this opinion as "I didn't want to do it because the lessons and exams were heavy" (P10). There are four students who stated that they could not complete their MOOC courses on Coursera due to technical/technological reasons. These students stated that they could not complete the lessons due to low and/or limited internet connection and the difficulty of following the lessons on a smartphone. The statements of some students supporting this finding are given below:

> *"The main reason is low internet connection" (P7)*

> *"Because I was staying in the dormitory where I was not at home, there was no internet connection, which is a general problem for dormitories anyway. "(P4)*

> *"An average or above-average student staying in a state dormitory prefers to use his already limited internet for his pleasure rather than his lessons, and the quota is insufficient even for 1 month of pleasure." (P2)*

> *"It was very difficult to follow when using the smartphone" (P8)*

Finally, there is a student who stated that he could not follow the MOOC courses they chose due to health problems. This student stated that he had to use digital technologies for a limited time due to his health problems. The student explained this reasoning with the following words: "Unfortunately, I cannot use digital technology continuously and as I would like due to the time limitation and for my eye health. So I just have to make use of the books." (P5)

On the other hand, student number 6 made the following suggestion, taking into account the psychology of the students and the conditions they are in, in order to ensure that these MOOCs are completed by the students:

> *"I think the only way to convince average and above average students to participate in this program is to make the preparation more difficult. In that case, the student can see this course as a good resource in the face of difficulties and can give himself to the course in a motivated way, but this of course causes other problems."*

DISCUSSION

It is obvious that the transition to a fully online platform for foreign language teaching during the Covid-19 pandemic turned out to be quite challenging and demotivating both for teachers and students (Ekaterina, 2021; Mahyoob, 2020; Zboun & Farrah, 2021). However, online education has not been totally abandoned during the post-pandemic transition, and the integration of virtual learning environments into conventional classrooms is still being strongly articulated by the researchers due to the benefits it provides based on the empirical evidence (Cobo-Rendon et al., 2022; Rachman et al., 2021; Censuswide Future of Learning Report, 2022). MOOCs, in this regard, seem to have been utilized to a greater extent during the pandemic (Tlili et al., 2022), and are thought to be preferred more as supporting learning environments during the post-pandemic era. Accordingly, the present study was designated in order to back up the face-to-face university EFL learners at the English preparatory class who were falling behind the anticipated objectives of the curriculum with the supportive and compensative merits of virtual learning environments, namely with language learning MOOCs in this instance.

In order to make sure that the study reveals some in-depth implications in terms of providing us with a general frame of reference for a MOOC study, the learner profiles were further clarified as regards to their technological and language readiness. In that, it was determined that all the students owned at least a smart-phone, or both a smart-phone and a laptop in most cases in order to pursue their MOOCs. The students mostly spent 3-5 hours a day on the internet, and they all had at least B1(+)-level of English in order to easily follow their online courses on Coursera. In terms of their self-directed learning scale results, it was found that their mean score is at an average level, which means that they can at times regulate their own learning. As a result of the statistical analyses, it was determined that the learners' self-directed learning scores did not show any significant difference in terms of their gender and department. It was further identified that the learners' self-directed learning scores did not show any significant difference in terms of their course completion rates, either. A small number of students who completed the MOOC package stated that these courses contributed greatly to their writing skills and

language development, and this was also observed in their end-of-year articles. On the other hand, keeping all these characteristics in mind, however, it was revealed that the majority of the students did not complete their MOOCs. Namely, in spite of the learners' technical readiness and the instructor's regular follow-up of their progress, this did not culminate in a desired and anticipated outcome of a successful MOOC completion. Thus, the researchers went on to investigate some possible reasons for the indifference shown by the students in terms of their MOOC study.

It was determined that the reasons why students did not complete the MOOCs they chose were mostly motivational. Accordingly, the motivation-based reasons for these students not completing the MOOCs can be listed as not seeing it as necessary, psychological reasons, course load and homework being compulsory. Students mostly explained this as "lack of motivation and laziness". Students who did not complete the courses because they did not consider it necessary indicated that they considered the courses and assignments in the curriculum alone sufficient in order to be successful in the preparatory program and that they could get the grades they wanted with their individual studies. In fact, lack of persistence and low retention rates are two common phenomena often encountered in the relevant literature on MOOCs (Bloch, 2016). Sustainability of a MOOC in this sense necessitates a high level of self-regulated learning skills (Chacon-Beltran, 2017; Conde Gafaro, 2019; Zhu, 2022) and motivation (Beaven et al., 2014; De Barba et al., 2016). The fact that the learners within the present study did not demonstrate self-directed learning behaviours at a satisfactory level may account for their indifference towards completing their MOOC study. Conde-Gafaro (2019) underlines, in this regard, the fact that MOOCs are generally designated for the learners who can regulate and direct their own learning, thus these courses could be challenging for those who take them for the first time. Moreover, Semenova (2022) states in this sense that motivation is a significant predictor of the level of engagement in MOOCs, and it has also a significant relationship with course completion.

Motivational issues are the most reported reasons within the relevant literature for higher drop-out rates of MOOCs (Badali et al., 2022). Lack of intrinsic motivation, in this regard, stands out more in terms of the discontinuation of a MOOC study. This fact also underlines the finding that the students in the present study did not find the suitable triggering incentive for completing their MOOCs. Although the participation in the MOOC courses were announced to be graded within the total class performance grades (extrinsic motivation), this did not affect learners' motivation satisfactorily, implying the role of intrinsic motivation to pursue a MOOC.

The MOOCs the students of the present study were supposed to sign up for are prepared and delivered by native speakers. Since students use the "audit" option and take the course free of charge, they cannot benefit from feedback etc. from the instructors. These are called specialization courses, each one of which consists of 3-4 lessons. Therefore, they are self-study courses that do not include any direct guidance and feedback from the instructors. There is only automated feedback on short answer multiple choice type questions. Course design/expectations management is reported to be a significant barrier that influences learners' intention achievement in MOOCs (Henderikx et al., 2018). Furthermore, In this regard, the instructor presence (Koseoglu & Koutropoulos, 2016)

and the learners' interaction with each other and with the instructor play determinative roles on course sustainability and completion. A study by Goh et al. (2017) revealed that instructor presence, interesting learning contents, consistent feedback and interaction are vital to sustain the engagement of students in MOOCs. Moreover, instructor's regular attention and guidance is a determinant in learners' construction of their foreign language writing skills, and in their ultimate achievement in a writing course, since foreign language learners are generally in dire need of guidance and a step-by-step assecuration while improving their productive language skills. Therefore, the fact that there was no interaction between the learners and the instruction of the MOOC may have led the learners to lose interest after a while.

It was further identified in this study that some students stated that they see the necessity of the MOOC task as a factor that negatively affects their motivation to complete the courses. In fact, as MOOCs are generally voluntary courses, obliging learners to take these courses may have discouraged them. Moreover, it was understood that although the students in this study were mostly computer users who spent plenty of time regularly on the internet, this did not result in their MOOC completion. This finding contradicts with that of Namestovski et al's (2018) who found that regular computer users have a better chance at completing an online course. As the students complained about the course load they already had, the obligation of a MOOC study did not turn out to facilitate their in-class learning, yet it rather brought a new cognitive load which may have in turn led to drop-outs. Furthermore, Yaşar (2020) shares findings that are not in parallel with the present study. In that, it is reported that MOOC utilization in language learning classes improved learners' communication skills provided that they are fun, surprising, simple, universal and interactive (Yaşar, 2020).

CONCLUSION

One of the most significant implications of the present study is that MOOCs may not be a first-line supportive environment for productive skills (writing in this case) in foreign language teaching. Moreover, the integration of MOOCs into conventional foreign language classes should be organized carefully and well so as to let them be an important part of the whole teaching-learning process. The utilization of MOOCs as components of a blended learning practice intertwined with the face-to-face teaching could provide better results than their stand-alone use, or use as a supplementary/supportive material. The MOOCs designed specifically by the instructor of the face-to-face classes could be more effective in maintaining learners' persistence. However, it should be noted that each of the implications drawn from this study requires further experimental investigation. Moreover, the findings of the present study should be cautiously interpreted together with its limitations. The fact that this study was only the first cycle of a whole action research-study planned to understand what can be done for those learners falling behind in their departmental study as they have problems of satisfactory language-use may limit our capability to see the bigger picture in terms of learning outcomes. The findings of the study should also be evaluated with the limitations of qualitative research. Conduction of more studies, especially those combining the findings of both a qualitative and a quantitative one, is thought to supply better implications for the integration of MOOCs into conventional foreign language classes.

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Website Design in Distance Education Institutions

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Abstract

With the development of technology and its inclusion in learning environments, it is seen that institutions attach great importance to the use of Web sites in order to show their services more and reach a larger audience. In addition, information about the teaching process and before the teaching process is provided to learners through the websites used. Besides the teaching techniques applied in distance education institutions, the tools offered to the learners should be well planned. One of these tools is the Web sites that offer the services of distance education institutions to the users. Web sites, which have a very important place in educational institutions as in many institutions, should be designed properly. Therefore, it is important for distance education institutions to use a Web site to better inform learners. From this point of view, within the scope of this study, a Web site designed for Anadolu University Open Education Faculty Distance Education Department has been introduced.

Keywords: *Distance education, Website design, Anadolu university, Distance education department.*

INTRODUCTION

Web pages are online structures that are designed and coded as a web environment with the support of internet technology and contain a series of information. Web pages are very important for all kinds of institutions and organizations, regardless of their field of activity. These pages are one of the important tools that reflect the corporate identity and contain important information about corporate philosophy, corporate communication and corporate behavior. Although it seems to have fallen into the background with the spread of social media applications today, studies show that corporate web pages still maintain their importance in terms of public relations (Koçer, 2019; Yaşar & Altincik, 2018). Although social media applications are more interactive and more common than web pages, web pages are the window of the institution to the outside. In addition, Web pages contribute to perceptions of institutionalization such as the seriousness and reliability of the institution (Erorta, 2015). In addition, it is a part of the institution when evaluated together with many factors such as including the necessary documents in the relations with the institution, reflecting the operation of the institution, including elements of corporate identity from the choice of color to the use of logo.

Today, having a web page is quite easy and simple compared to the early days of the web. There are even apps that offer ready-made templates for this. However, as a part of

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institutionalization, a holistic communication effort in digital environments requires a carefully designed web page (Koçer, 2017). In this respect, a website that is well thought out in many aspects such as ease of use and a simple interface, being able to be displayed on mobile, including corporate elements and allowing interaction can be very useful for the institution (Ergün & Ergün, 2008).

The web is an internet system in which an institution can present itself in a constantly accessible state 24/7. Files (texts, photos, videos, etc.) hosted on a server depending on the Internet are displayed to users with web page technology. Websites that are open to interaction with internet technology enable institutions and organizations to communicate effectively and quickly with their target audiences. Websites play an important role in promoting institutions and reflecting the corporate image (Başok and Çoşkun, 2009). Institutions use web pages for various purposes. The main usage areas of web sites are listed as follows (Okay and Okay, 2001).

- Strengthening corporate identity
- Communicate with the target audience
- Developing the corporate image
- Ensuring communication with internal and external stakeholders
- Reaching international markets
- Performing other public relations functions
- Providing information to media organizations
- Selling services and products online
- Gather information about the target audience

Websites increase the recognition of institutions by presenting the history, vision, purpose, goals, services, products, contact information, news and announcements of institutions (Yeygel, 2005). In this context, there are some features that Web sites should have. These:

- Clearly stating the purpose of the institution on the website
- Identifying a suitable domain name
- Designing the web page in accordance with the purpose and basic design principles
- Planning of pages in a user-friendly, easily accessible structure
- Transfer of services and opportunities to the target audience
- Protection of service integrity

can be sorted.

In this study, which was carried out from this point of view, the website designed for the learners of the Distance Education Department operating within the Anadolu University Open Education Faculty is included. The aim of this study is to further increase the recognition and widespread impact of this designed website.

Website Designed Within the Distance Education Department

The address of the website, which consists of the initials of the expression Open and distance learning in Turkish, is https://avuo.anadolu.edu.tr/. The purpose of this

site, which was developed within the Distance Education Department, is to provide learners with accurate and up-to-date information about the department. On this site, the interface of which is shown in Figure 1., there is information about all stages from the registration process to the graduation process. Through this site, all work related to the department can be carried out accurately and quickly.



Figure 1. *Interface of Distance Education Department Website*

The content of this developed site has been prepared in Turkish. However, if desired, all texts, except images, can be translated into foreign languages using the Google translate service. With this developed site, a menu is presented that first conveys the purpose of the department and introduces the head of the department and his assistants. This menu is shown in figure 2.



Figure 2. *Menu of Distance Education Department*

This menu also leads to the introduction page of all the instructors working in the department. In addition, on this developed website, all information about the non-thesis master's, thesis master's and PhD programs operating within the scope of the distance education program is presented to the learners in detail. In Figure 3, the menu containing the contents of the non-thesis master's degree is shown.



Figure 3. *Non-Thesis Master's Program Menu Content*

In addition, the menus containing all the necessary information for the master's and PhD processes are shown in Figure 4 and Figure 5, respectively.



Figure 4. *Master's Program with Thesis Menu Content*



Figure 5. *PhD. Program Menu Content*

The information in the menus of these three programs, which continue to function in the distance education department program, can be summarized as follows:

- The purpose of the program
- Program admission Requirements
- Application process
- Course transfer process
- Maximum duration
- Academic calendar
- Syllabus
- Examination system
- Courses and instructors
- Scientific preparation process
- Qualifying examination
- Thesis proposal
- Field qualifications
- Graduation requirements
- Course selection suggestions
- Frequently asked questions

In addition, the communication and announcements section is also available on the website. In this way, learners who want to contact the department can easily communicate and follow important announcements. Figure 6. shows the announcement interface.



Figure 6. Announcements interface

In the content of the menus on the website, images were preferred instead of texts. In addition, petition samples that the learners may need regarding the processes are also presented to them via the website. An example menu content is presented in figure 7.

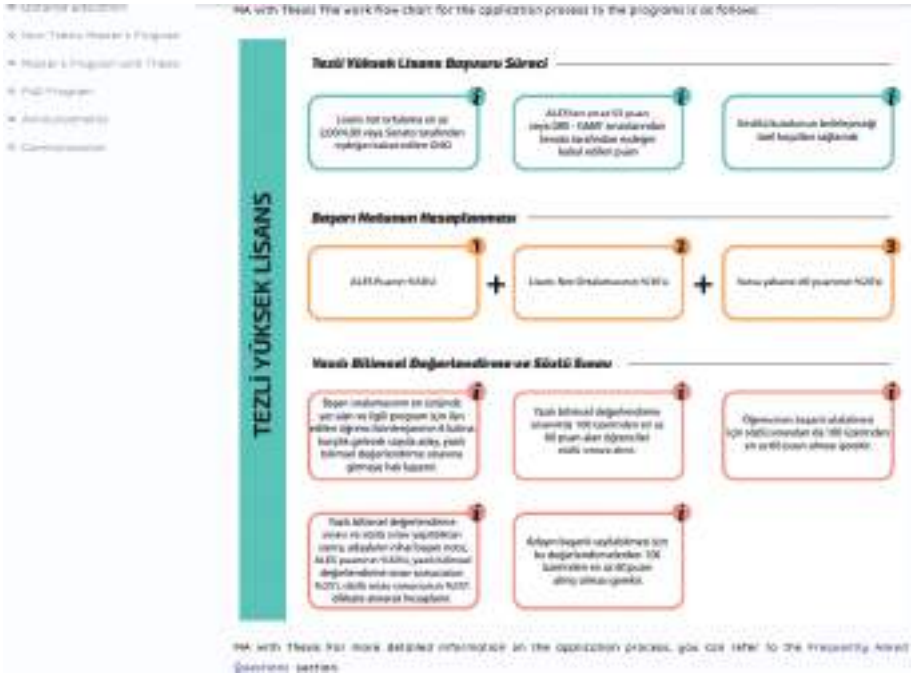


Figure 7. Sample of menu content

DISCUSSION AND CONCLUSION

As shown in the section above, this website provides information that learners need at all stages. Thanks to this information, learners can perform the actions they need in a short time and accurately.

During the development of the site, the features that a web site should have were also taken into consideration. In this context, designing a user-friendly interface has been determined as a priority target. Considering that user-friendly designs occupy an important place on websites (Pinzi, Tinivella, Gagliardelli, Beneventano and Rastelli, 2021), it can be stated that this is important for users. In addition, learners are provided with the shortest way to access accurate and up-to-date information. At this point, learners are provided with access to the information they want without clicking too many clicks..

Another issue that was emphasized was obtaining correct information while creating the contents of the website. At this point, the necessary information was obtained from the relevant institutions of the university, so that the most accurate information was provided to the learners. It is important to include the phone numbers and e-mail addresses where learners can reach the department on the website, in order for learners to communicate easily. In addition, the use of Anadolu University's corporate logo and corporate colors in the website design is also seen as an important point in terms of corporate belonging. In addition, the compatibility of this developed website with mobile devices can be considered as another factor that increases its usefulness.

Considering the need for systematic planning, design, development and evaluation steps in order to create an environment in which learning is actively supported in a successful flexible learning system (Güler, 2018), it can be stated that the Web site developed within the Distance Education Department is important.

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The Effect of Gamification in Teaching the Basic Concepts of E-Commerce and an Application

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Abstract

Gamification is the use of game-related elements in non-game contexts. Gamified marketing activities are used by many companies today. In the global competitive environment, companies add gamified activities to their marketing strategies in order to be successful and productive. At this point, we attempt to conceive to which extent gamified marketing activities are perceived by consumers and other people. In this study, it is aimed to examine the effect of gamification in teaching the basic concepts of e-commerce. In this context, 67 people, 25 female and 42 male students, participated in the research. In the research, the knowledge level scale for the basic concepts of e-commerce was used and the data obtained were analyzed in the SPSS 26.0 package program. In the study, the Shapiro-Wilk test was applied to measure whether the data showed a normal distribution. Since the data used in the study showed normal distribution, parametric tests were applied. The findings of the study were obtained by T test, Anova, Chi-Square and Wilcoxon tests. The results of the research have been discussed in the light of the findings.

Keywords: *E-commerce, game, gamification*

INTRODUCTION

The evolution of today's society has changed the business world, and therefore companies and institutions. For this reason, it is seen that there should be some changes in companies and institutions, as well as in the managers and employees of these organizations. Some significant changes have resulted from the development and overuse of the internet. This communication tool has given us the ability to connect, bringing consumers closer to companies and making us (companies and individuals) more vulnerable.

In recent years there have been profound changes in the field of marketing, especially regarding the emergence of the internet or digital social networks. With the emergence of online social networks, events have taken on a new dimension for both consumers and businesses and therefore marketing practices. All these new changes, which need to reconsider marketing concepts and tools, directly affect the traditional marketing model. Later, starting from the mass marketing approach through standardized products, a more personalized marketing approach was adopted that proposes

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personalized and special offers. There have been changes in consumer behavior and now it has taken a new form. The consumer has become more demanding and volatile.

Marketing 1.0 focuses on product management, while marketing 2.0 is based on communitarianism. It has become participatory with the emergence of tools under the Web 2.0 label. As collaborative and participatory Web 2.0 expands, it's time to transition to Web 3.0. This new age is expressed by the cooperation of the participants. Thus, a new marketing approach was developed and implemented: Marketing 3.0. This new approach contributes to the vision of cultural and spiritual cooperation characterized by the prevalence and intelligence of the network (Erragcha & Romdhane, 2014, p.4).

In order to be more competitive and creative, it is not surprising that marketers can no longer ignore this new development while defining their marketing strategies, so it is not surprising that the skills and expertise required to face these evolving consumption practices, the enormous changes in consumers and markets, sensitive company boundaries, and thus develop new projects. However, it is mentioned that repositioning themselves in the socio-technical context leads to an approach to marketing from the perspective of managing the value created by users and that companies leave the consumer as the center of attention and focus on people, as their profitability and the social component of the company should be reported. It is stated that these two need a marketing based on both cultural and spiritual cooperation (Erragcha & Romdhane, 2014, p.56).

Although play is generally perceived as a concept associated with children, it is a process that continues throughout human life. While games provide a natural learning environment in childhood, they take on the role of activities that make life more enjoyable in later ages (Sandberg & Samuelsson, 2003, p.74). Salen and Zimmerman (2004, p. 33) defined the concept of game as a system in which players enter into artificial contention within the framework of defined rules and as a result contain measurable outputs. Although the basic logic of the games, which have been played in different ways throughout history, has not changed, it has been reshaped in time within the framework of developments in internet technology. Games are used in many different areas from physical activities to education (Yim and Graham, 2007, p. 120).

Another concept that has come to the fore with the popularity of games recently is gamification. It is often preferred in many different sectors from banking to advertising, trade and marketing to enrich or differentiate the consumer experience. Unlike games, gamification refers to the environments and processes designed to enable the individual to experience the emotional states they experience in the game without taking them away from the real world context (Arkün-Kocaedere & Samur, 2016, p. 42). Game elements are used in this environment and process design (Werbach & Hunter, 2012, p. 352). In the literature of gamification, the use of game mechanics and thought process to solve the questions and attract the attention of the users (Zichermann & Cunningham, 2011, p. 66), the use of mechanics, dynamics and its components to encourage the desired behavior (Lee & Hammer, 2011, p. 44), The use of game design elements in non-game areas (Deterding et al., 2011, p. 213) has been defined in different ways.

Game concepts began to be used in the early 1900s with companies offering free gifts with multiple product purchases. The idea of gamification, which is used as the use of game design concepts in non-game environments, started to come to the fore in 2009 and 2010. It is stated that gamification plays a growing role in the modern business and trade environment (McCormick, 2013, 412).

Purpose and Importance of Research

Recently, gamification has gained great importance in education and continues to be popular in many fields. Numerous studies have been conducted on the effect of gamification on learners' attitudes, motivation, and learning process. According to research conducted in both gamification and e-commerce fields, it has been determined that these concepts have a strong relationship with each other. Today, many famous e-commerce companies use gamification in their business to gain a greater market value. Considering gamification and e-commerce together, we have seen that there is not much research focused on teaching e-commerce concepts using gamification with a newly developed application. For this reason, it is thought that our study will serve as a source for future studies. With this study, we created a game application to teach the basic principles of e-commerce, especially to those who are new to e-commerce, and we wanted to determine how effective a game application is in learning new concepts in terms of e-commerce. Our basis in this research is to investigate whether our game application has a significant effect on learning the basic concepts of e-commerce or not.

METHODOLOGY

In this section, the model of the research, the study group, the data collection tools used in the research, the statistical techniques used in the process and data analysis are mentioned.

Model of the Research

In this research, a scanning model was used which aims to examine the knowledge level of the participants about the basic concepts of e-commerce by evaluating the test scores before and after the game application in terms of gender, age, e-commerce history and mobile game history variables.

Universe and Sample of the Research

The universe of the research consisted of undergraduate management information systems students studying at Yıldırım Beyazıt University. There are 331 students in this department. The sample of the study consisted of 67 undergraduate 2nd year students, 25 female and 42 male students, who volunteered to participate in the research. The reason why this group of students was chosen as a sample is that they have not yet taken e-commerce courses since they are in their second year and they will take e-commerce courses as a compulsory subject in the future. Therefore, it was assumed that their participation in this study would have positive effects on students. It is assumed that the adults participating in the research answered the questions in the Personal Information Form and the Knowledge Level Scale for Basic Concepts of E-Commerce sincerely and in a way that reflects their real situation.

Study Group of the Research

The study group of the research consisted of 67 participants, 37.3% (n = 25) female and 62.7% (n = 42) male, reached by the researcher by simple random sampling method. 28.4% (n = 19) of the participants were in the 19-20 age range, 58.2% (n = 39) were in the 21-22 age range, and 13.4% (n = 9) were in the 23 and over age range. Participants were divided into categories expressing their e-commerce background, 86.6% (n = 58) "ordinary", 3.0% (n = 2) "product sales via social media", 1.5% (n = 1) "informal e-commerce training", 1.5% (n = 1) "internship in an e-commerce company", 1.5% (n = 1) "working on the digital market", 1.5% (n = 1) "superficial study on dropshipping", 1.5% (n = 1) "e-commerce website setup", 1.5% (n = 1) "online store setup and management", 1.5% (n = 1) "e-commerce management via social media" and 1.5% (n = 1) "product sales via social media". At the same time, 100.0% of the participants (n = 67) expressed their mobile gaming background as "ordinary".

Main Problem of Research

The problem of this study is whether the variables of the knowledge level of the participants about the basic concepts of e-commerce and demographic factors such as gender, age, e-commerce history variables differ significantly according to the tests given to the participants before and after the game application.

Sub-Problems of Research

1. Do the knowledge level scores of the basic concepts of e-commerce differ according to the gender of the participants before and after the game application?
2. Do the knowledge level scores of the basic concepts of e-commerce differ according to the ages of the participants before and after the game application?
3. Do the knowledge level scores of the basic concepts of e-commerce differ according to the e-commerce experiences of the participants before and after the game application?
4. Is there a statistically significant relationship between the effect of the game application used in teaching basic e-commerce concepts on the participants and the gender of the participants?
5. Is there a statistically significant relationship between the effect of the game application used in teaching basic e-commerce concepts on the participants and the age of the participants?
6. Is there a statistically significant relationship between the effect of the game application used in teaching basic e-commerce concepts on the participants and their e-commerce backgrounds?
7. Do the test scores before and after the game application used in teaching basic e-commerce concepts show a significant difference?

Data Collection Tools

In this study, the "Personal Information Form" for the acquisition of demographic information of the participants and "Knowledge Level Scale for E-Commerce Basic Concepts" prepared by the researcher himself to determine the knowledge level of e-commerce basic concepts before and after the game application are used.

Personal Information Form

The personal information form is a form created by the researcher to obtain information such as gender, age, e-commerce history and mobile game history from the participants.

Knowledge Level Scale for E-Commerce Basic Concepts

It is a measurement tool consisting of 20 items and prepared and applied by the researcher himself to collect data in the study. With the scale, it was aimed to determine the knowledge level of the participants about the basic concepts of e-commerce.

Analysis of Data

On the collected data, the test scores of the participants before and after the game application, which is used in teaching basic e-commerce concepts, in terms of some demographic variables (gender, age and e-commerce history) were analyzed by independent sample t-test and one-way anova analysis. In addition, the effect of the game application used in teaching basic e-commerce concepts was analyzed with the chi-square relationship test in terms of gender, age and e-commerce history. Finally, the Wilcoxon test was used to analyze the difference between test scores before and after the game application used in teaching basic e-commerce concepts. All analyzes were carried out using the SPSS 26.0 package program. Kurtosis and skewness values were used to control the normal distribution of the data. According to the results, the kurtosis and skewness values of the variables used in the research; Since the kurtosis and skewness values are between +2 and -2, it can be stated that the variables used in the research fulfill the normality assumption (Büyüköztürk, 2017). As a result, it was determined that the data found provided the assumption of normality and did not have excessive skewness and excessive kurtosis problems.

Limitations of the Research

1. The participants of this research are limited to the participants who were reached by the researcher by simple random sampling method and volunteered to participate in the research.
2. The qualifications to be measured in the research are limited to the qualifications measured by the Personal Information Form and the Knowledge Level Scale for Basic Concepts of E-Commerce.

Download Link and Images of the Game App

To be used in our study, we created a platform game application to teach the concepts of e-commerce and to examine the productivity of gamification tools using a renowned and versatile game engine "Unity." The download link of our game app:

https://drive.google.com/file/d/1nwwQya9g8UT8zT0X0asv7fpGEWp8UstB/view?usp=sharing



Figure 2.9.1. *Game Main Menu*



Figure 2.9.2. *Game in action*



Figure 2.9.3. *The scoreboard of the game*



Figure 2.9.4. *Unity Visual Studio – A part from the game codes*

FINDINGS

In this section, the findings obtained as a result of the analyzes performed according to the sub-objectives of the research are mentioned. The sub-problems of the research were dealt with in order and the findings obtained in line with the statistical analysis of the data related to each sub-problem were listed. First of all, the knowledge levels of the participants on the basic concepts of e-commerce before and after gamification were described. Then, respectively; The findings regarding whether the participants' knowledge levels of e-commerce basic concepts before and after gamification differ according to gender, age and e-commerce history variables are presented. Afterwards,

the findings about the effect of the game application used in teaching basic e-commerce concepts on the participants and whether there is a significant relationship between the gender, age and e-commerce history variables of the participants are presented. Finally, the findings regarding the differences between test scores before and after the game application used in teaching basic e-commerce concepts are presented.

Findings Related to Describing Participants' Knowledge Levels of E-Commerce Basic Concepts Before and After Gamification

In the research, it was primarily aimed to describe the knowledge levels of the participants on the basic concepts of e-commerce before and after gamification. For this purpose, the descriptive statistics regarding the scores obtained before and after the gamification of the participants' knowledge level scale for the basic concepts of e-commerce are presented in Table 1.

Table 1. *Descriptive Statistics of Participants' Knowledge Levels of E-Commerce Basic Concepts Before and After Gamification*

Variable	N	Lowest Score	Highest Score	Mean	Sd
Knowledge of E-Commerce Basic Concepts Before Gamification	67	2.000	14.000	7.149	2.737
Knowledge Level of E-Commerce Basic Concepts After Gamification	67	3.000	15.000	9.29	3.060

As seen in Table 1, the highest score the participants got at the level of knowledge about e-commerce basic concepts before gamification was 14, the lowest score was 2, the highest score they got at the level of knowledge about e-commerce basic concepts after gamification was 15, and the lowest score was 3.

Before gamification, the knowledge level mean score for the basic concepts of e-commerce was calculated as 7.149, and the standard deviation was calculated as 2.737. After gamification, the knowledge level mean score for the basic concepts of e-commerce was calculated as 9.29, and the standard deviation was calculated as 3.060. When the results are taken into account, the participants in the research got higher scores in the knowledge level of e-commerce basic concepts after gamification than before gamification.

Findings Related to Sub-Problems

In this part of the research, the results of the statistical analysis carried out to examine the sub-problems in the research problem are presented under the relevant headings.

Findings Related to the Knowledge Levels of E-Commerce Basic Concepts Before and After Gamification According to the Gender of the Participants

According to the gender of the participants, it was examined whether there was a significant difference between the knowledge levels of the basic concepts of e-commerce before and after gamification. In this context, independent sample t-test analysis was performed and the results are given in Table 2.

Table 2. *Independent Sample t-Test Results Regarding the Differences Between the Levels of Knowledge of E-Commerce Basic Concepts Before and After Gamification According to the Gender of the Participants*

Variable	Gender	N	Mean	Sd	t	Df	p
Knowledge of E-Commerce Basic Concepts Before Gamification	Female	25	7.640	2.721	-1.135	65	.261
	Male	42	6.857	2.737			
Knowledge Level of E-Commerce Basic Concepts After Gamification	Female	25	9.160	3.484	.284	65	.777
	Male	42	9.381	2.819			

Table 2 shows the mean scores and standard deviations of the participants' knowledge levels of the basic concepts of e-commerce before and after gamification in terms of the gender variable. Looking at the table, as a result of the t-test analyzes for independent samples, the participants were before (t= -1.135, p>.05) and after (t= .284, p>.05) gamification. It is seen that there is no significant difference in the level of knowledge of the basic concepts of e-commerce according to their genders.

Findings Regarding the Levels of Knowledge of E-Commerce Basic Concepts Before and After Gamification According to the Ages of the Participants

According to the age of the participants, it was examined whether there was a significant difference between the knowledge levels of the basic concepts of e-commerce before and after gamification. According to the categorized ages, the participants' mean knowledge levels of e-commerce basic concepts before and after gamification are given in Table 3, and the results of one-way analysis of variance to determine whether the differences between the mean scores are significant or not are given in Table 4.

Table 3. *Descriptive Statistics Values of Knowledge Level Score of E-Commerce Basic Concepts Before and After Gamification According to the Ages of the Participants*

Variable	Categorical Age Variable	N	Mean	Sd
Knowledge of E-Commerce Basic Concepts Before Gamification	19-20	19	8.210	3.275
	21-22	39	6.641	2.422
	23 and above	9	7.111	2.420
Knowledge Level of E-Commerce Basic Concepts After Gamification	19-20	19	10.263	3.194
	21-22	39	8.948	2.999
	23 and above	9	8.777	2.905

As seen in Table 3, the knowledge level of the participants in the 19-20 age range both for the basic concepts of e-commerce before gamification and for the basic concepts of e-commerce after gamification is higher. While the knowledge level of the participants on e-commerce basic concepts before gamification is lowest in the 21-22 age range, their knowledge level on e-commerce basic concepts after gamification is the lowest at the age of 23 and over.

Table 4. *One-Way Analysis of Variance Results on the Differences between the Level of Knowledge Scores for the Basic Concepts of E-Commerce Before and After Gamification According to the Ages of the Participants*

Variable	Source of Variance	Sum of Squares	Df	Mean Square	F	p
Knowledge of E-Commerce Basic Concepts Before Gamification	Between Groups	31.486	2	15.743	2.176	.122
	Within Groups	463.021	64	7.235		
Knowledge Level of E-Commerce Basic Concepts After Gamification	Between Groups	24.893	2	12.446	1.343	.268
	Within Groups	593.137	64	9.268		

As can be seen in Table 4, according to the results of the one-way analysis of variance, which was conducted to determine whether there were significant differences among the knowledge level averages of the 19-20 age range, 21-22 age range, 23 and older participants before and after gamification, it was concluded that there was no significant difference.

Findings Regarding the Knowledge Levels of the E-Commerce Basic Concepts Before and After Gamification According to the E-Commerce Backgrounds of the Participants

According to the e-commerce backgrounds of the participants, it was examined whether there was a significant difference between the knowledge levels of the basic concepts of e-commerce before and after gamification. According to their e-commerce backgrounds, the knowledge level averages of e-commerce basic concepts before and after gamification are given in Table 5, and the results of one-way analysis of variance to determine whether the differences between the averages are significant are given in Table 6.

Table 5. *Descriptive Statistical Values of Participants' Knowledge Levels of E-Commerce Basic Concepts Before and After Gamification According to Their E-Commerce Backgrounds*

Variable	E-Commerce History	N	Mean	Sd
Knowledge of E-Commerce Basic Concepts Before Gamification	Ordinary	58	7.362	2,699
	Informal e-commerce training	1	5.000	-
	Internship at an e-commerce company	1	4.000	-
	Working on the digital market	1	11.000	-
	Surface work on dropshipping	1	5.000	-
	E-commerce website setup	1	4.000	-
	Online store setup and management	1	2.000	-
	E-commerce management via social media	1	5.000	-
	Selling products on social media	2	8.000	.000
Knowledge Level of E-Commerce Basic Concepts After Gamification	Ordinary	58	9.344	3.154
	Informal e-commerce training	1	8.000	-
	Internship at an e-commerce company	1	7.000	-
	Working on the digital market	1	13.000	-
	Surface work on dropshipping	1	10.000	-
	E-commerce website setup	1	6.000	-
	Online store setup and management	1	10.000	-
	E-commerce management via social media	1	6.000	-
	Selling products on social media	2	10.500	2.121

As seen in Table 5, participants with a working background on the digital market have higher knowledge level scores on both pre-gamification and post-gamification processes. While the scores of the participants with an online store setup and management background at the level of knowledge of e-commerce basic concepts before gamification were the lowest, the scores of the participants with a background of e-commerce website setup and e-commerce management via social media at the knowledge level of e-commerce basic concepts after gamification is the lowest.

Table 6. *One-Way Analysis of Variance Results on the Differences Between the Levels of Knowledge of E-Commerce Basic Concepts Before and After Gamification According to the E-Commerce Backgrounds of the Participants*

Variable	Source of Variance	Sum of Squares	Df	Mean Square	F	p
Knowledge of E-Commerce Basic Concepts Before Gamification	Between groups	79.111	8	9.889	1.381	.224
	Within Groups	415.397	58	7.162		
Knowledge Level of E-Commerce Basic Concepts After Gamification	Between groups	46.426	8	5.803	.589	.783
	Within Groups	571.603	58	9.855		

As seen in Table 6, related to the participants who has experiences; ordinary, informal e-commerce training, internship in an e-commerce company, working on the digital market, superficial work on dropshipping, e-commerce website setup, online sales store setup and management, e-commerce management via social media and product sales via social media, according to the results of the one-way analysis of variance, which was carried out to determine whether there were significant differences between the mean knowledge levels of e-commerce basic concepts before and after gamification, it was concluded that there was no significant difference according to the e-commerce background of the participants.

Findings Regarding the Relationship Between the Effects of the Game Application Used in Teaching Basic E-Commerce Concepts on the Participants and the Gender of the Participants

The effect of the game application used in teaching basic e-commerce concepts on the participants and the relationship between the genders of the participants were examined. In this context, the chi-square relationship test was performed and the results are given in Table 7.

Table 7. *The Results of the Chi-Square Relationship Test for the Relationship Between the Effects of the Game Application Used in Teaching Basic E-Commerce Concepts on the Participants and the Gender of the Participants*

Effect of Game Application on Participants									
			Negative Effect	No Changes	Positive Effect	Total	X^2	Df	P
Gender	Female	N	0	9	16	25	.720	1	.39
		%	0.0	36.0	64.0	100.0			
	Male	N	0	11	31	42			
		%	0.0	26.2	73.8	100.0			
Total		N	0	20	47	67			
		%	0.0	29.9	70.1	100.0			

According to the results of the chi-square relationship test conducted to describe the relationship between the effect of the game application used in teaching basic e-commerce concepts on the participants and the genders of the participants, there is no significant relationship between the effect of the game application on the participants and their gender ($p > .05$).

Findings Regarding the Relationship Between the Effects of the Game Application Used in the Teaching of Basic E-Commerce Concepts on the Participants and the Ages of the Participants

The effect of the game application used in teaching basic e-commerce concepts on the participants and the relationship between the ages of the participants were examined. In this context, the chi-square relationship test was performed and the results are given in Table 8.

Table 8. *The Results of the Chi-Square Relationship Test for the Relationship Between the Effects of the Game Application Used in Teaching Basic E-Commerce Concepts on the Participants and the Ages of the Participants*

Effect of Game Application on Participants									
			Negative Effect	No Changes	Positive Effect	Total	X^2	Df	P
Age	19-20	N	0	5	14	19	1.079	2	.583
		%	0.0	26.3	73.7	100.0			
	21-22	N	0	11	28	39			
		%	0.0	28.2	71.8	100.0			
	23and above	N	0	4	5	9			
		%	0.0	44.4	55.6	100.0			
Total		N	0	20	47	67			
		%	0.0	29.9	70.1	100.0			

According to the results of the chi-square relationship test conducted to describe the relationship between the effect of the game application used in teaching basic e-commerce concepts on the participants and the age of the participants, there is no significant relationship between the effect of the game application on the participants and their ages ($p > .05$).

Findings on the Relationship between the Effect of the Game Application Used in Teaching Basic E-Commerce Concepts on the Participants and the E-Commerce Backgrounds of the Participants

The effect of the game application used in teaching basic e-commerce concepts on the participants and the relationship between the participants' e-commerce backgrounds were examined. In this context, the chi-square relationship test was performed and the results are given in Table 9.

Table 9. *The Results of the Chi-Square Relationship Test for the Relationship Between the Effects of the Game Application Used in Teaching Basic E-Commerce Concepts on the Participants and the E-Commerce Backgrounds of the Participants*

Effect of Game Application on Participants									
			Negative effect	No Changes	Positive Effect	Total	X^2	Df	P
E-Commerce History	Ordinary	N	0	20	38	58	4.424	8	.817
		%	0.0	34.5	65.5	100,0			
	Informal E-Commerce Training	N	0	0	1	1			
		%	0.0	0.0	100.0	100,0			
	Internship in an E-Commerce Firm	N	0	0	1	1			
		%	0.0	0.0	100.0	100,0			
	Working on the Digital Marketplace	N	0	0	1	1			
		%	0.0	0.0	100.0	100,0			
	Superficial Study on Dropshipping	N	0	0	1	1			
		%	0.0	0.0	100.0	100,0			
	E-Commerce Website Setup	N	0	0	1	1			
		%	0.0	0.0	100.0	100,0			
	Online Store Setup and Management	N	0	0	1	1			
		%	0.0	0.0	100.0	100,0			
	E-Commerce Management via Social Media	N	0	0	1	1			
		%	0.0	0.0	100.0	100,0			
	Product Sales on Social Media	N	0	0	2	2			
		%	0.0	0.0	100.0	100,0			
Total		N	0	20	47	67			
		%	0.0	29.9	70.1	100.0			

According to the results of the chi-square relationship test conducted to describe the relationship between the effect of the game application used in teaching basic e-commerce concepts on the participants and the e-commerce backgrounds of the participants, there is no significant relationship between the effect of the game application on the participants and their e-commerce background ($p > .05$).

Findings Related to the Comparison of the Test Scores of the Participants Before and After the Game Application Used in Teaching Basic E-Commerce Concepts

It was examined whether there was a significant difference between the test scores of the participants before and after the game application used in teaching the basic e-commerce concepts. In this context, Wilcoxon test analysis was performed and the results are given in Table 10.

Table 10. *Wilcoxon Test Result Regarding the Comparison of the Test Scores of the Participants Before and After the Game Application Used in Teaching Basic E-Commerce Concepts*

Wilcoxon Test	N	Median	Z(Test Statistic)	p
Knowledge of E-Commerce Basic Concepts Before Gamification	67	7.000	1128.000	.000*
Knowledge Level of E-Commerce Basic Concepts After Gamification	67	9.000		

*$p<.05$

According to the Wilcoxon test result, there is a significant difference between the knowledge level test scores for the basic concepts of e-commerce applied to the participants before and after gamification (Z= 1128,000, p=.000). According to the results, knowledge level scores for e-commerce basic concepts after gamification (Avg.= 9.000) are higher than knowledge level scores for e-commerce basic concepts before gamification (Avg.=7,000). In this case, it can be stated that the game application used in teaching the basic e-commerce concepts is effective in increasing the knowledge level of the participants about the basic concepts of e-commerce.

DISCUSSION AND CONCLUSION

It is stated that marketing is seen as a multidimensional process consisting of various strategies, aiming to improve communication where a company can enlighten customers about its products and services and generate interest in its offers, however, the main goal of any marketing strategy is to increase sales and profitability. In addition, it is stated that gamification refers to the use of game design elements to increase the sales of non-game products and services by increasing customer value and means a service improvement process that provides game experience to support users' overall value creation (Hsu & Chen, 2018).

In recent years, with the development of technology and the increase in global competition, it is noteworthy that the traditional marketing approach has been integrated with the internet environment. Although this situation is caused by increasing competition globally, it is seen that this situation pushes companies to implement various strategies. Ads used on various social media platforms to guide customers to purchase, promotional messages sent to mobile phones, applications that companies provide various discounts and payment facilities, and recently used gamified content are some of them. (Ergle ve Ludviga, 2018).

It is stated that gamification can create both epistemic value and social value. According to the authors in the similar studies, the former can be created by the cognitive benefits of skill development, knowledge acquisition and learning, and can expand users' knowledge and expertise. Second, appreciation can be created through interaction that includes compliments and exchanges with others, thereby creating an atmosphere of friendship, building social bonds and facilitating future interactions with both the brand and other consumers. Gamification can be a value-adding way to encourage and sustain participation (Prensky, 2001).

When the research problems and findings are compared we reach the conclusion that the test scores before and after the game application used in teaching basic e-commerce concepts shows a significant difference in the positive way since the whole post-test scores are not lower than the pre-test scores. This case indicates that our game application has a positive effect on students in the way of learning basic concepts of e-commerce. However this result is valid in a general way because in terms of gender, age and e-commerce variables there is not a specifically significant difference. It could be inferred from our research that if the participants were greater in number compared to our study, it could be possible to observe some meaningful differences and relations in terms of gender, age and e-commerce history.

Gamification and e-commerce are inseparable parts of one another. Our research also emphasizes that gamification could be used to learn new terms related to e-commerce and global marketing could benefit from those game elements in order to enhance their income, customers and recognition since people are inclined to enjoy gamification even while they perform a critical task such as shopping. Currently, we are aware of using game elements in both national and global markets and there are numerous applications which support gamification in marketing. Apart from that, can we think of a game application which teaches us how to learn and use basic and advanced level shopping concepts and tips? For instance, it could be possible for us to learn general shopping concepts of Amazon with the assistance of an e-commerce game. Moreover,

we can do shopping and gain new and real items by just playing an e-commerce game. However it is vital to avoid fraud and take necessary security precautions. Therefore we seek to touch on that subject with the aid of our new developed game application and we expect this application could be a touchstone for next studies.

In our study we used gamification to teach basic concepts of e-commerce and in conclusion, the results produced positive effects in terms of learning. That case implies that gamification is not only an effective way for young learners in learning simple and basic concepts, but also a new and attractive way for adults in learning abstract and to some extent, complex concepts. In addition, in a game, player motivation and peer interaction are mostly at a high level. Therefore, the productivity and duration of the learning process increase significantly. Consequently, it could be presumed that this type of gamification could be also applied in other fields to enhance learners' knowledge level by attracting their attention. That case forms another contingence of our study.

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An Online Open Educational Tool for Surface Water Resource Dynamics in Remote Sensing Using Global Surface Water Tool

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Abstract

An online free web application is used to monitor water resource dynamics, i.e., the Global Surface Water (GSW) platform as virtual machine learning is selected to detect the water resource behaviour for 3.7 decades. Satellite images Landsat 5, 6, 7 & 8 are used in the virtual platform, which embeds classification algorithms for 11 water classes from permanent water to ephemeral seasonal water. The temporal and spatial changes of water pixels of the water surface area of the water body is computed. The case of the Vaal dam of the Vaal catchment in South Africa is illustrated. Navigation on the different 6 layers of the GSW is explored: occurrence, occurrence change intensity, seasonality, recurrence, transitions and extent. The findings show that the web-based platform tool can be potentially used by water technologist learners, in an online virtual environment to enhance teaching and learning. The tool can be used as an online didactic material instrument towards water resource planning and land management.

Keywords: *satellite image, web-platform, online open learning, water resource*

INTRODUCTION

The speed of free online resources for diverse applications in real life is increasing drastically. The use of such resources does not require in many cases the knowledge of programming language or coding. Hence, end users such as researchers, learners, and decision makers find it easy. However, in other cases the user needs some programming basics to handle a specific software. For instance, the water resource simulator tool developed by Tomlinson et al. (2020) requires benchmarking and configuration from Pywr's GitHub, in Python. Nonetheless, the advantage of having access to free online resources is the substantial cost reduction for acquiring knowledge since the only cost incurred is related to Internet connectivity. Such resources enable self-learning for the student at his own time and the teacher can just facilitate teaching and learning. For example, the development of a web-enabled water resource information system in geographical information system (GIS) for

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the SAS (Sahibzada Ajit Singh) Nagar and Patiala districts of Punjab in India was to provide information on road drainage systems, water level, water quality of wells of the districts (Singh et al., 2021). A web-based GIS for managing water resource management, flood monitoring, and water solutions to agriculture was shown to be effective (Deeprasertkul & Chitradon, 2012). Online free web-applications in water resource management and planning use GIS capability. For instance, the introduction of GIS education into the curriculum of most universities in the United States of America has been promoted (Johnson & Sulliva, 2010). In this respect the Geospatial Technology Competency Model (GTCM) of the U.S. Department of Labor (DOL) was initiated with the purpose of supporting geospatial educators in different colleges and programs by enhancing an alignment between geospatial curricula and the national workforce competency standards (Johnson & Sullivan, 2010). The easy use, economic and technological aspects and high functionalities made Q-GIS and gvGIS were suggested more than a decade ago as open source for water resources management in developing countries (Chen et al., 2010). Satellite imagery is usually coupled with the GIS techniques. For example, monitoring of water body quality with remote sensed data to complement in-situ monitoring efforts in South Africa was pursued by Matthews and Bernard (2014). Satellite images produced by the United States of Geological Survey (USGS) of Landsat 5,6 7 & 8 have made an immense contribution to monitoring land change, including water resources and ecological transformation. Data science through cloud computing has enabled the processing of numerous and large amount of geospatial data, in various formats such as maps, graphs, and numeric. The literature on the use of open educational resources about land change classification in teaching and learning, specifically water resources is very scare. The present study gives the latest advance of remote sensing application via Global Surface Water Explorer virtual platform (https://global-surface-water.appspot.com/), with the specific focus on the surface water resources. The main feature of GSW geospatial tool is the processing capability of satellite images in the cloud and the user does not have to worry about the central processing unit of his own computer. Applications in the field of hydrology and water resources cover water change dynamics both in space and time and are taught to both undergraduate and postgraduate engineering technologist learners. Time series analysis of hydrological variables related to surface water resource dynamics is very important to enable water resource planners and managers to make sound decisions. Surface water resources such as dams play an important role in storing water for different purposes, i.e. water supply, recreational, power, electricity, etc. The study focused on a dam as a surface water resource. Besides exempting the user from computing coding, the access of satellite images is tremendous, and the virtual tool is freely available to enable the technologist learner to study independently. The perspective in open distance and e-learning (ODeL) has shaped arguments and thoughts presented in this paper since the authors are ODeL practitioners.

The rest of the paper is structured as follows: Firstly, an overview on the global water surface virtual space as well as its features for remote sensing are given. Secondly, the methodological approach is explained. Thirdly, the findings and discussion derived from the methodology are given. Lastly, the conclusion and suggestions from the study are put forward.

Overview of the Virtual Web Computing Tool for Remote Sensing

The use of cloud computing for remote sensing applications is popular since it has an advantage of reducing the computational burden, which is done in the cloud; not on the user's computer. A personal computer has limitations in terms of storage, processing speeds when it comes to the image data which usually take a lot of storage and time. The Global Surface Water (GSW) is a virtual learning machine making use of cloud computing, handles spatially and temporally water surface distribution at the global scale from 1984-2020. Global Surface Water dataset was launched within the framework of the Copernicus Programme and developed by the European Commission's Joint Research Centre (JRC) (https://collections.sentinel-hub.com/global-surface-water/readme.html). The GSW gives statistics changes that could assist water managers, even in their decision process (https://global-surface-water.appspot.com/). Therefore, GSW is a geotechnology that processes data from Landsat satellite imagery in a few seconds and produces statistics on land and water resources. It produces the history of long-term surface water dynamics (Pekel et al., 2016). It has 6 layers: occurrence, occurrence change intensity, seasonality, recurrence, transitions and extent, as shown in Table 1.

Table 1. *Water layers in the Global Surface Water application, as adapted from https://collections.sentinel-hub.com/global-surface-water/readme.html*

Water category	Description
Water Occurrence	**Occurrence shown in a percentage**
Water occurrence Change Intensity	Shows the normalised difference in the mean occurrence value between the two epochs for homologous months
Water seasonality	Number of months showing water presence from January to December in the year of review (2019)
Water recurrence	Frequency the water return, from years to year expressed as a percentage
Water transitions	Type of transition between the first and last year
Water extent	Flag to show water detection or not

The water occurrence layer covers the intra- and inter-annual changes of surface water presence in the time range for 3.7 decades and permanent water areas with the 100% occurrence. The water recurrence shows the frequency with which water returns from years to year. The latter maps water changes between the first year and the last year of observation. It has the following classes: new permanent water surfaces, where a no water subarea becomes a permanent water area; unchanging permanent water surfaces; lost permanent water surfaces, where a permanent water place becomes a dry area; new seasonal water surfaces characterised by a dry place transition into a seasonal water place; unchanging seasonal water surfaces; lost seasonal water surfaces where a seasonal water place is converted into a dry place; permanent water transformed into seasonal water; seasonal water is converted into permanent water; ephemeral permanent water with dry place transformed into permanent water, which vanished within the observation period. Finally, the ephemeral seasonal water where a dry place is converted into seasonal water, which disappears within the observation period. The history of each pixel is described by the temporal profiles.

Since the portal is a free open resource and covers important aspects for water resource management (WRM), it offers an opportunity not only to water managers but to distance education learners who can make use of such a tool.

The graphical user interface (GUI) can be accessed directly from the above website without any registration or signing up. Only internet connectivity is required since it is in the cloud server. Figure 1 displays the GSW graphical user interface in the world map view, while Figure 2 focuses more on the Vaal catchment. Besides, there are other views, i.e. earth time lapse and white background.

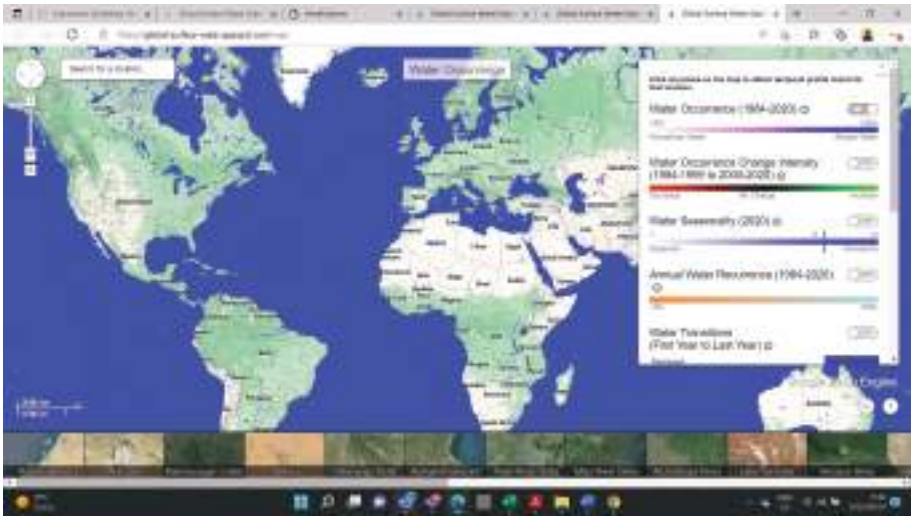


Figure 1. *Global Surface Water graphical user interface in the world map view*

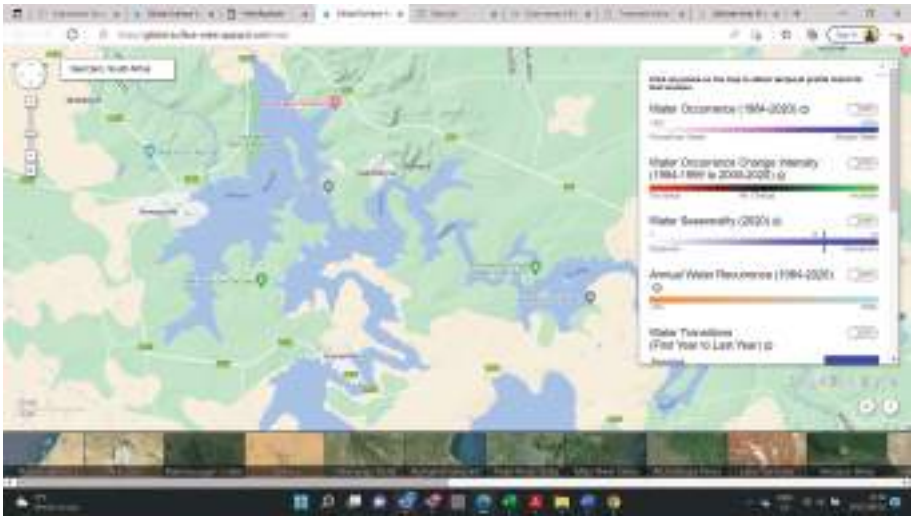


Figure 2. *Global Surface Water graphical user interface targeting the Vaal dam in the Vaal catchment*

METHODS AND DATA AVAILABILITY

Based on its easy access and navigability, the GSW application through its GUI user as described previously was used for the following steps to achieve the purpose of this study:

a. Select the area of interest in the search text space and zoom into the area (e.g. it was easy to search the area of interest as Vaal Dam under the search box)
b. Select the background of the world view map
c. Select first water category and activate it (ON button)
d. Click on dam water surface to display the recurrence and the water history
e. Repeat step c and d until the last water category

The whole world has been covered in the GSW application, however its potential for teaching and learning has been illustrated through the case of Vaal dam in South Africa, as an area of interest that was selected as explained previously. It is noted that the Vaal Dam is among the top 5 largest dams and is situated in the Vaal catchment. It plays an important role for water supply in Gauteng Province and has contributed to its economic development. This province is the most developed and considered to be the economic hub of South Africa.

FINDINGS AND DISCUSSION

In the search space of Figure 3, the user inserts the words "Vaal Dam, South Africa" and the app will zoom straight into the area. This figure shows the water transitions in different classes, with the most dominant of the Vaal Dam being permanent water. The new seasonal, ephemeral permanent and seasonal permanent class follow. This is done in a nested fashion from permanent water to the last class. This nested fashion could be justified naturally, as more water has the tendency to be permanent as one moves from the periphery of the water body to the center. The increase of dam water surface could result from seasonal effects like rain or other extreme phenomena like floods. On the contrary, drought conditions will tend to reduce the water surface. Hence, the other classes could occur, besides permanent water.

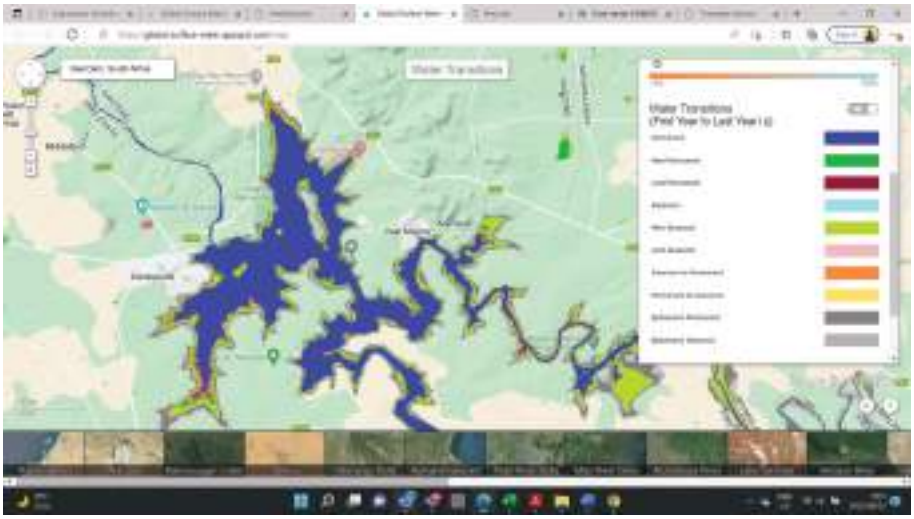


Figure 3. *Water transitions in different classes of the Vaal dam.*

Figure 4 shows the water recurrence in the Vaal catchment. This figure depicts that the permanent water body occurs most of the time and tends to 100% in the Vaal Dam for a 3.7 decade period. This is characterised in the legend by "always water". For this period, there is no instance where the dam has run dry, however there is change in dynamics in the dam surface water area. This agrees with the water transitions layer. At the periphery of the dam surface water, the move is towards "sometimes water" and the recurrence is towards zero but greater than 0.

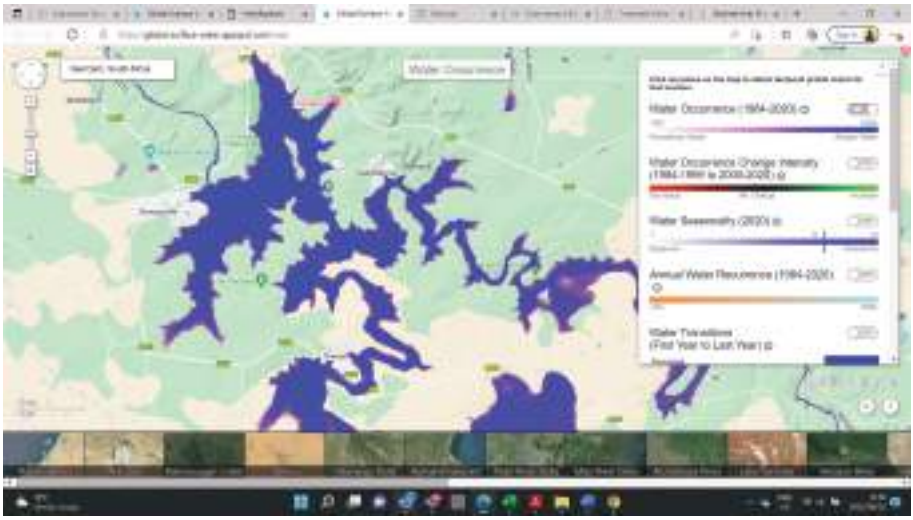


Figure 4. *Water occurrence transitions in different classes of the Vaal dam.*

The water profiles could help water managers to identify the time of the year (months/years) where there are changing conditions that affect water storage in the dam, resulting from intra- and inter-annual variability or resulting from appearance or disappearance of seasonal or permanent water surfaces.

By clicking a point (e.g. latitude: -26.9172434, longitude: 28.238265) in the dam surface water, the water recurrence graph and water history are shown below in Figure 5. In this figure, 3 water classes are shown "no water" is related to the land, seasonal water and permanent water for the 3.7 decades.

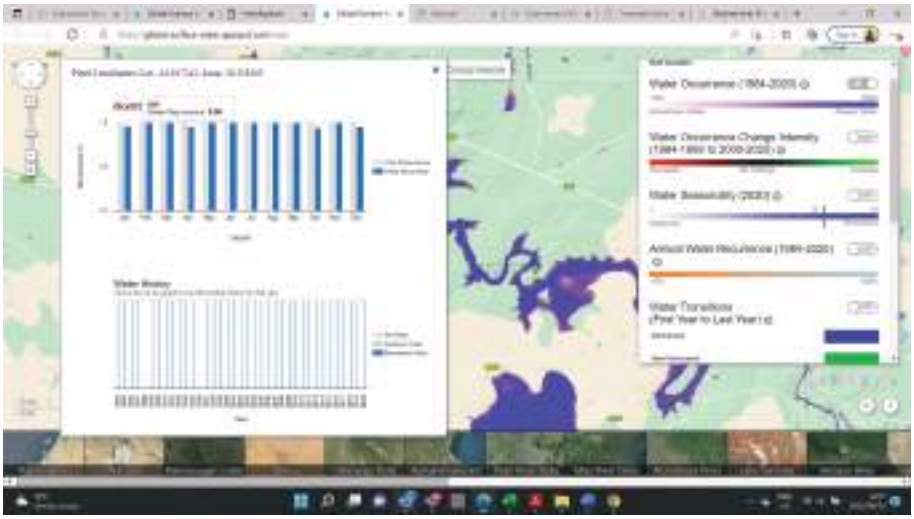


Figure 5. *Water recurrence graph and water history*

The water recurrence seems relatively high and varies between 0.94 and 1. Hence, this showed that the water returns from year to year at a very high frequency, hence relatively at a very low return period.

By performing a simple click on the year 2020, the monthly history of water is depicted in Figure 6, where permanent water features.



Figure 6. *Illustration of water recurrence and water presence for year 2020*

Water occurrence change intensity is depicted in Figure 7. The results showed that the extent of no variation in the intensity is higher than "decrease" and "increase intensity". There is a slight increase close to the no change status. The decreased tendency affects few areas as shown in red. With confidence, one could say that there was no drastic change in the variation intensity of water occurrence for 3.7 decades.



Figure 7. *Water occurrence of Vaal dam between 1984 and 2020*

Figure 8 shows the water seasonality. Permanent water is on the 12-month seasonality and is the most dominant, while peripheral water of the dam occurs relatively at low seasonality. It is expected that as one moves from the periphery of dam towards inside of the dam, the seasonality increases.

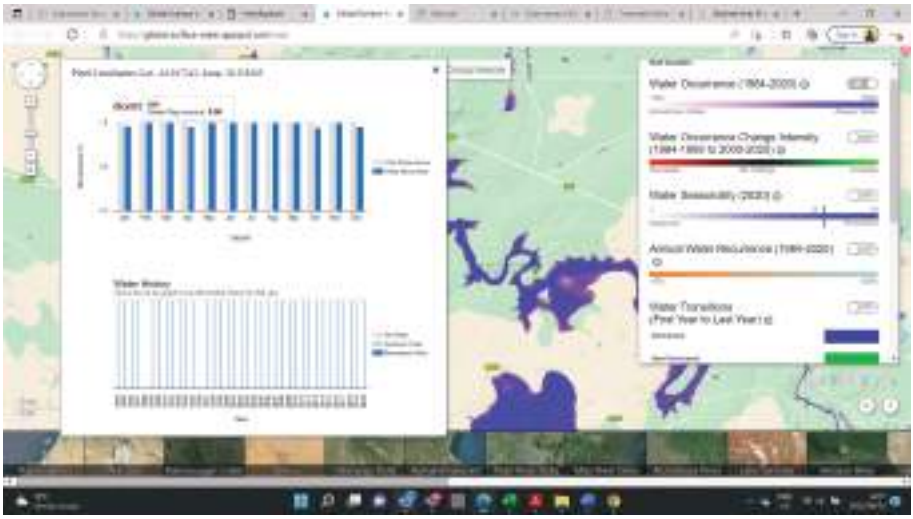


Figure 8. *Water seasonality occurrence of Vaal dam between 1984 and 2020*

The annual water occurrence in Figure 9 shows that water in the Vaal Dam occurs very frequently, and this is also translated in Figure 5 in terms of % of water occurrence. On the flip side, the low annual water recurrence is very slim and can be seen at the extremity of the dam periphery.

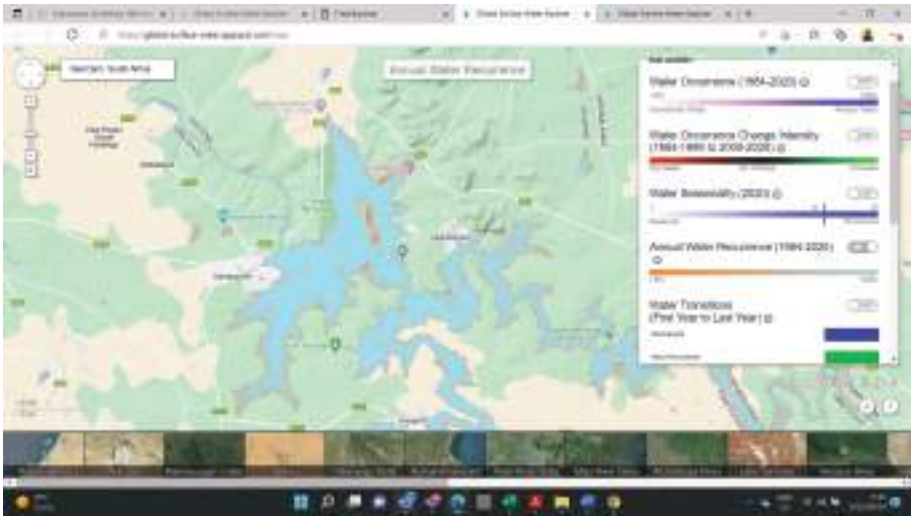


Figure 9. *Annual water occurrence of Vaal dam between 1984 and 2020*

Figure 10 below displays the highest water extent that has been recorded for the 3.7 years

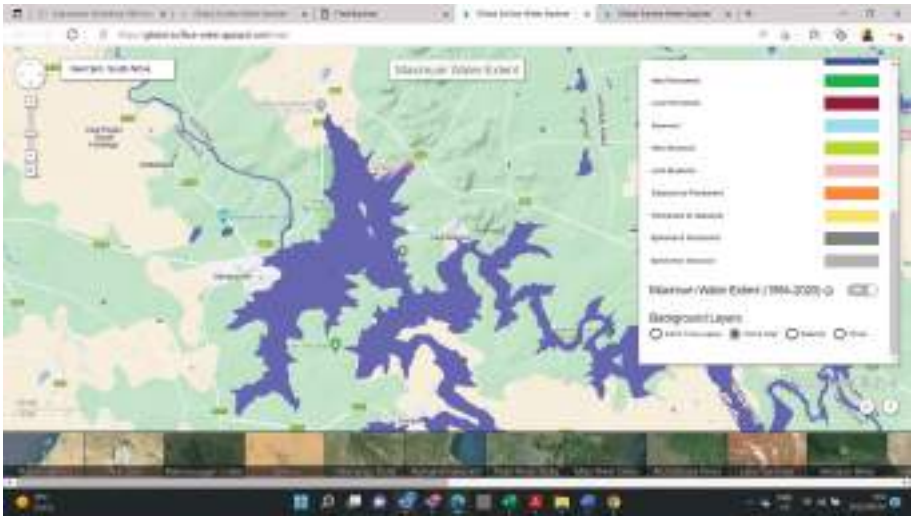


Figure 10. *Maximum water extent of Vaal dam between 1984 and 2020*

The results obtained from the GSW web-enabled tool were very promising and gave a very good water history both visually and hydrologically to the end users, who do not require programming or GIS skills. Hence, water decision-makers and engineering technologists could have a good insight of the behavioural change of the dam over time. Generally, inputs from various stakeholders, scientific experts, government authorities, are required for the management of natural resources and ecological systems for a smooth decision making (Govender et al., 2022). However, rainfall inadequacy could contribute to mismanagement of water resources (Molobela & Sinha, 2011), if careful consideration is not given to water resource distribution. Attention should be paid to water resources such as dams in storing runoff from rainfall, due to uneven distribution of rainfall, especially in arid and semi-arid countries, like South Africa. However, the application of the geospatial tool used in this study has a limitation of not carrying analysis beyond 2020

CONCLUSION

This study is an illustration of the application of GSW as a machine learning tool that gives a good space for open educational resources as far as water extent and history is concerned in hydrology and water resources. The geospatial computation capability of such an OER is very high since all operations happen in the cloud by handling satellite imagery related to Landsat. Surface water is monitored dynamically both in space and time, through a set of pre-established algorithms. This makes life easier for the end-user. The Vaal Dam as a water resource, was used as a case study for monitoring between 1984 and 2020, the dynamics of the different water categories, i.e. 6 layers: occurrence, occurrence change intensity, seasonality, recurrence, transitions and extent. The detection of water pixels in the water surface demonstrated the high level of permanent water, while the ephemeral water was detected at the peripheral area of the dam. The good navigability, interactivity, and easy access made the OER to be considered as a valuable tool for water resource managers as users. Besides, no programming/coding or GIS skills are required from the users. Hence, the OER was shown to be a very good geospatial technology tool that learners could potentially use to support the online learning during self-study in hydrology and water resource modules. The study can be expanded to changes of water resources of South Africa other than the Vaal Dam, i.e. to monitor changes in time and space. An update of the tool to the year 2021 is also suggested.

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Evaluating Knowledge Areas of Bachelor of Engineering Technology Qualification Using Analytic Hierarchy Process

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Abstract

The intrinsic feature of Analytic Hierarchy Process (AHP) technique is explored for assessing the consistency of credit allocation of Knowledge Area (KA) credits for the Bachelor of Engineering Technology (BEngTech) programme, which is delivered both in face-to-face and online for South African institutions of higher learning. As a Multi-Criteria Decision Making (MCDM) technique, AHP enables to compute the credit weight of each KA through pairwise comparisons. The following are KAs prescribed for the BEngTech programme: mathematical sciences, natural sciences, engineering sciences, design and synthesis, complementary studies and relocation. Subsequently the weights calculated are compared with those established by the Engineering Council of South Africa (ECSA). In the AHP technique, KAs were approached as main criteria inherent to the said engineering programme. Pairwise comparisons among KAs were carried out consistently through AHP. It was found that the KA weights calculated from AHP and those set by ECSA were very close.

Keywords: *Analytic hierarchy, pairwise comparison, consistency, knowledge area, engineering education*

INTRODUCTION

The course design of any programme to be offered in face-to-face, online or blended mode should cover satisfactorily the syllabus content of the different courses. Engineering programmes are usually structured based on the Knowledge Areas (KAs) that define the different courses or modules of each programme. Each KA constitutes a defined number of credits. Each course is allocated some credits that are calculated as notional hours (i.e. one credit equals ten notional hours). Under the mandate of the Council of Higher Education (CHE), the Engineering Council of South Africa (ECSA) conducts regular quality assurance of all engineering programs. ECSA specifies the minimum credits of engineering qualifications before the different

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academic institutions design, develop and implement such qualifications. The KAs, which covers 6 credit parts, i.e. mathematical sciences, natural sciences, engineering sciences, design and synthesis, complementary studies and for relocation (Engineering Council of South Africa [ECSA], 2019). The National Qualifications Framework (NQF) of South Africa ensures that there is an alignment between the South African higher education system, specifically the Higher Education Qualification Framework (HEQF) and the engineering qualifications. Hence, the Bachelor of Engineering Technology (BEngTech) fulfills the requirements of NQF level 7 (Engineering Council of South Africa, 2020). Engineering programmes can be delivered online, face-to-face or blended fashion. The only dedicated institution that offers online engineering programmes in South Africa is the University of South Africa (UNISA), while the other institutions are mainly face-to-face. In particular, engineering technology programmes under which BEngTech falls are offered by eight (8) universities of technology and two (2) comprehensive universities. The former are concerned only with technology engineering courses whereas the latter give both engineering technology and traditional engineering courses. BEngTech has been recently suggested by ECSA to replace the former bachelor degree of technology (BTech), which is being phased out. The Educational Committee of ECSA is involved in deciding and determining the KA credit allocation of engineering programmes. In doing so, there is no exclusion of a certain level of subjectivity in this exercise as far as group decision-making is concerned. The literature on the evaluation of knowledge areas in terms of credits remains very rare, except few recent studies, for example the recent study by Ilunga (2021). Since Multi-Criteria Decision Making (MCDC) techniques deal with consistent judgments associated with subjectivity level, the current study subscribed to make use of such techniques. It is worth noting that the conventional Analytic Hierarchy Process (AHP), as an MCDC technique (Akcan & Güldeş, 2019), has been used for various applications by various researchers, for example, Subramanian and Ramanathan (2012). AHP deals with complexity in the decision structure of a problem (Saaty, 1980), such a problem may involve the evaluations of alternatives given a range of criteria. One of the popular variants of AHP is the Fuzzy AHP, which was introduced by Zadeh (1965). The decision on determining credits of different KAs has a level of subjectivity and is characterized by a level of complexity. KAs are approached in this study as criteria in line with AHP strategy developed recently (Ilunga, 2021). This study formulates AHP and implements it in the process of KA credit calculation and tests the level of subjectivity during ECSA team involvement in the process. Sınce inconsistency of judgments is associated with subjectivity, AHP was used to test basically inconsistency in the decision process. Hence, the weights of KAs were calculated to determine the level of importance of such criteria and finally KA ranking was carried out. A numerical comparison was then established between the weights derived from AHP and those from ECSA team.

AHP technique uses a threshold of 10% for inconsistency, which is usually set for the decision matrix to characterise an acceptable level of subjectivity in the experts' judgements. A 9-point likert scale made of crisp values is used to conduct pairwise comparisons among elements, considered as judgements. The determination of alternatives and/or criteria can be carried out only after a consistency test has been found satisfactory.

To reiterate, the formulation of AHP is tailored around KAs, which constitute the basis for both online and face-face engineering technology programmes. For the rest of the paper, "technique" and "tool" will be used interchangeably with regards to AHP. "Qualification", "programme" and "course" may also be used interchangeably. AHP will be approached in its standard (i.e., conventional) formulation.

The different sections for the rest of the study are organized as follows. Section 2 gives briefly an overview of the AHP technique. Its relevance to evaluate KAs of engineering programmes is demonstrated. In Section 3, data availability and methodology involved in the computation of credit weights is given as far as AHP is concerned. The results of application of the methodology are discussed. Finally, conclusions and suggestions are derived from the study.

Overview of AHP in the context of KAs

The AHP introduction in the early 1980's has yielded later to numerous applications involving MCDC problems. Hence, many variants of the conventional AHP have been formulated, with the majority moving towards Fuzzy AHP, for example the studies by Mahendran et al. (2014), and Wu & Chen (2013). It should be noted that the application of AHP to complex problems dealing with KA for engineering programmes hasn't been dealt with sufficiently as inferred from the literature. The unique characteristic of AHP is to approach a complex problem in a simplistic way. Usually, AHP is built on the information collected from the perceptions of decision-makers called experts (i.e. subject matter experts) for a specific problem at hand. Tools such as interviews or written questionnaires are used in this respect. The hierarchical approach is usually embedded in AHP and depicts different levels. Generally, the highest level in the AHP is the main objective, a goal to be attained in solving a given problem. This is followed by criteria, sub-criteria and finally alternatives. The selection of alternatives aligns with the goal such that criteria and sub-criteria can be used in the ranking of the alternatives. Figure 1 summarises the hierarchical approach of AHP technique. This is just an example of 3 sub-criteria, 2 criteria and 2 alternatives.

In the AHP hierarchy, the likert scale 1 to 9 is used to carry out comparisons between two given elements. As it stands, sub-criteria are compared among themselves, then are used to compare criteria. Finally, these are compared among themselves and used in the process to compare alternatives, which are compared among themselves and ranked finally. The end result is to rank or select the most feasible alternative. The likert scale is summarised for pairwise comparisons in Table 1. For example if element

(G) is equal to (H) in terms of importance, then 1 is chosen from the scale. The scores 2, 4, 6 and 8 constitute the intermediate levels in terms of importance. The scores are important in the establishment of the decision matrix, which is a squared type of matrix of the dimension equal to the number criteria or sub-criteria. Hence, two types of decision matrices are obtained, one at the level of sub-criteria and the second at the level of criteria. Weights of the different elements are computed using such matrices.

In cases where there is no alternative, the AHP can be limited to the evaluation of criteria and sub-criteria. In case there is no sub-criterion, the exercise of pairwise comparison is limited only to ranking criteria. In line with AHP, this study considered KAs as criteria that any engineering programme can be evaluated against for successful teaching and learning.

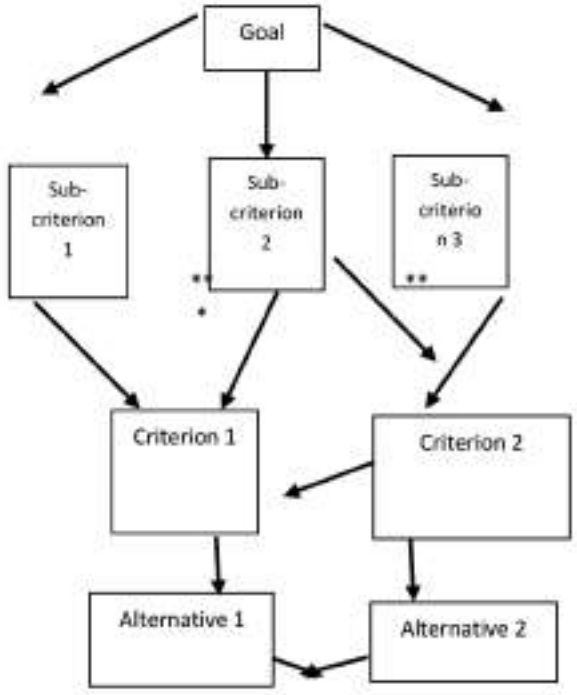


Figure 1. *An example of Analytic Hierarchy Process (AHP) structure.*

Table 1. *The 9-point likert scale for pairwise comparisons in AHP*

Point showing importance level	Explanation	Reciprocal values
1	Two elements are perceived equal	(1/1)
3	One element is perceived moderately important over the other	(1/3)
5	One element perceived strongly more important over the other	(1/5)
7	One element is perceived very strongly more important over the other	(1/6)
9	One element is perceived extremely more important over the other	(1/9)
2, 4, 6, and 8	Intermediate values	(1/2), (1/4), (1/6), and (1/8)

DATA AVAILABILITY AND METHODS

The data presented in Table 2 below were derived from the ECSA document (ECSA, 2020). From the previous section, criteria are translated into KAs for the BEngTech programme. As shown in the table, credits are set as minimum credits for the programme. The authors of this study derived the weights as a fraction of a unit. ECSA allocates credits to align the programme with the international benchmarking, in particular the Sydney and Washington Accords. However, no serious consultation of setting the minimum credits involved universities. Moreover, there is no published clear methodological approach in credit allocation that can be found on the ECSA website.

Table 2. *Minimum credits of Knowledge areas of Bachelor of Engineering Technology adapted from ECSA (2020)*

KA element	KA type	ECSA minimum credits	Computed weights related to ECSA minimum credits
G	Mathematical sciences	42	0.1
H	Natural sciences	28	0.067
I	Engineering sciences	157	0.367
J	Design and synthesis	56	0.133
K	Complementary studies	28	0.067
L	For Relocation	112	0.267

The formulation of AHP technique as well as its implementation were carried out as follows:

- The top level of the hierarchy enabled the ranking of KAs.
- The lower level was used to conduct pairwise comparisons using the strategic approach of credit ratios within each KA pair (Ilunga, 2021). The ratio was translated to a crisp value of a 9-point scale. For example, G and H have respectively 42 and 28 credits and the ratio is 1:1.5, which is rounded to 1:2. This could mean that criterion G is perceived to be moderately more important than H. Hence, it was possible to establish the rest of pairwise comparisons.
- Pairwise comparisons and their reciprocals enabled to establish the decision matrix.
- The consistency ratio (CR) defined as the ratio between consistency index (CI) and random index (RI), was used to validate judgements summarised in the decision matrix. Mathematically, CI is defined by equation (1) and CR defined by Equation (2).

$$CI = \frac{\lambda_{MAX} - n}{n-1} \tag{1}$$

$$CR = \frac{CI}{RI} \tag{2}$$

It is recalled that the decision matrix summarises consistent elements only when CR does not exceed the threshold of 10%. Mathematically, the size n of the decision matrix should be equal to the consistency ratio. Table 3 is usually used for consistency index values for different sizes of the decision matrix (Saaty, 1980).

Table 3. *Random index as a function of the rank of decision matrix*

n	1	2	3	4	5	6	7	8
RI	0	0	0.58	0.90	1.12	1.24	1.32	1.41

The weight can only be computed if the consistency test is passed. Otherwise, the weight calculated will be a result of unacceptable inconsistency. This invalidates the weight calculation. In this case, the entire process of obtaining the element values should be restarted. Since the ECSA team cannot be asked to review credit allocation at this point of time where the qualification has been implemented, techniques for forcing consistency should be undertaken as required in AHP.

- The calculation of criteria weights was carried out by deriving the priority vector which represents the eigenvector, when one refers to Algebra. Based on AHP, the priority vector is derived from the maximum eigenvalue. The priority vector is calculated by dividing each entry of the decision matrix by the sum of entries for each column. Hence, a new matrix is obtained and formed with each element of the matrix being less than 1. Each criterion weight is calculated by averaging the sum of each row of the new matrix.

- The validation of proposed weights by ECSA is established by comparing them against the weights derived from AHP. For the validation test to pass, the differences between the respective weights should be negligible.

FINDINGS AND DISCUSSION

Determination of decision matrix and consistency test performance

The decision matrix was derived from the pairwise comparisons carried out among KAs, as shown in Table 4. This is a 6x6 matrix.

Table 4. *Decision matrix of KAs in a tabular form*

KA	G	H	I	J	K	L
G	1	2	1/4	1	2	1/3
H	1/2	1	1/6	1/2	1	1/4
I	4	6	1	3	6	1
J	1	2	1/3	1	2	1/2
K	1/2	1	1/6	1/2	1	1/4
L	3	4	1	2	4	1

The decision matrix yielded a maximum eigenvalue of 6.037, and the value of CI was found to be 0.0074. Usıng RI =1.24, the calculated value of CR was 0.006, which is equivalent to 0.6%. Therefore, experts' judgments accompanying the pairwise comparisons among KAs were deemed consistent. On the flip side, the level of subjectivity for the ECSA team deciding on credit allocation was acceptable.

Criteria Weight Calculations

The criteria weights were obtained by first dividing each entry of the decision matrix by the respective sum of entries for each column. Then, the weights of each KA were calculated by averaging each row, as shown in the last column of Table 5.

Table 5. *Criteria weights of knowledge areas (KA)*

	G	H	I	J	K	L	Weights
G	0,105	0,125	0,086	0,125	0,125	0,100	0,111
H	0,053	0,063	0,057	0,063	0,063	0,075	0,062
I	0,421	0,375	0,343	0,375	0,375	0,300	0,365
J	0,053	0,125	0,114	0,125	0,125	0,150	0,115
K	0,053	0,063	0,057	0,063	0,063	0,075	0,062
L	0,316	0,250	0,343	0,250	0,250	0,300	0,285

From the results obtained in Table 5 during implementation of AHP, the weights of credits pertaining to the different KAs were ranked as follows: I, L, J, K, G and (H, K). This agrees with ECSA credit weight order.

The results showed that 36.5 % of importance falls under engineering sciences, which had the highest score. Hence, engineering sciences credits in the BEngTech could be thought of as a critical aspect of the programme to respond to industrial expectations. Both online and face-face universities offering this programme should articulate adequately the course content around this knowledge area.

Validation of ECSA Knowledge Area Credit Weights

The validation process involved a comparison between the weights of criteria derived from ECSA, and those derived from AHP tool, as depicted in Table 6. This revealed that the absolute differences of weight criteria were significantly small. A threshold of 5% relative difference was assumed. These results showed that the weights from AHP and those from ECSA were very close since the relative differences were negligible. This demonstrated well that the credit allocation as suggested by ECSA has been validated through a consistency test that underpins AHP technique.

Table 6. *Comparison between ECSA and AHP weights*

KAs	AHP weight	ECSA weight	Weight Difference	Relative Diff (%)
G	0,111	0,100	0,011	1,098
H	0,062	0,067	0,005	0,460
I	0,365	0,367	0,002	0,185
J	0,115	0,133	0,018	1,803
K	0,062	0,067	0,005	0,460
L	0,285	0,267	0,018	1,811

This section has proved that AHP technique could achieve transparently the establishment of knowledge areas ranking of the Bachelor of Engineering Technology qualification. The consistency check has been conducted through AHP as a means of validating the credit distribution by ECSA. It was found that credit for engineering sciences KA has the highest weight through AHP. This tool is believed to be a validation technique for ECSA in the determination process of credits for the different KA credits. There was a close match between the weights calculated from AHP and those set by the engineering council of South Africa. The innovative aspect of this study is to have used the strategy of ratios between credits to derive the preferences of the aggregated decision-makers' judgements in the likert scale.

CONCLUSION

The transparency and simplicity of AHP was shown in this study, in ordering the knowledge areas of the Bachelor of Engineering Technology programme. This be online or face-to-face offerings. The ranking of KAs approached as criteria was conducted in a consistent fashion to an acceptable degree of subjectivity. Engineering sciences credit had the highest importance from AHP. Close results were obtained between weights from AHP and those from ECSA. The methodological approach was shown to be a means for assessing the validity of ECSA credit allocation for the BEngTech programme. The originality of the current study is to have formulated AHP based on the ratio aspect between KA credit pairs to decide on the consistency of the judgements of the ECSA decision team. In the curriculum design and development of engineering qualifications, instructional designers and practitioners of institutions of higher learning could make use of multi-criteria decision making techniques such as AHP. This study offers an opportunity to extend this methodology to engineering qualifications other than the Bachelor of Engineering Technology.

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The Effect of Distance Learning on Conventional Education The Case of Hellenic Open University

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Abstract

The Hellenic Open University (HOU) offered and still offers the opportunity of studying to thousands of people. Still, at the same time, it impacted conventional academic education by remaining open to the dictates of new educational needs and requirements. Implementing the distance education (D.E.) model requires careful planning, mainly when applied to conventional education structures. The assessment of the pedagogical character of the study programs is an element of research as it permeates the course of the entire educational planning. At the same time, the conventional education structures often do not give the appropriate attention. This paper presents and describes within the framework of the program "Funding of research in the HOU", the research project financed by it and aimed at the investigation and analysis of the innovations, changes and influences that started from HOU and had an effect on the way and methodology of offering short or long study programs from higher education institutions. Initially, the possibility of cooperation between the two educational models is presented, while reference is made to the reasons that lead many conventional educational institutions to provide distance learning programs. Then, the serious issues that often arise from the implementation of D.E from traditional structures are presented. After stating the purpose and goals of the research program, the innovation and necessity of its existence are theoretically documented. Finally, after describing the methodology that will be followed, the points in which the Hellenic Open University has influenced conventional universities in the provision of study programs will be presented.

Keywords: *distance education, Hellenic Open University (HOU), effects on the academic community*

INTRODUCTION

Modern economic and social achievements at the end of the 20th century led to the transition to a global economy that underlines knowledge's enormous contribution to its development. Higher education has been in the process of transitioning from the traditional learning model to a new one for some time (Mbatha, 2014). One aspect of this change is evident in the increased accessibility of curricula and the training of teaching staff in them (Shachar & Neumann, 2003;). Every educational application, perspective and development implemented in an environment according to its goals is defined by the social and historical context from which it emerged. Social

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and historical factors determine the choice of educational applications. Due to the geographical distance and the level of development, education, which takes place in conventional educational institutions is often not available to a large percentage of the population. According to an UNESCO survey worldwide, 796 million people reported being unable to read and write. Among them 64% were women (UNESCO, 2010). This gap comes to cover the model of D.E.

Distance education is a method that supports the achievement of economic, social and academic development, improving access to education by reducing the constraints of place and time on learners while ensuring that learning opportunities are flexible. Despite its benefits, the phenomenon is observed, academic and educational communities constantly examine, evaluate, and often criticize the new methods as they appear on the educational map due to the sloppiness of their implementation (UNESCO, 2010). The D.E. undoubtedly introduces new data to all stakeholders (Buselic, 2012; Pannen, 2017). The two models of education, conventional and distance, are an area of problems and contradictions dealing with the main issues related to ensuring the quality of higher education and simultaneously ensuring the development of human potential. The success of distance learning programs is due to coordinated efforts between qualified and experienced education professionals, dedicated learners and organized structures (Chaudry & Rahman, 2010). In addition, the high cost of providing educational work by conventional institutions of higher education is an important reason for its development. The task of offering opportunities for the provision of quality higher education becomes the responsibility of both conventional universities and those offering distance education (Owusu- Boampong & Holmberg, 2015; Nguyen, 2015; Paterson, 2005; Rafiq et al., 2014).

However, in order to implement the distance education model in the context of conventional education, there is a need to integrate it into the conventional educational environment learning processes for the learners (Cinar & Torenli, 2010). Often the systems of conventional and distance education complement each other and there can be scope for cooperation as in the e-learning course learners can use, for example, the administrative services, the library and the infrastructure offered by the conventional education model. On the other hand, learners of traditional educational institutions can use e-learning materials and resources created for the needs of distance learners. Therefore, it is essential to increase the interaction between the two groups of learners by identifying learning resources, their roles, responsibilities, and infrastructural entities (El-Annan. 2015; Lionarakis, 2008; Mikroyannidis, et al, 2014).

Implementing the distance education model and its supporting structures requires careful planning especially when applied to conventional education structures. This process includes basic steps: conducting a needs assessment, defining and describing the teaching-learning objectives, producing educational materials, providing training for teachers in relation to their role and the particularities that accompany the D.E. model. It is important to include structured activities, while schedules, deadlines and feedback will motivate learners to learn in a flexible environment. The implementation phase should also emphasize the importance of interaction between learners and teachers as well as between the learners themselves. The implementation of the above

steps would be incomplete without the evaluation and implementation of regular reviews of educational design by conventional higher institutions (Lee et al., 2014; Godsk, 2014).

Reasons for the Application of D.E. in Conventional Educational Institutions

The advantages of D.E. are significant compared to the conventional education environment. Among the most basic, is the offer of flexibility in the space and time of engagement of the trainees with their learning subject. They are offered the opportunity to study at their own pace the teaching material structured to serve the student-centred nature of D.E. It allows institutions to train a larger number of people by employing a smaller number of teachers, thus offering a cost-effective method of providing higher education. In addition, learners have the opportunity to continue lifelong learning regardless of their lifestyle or location. As a result, many higher education institutions were led to initially offer some distance learning degree programs albeit on an experimental basis. Society, therefore, benefits from a general increase in literacy through more excellent and more flexible access to education (Russell, 2006; Kappel et al, 2002).

Due to the rapid growth of the D.E. and with the use of technology, many barriers to higher education have been overcome, providing conventional universities with the opportunity to meet the changing global demand for education. Society and the labor market demand even higher levels of skills and qualifications to fill the jobs. This increase in demand is leading to a big question about the type of trainees and educational requirements. Higher education is often called upon to serve the educational needs of individuals whose education becomes continuous throughout working life, as labor markets require knowledge renewal (Godsk, 2014; Shachar& Neumann, 2003). In addition, conventional academic institutions face financial problems and challenges related either to government funding, the changing nature of knowledge, the varied expectations of learners, or generally, global competition (Kyrma & Mavroidis, 2015; Hassan, et al, 2014).

According to Lawrence (2005), many conventional higher education institutions include D.E. programs in their curricula for three main reasons: the convergence of communication and information technology with new technologies, the need for employees to acquire new skills without interruption along the way in their professional life and the need to reduce the cost of education globalization phenomenon, which allows educational systems to keep up with changes and innovations (Lawrence, 2005; Singh et al, 2012).

Issues in the Implementation of D.E. in Conventional Educational Structures

The effect of D.E. on the operation of conventional education appears to be particularly important. Still, problems often arise from the nature of the D.E. model when trying to implement it in traditional educational structures. Particular attention must be paid

to issues concerning its specificities and organizational-institutional issues (Martinez-Caro, 2011; Salmon, 2014; Smith, 2011). More specifically, the trainees must know the specific nature of D.E., the role and way of using technology in relation to the teaching material, the communication with the teacher and the interaction between them. The role of the teacher in a D.E. environment is not about imparting knowledge but guiding and consulting. The teaching material is a pillar of the learning process, which significantly affects the processes in a conventional educational environment. Often the familiarization of teachers with new technologies seems difficult at first sight because they cannot see or hear their students and cannot directly interact with them, as in a face-to-face situation. Learning is student-centered, a fact that makes the work of teachers who have learned to work in conventional educational conditions difficult. Thus, the phenomenon of teachers identifying a particular problem from the fact of non-physical and direct contact with the student often occurs. Isolation is a topic that still causes particular concern among researchers (Russell, 2006; Daniels,2010; Yang et al, 2016; Yick, et al, 2005; Tait, 2003).

A serious issue that arises from trying to implement D.E. in conventional educational settings concerns organizational issues such as making decisions about how to deliver courses and determining which courses will be delivered online (Chawinga & Zozie, 2016). Obviously many factors may be predetermined and out of the instructor's control. Such as, if the course is intended for a geographically dispersed audience, face-to-face may not be the best option. Group programs are often created and delivered online using the interactive process. In addition, the prerequisite skills expected from the learners should be mentioned as people who do not have experience with new technologies find it particularly difficult to use this tool and are led to abandon their learning effort (Godsk,2013). Important institutional issues arise when a conventional educational organization decides to adopt – implement the D.E. model. While the acceptance of this type of education is increasing, in reality, many curricula in a distance learning environment are not considered part of the teaching load of the instructor, who does not have the necessary time to prepare them. Responsibilities are often a point of friction when they are not defined in the first place by the educational institution - organization. Another important problem is one concerning the type of credit units, as it is not often determined whether differences arise in the credit units of study programs offered in two different ways (distance and conventional) by the same conventional educational institution. In addition, questions often arise regarding the access of learners to material located in the physical space of the university (Westera, 2004 ; Chaudry & Rahman, 2010).

The assessment of the pedagogical character of the curricula is an element of studying and research as it permeates the course of the entire educational planning, while often the appropriate attention required, is not given. Questions should be asked such as: Does the program achieve the educational objectives? Is the organizational structure appropriate for the demands of distance education in a conventional environment? Does the educational institution offer the necessary support structures to the trainees, as does faculty to the students? Has the teaching staff been trained in the new data? Is there an evaluation system for both learners and educational personnel (Caruth & Caruth, 2013; Cheawjindakarn, et al, 2013)?

Purpose and Objectives of the Research Project

The purpose of the research project is the analysis and investigation of the innovations, changes and influences that the HOU has had over the years and the way it has affected the methodology of study programs in conventional institutions of all types and in areas that make up the pedagogy of D.E. In addition, in recent years, following the requirements of the times, the university proceeded to offer six-month study programs. It is important to explore how through its pioneering path, these programs present similarities and differences with the annual ones it offers as well as the possible reflections, as these will arise from the new data. More specifically:

A. Since, the elements which are essential characteristics and are recorded as conditions for the effective operation of D.E., are not always and fully applied in the educational reality, it will be investigated how HOU affected conventional higher education in the provision of distance learning programs or training in relationship with: The educational material in the context of D.E and the special characteristics it must fulfill to facilitate active learning. The existence of educational intervention planning and support. The role given to the teacher in relation to communication and counseling of students. The way of evaluation and feedback of the students and the material they are asked to process. The role of the higher education institution that organizes and plans the introduction and implementation of the D.E model along with the curricula in the conventional education environment. The absence of the group to a significant extent in relation to conventional education and the use of personalized and collaborative forms of teaching & learning The differentiation from personal study efforts since it presupposes the existence of an educational organization that designs and implements the educational material and provides support to the student.
B. The similarities and differences between six-month and annual HOU programs will be investigated as well as possible concerns in relation to the educational material. Also, in relation to the following factors: Support to the students. Communication between teaching staff and students. Assignments/exams/ feedback. The role of the teacher-consultant.

Research Project Methodology

The proposed research will be prepared as follows: It will investigate bibliographically the changes made in conventional academic institutions both abroad and in the country since the implementation of distance education. Several interviews will take place from members of teaching staff both from HOU and conventional university institutions. The influence of the HOU in the provision of distance learning programs of short or long duration in academic institutions of the country will be investigated, in relation to:

- The educational material in the context of D.E and the special features it must fulfill to facilitate active learning.
- The existence of educational intervention planning and support.
- The role given to the teacher in relation to communication and counseling of students.

- The way of evaluation and feedback of the students and the material they are asked to process.
- The role of the higher educational institution that organizes and plans the introduction and implementation of the D.E. model along with the study programs in the conventional education environment.
- The absence of the group to a significant extent in relation to conventional education and the use of individualized forms of teaching & learning.
- The differentiation from personal study efforts since it presupposes the existence of an educational organization that designs and implements the educational material and provides support to the student.

Then, the evidence as it emerges from the investigation will be gathered and recorded. The results of the research after being related to the principles and characteristics of D.E as provided by the HOU will be analyzed. Also, problems that may have been created by the provision of six-month study programs by the HOU will be identified. Solutions to problems that are likely to appear in the operation of six-month study programs in relation to annual ones, will be proposed. The changes and the influences that the HOU plays in the academic landscape of the country will be recorded in detail.

HOU Innovations, Changes and Influences

In countries with a long educational tradition in education planning, assessment, teaching and learning processes, the creation of academic teaching materials, educational methodology in research, etc., distance education came as a supplement and was quite easily adapted to the existing system. It did not convey new concerns about the creation of the educational material, the criteria for writing academic papers by the students or the control and evaluation of the educational process. But D.E. brought something new to the Greek higher education system. It came as an alternative educational intervention with references to a series of reflections and doubts in pedagogical and educational matters. More specifically, the HOU innovated and changed many facts in the educational landscape which can be summarized in the following basics (Lionarakis, 2013 ; Hellenic Open University, n.d.; Vasala & Andreadou, 2016).

- Created the Internal Evaluation Unit. For the first time in academic history, there was a unit that assessed all academic, administrative and educational activities.
- It also established the Laboratory of Educational Material and Educational Methodology as a research and application laboratory for the development and improvement of distance education methodologies.
- The organization of the institution was such that a huge number of administrative staff was not required.
- The students' participation in the costs of their studies gave them the possibility of independence and freedom in the administration of the university.
- From the beginning, HOU trained 240 PhDs in distance education subjects so that there would be the first nucleus for the university executives.
- It trained approximately 1,500 educational material creators to develop interactive and flexible teaching/learning packages for its programs. For the

first time, academics and scientists followed training programs for writing academic texts. These authors developed approximately 600 book/textbook titles across all curricula. These books were evaluated and checked by a triple academic review system.

- HOU gradually trained all the lecturers of the undergraduate and postgraduate study programs in the specificities of distance education. First-time academics attended seminars on how to teach.
- It offered the possibility for prospective students to be admitted by lottery initially to undergraduate and postgraduate study programs without examinations. For the first time in modern Greek history, prospective students had free access to university education without the examination process. Nowadays, access is free, without lottery
- It abolished the concept of "course" and replaced it with the annual Thematic Unit as an interdisciplinary and interdisciplinary educational unit. Later, six-month Thematics were added.
- HOU redefined the concept of "lesson - lecture - teaching from the seat" and adopted the Group Advisory Meeting as the dominant mode of teaching and learning. The alternative forms of teaching determined the quality of the educational practice.
- It upgraded the role of the teacher-professor and turned him from the main lecturer in the course into a "professor-consultant". The basic philosophy of the teacher-consultant is at the roots of anti-authoritarian education, critical pedagogy and modern teaching methods. On the one hand, the student operates autonomously and self-regulates his study, and on the other, the professor-advisor supports the educational material which teaches and opens paths for exploratory learning.
- It introduced written assignments as compulsory and as a condition for final examinations and identified them as a dominant learning tool. At the same time, it established the analytical comments in these papers emphasizing the teaching role of the professor-consultant.
- The university created educational material which, with his methodology, formed the core of the system. An educational material that should be updated and improved on a continuous basis, so that it is able to function as an interactive mechanism for effective teaching and learning (Lionarakis, 2019).
- It posed questions such as what is the teaching material, how does the student learn, how does the professor teach, how is the educational process evaluated, how is academic teaching material written, what should the student do to learn, and how is the teaching process separated from the process of learning, is it supported, and how does the student in his learning path (Lionarakis, 2008)?

The practice of distance education has shown that it is effectively and directly involved with the above issues as it has addressed them and has provided comprehensive answers to most of them. However, in the Greek educational system, where the set of corresponding answers has not been set by an organized set of modern educational concepts, the concerns of distance education create a new philosophical stance of axioms that undoubtedly define a system of a qualitative approach to higher education.

The quality of distance education - a multimodal education - does not primarily depend on the means chosen for the communication between teacher and learner, but on the principles of teaching and learning that support this very multimodal educational system. This position rejects the medium and the method as an end in themselves (degrading the learning process) and highlights the medium and the method as tools at the service of the teacher and, much more, of the learner.

So far, fourteen higher education institutions in the country have studied the ways in which distance education programs are offered. These educational institutions do not offer degrees through the distance learning model, but rather training certificates. The table below shows linearly the innovations and changes that the Hellenic Open University has accomplished to the educational landscape as well as the influences it seems to have exerted on the operation of fifteen conventional universities in the country (University of Crete,(n,d) ; University of Ioannina (n.d) ;University of Macedonia, (n.d) ; University of Patras,(n.d) ; University of the Peloponnese, (n.d);University of Western Attica(n.d.); University of the Aegean,(n.d); University of Thessaly, n.d); Athens University of Economics & Business,(n.d) ; Aristotle's University,(n.d) ; Ionian University,(n.d.) ; International Hellenic University,(n.d0.; National and kapodistrian University of Athens,(n.d); University of Piraeus(n.d.)).

HOU INNOVATIONS	HOU CHANGES	HOU INFLUENCES to other Universities
Internal Evaluation Unit	It abolished the concept of "lesson" and became a Thematic Unit	They use Thematic modules rather than lessons
Educational Material and Educational Methodology Laboratory	The lesson - lecture - teaching was replaced by the Group Counseling Meeting	Autonomy in study / Free planning
Trained approximately 1,500 educational material creators	The role of the teacher was upgraded and he became a professor-consultant	Student support
The creators developed about 600 book titles	Written assignments are mandatory and a prerequisite for written exams	Continuous access to study material
He gradually trained all the teachers of the undergraduate and postgraduate study programs	The educational material is the heart of the system Educational material becomes more direct, two-way and effective,	Communication with teachers
Free access to education	Studying is de-measurable due to polymorphic material	Technical assistance

Critical reader in print production, not just a journal	Criteria for academic writing are defined and taught	Existence of a forum for solving questions and discussion
It establishes for the first time in the country part-time and distance education higher studies	Students' studies are intensified	Development of teaching materials by academic staff
Participation of students in the costs of their studies Counseling and psychological support center for students	Two-way communication between teaching material, teaching staff and student	Academic advisor for every student
Specially designed educational activities	Systematic support of the student	Student Counseling Center
The place, time and pace of studying are determined by the student	Teaching and Learning philosophy that follows these concepts	
Small number of administrative staff in the University services		
Development of teaching materials by academic staff		

DISCUSSION AND CONCLUSION

The highest educational institutions in the country offer training programs, as mentioned remotely, following the imperatives of the time for lifelong learning, development and updating of knowledge and skills. The elements that characterise distance education follow but not all and to the same extent. These HEIs provide Training Certificates through extra distance education programs with Lifelong Learning Centers providers. They do not award degrees except through their traditional educational character.

All are naturally based on the provision of material via the internet, which they use to provide teaching material in the thematic units, as they call them, offered in a D.E programme. Also, through platforms, the possibility of studying the material is provided in any form and the existence of a forum for students facilitates communication among students. The latter is not always followed, as in the university itself, there are programs in which the possibility of contact via forums is provided, while in others of the same university, not (e.g. Macedonia).

The trainees' communication with the teachers is done exclusively through the platform and e-mail. Students send their questions to the forum and lecturers answer them. There is no other form of personal communication except through two or three teleconferences in which general instructions for the tasks are given.

The teaching material is not always the result of strictly academic staff, except for the University of the Aegean, where it is explicitly stated that it comes from the educational and scientific staff of the country or abroad.

The approach of the above HEIs initially seems superficial in how it offers its programs in relation to its physiognomy from D.E.

The University of Crete stands out to a certain extent, approaching D.E. principles. It is evident that it recognizes the need for communication of each student throughout their learning process. It has academic advisors to help students organize their studies better. Departments appoint an Academic Advisor for each student enrolled in it. Academic Advisors are faculty members of the Department who, through discussion, can help the student with academic matters, such as managing problems with the curriculum and clarifying questions that may exist about the procedures established by the Department. They also act as a connecting link between students and services of the University, such as Student Care, the Internship Office and the Student Counseling Center. The Secretariats inform newly admitted students during their registration of the name and contact method of their Academic Advisor. Also, the Student Counseling Center (SCC) is a service of the University of Crete that provides individual/group psychological support and counselling to all students of the institution with difficulties related to: developmental, personal adjustment problems, and occasional/chronic difficulties. It supports disabled students who face learning, physical or psychological challenges. It develops initiatives and programs implementing unique educational benefits for their equal access to academic studies.

At the University of Thessaly, the emphasis seems to be placed on familiarizing students with new technologies within the framework of the D.E through a two-week preparation program. At the University of Peloponnese, emphasis is placed on the teaching material offered. At the same time, at International Hellenic University, support and communication of teachers and students throughout the program are emphasized.

Many elements of the measures adopted by the Ministry of Education come from the applications and experiences of HOU, such as the internal evaluation, the abolition of departments and the introduction of study programs, the placement of a small senate instead of a rector ship (Lionarakis, 2010).

The research is at an early stage. It proceeds both bibliographically and interviews from the interested and competent parties.

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Foreign Language Anxiety in Two Different Settings: Classroom vs Online

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Abstract

The study aims to investigate and compare English preparatory school students' foreign language anxiety (FLA) levels in two different settings, namely classroom and online lessons. In order to achieve the aim, an explanatory mixed-method research design was administered. In the first part, quantitative data were obtained through two questionnaires and 234 students from six state universities in Turkey composed the sample cohort. The data were analyzed through descriptive and inferential statistics. The findings unveiled that English preparatory school students displayed moderate levels of FLA both in classroom and online English lessons. It was revealed that there was a statistically significant difference between the FLA levels in two settings. In accordance with the findings, semi-structured interviews were conducted with 10 volunteers to gather further information. The qualitative data from the interviews were resolved according to thematic analysis, and accordingly, four major themes emerged accordingly; interaction, anxiety, problems, and language points. In terms of interaction, students favored classroom settings for the reason that they could communicate directly in face-to-face lessons. It was also revealed that technical problems such as disconnection and voice interruptions caused distress in language learners.

Keywords: *EFL, Foreign language anxiety, Hybrid learning, Online language anxiety*

INTRODUCTION

Anxiety has been attracting considerable critical attention since the 1970s with the pioneering studies of Guiora et al. (1972), Chastain (1975), Kleinmann (1977), and Scovel (1978). Guiora (1972) claimed that language learning creates dread in learners' perception of self and the world, thus, it makes a way for disconcerting psychological position. A pre-eminent study by Horwitz et al. (1986), defined anxiety as "subjective feeling of tension, apprehension, nervousness, and worry associated with an arousal of the autonomic nervous system." (p.126). Furthermore, they aimed to identify Foreign Language Anxiety (FLA) and indicated that FLA is discrepant from general anxiety by being a specific anxiety reaction. Herewith, they described FLA as a conceptually unique variable. They pointed out three situation-specific anxieties: 1. communication apprehension (CA), 2. test anxiety (TA), and 3. fear of negative evaluation (FNE). FLA.

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Given that students learn the target language nearly exclusively in the classroom, the classroom environment is vital in the EFL context. The educational environment has the power to both exacerbate and alleviate FLA. Therefore, it is essential to look at how the classroom environment affects FLA. Additionally, students bring a range of traits to the classroom, some of which may interfere with language learning even if they have nothing to do with the learning process. There are several sources of anxiety such as number of students, objectives of the activities, level of difficulty of the lesson (Kitano, 2001; Tani-Fukichi, 2005) condition of the interaction (Koch & Terrel, 1991; Price, 1991), error correction, fear of failure, and individual breakdown (Mak, 2011). In other respects, learners' proficiency levels (Liu, 2006; Pichette, 2009; Toth, 2010), assessment (Liu & Jackson, 2008; Elkhafaifi, 2005), attitudes of learners (Yan & Horwitz, 2008), incapacity in vocabulary (Koçak 2010) were found to be among the causes of FLA.

Learning has expanded outside the classroom setting and developed in many locations, including as online platforms, as a result of technological advancement and contemporary needs. Online education eliminates physical barriers between the learner and the educational process. As a result, online platforms have been able to reach more students. In addition, students have been receiving several lectures via online education. Online content that promotes language learning is one of the topics. Investigation in this context is necessary to improve and enhance language learning because the online language learning context differs from the classroom setting and has its own unique features in some areas, such as interaction type, feedback, technological proficiency, self-direction, and remoteness.

It was found that there has been little research on the anxiety factor in online setting (Bárkányi & Melchor-Couto, 2016; Bollinger, 2017; Chametzky, 2019; Doğan, 2020b; Donahoe, 2010; Hurd & Xiao, 2010; Hurd, 2007; Majid et al, 2012; Martin & Alvarez-Valdivia, 2017; Pichette, 2009; Russell, 2020; Shirvan & Taherian, 2018; Yang & Quadir, 2018) compared to classroom context. In spite of the fact that online language learning has already been studied before the pandemic (Doğan, 2016; Hurd, 2007; Pichette, 2009; Russel, 2020), with the outbreak of Covid-19, the significance of research in online language learning has been promoted (Doğan, 2020b).

Anxiety has been studied for decades and showed that it affects language learning processes. Considering most learners uttered that they feel overwhelmed or worried (Horwitz et al., 1986) during language learning, it is crucial to investigate the state of learners in terms of their anxiety level. The distressed context that makes learners angst should also be examined to enounce solutions. A great deal of research embodies that anxiety hinders language performance (Krashen, 1981), and the impact of anxiety on language achievement proceeds not only in conventional classrooms (Xiao & Wong, 2014) but also in different settings such as distance or online education (Hurd & Xiao, 2010). A prominent study by Hurd (2007a) revealed that distance foreign language classes contain aspects that bring on anxiety such as dearth of rapid feedback, struggle in evaluating individual development, remoteness, and lack of determination throughout autonomous learning. With the increasing number of online courses as a result of the Covid-19 pandemic, investigation of distance language learning anxiety is crucial.

In the classroom learning environment, it has been acknowledged that anxiety impedes language learning process and achievement. In addition to this, learners reflected that

they experience trouble and worry, and even physical suffering such as fast heart-beating during foreign language production (Horwitz et al., 1986). It has also been approved that FLA affects language achievement negatively (Aida, 1994; Liu, & Zhang, 2013). Henceforth, it is crucial to identify anxiety levels of language learners both in face-to-face and online learning and explore the sources of anxiety so that necessary actions can be taken, and language learning processes can be developed to gather utmost efficiency. Thus, this current study focused on analysis of foreign language learners' anxiety levels in two different settings namely in person and online courses.

In the light of all the facts mentioned above, to accomplish the aforesaid purposes and to contribute to the field of language learning anxiety, this study administered the following research questions:

1- What are the anxiety levels of preparatory school students in state universities in Turkey?
   1.a- What is the anxiety level of learners in a conventional language classroom?
   1.b- What is the anxiety level of learners in online language class?
   1.c- Is there a difference in foreign language anxiety levels between the two types of learning settings: conventional vs online?
2- What are the learners' opinions about the two settings in terms of their language anxiety level: conventional vs online?

METHOD

Research Design

The study aimed to examine and compare anxiety levels of FL learners in the classroom and online lessons and investigate learners' opinions about the two aforementioned settings. Within the framework of the aim, an explanatory mixed methods design which consists of two phases was adopted. In the first phase of the study, an online survey was conducted to determine the anxiety levels of the learners. By numerically analyzing a sample, survey design helps to depict the trends, attitudes, or opinions of a population (Creswell, 2014). The survey design has many benefits, including economy, viability, and utility. Most importantly, surveys are commonly used in social sciences to clarify how societies function and to challenge ideas of behavior. Thus, two Likert-type scales were applied to determine the anxiety levels of the learners. Semi-structured interviews with volunteers were conducted in the second phase of the study to better understand the learners' perspective. Creswell (2014) emphasizes that qualitative research fosters in-depth comprehension of behaviors and attitudes. Hence, semi-structured interviews were used to collect qualitative information in order to explore the participants' perspectives regarding anxiety in a broader fashion.

The current study used a mixed-methods approach, specifically an explanatory sequential design given that semi-structured interviews were carried out to learn more about learners' attitudes in two different settings following the analysis of quantitative data which was gathered using two scales.

Participants

In order to determine the sample group, one of the non-probability sampling methods, convenience sampling was adopted. In the first phase of the study, 234 preparatory school students in total from 6 state universities which employed blended learning in Turkey participated voluntarily in the study and responded to the questionnaire. In the second phase of the study 10 volunteers from those students were interviewed.

The participants were students in the spring semester of the 2021–2022 academic year at preparatory schools and every participant was enrolled in both in-person and online English classes. This meant that they had already attained B1 level proficiency. Despite the fact that each institution has its own methods of testing and evaluation, the participants were given a B1 level. Thus, they were regarded to have a sufficient degree of English ability to understand and respond to the questions.

According to the demographic information gathered, the participants' ages ranged from 18 to 25. In terms of gender, male students made up 52.99% (124) of the participants, while female students made up 47.01% (110) of the participants. The detailed age and gender distribution of the participants are presented in Table 2.1 below.

Table 2.1. *Age and gender dispersion of the participants*

Age	N	Gender	N
18	62	Male	124
19	74	Female	110
20	64		
21	32		
25	2		

Data Collection and Analysis

As the aim of the study was to investigate and compare the anxiety levels of the learners in two different settings, two scales, respectively, Turkish version of Foreign Language Classroom Anxiety Scale (FLCAS) (Horwitz et al., 1986) developed by Aydın et al. (2017) and Online World Languages Anxiety Scale (OWLAS) created by Chametzky (2019) were adopted to measure anxiety levels. While the latter scale was used to investigate participant anxiety levels in online courses, the former was utilized to analyze participant anxiety levels in classroom practice. The two scales are similar as Chametzky (2019) stated that FLCAS served as the stimulus for OWLAS, and adaptations were made for the online environment. The two questionnaires were therefore determined to be appropriate for measuring the anxiety component in two different settings.

Both scales were composed of 33 items. With regards to internal consistency and construct validity, the Turkish version of FLCAS's Cronbach's Alpha level was found to be .86, and the rotated two factors explained 73.58 of the Variance in the scale (Aydın et al., 2016). In regard to OWLAS, Cronbach's Alpha was found to be 1.0 with a high internal consistency due to the small sample size (Chametzky, 2019). Thus, it was

agreed that the Turkish version of FLCAS and OWLAS were suitable for the aim of the study and employed to measure the participants' anxiety levels. For the present study, Cronbach's Alpha coefficient of Turkish FLCAS displayed a high reliability with .94, and for OWLAS it was found to be .87 which indicates a sufficient result.

The scales were converted into one online questionnaire with additional demographic questions and administered to participants online. The qualitative data provided by the online questionnaire was analyzed through IBM SPSS (Statistical Package for the Social Sciences) software. In order to summarize and display the data, descriptive statistics were employed. Mean scores of FLA levels of participants were calculated and one sample t-test was run to reveal whether there was a significant difference between the mean scores in the two settings or not. In the present study, as the two mean scores were gathered from the same sample cohort, one sample t-test was regarded as appropriate to summarize the data.

In the second phase of the study, in order to reveal the standpoint of participants in terms of two aforementioned settings, semi structured interviews were conducted. The interview questions were prepared in accordance with quantitative data findings gathered from the questionnaires. Additionally, the researcher created interview guidelines with important topics to cover throughout the interviews. Accordingly, the interview questions were developed in line with the pertinent literature review and the aims of the present study. The interview questions consisted of 11 items in Turkish about classroom and online English lessons. Two experts from the field were consulted for their thoughts as the questions were being developed. In conclusion, the research advisor's approval was guaranteed. The interviews were conducted in Turkish so that the participants would feel comfortable revealing their opinions. After the interviews were conducted and recorded, the recordings were transcribed. The transcriptions were analyzed through thematic analysis (Braun and Clarke, 2006) which involves six stages namely 'familiarizing with the data set', 'coding', 'generating initial themes', 'developing and reviewing themes', 'refining, defining and naming themes', and 'reporting'.

FINDINGS

The study aimed to investigate learners' FLA levels in two different settings. Hence, the data analysis revealed the following findings. The first research question was examined under three portions. While the first one was to measure FLA levels face to face lessons in the classroom, the second question was to investigate FLA levels in online lessons. Lastly, the difference between the settings in terms of FLA levels was examined.

In order to reveal the FLA levels of preparatory school students, descriptive statistics was employed, and mean scores gained through the questionnaire were calculated. Additionally, frequencies and percentages of the participants were also calculated in the same manner, using descriptive statistics. To demonstrate the anxiety levels experienced by the participants in detail, the number of participants experiencing each anxiety level which are categorized above, namely, low, moderate, and high level was verified as well. The findings are presented in the table 4.1. below.

Table 4.1. *The level of FLA in classroom*

	N	M
FLA in classroom	234	89.34
	Frequencies	**Percentages**
Low level of classroom anxiety	70	29.92
Moderate level of classroom anxiety	154	65.81
High level of classroom anxiety	10	4.27
Total	234	100

The results show that 234 of the English preparatory school students participating in the current study experienced moderate levels of foreign language classroom anxiety with a mean score of 89.34 in face-to-face English classes. Furthermore, as demonstrated in the table, the analysis revealed that more than half of the participants (f=154) experienced moderate levels of anxiety with 65.81 percent. Additionally, one third of the participants (f=70) showed a low level of anxiety while 4.27 percent (f=10) of them experienced a high level of foreign language anxiety.

In line with the previous question, the second question also investigated FLA levels of the participants but in a different setting: online classes. Thus, similar to the first question, descriptive statistics is employed, and mean score was calculated through SPSS and the detailed findings are presented in table 4.2. below.

Table 4.2. *The level of FLA in online lessons*

	N	M
FLA in online lessons	234	98.17
	Frequencies	**Percentages**
Low level of classroom anxiety	18	7.69
Moderate level of classroom anxiety	204	87.18
High level of classroom anxiety	12	5.13
Total	234	100

The findings revealed that 234 English preparatory school students participating in this study experienced moderate levels of online foreign language anxiety with a mean score of 98.17 in their online English lessons. Furthermore, as it is displayed in the table most of the students, which is more than half of the participants (f=204), experienced moderate levels of anxiety. Moreover, 7.69 percent of the participants had a low level of foreign language anxiety while 5.13 percent of them experienced a high level of anxiety.

As the third question was to analyze the difference between the FLA levels in two settings, one sample t-test was run. The analysis revealed that foreign language classroom anxiety and foreign language online anxiety scores were significantly strongly and positively correlated (r=.645, p<0.001). The analysis displayed that there was a significant average difference between the anxiety scores in two different contexts: classroom and online (t_{233}=9.484, p<0.001). On average, foreign language online anxiety scores were 8.83 points higher than foreign language classroom anxiety scores (95% CI [7.00, 19.67]).

Table 4.3. *Paired sample t-test*

	Paired Differences				
				95% Confidence Interval of the Difference	
	Mean	Std. Deviation	Std. Error	Lower	Upper
Classroom – Online	-8.83761	14.25516	.93189	-10.67361	-7.00160
				Significance	
		t	df	One-Sided p	Two-sided p
Classroom - Online		-9.484	233	<.001	<.001

In order to obtain views and perceptions of the participants, semi-structured interviews were conducted according to the quantitative data analysis and findings. The interviews were analyzed through thematic analysis (TA) established by Braun and Clarke (2006). Six stages of TA were employed respectively. Themes emerged from the data were divided as major themes and sub-themes. After the scrutiny of transcripts produced from the recordings, 11 sub-themes under 4 major themes were generated. Themes are presented in Figure 4.3. below.

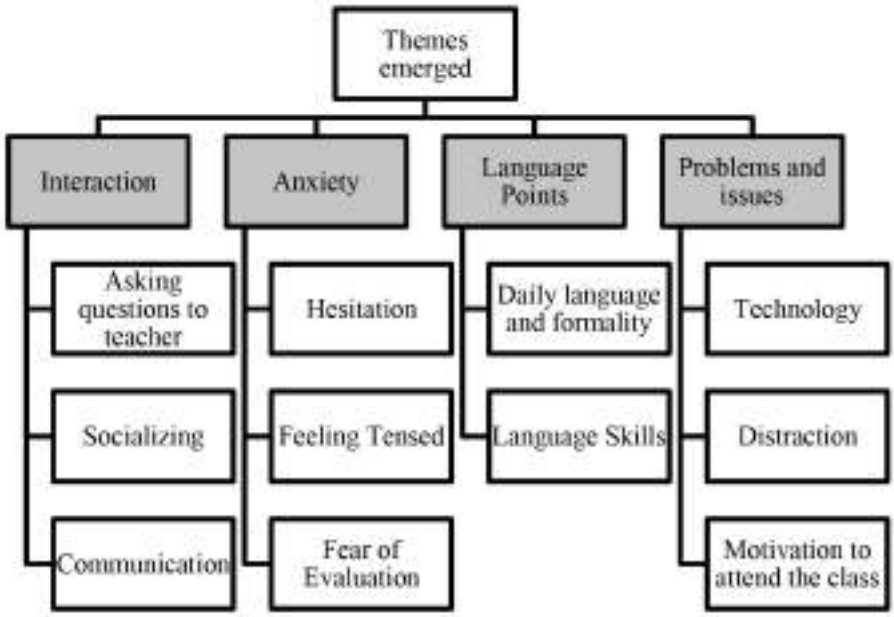


Figure 4.3. *Themes emerged*

Learners expressed that they abstained from making any comments or responding to a question in English when they did not comprehend the learning subject in both settings. For the matter, they hesitated to ask questions indicating that they did not understand the course. In other respects, some students reported that the aforementioned situation happened in the classroom setting. They explained further that being present in the classroom in front of a lot of people caused a tension and urged them to stay silent. For some students, this condition diminished in the online courses as they felt more relaxed in the online setting. Learners indicated that when there were unknown language points such as new vocabulary, they felt distressed during the activities. Some learners defined this feeling of tense higher in the classroom considering they could check online dictionaries or translation tools in online lessons. More than half of the students expressed that they avoided talking English during the lessons in both settings on the grounds that they worried about the judgments that might come from the others.

The analysis displayed that all of the learners experienced technological problems concerning English language learning during the online lessons. In fact, the participants defined online education insufficient in terms of technology. All of the learners stated that they experienced internet connection cut off which made them distressed. The most technical issue specified was related to voice. They signified that when there was voice interruption during the online lessons, they became concerned and worried. In addition to voice interruption, there was voice resonance occasionally due to the connection errors which recurrently created a stressful environment. Another problem aroused in online education was associated with homework and tasks. Learners ascertained that they could not upload their tasks or homework due to the errors occurred in the software programs in which online lessons were conducted.

Learners stated that they preferred both face-to-face education accompanied with online lessons. One of the reasons behind their choice was the motivation to go to the class. They explained that in online courses they felt relaxed since they did not open their cameras, sitting on their chairs loosely at their homes or dormitories. However, five of them declared that they felt motivated and forced when they had to wake up, prepare and go to school. This obligation to move and commute drove them to study before the lesson and pay attention to learn English in the classroom considering they made an effort to be present in the classroom. The learners further detailed that occasionally they needed a break from this life fluency which was provided by online lessons.

DISCUSSION

With a mean FLA score of 89.34, the descriptive analysis showed that the students had a moderate level of FLA during the in-person classroom lessons. This can be taken to suggest that even though the mean score was not very high, students nonetheless felt anxiety during English lessons in the classroom. Learners who experience moderate anxiety may be categorized as mildly anxious (Horwitz, 2008). In other words, there are circumstances in which students feel distressed. Semi-structured interviews were carried out to reveal those circumstances and the underlying causes. The interviews revealed that some students experienced worry when they lacked the necessary terminology for a task. The same source of anxiety was also affirmed by Korkmaz and Mirici (2021). Additionally, they discovered that students avoided speaking in front of their peers out of concern that their friends would criticize their public speaking abilities. The same result was seen in the current study, where several students admitted that they were reluctant to speak in front of their peers in class out of concern that they would be judged. Additionally, several students identified themselves as shy people, which triggered their emotions and prevented them from speaking the target language. The pupils' fear may have been a form of trait anxiety because they identified themselves as timid. As a consequence, the learners felt uneasy in specific situations during face-to-face classroom instruction, which accounts for the finding of moderate level anxiety. What is important is to provide learners with activities that relieve their anxiety levels such as using humor in the classroom (Oxford, 2016).

In the similar vein with classroom setting, the learners displayed anxiety in certain situations which were unveiled through the interviews. First of all, participants said that they preferred the classroom environment in terms of communication since they could make use of nonverbal communication aspects like gestures and mimics. As a result, they were hesitant and skipped online lessons. According to Chametzky (2021) learning can be just as efficient in an online environment as it is in a classroom. However, there are several constraints (Chametzky, 2016a) and variances (Cochran & Benuto, 2016) while using an online venue. Additionally, participants acknowledged that the technological difficulties caused stress during online lessons. Therefore, it is essential to upgrade and improve technological tools for online classes to prevent communication failures or sound shifts throughout the sessions, which in the current study had made learners uncomfortable. This matter is defined in the study by Chametzky (2013a) as teachers and learners would feel tremendous stress if they were

unaware of disparities in online interaction. This unawareness can lead to frustration and learner abandonment which is a highly undesirable behavior (Lee & Choi, 2011). Another study which supports the findings in terms of interaction is by Eygü and Karaman (2013). They found that it is essential to enable students in online lessons to interact with various components such as chat, discussion board, private messaging or face-to-face interaction in order to make learners feel belonging to the group and to prevent social isolation. Perhaps, in the current study, the participants did not have any opportunities to interact online like Eygü and Karaman suggest, and therefore they felt anxious about constructing healthy communication both with their instructors and peers. Consequently, learners experienced anxiety at moderate level in online lessons due to the aforementioned causes.

The results of the current study differ from the findings of the study conducted by Pichette (2009) and Baez-Holley (2013), who found no difference in two contexts with French speaking learners of English or Spanish. A study by Côté and Gaffney (2021) found a significant difference in terms of anxiety levels in two different learning settings. Nevertheless, the difference they found is in the opposite direction from the current study. In other words, they found that students experienced less anxiety and showed more contribution to the lesson in the online setting whereas in the current study learners displayed less anxiety in the classroom than in online setting. The possible reason for the contrasting findings might be related to learners' technological competence or technological breakdowns as in the current study further investigation through interviews revealed that learners experience angst when there is technological problem during the online lessons. Even though the results of the current study differ from some earlier studies (Côté & Gaffney 2021; Pichette, 2009), they are consistent with those of Kaisar and Chowdhury (2020). They found that the learners were less anxious in face-to-face classrooms than in online lessons. It is noteworthy that Côté and Gaffney (2021) and Kaisar and Chowdhury (2020) conducted their studies during the Coronavirus pandemic, which may have an effect on the affective status of the learners.

In terms of interaction, most of the learners stated that they could ask questions to the teacher directly and receive an instant answer in the classroom setting. Additionally, learners advocated classroom setting as they could observe aspects of nonverbal communication. With regard to communication, learners criticized online lessons as there were connection problems/issues or voice interruptions. White (2003) signified that because learners are unattended while trying to regulate their anxiety, the specific setting of distance learning offers an additional scope that can have a significant impact on affect, as the teacher is absent there and there is virtually no direct peer assistance. In the same vein, Zhang and Cui (2010) declared that learning a language online might be more compelling than other topics, specifically in regard to speaking skills considering the absence of teachers in terms of observing learner production, providing feedback, and evaluating learner achievement. These might be the reasons why in the current study the participants experienced more anxiety in online classes.

In regard to affective status, the learners felt tense when they did not comprehend the learning subject. Furthermore, nearly half of the learners stated that they had the fear of being judged by others. This finding supports the previous study conducted by

Korkmaz and Mirici (2021) which found that learners abstained from talking in front of their classmates for the reason that the audience may criticize or even laugh at them. Similarly, in the current study, the learners defined that they hesitated to talk in front of their peers due to the fear of being judged.

Some of the learners in the current study stated that they made more preparation for the face-to-face classroom lessons as they felt tension due to being present in front of a lot of people. This finding is in line with the study administered by Kim (2017) which found that learners were less distressed about possible errors in online courses considering that they could not observe their classmates. Learners defined that having technological problems made them anxious about the learning subject in online courses. Most of the students expressed that they felt distressed during the online course as there could be voice breakdowns or internet disconnections.

LIMITATIONS OF THE STUDY

The current study includes certain limitations. In the first place, the study was conducted with 234 English preparatory school students from 6 state universities, which indicates a relatively small sample size. As there were other state and private universities, the results cannot be generalized to all English preparatory school students. The current study adopted an explanatory mixed-method design and aimed to examine anxiety levels and reasons behind those anxiety circumstances.

With regard to the limitations of the present study, further recommendations are made. The current study applied only interviews as a qualitative data collection, to have deeper insight into the affective status of learners other qualitative methods such as reflection papers, diaries or think aloud tasks can be applied As the current study was conducted with only preparatory school students, different study groups such as undergraduates from different faculty departments, high school students, and primary school students can be investigated in order to enlarge the scope of the study. Furthermore, online language learning settings should be examined from different aspects with regard to anxiety phenomenon as the findings from the current study revealed that FLA levels of learners in online lessons were significantly higher than classroom settings.

IMPLICATIONS OF THE STUDY

The current study proposes some implications for the stakeholders in foreign language education. The results obtained from the current study indicate that foreign language learners experience anxiety both in classroom and online settings. Thus, it is important to take precautions and apply techniques or tasks to reduce learners' anxiety levels such as reminiscing activities. Jin et al. (2021) conducted an experimental study by virtue of a positive psychology approach. In the study, anxiety levels of the experimental group which carried out the reminiscing activity significantly decreased compared to the control group. Hence, it is important for the lecturers to bring tasks that alleviate the anxiety levels of learners.

Another important finding was the source of anxiety status. Learners affirmed several conditions that increase their angst in online lessons. One of those conditions was technological problems. Hence, fixing technical breakdowns and improving mechanical systems might relieve the distress that learners experience. Learners also indicated that the interaction problem such as not observing nonverbal communication aspects during online lessons held them back from attending the tasks. Hence, choosing proper activities according to the setting carries a crucial role.

CONCLUSION

The current study examined anxiety levels of learners in two different contexts and found out that English preparatory school students had moderate levels of FLA. Yet, in online settings the mean score of FLA levels were significantly higher than in the classroom. The study further examined learners' perceptions about the aforementioned two settings and revealed that certain aspects such as technological problems and issues related to interaction led them to experience angst in online courses. Hence, the study concludes that taking efficient precautions and conducting activities that decrease their FLA levels is crucial in the language learning process.

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Blended Learning Models: A Glimpse Into the Rotation Model

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Abstract

Purpose: The COVID-19 pandemic has increased the speed of blended learning expansion all over the world. Knowledge about models of blended learning is limited. The current study aimed to review the research which focused on one of the existing blended learning models, namely the rotation model within the blended learning literature.
Methodology: This study is a qualitative, descriptive literature review study. The data was collected through document analysis and analyzed using content analysis.
Findings: The findings reveal that blended learning can be delivered through different models. One of them is called the rotation model and there are four sub-models under the rotation model. The sub-models include station rotation, lab rotation, flipped classroom, and individual rotation. It is vital to consider all models while designing, planning or implementing a blended learning activity, course or program before putting it into practice.
Originality/implications: The present paper discusses the models of blended learning, highlights the rotation model and its sub-models, and some recommendations for future research and practitioners. The results can be used to develop the models of blended learning courses for K-12 education.

Keywords: *blended learning, blended learning models, the rotation model*

INTRODUCTION

Blended learning (BL) is not a new emerging form of education. BL has been in use since the popular advent of the internet and the World Wide Web in the late 1990s, and the meaning of BL has changed over time (Friesen, 2012). But it has "no standard or commonly agreed definitions (Bates, 2022). According to Clayton Christensen Institute, BL at the K-12 level is a formal education program in which student learns;

a. at least in part through online learning with some element of student control over time, place, path, and/or pace
b. at least in part in a supervised brick-and-mortar location away from home;
c. the modalities along each student's learning path within a course or subject are connected to provide an integrated learning experience (Horn and Staker, 2012).

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This definition is regarded as a common K-12 BL definition that needs to provide students with some control over time, place, path, and/or pace.

BL focuses on optimizing the achievement of learning objectives by applying the 'right' learning technologies to match the 'right' personal learning style to transfer the 'right' skills to the 'right' person at the 'right' time (Singh and Reed, 2001, p.2). BL delivers personalized, differentiated instruction. Students in formal BL educational programs maximize students' learning and best fit their own needs (Worthen and Patrick, 2015).

BL provides student engagement and learning outcomes, access, and flexibility to student learning, and some cost efficiencies. In order to have this potential, designing quality blended teaching is very significant. For doing it, there are seven important elements. These are; the teacher, pacing, preparation, participation, personal interaction, personalization, and place. Blended teaching provides opportunities for students to develop knowledge and skills that will be essential to their future success. Students should possess the four Cs: Communication, Collaboration, Critical Thinking, and Creativity. To achieve this goal, blended classrooms can play an important role in making this change (Graham, 2019).

During the COVID-19 pandemic, some organizations and institutes published reports underlying the importance of BL. Blended education is bound to remain relevant in the post-COVID-19 world, (UNESCO, 2022), to ensure all learners are prepared for life's uncertainties, as well as a more knowledge-driven workforce and economy, it is essential to restructure the education system to universally recognize anytime, anywhere learning (AUORA, 2022). Blended and hybrid course models will have a significant impact on the future of postsecondary teaching and learning according to the horizon panelists in Educause (EDUCAUSE, 2021). The document created by European Commission (2021) to accompany and support the Recommendation on blended learning for high-quality and inclusive primary and secondary education highlighted BL as a flexible approach that can be applied in a variety of combinations, as appropriate to the age, capacity and circumstances of the learners and intended learning outcomes. As a result, it gives learners more control over the time, place, path, and pace of the process.

Blended Learning Models

Various blended learning models have been designed by different institutions according to their learning needs (Alam and Agarwal, 2020). Some models are given in the current study as a sample.

According to Hannon and Macken (2014), there are three blended learning models;

1. The first model, blended presentation and interaction, The flipped classroom
2. The second is the blended block model (sometimes called a program flow model),
3. The third model is fully online but may still be considered blended if it incorporates both synchronous learning (for example, online tutorials) and asynchronous activities (for example, discussion forums).

TeachThought (2021) classifies BL into twelve models. These are; outside-In, Supplemental, Inside Out, Flex, Lab Rotation, Station Rotation, Individual Rotation, Self-Directed, Project-Based, Remote, Flipped Classroom and Mastery-Based.

National Institute of Technology, Tiruchirappalli (NIIT) categorizes blended learning into three models:

Skill-driven learning, which combines self-paced learning with instructor or facilitator support to develop specific knowledge and skills

Attitude-driven learning, which mixes various events and delivery media to develop specific behaviors

Competency-driven learning, which blends performance support tools with knowledge management resources and mentoring to develop workplace competencies (Valiathan, 2022)

Blended online learning model in which video conferencing and synchronous desktop applications are used in place of the classroom based on the regular weekly shift between activities in synchronous mode, and individual or team assignments in an asynchronous mode (Power, 2008). The blended MOOC is another model that has emerged. The blended MOOC is a form of the flipped classroom using in-person class meetings to supplement a massive open online course. Students access MOOC materials — perhaps from another institution or instructor if the course is openly accessible — outside of class and then come to a class meeting for discussions or in-class activities. In 2012, according to Campus Technology, San Jose State University piloted a blended MOOC using MIT's Circuits and Electronics course, with students taking the MOOC out of class while face-to-face time was used for additional problem-solving (LaMartina, 2012).

Time-based blend learning could be one other BL model (Norberg, Dziuban, and Moskal, 2011). Blending with purpose a multimodal conceptual model recognizes that because learners represent different generations, different personality types, and different learning styles, teachers and instructional designers should seek to try to use multiple approaches including face-to-face and online technologies to meet the needs of a wide spectrum of students (Picciano, 2019). Beatty (2019) defines hybrid flexible in other words "HyFlex" as an instructional model that offers learners the opportunity to choose between in-person synchronous class, online synchronous class, and asynchronous online learning activities. proposes that learners should be able to shift among these options at any time with each mode of instruction always being available, except when classes must be canceled.

The Clayton Christensen Institute classified different types of BL into four main models: Rotation, Flex, A La Carte, and Enriched Virtual. The Rotation model includes four sub-models: Station Rotation, Lab Rotation, Flipped Classroom, and Individual Rotation.

Blended learning is a potential instructional solution for K-12 education; however, more research is needed for implementation in the K-12 environment (Reynolds, 2018). But, there is a need to explore the full potential of blending learning environments and tools that, if sustained, can provide young people with an education that prepares them for a rapidly-changing and complex world (Vegas and Winthrop, 2020). Barbour (2016) argues that there is a lack of research to support much of the practice of K-12 BL.

The purpose of the current study is to review the Rotation model and four sub-models in the literature. The current study aims to answer the following research questions.

1. What are blended learning models?
2. What is the rotation model in blended learning literature?

METHOD

The current study is a qualitative, descriptive literature review study. Review is a model typically used in quantitative research, often found in journals with a quantitative orientation (Creswell, 2009). Literature reviews are useful when the aim is to provide an overview of a certain issue or research problem. Typically, this type of literature review is conducted to evaluate the state of knowledge on a particular topic. Torraco, 2005).

The data was collected using the document analysis method which is a systematic procedure for reviewing or evaluating documents. While analyzing the data, content analysis was used. A literature search was conducted using online databases (the Education Resources Information Center, Scopus). Scope of the data was fixed from 2010 to 2022. The research was performed by using "blended learning models" as the search keyword with"rotation model". As a result of the research, 188 articles on the blended learning model were reached, and only 64 of them were related to the rotation model.

FINDINGS

The findings of the study were analyzed based on the research questions and are given below.

The Rotation Model

Horn and Staker (2011) have profiled blended learning schools across the U.S. and developed blended learning models and a definition. They define blended learning as: "a formal education program in which a student learns at least in part through online learning, with some element of student control over time, place, path, and/ or pace, at least in part in a supervised brick-and-mortar location away from home, and the modalities along each student's learning path within a course or subject are connected to provide an integrated learning experience" (Horn & Staker, 2011)

In 2012, a report titled "Classifying K-12 Blended Learning" was published by the Innosight Institute. In the report, the definition of blended learning and the taxonomy of blended learning models were reported as depicted in Figure 1. In the current study, some excerpts were taken from that report while describing the blended learning models.

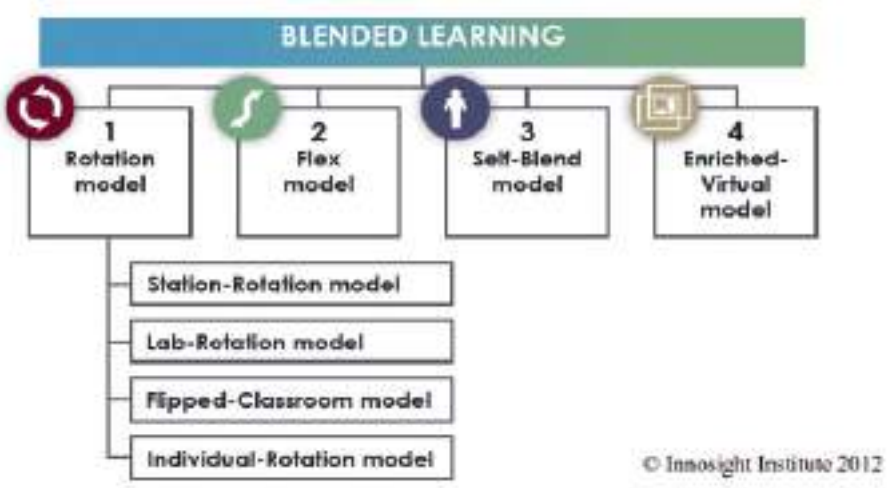


Figure 1.1. *The Blended Learning taxonomy suggested by the Clayton Christensen Institute formerly Innosight Institute. Image taken from Staker, H., and Horn, M. (2012). Classifying K-12 Blended Learning, p.2. Copyright 2012 by Innosight Institute.*

1. **Rotation model**: – a program in which within a given course or subject (e.g., math), students rotate on a fixed schedule or at the teacher's discretion between learning modalities, at least one of which is online learning. Other modalities might include activities such as small-group or full-class instruction, group projects, individual tutoring, and pencil-and-paper assignments (Horn and Staker, 2012).

The rotation model has been widely used and has been proven to be effective in learning (Govindaraj and Silverajah, 2017). The rotation model of blended learning is widely used because it supports classroom learning which has the characteristics of being accessible, easy, flexible, and independent (Divayana, 2019). In the rotation model, students are on a schedule and rotate times between fully online learning, and face-to-face instruction. This model is the most in-between when comparing a traditional classroom and fully online learning (Staker and Horn 2011)

2. **Flex model** — The emphasis is on online learning, even if it directs students to offline activities at times. Students move on an individually customized, fluid schedule among learning modalities, and the teacher of record is on-site. The teacher-of-record or other learning guide provides face-to-face support on a flexible and adaptive as-needed basis through activities such as small-group instruction, group projects, and individual tutoring (Staker and Horn 2011)

In the flex model, the majority of learning occurs online which provides learners a high level of flexibility to work at their own pace based on their individual needs. This model takes a high level of planning and preparation (Graham, 2019)

3. **Self-Blend model** – describes a scenario in which students choose to take one or more courses entirely online to supplement their traditional courses and the teacher-of-record is the online teacher. Students may take online courses either on the brick-and-mortar campus or off-site. This differs from full-time online learning because it is not a whole-school experience. Students self-blend some individual online courses and take other courses at a brick-and-mortar campus with face-to-face teachers (Staker and Horn, 2012).
4. **Enriched Virtual model** — A whole-school experience in which within each course, students divide their time between attending a brick-and-mortar campus and learning remotely using online delivery of content and instruction. Many Enriched Virtual programs began as full-time online schools and then developed blended programs to provide students with brick-and-mortar school experiences. Different from the Flipped Classroom, students seldom attend the brick-and-mortar campus every weekday (Staker and Horn, 2013).

The Clayton Christensen Institute, formerly Innosight Institute analyzed blended learning through the lens of disruptive innovation theory and published a paper in 2013 including a new taxonomy sustaining hybrid innovations. They incorporate the main features of both traditional classroom and online learning. According to them, the taxonomy is still imperfect and will continue to evolve along with the field. It offers a starting point for differentiating between sustaining and disruptive models of blended learning (Christensen, Horn, and Staker, 2013). As shown in Figure 2, the self-blend model was not available. A new model "A La Carte model" was added.

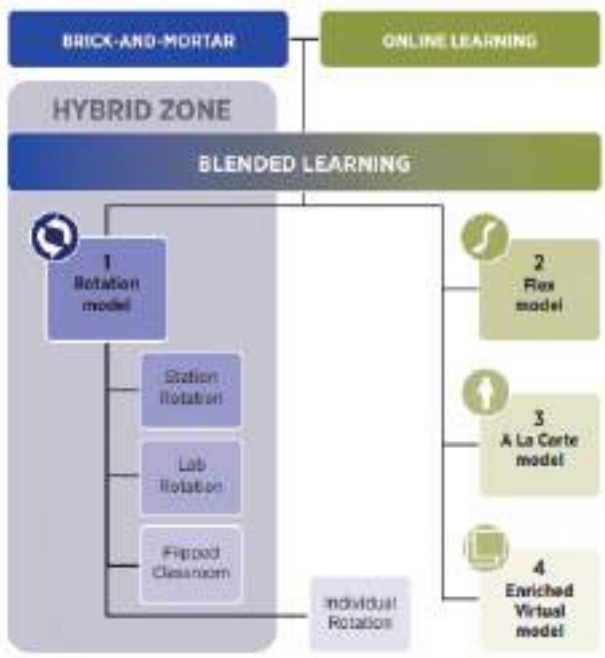


Figure 1.2. *Hybrid zone of blended learning (Christensen, Horn& Staker, 2013)*

A La Carte model — Students take one or more courses entirely online with an online teacher of record and at the same time continue to have brick-and-mortar educational experiences. Students may take online courses either on the brick-and-mortar campus or off-site (Christensen, Horn& Staker, 2013).

Sub-models of the Rotation Model

The rotation model has four sub-models; station rotation, lab rotation, flipped classroom, and individual rotating as shown in the Figure 1.3

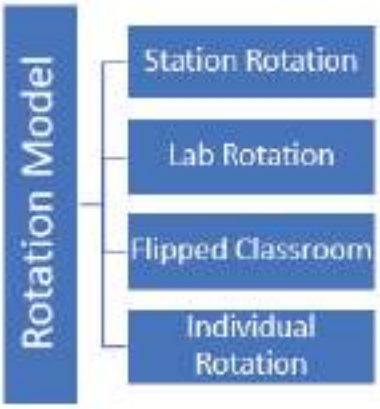


Figure 1.3. *Sub-models of the Rotation Model*

a. **Station Rotation** – a Rotation-model implementation in which within a given course or subject (e.g., math), students rotate on a fixed schedule or at the teacher's discretion among classroom-based learning modalities. The rotation includes at least one station for online learning. Other stations could include small group or full-class instruction, online learning, individual instruction, group projects, and pencil and paper assignments (Horn and Staker, 2012).

One strength of the station-rotation blended learning model is that teachers work with small groups of students. It is advantageous for those who have been attempting to adapt to ever-increasing class sizes. The station rotation model is used in all school environments but is most common in elementary schools where rotating stations or centers are already a familiar concept. Under the station rotation model, students can complete all of the learning activities on the same schedule, usually when promoted by a teacher or the clock.

b. **Lab Rotation** — Within a given course or subject, students rotate on a fixed schedule or at the teacher's discretion among locations on the brick-and-mortar campus. At least one is a learning lab for online learning, and the other(s) are classroom(s) for other learning modalities. The Lab Rotation model differs from the Station Rotation model because students rotate among locations on the campus instead of staying in one classroom for the blended course or subject (Staker and Horn, 2012).

Graham (2019) argues that the lab or whole-group rotation model is similar to the station rotation model except that students rotate as a whole group on a set schedule or at your discretion. This commonly involves students leaving the classroom to go to a computer lab or you, as the teacher, bringing a mobile lab into the classroom. This model is great for classrooms that have close to 1-to-1 devices.

c. **Flipped Classroom**— a Rotation-model implementation in which within a given course or subject (e.g., math), students rotate on a fixed schedule between face-to-face teacher-guided practice (or projects) on campus during the standard school day and online delivery of content and instruction of the same subject from a remote location (often home) after school. The primary delivery of content and instruction is online, which differentiates a Flipped Classroom from students who are merely doing homework practice online at night. The Flipped-Classroom model accords with the idea that blended learning includes some element of student control over time, place, path, and/or pace because the model allows students to choose the location where they receive content and instruction online and to control the pace at which they move through the online elements (Staker and Horn, 2012).

One of the best-known sub-model of the rotation model is the flipped classroom model. In the literature flipped learning is known as inverted learning, the reverse classroom, or inverted class. A flipped classroom allows teachers to use class time for practice or projects. The model offers more opportunities for personalized learning. Flipped classroom model has been the most popular blended learning model in the literature (Lage and Platt, 2000).

Flipped Classroom fulfills the needs of 21st-century learners (Mortensen and Nicolson, 2015) and makes a difference in the educational outcomes of the learners (Chen, Lio, and Chen, 2019; Koponen, 2019). The flipped classroom appears to have originated in a middle school environment, and the majority of literature exploring its use is focused on K-12. There are plenty of examples of and interest in its use in higher education (Arnold-Garza, 2014)). Ichinose and Clinkenbeard (2016) investigated "Flipping College Algebra: Effects on Student

Engagement and Achievement". In their study, they gave the implementation of the model as: The flipped class used in this study is based on a three-step process. The student is expected to watch a 7-12 minute online module for each section of the text before coming to class. The modules include an explanation of main ideas, examples, and embedded comprehension questions that the students answer as they watch and complete a pre-assessment ("Ticket in the Door") before coming to class, they complete Ticket in the Door to class the following day; that serves as the basis for the class discussion and work. Students present their solutions to the Ticket in the Door problems and then spend the rest of the class period engaged in problem-solving of more difficult problems that would traditionally be assigned as homework (Ichinose and Clinkenbeard, 2016).

d. Individual Rotation – a Rotation-model implementation in which within a given course or subject (e.g., math), students rotate on an individually customized, fixed schedule among learning modalities, at least one of which is online learning. An algorithm or teacher(s) sets individual student schedules. The IndividualRotation model differs from the other Rotation models because students do not necessarily rotate to each available station or modality (Staker and Horn, 2012).

According to the Friesen report (2012), combinations of BL models might also be implemented in higher education as well as K-12 settings. These models move from relatively classroom-intensive combinations to ones that are more dependent on online mediation:

1. "The rotation model," in which online engagement is combined or rather, embedded, within a range of face-to-face forms of instruction in a cyclical manner
2. "The flex model, in which multiple students are engaged primarily online, but under the supervision of a teacher who is physically present;"
3. "The self-blending model," in which students choose different courses to take independently, but do so in a setting where a supervising teacher and other students are co-present;
4. "The enriched-virtual model," in which online, virtual experiences are seen as being enriched only periodically through arrangements of physical co-presence

In the study "the implementation of station rotation and flipped classroom models of blended learning in EFL learning", both the station rotation model and flipped classroom model were implemented at an institution of higher education implementing three stations; small group instruction (teacher-led instruction), independent work or collaborative activities, and online learning (Mahalli, et.al, 2019). First stage (during the first 30 minutes) group A conducted guided learning activities led by the lecturer. Lecturers explained the outline of the material, while group B conducted online activities by browsing the internet related to lecture material which is the topic of lectures for 30 minutes by opening the web. Online activities by browsing the internet related to lecture material which was the topic of lectures for 30 in the flipped classroom model of integration, the learning activities are performed in two steps; 1) lecturer shares online assignments about the topic and 2) face-to-face meetings in the classroom. Flipped classroom model is implemented in the following steps. The material was uploaded by the lecturer before the discussion in the classroom. At the time of the face-to-face meeting in class, the group discussion dealing with the assignment was presented and discussed. At the end of the discussion session, the lecturer gave confirmation and clarification.

International Association for K-12 Online Learning (iNACOL) published "a roadmap for implementation of BL at the school level" which provides detailed guidelines about how to implement a blended learning program. The study argues the six elements for planning and implementation of BL in a case study of the e iLearnNYC Lab Schools. The Six Elements for Planning and Implementation of Blended Learning are:1.

Leadership, 2. Professional Development, 3. Teaching, 4. Operations, 5. Content, and 6. Technology (Darrow, Friend, Powell, 2013). In the study most schools started adopting the BL process with the rotation model and then moved to the flex model.

DISCUSSION AND CONCLUSION

The current study has been conducted to review the rotation model and its sub-models. Innosight Institute, today the Clayton Christensen Institute works on the taxonomy of BL models. One of them is the rotation model including four sub-models that have been used in K-12 and also in higher education. One of the sub-models of the rotation model is the flipped classroom which is most cited and widely implemented at all levels.

Four core blended learning models; rotation, flex, a la carte, and enriched virtual model are the taxonomy of blended learning models. The rotation model includes station rotation, lab rotation, flipped classroom, and individual. The rotation model could be considered as a classroom instruction BL model. "Blended learning models can be used for reducing the inequity, inequality and injustice issues stemming from accessibility" (Bozkurt and Sharma, 2021). For students who do not have easy access to technology, the station rotation model could be a potential solution for accessibility in formal brick-and-mortar schools.

BL models that give learners different degrees of control over time, place, pace, and path stressed student-centered learning. BL will allow students to personalize their education and autonomy. Furthermore, BL can help teachers give students more individual support even in large classes.

Each blended learning model may have strengths and limitations. What is important is to know well how to blend in-person and online instruction to improve the quality of learning

Recommendations

More research is needed about the implementation of blended learning models. More details could be given in research papers about the implementation of blended learning models, and the combination of face-to-face and online instruction. It is natural to experience some difficulties in and out of the classroom, especially in studies conducted at the K-12 level. How to handle these challenges may be reported. Action research on blended learning models can be designed. Institutional support is recommended for the widespread use of blended learning models in situations where the use of blended learning models is limited to the effectiveness of the teacher in the classroom.

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Multimodal Mobile Assisted Language Learning for Pre-Service EFL Teacher Education

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Abstract

Along with the recent advancements in technology and the latest trends in education due to various unpredictable factors such as pandemics, natural disasters, etc., technology integration into learning contexts has become inevitable. Mobile technologies offer many practical uses for both language teachers and learners. Furthermore, as an essential point in language teaching, the integration of mobile devices into the learning processes provides multimodality for foreign language learners in making meaning and interaction. However, the presence of these tools and modes cannot be considered sufficient to design multimodal language activities and the presentation methods should be aligned with the capabilities of mobile tools and the cognitive capacity of learners. Thus, English language pre-service teachers (PSTs) need to be equipped with the necessary capabilities and guidance to use the multimodal tools in English as a Foreign Language (EFL) contexts.

In this light, this study aimed to offer a systematic training program to pre-service EFL teachers on how to integrate Multimodal Mobile Assisted Language Learning (M-MALL) practices into their language classes. A total of 16 PSTs enrolled in a teaching practice course in the English Language Teaching Department at a state university in Turkey participated in this study. The eight-week M-MALL training program was based on six steps including various informative and practical tasks from modeling and awareness-raising to micro-teaching. Throughout the program, participants were provided with hands-on teaching opportunities to apply what they have learnt in the training program to their teaching practices and explore these practices in terms of teaching and learning English. This study also aimed to identify PSTs' perceptions towards mobile-learning and accordingly, Mobile Learning Perception Scale (MLPS) as a quantitative data collection tool was implemented at the beginning and the end of this process. The views of PSTs on the whole process were further gathered in order to shed light on the effectiveness of the systematic training provided. The results of this study showed that the participants' perception levels towards mobile learning increased at the end of the study. They benefited from the training to improve their teaching practices by integrating M-MALL into teaching language skills and areas, transferred traditional textbook activities into technologically enhanced lessons, gained awareness on how to foster mobile language learning, and anticipated potential problems to turn them into teaching opportunities. The systematic training developed would provide insight to teacher educators, teachers, and language practitioners who seek guidance in effectively integrating recent technologies into actual teaching practices. This study proposes several implications for pre-service teacher education regarding the integration of M-MALL into foreign language teaching and learning.

Keywords: *Multimodal Mobile Assisted Language Learning, Pre-service teacher education, Mobile learning perceptions.*

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INTRODUCTION

Globalization in the 21st century has enhanced communication and collaboration among people having various social and cultural backgrounds (Mansilla & Jackson, 2012). Thus, language learning has become an important factor in order to pursue social, educational and work goals along with personal needs and interests, and the latest mobile technologies make language learning more applicable and appealing (Kukulska-Hulme, Lee & Norris, 2017). Mobile technologies enable language learners to personalize their language learning processes according to their own preferences and needs, and support this learning as an ongoing process in various settings (Ng, Lui & Wong, 2015). Thanks to its ubiquitous nature, mobile language learning provides students the opportunities to continue learning beyond the classroom walls which is unexpected and unplanned, requiring a new pedagogy and necessitates a revision in foreign language teaching (Kukulska-Hulme et al., 2017).

Pegrum (2014) emphasizes the importance of teacher education on mobile language learning, and Kukulska-Hulme et al., (2017, p. 220) highlight its' significance by indicating that "professionally trained classroom educators will have strong existing skills and want to hone and build on these to reflect technological shifts in learners' communication practices for the 21st century". Although there are various publications discussing mobile technology use in the classroom and teacher perceptions, there is very little advice and available training on enhancing language teachers' knowledge in integrating mobile technologies by using multiple modes of communication, in other words multimodality, with mobile and social technologies in various physical settings. The use of multiple modes requires integration of various channels such as audial, visual, textual and so on for meaning making, and combining all or some of these modes in language teaching can augment learners' comprehension (Kress & van Leeuwen, 2001). By offering engagement with various modes at a single time, mobile technologies help EFL learners boost their comprehension and as a result engagement during language activities.

Multimodality enables learners to find more accessible and usable environments, since it allows adaptability to the environment considering the cognitive abilities and limitations of learners (Magal-Royo et al., 2011). Although both teachers and learners benefit from the multimodality of mobile devices frequently in their daily routines such as watching a video to understand a recipe or looking at a navigator to figure out a location, their use for foreign language learning is rather limited and rarely investigated (Eisenlauer, 2014). Therefore, considering mobile technology integration in EFL learning and teaching within the multimodality that these tools offer is important in understanding the MALL processes and teacher perceptions. The perceptions of EFL teachers towards integrating mobile technologies into language teaching have been investigated by various researchers (Aygül, 2019; Inggita, Ivine & Saukah, 2019; Lee, 2019). According to Lee (2019)'s mixed method study with 259 EFL and ESL teachers, the findings based on participants' perceptions on MALL suggest positive views such as learning both outside and inside the classroom, development of all four language skills, improvement in teaching and learning conditions, support for student-centered learning, and increase in

learner participation and motivation. Furthermore, another study conducted by Aygül (2019) demonstrated that EFL PSTs have positive perceptions towards MALL integration as it improved immediacy, authenticity, interaction, ubiquity, joy, self-confidence, individuality, and ease of use. In a similar vein, Inggita et al., (2019) conducted a study on three English language teachers to understand their perceptions towards implementing MALL into their lessons. The results showed that teachers found integrating MALL practical for the teaching/learning process since it eased the discovery of a great variety of information from the Internet for both teachers and students.

The studies focusing on MALL generally investigated the effectiveness of mobile technologies with PSTs instead of implementing a training program on them (Baran, 2014). Moreover, these studies concerned with pre-service or in-service EFL teachers' perceptions were mostly pointed out the importance of receiving guidance on MALL integration (Al-Jarrah, Talafhah & Al-Jarrah, 2019; Hişmanoğlu, Ersan & Çolak, 2017; Öz, 2014; 2015). For example, Öz (2014) conducted a study with 144 ELT PSTs and found out that these prospective teachers were willing to integrate mobile technologies into their future lessons but stated that they lacked training. Similarly, in another study by Öz (2015), 201 EFL PSTs demonstrated high and positive perceptions towards MALL, and GPA was the strongest predictor of the participants' perceptions of m-learning. The PSTs were found to be skeptical about being able to integrate MALL into their future lessons as they believed that their skills in technology integration would not be enough. In Hişmanoğlu, et al. 's (2017) study, 50 EFL teachers working at a preparatory program in a state university indicated mainly positive views on integrating MALL. The results of this study demonstrated a discrepancy between teachers' willingness and their actual use of mobile technologies as they were inversely proportional. In a similar fashion, Al-Jarrah et al. (2019) found out that ESL teachers had positive perceptions regarding the use of educational mobile applications in teaching English but highlighted the need for professional training on technology integration specifically designed for ESL classrooms.

All these studies conducted on MALL highlight that although EFL teachers are eager to use mobile tools, there is still a need for professional guidance and training as they mostly indicated to lack necessary skills for such an integration. Also, in addition to understanding how much prospective teachers accept mobile technologies, it is also necessary to guide them on how to integrate these mobile devices into their lessons. In this respect, it is important to get the opinions of teacher candidates about integrating technology into technology lessons after experiencing the technology in real classroom environments. Thus, it will be possible to obtain a healthier understanding of the degree to which they have accepted mobile technology use for future lessons and their perceptions on mobile learning.

In this light, this study aims to investigate EFL PSTs' perceptions on mobile learning by implementing a training on M-MALL and providing actual classroom practices for M-MALL integration. The following research question was addressed for the purposes of the study:

"Is there any change in EFL PSTs' perceptions towards mobile learning after their actual teaching experience with M-MALL?".

METHOD

Participants and the Context

A total of 16 PSTs studying in an English Language Teaching Department at a state university in Turkey participated in this study. In the context of the study, various methodology courses on teaching such as ELT methodologies and approaches, linguistics, teaching English to young learners, and language testing are offered to the participants throughout this four-year training program. After taking these courses, in the fourth year, the PSTs take a Teaching Practice course in the spring term, and they are assigned to state schools. In this course, a total of 72 hours of participation is required for PSTs throughout the term and during their participation, they are expected to complete tasks based on observation of the school environment and cooperating teachers at the school, lesson planning, and teaching. PSTs are expected to prepare four lesson plans to be implemented in the English lessons they participate in and they are free to include various activities to cover the assigned topics and language items.

For this study, participants were chosen among the PSTs who were assigned to high schools, since the smartphone ownership rate among high school students is higher than the lower grades and these students are more familiar with smartphones as they use them in their daily lives for various things. Therefore, it was easier for PSTs to integrate M-MALL in their lessons. Convenient sampling strategy (Creswell, 2012) was adopted as the participants were available and voluntary. A higher education ethical committee approved the study and all participants signed consent forms ensuring their voluntary participation and withdrawal upon request.

Instruments

Data was collected through a quantitative instrument. In order to find out the general perceptions of ELT PSTs in a state university in Turkey, Mobile Learning Perception Scale (MLPS) developed by Uzunboylu and Özdamlı (2011) was implemented. The aim of this scale was to find out teachers' perceptions towards mobile learning regardless of their branch. The scale consists of 26 statements aiming to identify the teachers' perceptions towards various factors in mobile learning such as teacher-student and student-student interaction, the effectiveness of mobile tools, opportunities provided by mobile tools (e.g. ubiquity), reliability and effectivity in supporting existing learning environments, and willingness to use mobile tools. The participants rate the statements on a 5-point (ranging from 1. strongly disagree to 5. strongly agree) Likert scale. The points that are given to the scale range from 26 to 130. Point means of mobile learning perception scale were explained in 3-point range as low (=26-60), average (=61-95), and high (=96-130). High points show positive mobile learning perception and low points show negative mobile learning perception.

The scale was used both at the beginning and at the end of the study to investigate the difference in EFL PSTs' perceptions towards M-learning. To use this scale with EFL PSTs in the study, it was piloted with 108 PSTs studying in ELT departments from randomly chosen universities in Turkey. The Cronbach Alpha coefficient of the original scale developed by Uzunboylu and Özdamlı (2011) was determined as α =.97. In the context of this study, a further reliability analysis was conducted, and the Cronbach Alpha coefficient was determined as α =.870 for the whole scale. This result showed that the reliability of the overall scale was quite high and the items for this context were reliable for use.

Data Collection and Analysis Procedures

The data collection procedure lasted for 12 weeks. In the first eight weeks, PSTs received training on M-MALL, and in the last four weeks PSTs integrated M-MALL into their actual teaching experiences in their training schools. At the first stage of the data collection process, the consent forms were gathered and Mobile Learning Perception Scale Data was administered to the participants. Later, the steps of the Model of M-MALL training were carried out by 16 PSTs who participated in the study throughout eight weeks. After the training process on M-MALL, participants were asked to prepare lesson plans, implement what they had learned from the training in their teaching context, and integrate M-MALL into their teaching. At the end of their teaching experiences with M-MALL, participants were given Mobile Learning Perception Scale as a post-test.

The printed form of MLPS was distributed to the participants in pre and post-tests, and collected data were entered into the SPSS program for analysis. In order to test whether the data were normally distributed, Kolmogorov-Smirnov test was administered. The results of this test revealed that the data had normal distribution ($p>.05$). Paired Samples T-test was used for interpretation of the research data. Cohen's d effect size was calculated for the tests if the differences between the groups or variables were significant. For the effect size, Cohen's d values were determined as follows: .20 as small, .50 as medium, and .80 as large (Cohen, 1988; Rosenthal, & Rosnow, 1991).

RESULTS

To find out the perceptions of participants towards mobile assisted language learning at the beginning of the study and after the actual teaching experience, Mobile Learning Perception Scale was conducted as pre- and post-tests. The results of the quantitative data analysis are presented below.

Descriptive analysis was conducted to picture the change in the results of the participants in both tests. The statistical results of MLPS pre and post-test results according to each participant are presented in Figure 3.1.

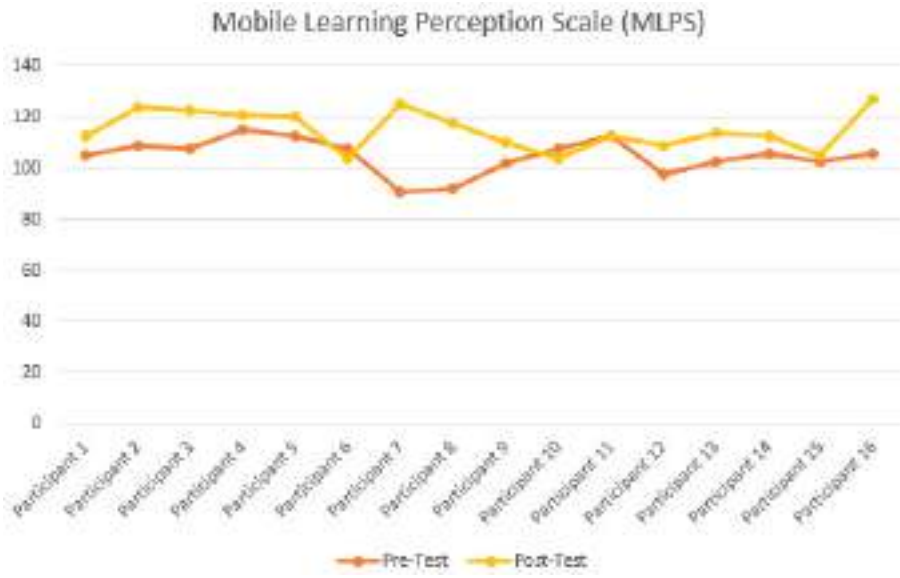


Figure 3.1. *Descriptive results for MLPS pre-and post-tests*

The participants rated the statements on a 5-point Likert scale ranging from 1. strongly disagree to 5. strongly agree. The points are given to the scale range from 26 to 130. Point means of mobile learning perception scale were explained in 3-point range as low (=26-60), average (=61-95), and high (=96-130). High points show positive mobile learning perception and low points show negative mobile learning perception. As seen in Figure 3.1., the MLPS pre-test points of the participants were relatively lower than their post-test points with a few exceptions who had similar perception levels in both pre and post-test. Furthermore, some of the participants' m-learning perceptions were observed to be low and increased a bit more compared to the other participants' MLPS points in the study, such as Participant 7. In other words, these participants' perceptions towards m-learning through this process increased more. These results also showed that in the pre-test implemented prior to the study, all of the participants -even who had the lowest point- had positive mobile learning perceptions as all of their points were high. However, there was still an increase in their m-learning perceptions. Tests of Normality analysis were conducted to test whether the data had a normal distribution and were suitable for parametric statistical analysis. The results are presented in Table 1.

Table 3.1. *Tests of Normality*

	Kolmogorov-Smirnov[a]		
	Statistic	**df**	**p**
Pre-test	,143	16	,200*
Post-test	,124	16	,200*

*. This is a lower bound of the true significance.
a. Lilliefors Significance Correction

As seen in Table 3.1. above, Kolmogorov-Smirnov values were taken into consideration in determining whether the data had a normal distribution since the sample included a small number of participants (16). As presented in the table, Kolmogorov-Smirnov p values were larger than .05 (p>.05), which indicated that the data had a normal distribution and parametric tests could be conducted. Paired Samples T-Test was performed to see whether the participants' Mobile Learning perceptions changed after the 12-week-intervention period encompassing the training on MALL and actual teaching experience with M-MALL in high school settings. The results are presented in Table 3.2.

Table 3.2. *Paired Samples T-Test Results for MLPS Pre- and Post-tests*

Test	**N**	$\bar{X}$	**df**	**t**	**p**	**Cohen's d**
Pre-test	16	105.00	15	3.94	.001	1.40
Post-test	16	115.18				

The Paired Samples T-Test results revealed that there was a statistically significant difference between pre- and post-test results of the participants t(15)=3.94, p<.01. After the 12-week intervention process, participants' M-learning perceptions were found to increase significantly (Pre-test X= 105.00 and Post-test X=115.18). The scale, MLPS, was explained in a 3-point range as low (=26-60), average (=61-95), and high (=96-130). The pre-test mean score of MLPS demonstrated that the participants' perceptions were positive prior to the intervention period and this positivity increased over this period. In other words, as stated in the items of MLPS, the participants thought that M-learning increased interaction in the classroom, provided opportunities such as ubiquity, enhanced the effectiveness of existing learning environments, and fostered willingness to use mobile tools.

The effect size for the significant difference between pre-and post-test results was calculated with Cohen's d value since the P-value does not reveal the size of the effect and only informs the reader whether an effect exists (Sullivan & Feinn, 2012). Being the main finding of a quantitative study, the effect size measures the magnitude of a treatment's effect (Becker, 2000). Thus, to understand the magnitude of the treatment in this study (i.e., eight-week M-MALL training + four-week actual teaching experience) on participants' perceptions towards M-learning, Cohen's d value was calculated. The effect size was found as large (d=1.40) for the difference between pre- and post-test mean scores. In other words, even though both pre- and post-test results indicated high positive perceptions, the difference between the two results was high. Thus, the analysis showed that the participants started to perceive M-learning more positively after receiving training and implementing M-MALL in teaching.

As a result, quantitative results draw an overall framework of PSTs' perceptions towards mobile learning in general. It can be concluded that receiving a systematic and detailed training on M-MALL and having the opportunity to implement their knowledge in actual teaching settings increased PSTs positive perceptions towards m-learning.

DISCUSSION AND CONCLUSION

The aim of this study was to investigate the perceptions of EFL PSTs on m-learning. For this purpose, the Mobile Learning Perception Scale was applied to prospective teachers at the beginning and at the end of the 12-week process, which included M-MALL training and PST's actual teaching practice experiences. The perceptions of PSTs were quantitatively examined for research purposes. The results revealed that PSTs had high levels of positive views towards m-learning at the beginning of this process, and this positivity in their perspectives increased even more at the end of the study resulting in a significant difference. According to these quantitative results, it was found that PSTs perceive m-learning as beneficial for facilitating language skills, learner motivation, interaction, and teacher-learner/ learner-learner engagement as well as providing ubiquity in learning. Similarly, Al-Jarrah et al. (2019) found out in their qualitative research that English teachers viewed M-learning helpful for student engagement and motivation as well as elementary students' language skills. Furthermore, increased collaboration (Aygül, 2019), student participation (Barnes, 2018), vocabulary and pronunciation skills (Hişmanoğlu et al., 2017), communication, and ubiquity (Öz, 2015) were also among the positive perspectives of EFL pre and in-service teachers towards M-learning.

Barnes (2018) stated that EFL teachers are familiar with many mobile tools and use them in their daily lives. As a generation that grew up with technology and especially with the widespread use of smartphones in the recent period, PSTs are expected to develop positive perspectives as individuals who know mobile technologies well (Altamimi, 2017). Therefore, EFL PSTs intertwining with technology for their daily activities might be the reason for their positive perceptions of M-learning. However,

regardless of knowledge about the use of mobile technologies, the integration of these technologies into English language teaching requires separate skills and knowledge (Kuru Gönen, 2019). To develop this knowledge and skills, it is very important to provide EFL PSTs with a subject-specific education on both knowledge and practice (Zhang & Deroo, 2020). According to Al-jarrah et al. (2019), personal use, technology expertise, training, and teaching experience are all correlated with teacher beliefs and attitudes. For these reasons, unlike previous studies, this study presented a training process on M-MALL integration into PST education. As a result of this training process, PSTs had opportunities to apply necessary knowledge and skills for effective M-MALL integration. The qualitative findings regarding the training process also supported prospective teachers' M-learning perspectives obtained through quantitative data.

Many feelings –mostly positive- arouse in PSTs' reflections regarding their experience with M-MALL during teaching practices. Participants frequently stated that they were happy, motivated, and comfortable with M-MALL integration. PSTs indicated that they felt happy when they started to realize that students were participating in the activities and having fun. Moreover, as they saw their students' eagerness and their involvement in M-MALL tasks they felt motivated to use M-MALL in their future lessons as well. Even though PSTs stated that students went through an adaptation period with M-MALL when they first encountered it, as the time passed and students gradually became more accustomed to using M-MALL mobile applications, PSTs started to feel more confident during their lessons. Along with these positive feelings depending on mostly student participation and M-MALL mobile application use, participants indicated that they enjoyed a lot within this experience. PSTs indicated their feelings as:

> *"When using the Flipgrid application, the students' discussing what to say in the video makes me happy and motivated. To see them strive for something, to see that your effort is not wasted, and to watch the products they produce, the expression of 'we did' on their faces made us both proud and increased our desire in this profession." (PST7)*

> *"I was really happy to see the students' efforts to answer questions quickly and correctly to win the game. Lessons in student-teacher interaction are very different. This situation is very important not only for the student but also for the teacher. I've realized this once again. Their willingness to attend made me feel better during class." (PST10)*

These statements demonstrated how positively the PSTs in this study benefited from M-MALL experience, and how this experience affected their views on teaching. The participants also stated that they felt excited and proud in their lessons. In a similar fashion with their students, PSTs were also using M-MALL for the first time in real classroom settings. Thus, they indicated similar feelings that they observed with students. According to their reflections, the more students participated in the M-MALL activities, the more excited they felt.

To conclude, the current study on M-MALL highlights that guiding EFL pre-service teachers with a content-specific training program with modeling techniques and tasks and giving them opportunities to practice their knowledge of integration in actual teaching situations may yield higher level positive perceptions on m-learning. The results of this study are limited to the M-MALL experience of the pre-service teachers in the research context, although the study aims to propound promising results for pre-service teacher education. Thus, a cross-cultural study including EFL PSTs from various contexts can enhance the generalizability of the results. This study focused on the perceptions of participants towards mobile learning after they received training and experienced M-MALL integration in actual classroom settings in their teaching practice schools. Other factors (individual differences, participants' personalities, and prior experiences) that may affect the possible change in participants' perceptions were not taken into consideration for research purposes. Therefore, further studies can include such variables or a qualitative aspect and can be designed in a longitudinal fashion.

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Intrinsic Merits of Open Distance Education System for Engineering Higher Degrees – A Case Study

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Abstract

Tremendous changes are observed in the last couple of decades in the field of technical education, especially in terms of the teaching content, teaching methodologies, effective use of the communication channels and other aspects. The evolution of the internet has taken a leap forward by eliminating the barrier of distance and thus allowing the distance or correspondence education mode to dominate the technical education field. While financial and geographic constraints hinder the students to take up the courses in the technical educational institutions of their interest, the distance education mode has allowed the individual students to fulfill their desires without hiccups, if any. Some of the educational institutions took a step even further by considering the distance education mode as a regular course and thereby allowing the student to enjoy the benefits of a regular course. This paper discusses the Research carried out from University of South Africa with several students located at an off-shore location. All the details related to the methodologies adopted for successful completion of this research, some of the challenges faced are discussed. Bridging of different educational institutions and thereby growing the network of these institutions is also discussed. Some useful suggestions & the associated benefits are incorporated at the end based on the experiences from these investigations. This in turn could help to improve the research program objectives by this mode, especially by the institutes from developing nations like India, and South Africa.

Keywords: *Education, Distance Education Mode, Internet, University of South Africa*

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INTRODUCTION

It is believed that education is the manifestation of perfection already in humans. Education system and method of training have existed for a very long time and evolved over a period of time. It is mentioned that online education is no longer a trend but a way of life. It was further mentioned that in 2012, out of the 20.6 million students who registered in the institution of higher learning, 6.7 million registered for online education (Kentnor, 2015). For instance, distance education was the common term used for several decades. Kentor (2015), alluded that the evolution of distance learning, also known as online education, existed for a number of years. It is mentioned that education back then became available to the elite, wealthy and influential, and mostly dominated by male students (Guisepi, 2007) unlike now. According to Moore (2013), perceive distance education and online learning as a psychological construct that depended upon the dialogue, structure, and autonomy emanated from the Transactional Distance Theory. In the view of Sener (2015), blended learning combines online and face-to-face meetings where teaching and learning takes place. However, in a hybrid mode of learning, programs are completed online while other course activities are done online, but are conducted face-to-face(Sener, 2015). It is therefore imperative for institutions of higher learning to define and identify the mode suitable for their business model. The success of the educational system rests upon the understanding of the dynamics of the students and the environment itself.

The evolution of computer, internet technology, information and communication technologies has changed the prima facie of the education methodologies itself and brought tremendous changes in the way the knowledge is imparted to the students. The term distance education translated to e-learning over a period of time. Most of the people used these two terms as synonyms and interchanged depending on the situation. However, it should be noted that the distance education in higher education systems was delivered occasionally only through classroom lectures but not by leveraging e-learning tools and thus the difference occurs (UNESCO, 2002). It is also imported to allude to the evolution of open distance learning that translates from blended, hybrid and eventually online distance learning. Open distance learning (ODL) is defined as learning that bridges the time, geographical, economic, social and communication distance between institutions and students (Ngubane-Mokiwa & Letseka, 2015). Additionally, Open Distance and e-Learning (ODeL) refers to the emphasis that modern electronic technologies and other digital facilities can easily facilitate teaching and learning (NgubaneMokiwa & Letseka, 2015). However, institutions should comprehend the availability or resources including the human capacity in order to support the dynamic students registaering thereof. Since, students can easily access content materials and interact with their lecturers without the necessity of physical contact (NgubaneMokiwa & Letseka, 2015).

The distance education term is also used in conjunction with open learning (Sarah, 2005). Both of the methods focus on providing an open access to education and training provisions, allowing the learners to come out of the constraints that they have and provide the flexibility to learn and fulfill their desires. It is of paramount importance to note that ICT and its connectivity without the improvement in teaching and learning (Delahunty, 2018), could not provide the much-needed quality distance education. Open learning is one of the most rapidly grown fields in the education and is predominantly attributed by the rapid advancements in the field of internet technologies (Coman, Ţîru, Meseşan-Schmitz, Stanciu, & Bularca, 2020). The term open and distance learning reflects both the fact that the entire or most of the teaching is conducted by someone remotely and the goal is to provide the flexibility to the students to the extent possible to access the content, curriculum or related terms. Bates (2015) advocated that open education initially catered for non-traditional students such as working students, stay-at-home students and disabled students. Hermans (2015:144), view open education as a concept in the educational space that permits extreme flexibility to potential students. In addition, open education is more visible where there is affordability due to its nature of low costs; accessibility to college or university by everyone without barriers to learning; no preceding qualifications to study required; no discrimination by gender, age or religion or even disabilities. Students should be allowed to exercise their own self-determination regarding their study goals and the composition of programmes without barriers to enrolment (Hermans, 2015).

There is a lot of pressure on governments across the globe to impart quality education to everyone. There are many countries that have very limited access to resources to provide education to students. Some of the main reasons include the financial constraints and the lack of healthy and state of the art infrastructure. This is where the advancements in the internet and communication systems helped not only the Government to tackle the problem but also students to learn without any barriers. Open education or distance education was initially coined for education of students at primary school level, but quickly extended to youth and for undergraduate and postgraduate students as well. The challenges associated with establishing the gender free educational aspects are also achieved with this mode of learning. The other important aspect is for the teachers or instructors leveraging the distance education mode to enhance their skills and simultaneously help the Government to build the comprehensive national education system. The importance of distance or open education is not only restricted to schools or colleges but also extended to the organizations. The employers from most of the organizations are leveraging these e-learning platforms to enhance the knowledge of their employees, to upgrade their skills and provide cost effective professional development. This in turn is helping the organizations to increase productivity, develop new learning culture, enhance the innovational capabilities and many more.

Cost implications associated with conventional education when compared to open or distant learning is also one of the driving factors for open learning or e-learning to gain popularity. Initial investments for e-learning are offset by higher recurrent operational costs for conventional methods. Thus, the e-learning programs result in producing graduates at much lower costs when compared to conventional methods.

The efficacy of distance education mode leveraging the information technologies during COVID-19 pandemic has been demonstrated effectively (Coman et al., 2020). This also changed the public perception on distance education mode and is being accepted increasingly even by premier institutions across the globe.

In a nutshell, pandemics, higher infrastructure costs, globalization at a quicker pace, and many more factors are driving the individuals to go for the e-learning way. However, there are a few challenges that hinders open learning as an effective way of teaching. For instance, experimental investigations or hands-on activities, especially in engineering and medical streams are practically not possible to have open learning mode. This is where most of the organizations came up with an innovative way of collaborating with local organizations, thereby allowing the students to leverage the labs or resources. While the collaborations are not new in developed countries, the developing or under-developed countries are fast taking that route to enhance their national education system. Many developing countries like India, South Africa, Brazil, etc. are collaborating in the fields of education, technology etc. thus making it easy for students to enroll for their interested discipline in their favorite colleges.

The current paper focuses on such e-learning options available for a couple of developing nations viz. South Africa and India. It also highlights a few programs that these countries are working upon to promote e-learning for internal students as well as for the students outside of the country. A case study is also taken for the discussion purpose to provide greater details on collaborative efforts between these two nations, especially from an education perspective. While the discussion is highlighted from these two nations, the same conclusions could be drawn for other developing nations or under developed nations.

Distance education mode is not new in South Africa, especially for higher education. Queiros et al. (2016) discussed the right connections for the student to undergo online learning in a South African higher education institution. They had interviewed students who were naïve for online learning and collected their opinions and perceptions on online learning. Based on their investigations, they ranked a few aspects that would drive the effectiveness of online learning. Some of them include the presence of strong social presence through timely feedback, interactions with the facilitators, technological aspects and learning tools.

Mokiawa (2017) investigated the implications associated with the University of South Africa's shift from open distance learning to open distance e-learning. Mokiawa recommends to shift to the open distance e-learning mode instead of open distance learning mode and at the same time points out the importance of strengthening the infrastructure associated with the internet and other related technologies.

Similarly, distance education has existed in India for a very long time. Several initiatives were taken by the Government of India for improving the educational standards in India, especially the higher education standards. The intention was to impart quality technical education provided in premier institutes like Indian Institute of Technologies to every individual. In order to achieve this target, the Government of India partnered with Indian Institute of Technologies and opened a dedicated channel named Eklavya. Eklavya technological channel was a distant learning joint initiative between IIT and Indira Gandhi National Open University (IGNOU). The idea was to bring to the audience the actual IIT classrooms virtually at their door steps. However, inherent constraints associated with the bandwidths, advertisement etc. restricted it to gain popularity. Over a period of time, the latest initiative from the Government of India in collaboration with IITs resulted in the online classes termed as NPTEL. The classroom training was uploaded to a central server and made public. This prompted students to attend these virtual classes based on their availability. A few more initiatives including certification courses, online exams, made it very popular, thus making this program a hit in the Indian education sector.

There was a long debate extended for several decades on the importance of bringing the industry and institute to work in tandem for the professional development of students and thereby eventually benefitting the nation. Industry institute interactions, industrial visits for the students, internships and industry-based projects are highly recommended for the overall development of students in professional courses. While theoretical knowledge is acquired in the classroom of a contact university, practical knowledge is gained through the aforesaid activities with the industry. On the other hand, for example, a staff member working in the industry is already positioned in an advantageous situation to obtain a higher professional degree provided an access is created to acquire theoretical knowledge through e-learning mode. This current paper highlights one such successful research activity leading to obtaining a higher professional degree through distance education mode. This paper also summarizes the joint efforts taken between two universities located at different continents and the research scholar for the completion of the research.

CASE STUDY

In this section, details of case study (Rajeshwar et al. 2020) related to research work carried out by Research Scholar in distance education mode is explained. The student registered for his Doctorate degree in Engineering stream of University of South Africa. However, the student is a native of India and registered for his higher degree from India. UNISA has a provision for foreign students to enroll from India, providing a full-time degree but with an education mode in e-Learning/ distance education. Since the degree is for a professional course, it is prudent to set up a lab for the completion of research. So, an engineering college in India (MVGR College of Engineering) was identified for setting up the lab. UNISA helped in providing the necessary administrative support for the registration and most importantly by providing a dedicated faculty for guidance. Library facilities are key to any research activities. UNISA's extensive subscription list for reputed journals, ebooks and other online facilities helped to browse through sitting at home. One of the most important things that University did to motivate the student, especially the international students, was to provide necessary financial assistance in terms of international scholarship. This really helped the student to get the relief from financial expenditures incurred due to setting up of lab, tuition fee and the conference/ publication fees, if any.

The lab was set up in MVGR College of Engineering. The college provided the necessary lab space for commissioning the test setup. As it was a risky test rig setup, the college took the top most precautions for the safety of the research scholar, students and the faculty involved with this test setup by providing all necessary safety related features and printing the brochures. College also provided other basic infrastructure including water and electricity lines, dedicated technical persons for setting up, troubleshooting and thereby ensuring smooth running of the rig and dedicated faculty for technical consultancy. Timely approvals for setup and quick support from the faculty and lab technicians helped to commission the rig in a timely manner and complete the research.

The combined efforts of student, UNISA and MVGR not only resulted in a quality research output but also helped several students from MVGR to utilize this rig and gain tremendous knowledge during their undergraduate courses. There were also a few papers published, jointly, thus motivating the students to take up their higher education. While this arrangement faced a few challenges, the success story eclipsed these challenges thus making it a story for many more such possible distance education research activities.

CONCLUSIONS

The intrinsic advantages of the distance learning mode are successfully demonstrated by taking a case study between University of South Africa, MVGR College of Engineering and a research scholar from India. Through this study, it is identified that a working arrangement between two organizations is found to be the most important factor for an effective outcome. It is found that the participating organizations stand to gain together by way of joint international publications, minimizing the expenditure on infrastructure, implementation of state-of-the-art ICT, avoiding the traveling and VISA costs, opening up the research and testing facilities beyond the borders. This case study created a positive outlook on the mindset of the public especially with their perception on distance mode of education system.

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Factors Influencing The Success of The Transformation from Face-To-Face Tutorial Mode to Web Tutorial During The Covid-19 Pandemic: A Managerial Approach

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Abstract

The Covid-19 pandemic that started in March 2019 was the biggest disruption of this century. All organizations make adjustments to their systems to suit the pandemic situation, including the Open University (UT). This transformation is not easy because it must be done quickly and on a large scale. Web tutorials are web-based online tutorials. The Open University is a university with a long-distance mode in Indonesia that has a reach throughout Indonesia and 52 cities in the world. The current number of UT students is 347,000 students. Internet penetration in Indonesia is still not good. There are still many areas that have not been reached by the internet. Another factor is the competence to use the internet and the learning management system is not sufficient. The process of transformation through innovation is not a simple thing. Successful educational innovation and transformation must be based on sustainability, scope, and scale (Carolan et al., 2020). During the COVID-19 pandemic, the transformation to online learning is not easy. The finding of Morales, et.al (2021) states that the various actors in the learning processes (students, professors, universities) encountered several barriers in adapting to this new setting. This study investigates the factors that influence the transformation of face-to-face tutorials into web-based tutorials. This research is qualitative research with a phenomenological approach. This study investigated 18 informants who worked at UT headquarters and some regional offices. The speakers are unit leaders and employees related to the implementation of web tutorials. Interviews were conducted face-to-face and using the media. The results of the interviews were processed using the NVivo application. The results of data processing show that there are 5 (five) factors that cause the transformation from face-to-face tutorials to web tutorials to take place effectively. The five factors are academic, IT risk, transformation design, supporting factors, and policy risk. These findings indicate that the transformation of face-to-face tutorials into web tutorials in times of disruption requires change in design, consideration of changing risks including informational technology (IT), risks, meeting supporting factors, and taking policy risks into account. The five components of the model can be composed of strategic factors, namely policy, then the main component, namely academic, and supporting components which include supporting factors, IT, and risk management. To obtain an effective model, these five components need to be integrated into a balanced and sequential design. This model is compiled from the information submitted by the informants. This model still requires field testing and refinement. Further research is needed to test the model of the transformation of face-to-face tutorials into web tutorials.

Keywords: *Disruption, Web Tutorial, Transformation, Risk*

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INTRODUCTION

The global COVID-19 pandemic that started in March 2020 was the biggest disruption of this century. Most organizations must make relevant adjustments in their systems to survive during the pandemic, including the *Universitas Terbuka* (UT) or Indonesia Open University. This transformation is not easy because it must be performed quickly and on a large scale. *Universitas Terbuka* is an open and distance learning higher education institution in Indonesia that has extensive reachability throughout 52 cities in Indonesia and globally. However, internet access in Indonesia is not yet thoroughly available in all locations in Indonesia. Particularly, such facilities are still limited in remote areas. Moreover, the digital literacy of many students and instructors are not sufficient yet to be implemented according to ODL standards, such as when utilizing a learning management system for learning or academic matters, and video communications applications for webinar tutorial such as via Zoom, Google Meet, and Microsoft Teams. The process of transformation through innovation is always a challenge for every educational institution. Successful innovation and transformation must be based on sustainability, scope, and scale (Carolan et al., 2020). During the COVID-19 pandemic, the transformation from face-to-face to online learning is not easy. The finding of Morales, et.al (2021) shows that various stakeholders in the learning processes, from students, professors, and institutions, encountered several barriers in adapting to this new setting.

Reports from the World Economic Forum and Donleavy are quite clear that the Covid-19 pandemic has disrupted education at an extraordinary rate and amount. Many universities are experiencing financial difficulties and difficulty adjusting to the pandemic. The transformation from face-to-face learning to online learning has caused panic because everything happened suddenly and in large numbers. Zoom usage increased from 10 million to 200 million. However, Remenyi (Donleavy, 2020) said that online learning remains an option to replace the face-to-face learning process. In the same book, Makhaya states that universities that wish to survive and thrive have no other option than to reinvent themselves through a future-centric mindset that includes a multistakeholder, broadly participative leadership and management, collaborative business models, and a fundamental commitment to sustainability through ethical stewardship.

According to Bartuseviciene et al. (2021), during the COVID-19 pandemic, universities must develop anticipatory, coping, and adaptable capabilities and act on lessons learned. The factors that influence the successful transformation from face-to-face to online learning during the COVID-19 pandemic must be identified to ensure academic continuity and develop into a resilient open and distance university.

This study investigates the factors that influence the transformation from face-to-face tutorials into web-based tutorials.

METHOD

This research is classified as qualitative research with a phenomenological approach. The data is collected through interviews with 18 informants who worked at UT headquarters and several regional offices. The informants consisted of 7 Heads of Units or divisions, 8 managers and expert staff, and 3 students. Informants involved in our study are unit leaders and employees related to the implementation of web tutorials. Interviews were conducted face-to-face or using video conference applications when necessary. Data collection was carried out in 2021. The results of the interviews were processed using the NVivo application.

FINDINGS AND DISCUSSIONS

The results of the interviews were transcribed, and then the transcripts were reviewed to clarify and verify the data. Inaudible or irrelevant data were excluded from the analysis. The process of categorization, simplification, coding, and data processing is carried out with the Nvivo application. The results of all data processing are in the form of memos or notes.

Universitas Terbuka (Open University) Profile

The UT was established with a mandate to provide higher education for people who cannot attend conventional or face-to-face universities. The current number of UT students is 341,000 students. The number of UT study programs is 43 study programs, with approximately 63% of students under the age of 29 years, which shows the trend of younger students enrolling in ODL institutions. UT students are spread throughout Indonesia and around 2,200 are in 49 cities abroad. To serve students, UT has 39 regional offices (RO) across Indonesia and one regional office for students abroad.

Before the Covid-19 pandemic, UT tutorials were held face-to-face and online tutorials. Face-to-face tutorials are carried out at locations determined by RO or study groups, and the tutors are usually lecturers or professionals who have been recruited and have passed the qualification assessment or selection by UT's regional office. Tutors are given training on how to become a tutor and how to operate UT's learning management systems. Meanwhile, online tutorials are coordinated directly by the faculty with the assistance of the Center of Learning Support (*Pusat Bantuan Belajar* or PBB), and the tutors for online tutorial tutors are applied, assessed, and selected accordingly by each of the faculty. The tutors are also trained thoroughly by PBB before conducting the online tutorials.

The global COVID-19 starting from March 2020 pandemic has caused face-to-face learning or tutorials to halt. Students were not allowed to come to campus or classes, and lecturers were forbidden to give face-to-face teaching. Therefore, Universities are under pressure to quickly find new ways of conducting learning processes and services, as well as tutorials. During the pandemic, 90% of students were unable to participate in face-to-face learning. As Kandri (2020) said as quoted by Grant and Gedeon (2020) "as painful and stressful a time as this is, it may fashion a long overdue and welcome rebirth of our education system".

Like other universities in the world during Covid-19, face-to-face learning cannot be carried out. UT had to find a replacement for face-to-face tutorials. After going through a "trial and error", UT found a solution by combining asynchronous online tutorials with synchronous tutorials via video. The tutorial via video, called web tutorial, is utilizing the Microsoft Teams application. To support the implementation of web tutorials, the learning management system application (LMS; www.lms.ut.ac.id) which was originally commonly used at UT only for asynchronous online tutorials was revised by adding synchronous web tutorials. The number of learning sessions that were originally only conducted 4 times on each course was increased to 16 times by adding the number of discussion sessions to 12 times and 4 times of synchronous web tutorials, whereas the obligatory assignment is given 3 times.

Chart 1 shows that the number of UT students always increases from year to year, even during a pandemic. However, not all students participate in the online learning process due to various reasons such as the absence of an internet network, ownership of learning devices (smartphone, tablet, laptop, etc.), and internet accessibility. In 2020 the number of web tutorial participants decreased due to the pandemic, but after that, it increased again. We suggest that this increase is due to the success of the tutorial service, particularly in terms of the transformation process from face-to-face tutorials to tutorials via the web

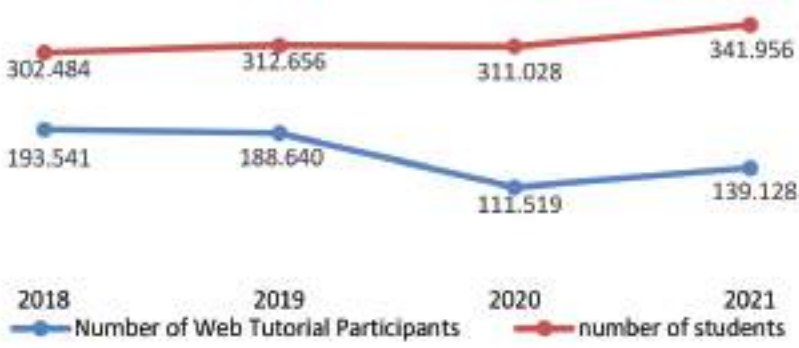


Figure 1. *Comparison of the Number of Students with the Number of Web Tutorial Participants 2018-2021(Source: https://www.ut.ac.id/ut-dalam-angka, 2021)*

The transformation process from face-to-face and online tutorials to web tutorial poses several challenges. Many factors can influence the transformation process. From the data and information collected through interviews with 18 informants at UT Head Office and at ROs, 5 components influence the process of transformation to web tutorial. The five components are academic factors, transformation design, student readiness, informational technology, and policies.

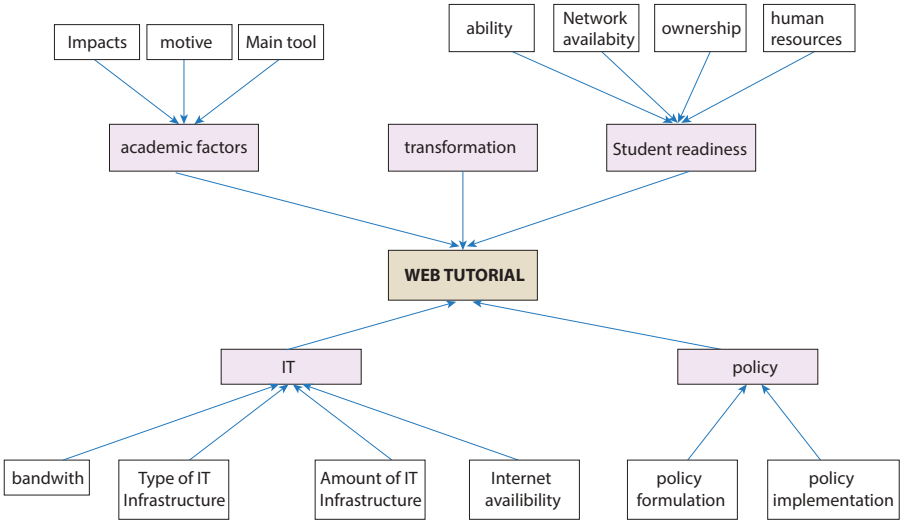


Figure 2. *Web Tutorial and the components that affect it*

Factors affecting the implementation of web tutorials

Based on field findings, the factors that influence the implementation of web tutorials during the Covid-19 pandemic are:

Academic factors

The academic factor component relates to the reasons for choosing a web tutorial and the impact of choosing a web tutorial. Many choices of learning modes are available. From the interview, it was revealed that academic factors in choosing web tutorials as a mode of learning during the Covid-19 pandemic were related to the impact of face-to-face tutorials being a web tutorial, the motive for choosing web tutorials, and tutorials being the main tools in distance education.

a. The impact of face-to-face tutorials on the web tutorial
   The transformation from face-to-face tutorials to web tutorials has an impact on students, tutors, and management. Students must change the habit of face-to-face tutorials into tutorials through the media. Students must also provide tools and find locations that have strong networks. Students who do not have access to the network cannot follow the web tutorials. For tutors, because they were previously face-to-face tutorials the tutors find it difficult to adjust. Management needs to prepare resources and improve the ability to manage web tutorials.
b. The motive for choosing a web tutorial
   Before the Pandemic, UT decided to combine synchronous tutorials and asynchronous tutorials via the web. The Covid-19 pandemic has prompted UT to accelerate the adoption of the web for tutorials.

c. Web tutorials are the main tools in distance education
The main mode of learning in distance education is tutorials. To reach UT students who are spread online is a logical choice. So UT chose to combine synchronous and asynchronous online tutorials.

Transformation

The process of transforming tutorials into web tutorials is based on the desire to combine asynchronous online tutorials with synchronous face-to-face tutorials. The Covid pandemic has made it impossible to combine online tutorials with face-to-face tutorials. UT then did trial and error by trying it through the WhatsApp group. The number of students per class was also reduced from 50 -75 people per class to 20 people per class. The number of meetings was increased from 8 online meetings to 16 meetings consisting of 12 asynchronous and 4 synchronous meetings.

Student Readiness

The student readiness component explains the factors related to student readiness to participate in Tuweb. The spread of student domicile, student economic factors, student and tutor competencies in using electronic devices, and the availability of internet networks greatly affect the readiness of web tutorial implementation. The student readiness factor consists of components of ability, network availability, ownership, and human resources.

a. Ability
The ability component relates to the competence of students and tutors in accessing the internet, using LMS, and the ability to operate electronic equipment.
b. Network abilities
Indonesia has a large area and the internet network is not yet evenly distributed. Not all students can access the internet. Those who do not have internet access, go to a location that is accessible to the internet network.
c. Ownership
Web tutorials require equipment such as laptops, cell phones, and modems. Some students do not have the necessary gadgets. Those who do not generally borrow or access the website together with other students.
d. Human resources
In accessing the tutorial web, some students need the help of others. Usually, students are assisted by study group officers or other students who can operate gadgets or RO employees. If there is no one to help they usually then don't follow the web tutorial.

Informational Technology

a. Bandwidth
Bandwidth strength becomes an important issue in web tutorials. Synchronous tutorials require large bandwidth, while bandwidth strength in some parts of Indonesia is not good.

b. Type of IT Infrastructure
In the early stages of implementing the UT web tutorial using a combination of Whatsapp, skype, and email. However, it was not effective, so the UT used a more integrated LMS based on Moodle.

c. Amount of IT Infrastructure
Web tutorials using MS Teams require a strong network. The internet network in Indonesia is still not strong enough to reach a wide area. Additional servers are needed so that the UT web tutorial service can be accessed by students. But this investment is very expensive, so I have not done it. UT still depends on existing providers.

d. Internet availability
The availability of the internet in Indonesia is still not evenly distributed in its strength. The policy of implementing web tutorials with LMS requires the availability of an evenly distributed internet network. If the internet is difficult to access, then the choice is to reopen face-to-face tutorial services if the situation is conducive.

Policy

a. Policy Formulation
The web tutorial policy was developed due to covid and the need to replace face-to-face tutorials with web tutorials. The reason for this replacement is so that the synchronous tutorial has a wider range. There are various policy options available. Policy formulation is carried out through evaluation meetings of unit heads and IT experts and learning related to web tutorials.

b. Policy Implementation
In implementing the policy, UT also shares servers with other universities which also organize online tutorials. UT also provides students with free access to free digital books. The Chancellor and Vice-Chancellor were very supportive. Problems in implementation are scheduling problems that lack coordination. There are still students who register when the lecture is already in progress.

CONCLUSION

The results of data processing show that there are 5 (five) factors that cause the transformation from face-to-face tutorials to web tutorials to take place effectively. The five factors are academic, IT risk, transformation design, supporting factors, and policy risk. These findings indicate that the transformation of face-to-face tutorials into web tutorials in times of disruption requires change in design, consideration of changing risks including informational technology (IT), risks, meeting supporting factors, and taking policy risks into account. The five components of the model can be composed of strategic factors, namely policy, then the main component, namely academic, and supporting components which include supporting factors, IT, and risk management. To obtain an effective model, these five components need to be integrated into a balanced and sequential design.

This model is compiled from the information submitted by the informants. This model still requires field testing and refinement. Further research is needed to test the model of the transformation of face-to-face tutorials into web tutorials.

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Abstracts (English)

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A Literature Review on Using Motivational Design Process in Distance Education in Turkey[1]

Hasan UÇAR[2], Gönül ÖZSARI[3], Ayşegül ŞAHİN[4]

Abstract

There are many factors that affect success in distance education, but motivation plays a key role among these factors. There are various methods, processes, and designs to increase and maintain the motivation of learners in learning environments. ARCS-V motivation design model is one of the models with a systematic and reliable structure to increase the motivation of learners. In this study, it is aimed to determine the current status of using the ARCS-V motivation design process, which is used in many learning environments and countries, in the context of Turkey. For this purpose, we analyze a batch of literature that is focused on using the ARCS-V motivation design model in the distance education context. In various databases, the research conducted until the year 2022 was examined. Related studies were examined in terms of a year, research type, research method, used motivation factors, learners' type, learning environments, and measurement tools. In addition, the courses in which the motivation design process was applied, the duration of the application, the motivation strategies applied in the studies, and the number of citations of the studies are also given. Results of the study indicated that there is little research conducted in the distance education area in Turkey regarding the ARCS-V motivation design. Implications and future research suggestions of the model for research and practice are presented.

Keywords: *Motivation, Motivational Design, Motivational Design Model, ARCS-V*

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Mining Academic Articles on Mobile Learning: An Nlp and Topic Based Exploration

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Abstract

With the increasing use of mobile devices and applications in education processes, mobile learning (mlearning) has emerged and become a new research area in the field of distance education. This study collates and compares studies published between 2012 and 2022 on mobile learning in distance learning. The aim of this study is to summarize and synthesize the existing studies by scanning the literature between the specified years. The research is a systematic literature review based on content analysis with particular text mining, NLP techniques (POS tagging, word frequency extraction, creation of word clouds) and topic modeling. The findings showed what type of words, collocations and topics are produced in the papers published, which clarified the preference of the authors in these levels. According to the results nouns were determined as the most preferred type of words, "mobile learning", "higher education", "mobile devices" were among the most frequent collocations produced and topics were mostly similar to each other, which focused on mobile learning "devices" and "challenges" in higher education level. Results of the study could be used by all followers including researchers and learners for educational and further research purposes.

Keywords: *Topic Modeling, LDA, Mobile Learning, m-learning, Ubiquitous Learning, Distance Learning*

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Understanding the Impact of Text Normalization Techniques on the Performance of Long-Short Term Memory Neural Network: Stemming and Lemmatization

Dursun AKASLAN[1], Handan GÜMÜŞ[2]

Abstract

Text normalization techniques are used in natural language processing to reduce words to their root forms such as stemming and lemmatization. However, there are differences between these two techniques. Stemming focusses on the affixes of the words whereas lemmatization considers the dictionary forms of the words. The purpose of this study is to compare stemming and lemmatization as a pre-processing algorithm used in open and distance learning to understand the impact of text normalization techniques on the performance of a long short-term memory neural network. To achieve our purpose, various stemming and lemmatization algorithms are used for reducing the words in various documents to a root form. The latest version of MATLAB, R2022a is used to educate and validate the LSTM neural network. The findings of our study indicates that text normalization techniques change the performance of LSTM neural networks when applying text normalization techniques as a pre-processing algorithm.

Keywords: *Stemming, Lemmatization, LSTM, Pre-processing, Distance Learning, Deep Learning*

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The Depiction of Online Learning Versus Emergency Remote Teaching Amidst the Covid-19 Outbreak

Maximus Gorky SEMBIRING[1]

Abstract

This study depicted the operation of online learning that took place due to the Covid-19 pandemic outbreak. The goal was to uncover issues on the effectiveness of online learning implementation at the school level. This is critical as the expediency of online learning was questioned by students, parents, and teachers, including by society. It was believed that online learning gave "complication" rather than an alternative to the practical mode of learning. This study then utilized an integrative literature review to investigate those challenges. It was related to the semi-structured review activities. It was aimed at assessing, criticizing, and synthesizing the literature on the related topic in a way that enables new theoretical perspectives to emerge. The process follows five phases: Design, conduct, analysis, structuring, and writing the review. The study showed a broad misunderstanding in society about what happened during working and studying at home. Many people suspected that what happened was online learning. However, it is not online learning. Instead, it was an emergency remote teaching. Most online learning in operations did not meet the standard as it was conceptually established. Besides, all the operations were not using the intelligent flexible learning model (the Fifth Generation). It then resulted in significant complications at the operational level. Most institutions still ignore the use of appropriate pedagogic and the importance of utilizing the instructional design approaches. This implied that the learning experience as a condition for effective learning outcomes was not equally present in the learning processes. Comprehensive planning that was arranged systematically and structured will allow dialogue for students in the implementation stage. The dialogue must occur not only between student-teachers and students-students but also in a self-dialogue situation to avoid complications. This is to respond to a stutter in the implementation stage as it happened in various levels of schools and places. The main factor was simply a lack of understanding of the essential prerequisites for implementing online learning. This study was then able to identify the most distinctive characteristics of online learning versus emergency remote teaching. Emergency remote teaching does not consider pedagogical aspects and is not planned in a systematic and structured manner. While in online learning the planning element is crucially dominant related to pedagogy and instructional design. This study is therefore expected to enlighten stakeholders to implement real online learning. Not only shifting face-to-face learning that is zoomed in and then declared as online learning. The implementation of face-to-face learning using an application (e.g., Zoom) was one of the emergency remote teaching modes. Emergency remote teaching is by no means online learning. If this understanding is adequately termed as the basis for conducting effective learning, it will become simpler to set up effective online learning. It is then admitted to expecting the output of online learning will be comparable to offline learning. If this equilibrium is reached, the strategy of learning during the pandemic will not be hindered.

Keywords: *The Intelligent Flexible Learning Model, Emergency Remote Teaching, Learning Experience, Mobile Pedagogy, Integrative Review*

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An Insight Into the Implementation Studies on Digital/Micro-Credentials

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Abstract

Purpose: The overarching aim of this study is to reveal the current state of applications in micro-credentials and digital credentials within educational context. The following research questions will be addressed in this study:

1. What are the basic aims for using micro/digital-credentials?
2. What educational levels have been addressed?
3. Which learning environments and software have been used?
4. Who are the key stakeholders?
5. For what purposes have micro/digital-credentials been used in learning processes?

Methodology: A systematic review methodology has been used in order to critically examine the state of application research regarding microcredentials and digital credentials in educational settings.

Scopus database was searched using the selected keywords for published articles without a time limit. The search terms have been queried using the Title OR Author Keyword functions: ("digital micro-credential*" OR "digital microcredential*" OR "digital micro credential*" OR "digital credential*" OR "micro-credential*" OR "microcredential*" OR "micro credential*"). The query has resulted in 97 results. Since the focus of the study was on application and implementation studies, we excluded the theoretical and opinion papers. Also, studies on credentials systems from an engineering and technical perspective and review articles were excluded. The articles written in English were included only with a full-text option. After removing the unrelated ones, 11 studies have been included as the final sample. The studies have been reviewed based on each research question.

Findings: The initial results have shown that micro/digital credentials have mostly been used in the recognition and validation of the students' skills and success. Skill development is generally considered as skills (soft skills etc.) gained outside of the classroom and extra-curricular model of digital badged based credentialing is expressed. The other aim of using micro/digital credentials is about employment. Promoting graduate employability, supporting the personal, professional and educational aspects of students' life and employer perceptions, awareness, and potential use of digital badges in recruitment practices are considered. Also, aims of one of the studies were about distinguishing what types of competencies are best represented through badges,

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observing the motivational force of badges and determining what type of student benefits most from classroom-based badges.
Studies generally focus on higher education and adult learning. Micro/digital credentials programs are mostly offered to undergraduate and graduate students, besides there are also programs for employees. The higher education staff and staff from libraries and career centers mainly implemented the programs. Corporations and business organizations also participate in related projects. Micro/digital credentials are usually offered to students through Learning Management Systems (LMS) (esp. Canvas and Moodle). It has been observed that external applications such as Credly and BadgeSafe which can work integrated with LMS are used in the studies.
Two main purposes of using digital credentials in the learning process have emerged similar to Hickey's findings (2012), motivation and evidence of learning were found to be the main learning purposes. In addition, micro/digital credentials have also been used for collaboration in the learning process.

Keywords: *Open Education, Emerging Technologies, Micro/Digital Credentials*

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Quality Assurance in Higher Education: Disruptions in Preparations for Institutional Reviews in a Comprehensive Open Distance E-Learning Institution

Itumeleng SETLHODI[1]

Abstract

Purpose: This study was intended to determine the nature of disruptions in a comprehensive open distance e-learning (CODeL) higher education institution (HEI) whilst preparing to undergo quality assurance and enhancement institutional audits by a council on higher education (CHE). There is a growing consideration for ensuring that quality assurance (QA) systems in higher education institutions (HEIs) are developed, managed and maintained. Quality assurance is an essential index towards the development of envisaged quality open higher education provisioning. HEIs are a conduit to transforming society (Neema-Abooki, 2022), at times with possible disruptions, necessitated by unavoidable circumstances, to bring about deep change, whilst also preparing to accede to the national mandate. Moreover, open distance e-learning institutions have an even bigger role to ensure that they offer fitness of purpose, fitness for purpose, and value for money quality education. There has to be systems in place to ensure attainment of quality education, hence the need for audits, to ascertain quality. Comprehensive institutions in their nature are meant to be all-encompassing in providing equitable support whilst considering its complexities and multiplicities in their quest to serve and transform lives. Thus, preparing for institution-wide audits require concerted effort and prioritizing the initiative, often at a cost of disrupting daily routines to fit in preparations schedules

Methodology: A poststructuralist approach was sought to determine the nature of disruptions in a CODeL higher education institution (HEI) whilst preparing to undergo institutional reviews by a national council on higher education. This approach was suitable for deconstructing the interlink between forms of knowledge and processes of influence derived from the manifestation of a story, narrated according to the successive order of events in a qualitative procedure, to determine how a (CODeL) (HEI) can showcase its operational QA systems, whilst managing the ensuing disruptions due to such initiative. Narration in empirical study is deemed an explicit enquiry of the structure and subject matter of a story and its importance to understand accounts on the ensuing interferences that may come at a cost of assuring quality in operations amid the institutional audits season and to enable a qualitative analysis in relation to time, social condition and place (Wells, 2011).

Findings: The study found that although the QA systems are matured and functional, there is a need for coherence of these systems to ensure a seamless, value for more and efficient academic support and operations, particularly when there are institutional priorities from national or international bodies.

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Originality/implications: The study derives from the preparations embarked on towards preparing a CODeL institution for the national institutional audits commissioned by the Council on Higher Education. Thus, the objective was informed by the prevalent disruptions in preparing for these audits.

Keywords: *Comprehensive Open Distance E-learning (CODeL), Disruptions, Equitable Support, Higher Education Institution (HEI), Quality Assurance and Enhancement (QAE), Open Education*

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Reflective Multimedia Content Promoting Linguistic Complexity and Abstraction: An Analysis on Learners' Edmodo Reflections

Hatice KARAASLAN[1], Tarık UZUN[2]

Abstract

Purpose: Blending learning and combining educational technology tools and platforms with traditional classroom methodologies have been in use with manifested positive effects on the learning process and learner gains (Strelan, Osborn & Palmer, 2020). As such, virtual learning and instruction design and delivery have become important aspects of teachers' self-regulated professional development and language teachers today challenge themselves to find innovative and creative ways to integrate online content, especially multimedia prompts (Carmichael, Reid, & Karpicke, 2018) to create engaging learning spaces and encourage learner interaction and collaborative reflection. To this end, this paper aims to investigate whether multimedia content – images, quotes, presentations, or videos – as a factor influencing task-readiness with respect to topic familiarity and strategic planning (Bui, 2014) helps facilitate information processing and idea generation, and thus enhance linguistic expression.

Method:

In this study, criterion sampling, a purposive sampling method, was used as in criterion sampling, observation units may consist of people, events or situations with certain qualities (Büyüköztürk et al., 2011; Patton, 2002). Within the scope of this research, Ankara Yıldırım Beyazıt University was taken as a sample, and the criterion for participating in the study was that the participant would be studying at a higher education institution and taking courses with blended features. The study aimed to reveal the role played by the reflective multimedia content in the production of complex language samples – language complexity manifesting itself at various levels (e.g., at the level of the word, the phrase, or the sentence) and with respect to different linguistic aspects (grammatically, lexically, phonologically, etc.) (Lahmann, Steinkrauss, & Schmid, 2019). Within the framework of this goal, the participants were required to complete a series of seven reflective Edmodo tasks in response to varied multimedia input and engage in different roles and interactional patterns over a period of seven weeks. The data obtained from these weekly thematic reflections were used to compile a learner corpus and subjected to complexity analysis using *TextInspector*, a web-based language analysis tool to get detailed information regarding readability, complexity, lexical diversity, estimated Common European Framework for Reference (CEFR) level and other key statistics from any given text (https://textinspector.com/). Sample Analysis Screen and Results Page:

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Findings (Preliminary): For the purposes of this presentation, from the corpus compiled, language samples of three students (with varying levels of language proficiency) were subjected to *TextInspector* analysis; and these language samples were selected based on the criterion whether they were reflective tasks that required prior exposure to multimedia content or not as illustrated below:

Table 1. *Sample task type and task content*

Task Type:	***W Multimedia Content (WMC)***	***WO Multimedia Content (WOMC)***
Task Content:	Theme Self-Awareness Video Activity • For you, what is the best inspirational quote from this talk, and why? • Think about a day in your life when you experienced an emotion intensely: joy, sadness, anger, hope, pride. Pick just one and tell why you think you felt that way (any your values and beliefs behind). • What is one question you would ask Doğan Cüceloğlu if you had a chance to meet him? Why?	Theme Self-Management Essay Activity Write an opinion essay of around 250 words on: "In order for people to have meaning in life, they must have a responsibility that goes beyond themselves."

Language samples of max. 250 words each from three learners' reflections at two data points were subjected to *TextInspector* analysis for lexical diversity and the table below was prepared.

Table 2. *Lexical diversity scores of three learners as reflected in their language samples*

	Lexical Diversity WMC	***Language Sample - Short Extract***	***Lexical Diversity WOMC***	***Language Sample -Short Extract***
Student 1 HL	111*	Sometimes I feel mad regarding any subject. I feel stuck somewhere or mad at myself. I want everything to be perfect. I avoid accepting some things as they are. I think my perfectionistic thinking is behind this emotion. I feel pressure inside my mind and it reflects outside as anger.	75	Firstly, people who have a sense of responsibility are more likely to be successful in their aims. People who are aware of their aims think their life is more meaningful. For example, a farmer wants to grow tons of corn.
Student 2 TG	98	At that moment when I had the feeling, my biggest belief was about education. It was the day when my university exam result would be announced. I had big dreams in my academic career and I wanted to be real. My family has always supported me and that was very valuable to me. But there was a lot of pressure on me that day. I didn't want to disappoint them. When I passed the exam, I was very proud of myself and very happy.	65	First, people have to take a lot of responsibility to add color to their lives because you have to get excited with that responsibility. Maybe you will find your own reason to be at this busy pace. Maybe being able to touch everything and benefit everywhere will make you feel better.

Student 3 MR	74	When I was in primary school, I had great happiness with success and a little bit of luck. An important exam was going to be announced that day and my father had come to school by chance. My father was there when the exam result was announced. This event made me very proud. In our culture, there is a desire to prove himself to the family, so it is very important.	53	In answer to this question, while some people claim that, purposeful and meaningful life is full of happiness and they think responsibilities are not need for a meaningful and purposeful life, some people suggest that purposeful and meaningful life is full of responsibilities and they think happiness is not important.

*D, lexical diversity, value: "As you can see from the scale below, an adult second language learner would typically have a diversity measure of somewhere between 40-70. An adult native speaker who is writing an academic text would typically have a measure of between 80-105. '… lexical diversity is about more than vocabulary range. Alternative terms, 'flexibility', 'vocabulary richness', 'verbal creativity', or 'lexical range and balance' indicate that it has to do with how vocabulary is deployed as well as how large the vocabulary might be." (https://textinspector.com/help/lexical-diversity/) As presented in the same source, the figure below illustrates these descriptions:

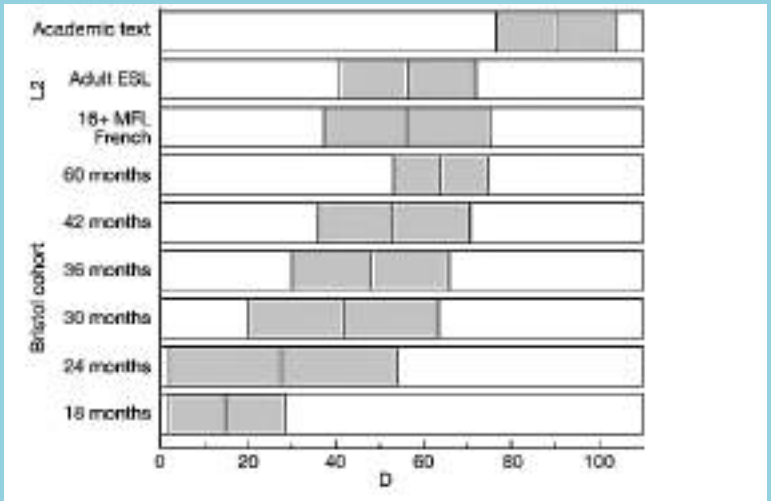


Figure 5: Means and sub-ranges (10th–90th percentiles) of D for various cohorts

As the preliminary results from the lexical diversity analysis revealed, prior exposure to multimedia content as opposed to no such exposure led to observable changes in participants' linguistic output as illustrated in the sample texts provided as well as the lexical diversity scores generated (see Table 2). It was also noted that as participants' language proficiency levels increase, the discrepancy between their no-input vs multimedia-input lexical diversity scores increase, which could be interpreted as an increase in the depth of reflection, abstraction and complexity in thinking and language production.

On another level, for a more in-depth analysis of learners' language samples, *TextInspector* tool's accompanying metrics benchmarked to the CEFR could be utilized to guide learners about their language learning process more closely, at word, phrase and sentence levels, with respect to syntactic and lexical aspects.

Originality: This study aims to provide new insights into such research endeavors as what impact multimedia content has on student engagement with their learning, with a specific focus on a potential increase in language complexity due to enhanced task-preparedness, and to identify research areas where new opportunities for further investigation lie.

Keywords: *Multimedia Content, Linguistic Complexity, Corpus Analysis, Reflection, Case Study*

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The Relationship Between Distance Education Attitude and Self-Regulated Online Learning Skills Among Undergraduate Physiotherapy and Rehabilitation Students

Akın BAŞKENT[1], Abdullah SAYKILI[2]

Abstract

This research aims to investigate the relationship between self-regulated online learning skills and attitude towards distance education among undergraduate students studying physiotherapy and rehabilitation. Due to the COVID-19 pandemic learning and processes in higher education have dramatically been disrupted, and courses including both theoretical and practicum were delivered through emergency remote teaching. This sudden shift of delivery mode has serious implications for practice-based educational programs such as the physiotherapy and rehabilitation discipline. The discipline of physiotherapy and rehabilitation is primarily focused on professional practices and it requires students to put theoretical knowledge into practice in real life situations with practicum. For this reason, it is of paramount importance to identify student attitudes toward the distance education practices and student self-regulation skill levels during COVID-19 in order to inform distance education policies and practices for future implementations. This study is unique in that it focuses on an under-represented sample that was required to develop practical skills through emergency distance teaching during the pandemic. Also, the study investigates the relationship between self-regulated online learning skills and attitude toward distance education, which will further shed light for development of policies and practices for two important variables that have the potential to impact the quality of educational outcomes.

Since the research attempts to inspect the relationship between variables in question, it employs a quantitative correlational research design. The sample of the research is composed of 217 undergraduate students studying physiotherapy and rehabilitation at various universities in Turkey. Along with demographic information, data regarding attitude towards distance education was collected using the Distance Education Attitude Survey developed by Kışla (2016). Also, students' self-regulated online learning skills were measured using the Self-Regulated Online Learning Questionnaire developed by Jansen et. al (2017) and adopted into Turkish by Yavuzalp and Özdemir (2020). The survey was administered online after approval from the ethics board of the university.

In addition to demographic data regarding participants, the descriptive statistics for attitude towards distance education as well as students' self-regulated online learning skills are reported. Furthermore, the results for the correlational analysis investigating the relationship between distance education attitude and self-regulation skills are revealed and discussed. Suggestions for policy-makers and practitioners, and future research areas are offered.

Keywords: *Distance Education, Attitude, Self-Regulated Learning, Open and Distance Learning*

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Perceived Self-efficacy and Opinions of English Language Learners in an Online Platform

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Abstract

Self-efficacy is one of the important motivational factors that affects the language learning process. Learners with high self-efficacy may be more autonomous and likely to achieve higher goals. Language learning journey takes place in different forms and shapes. Online learning platforms are one method as an alternative to formal, traditional school settings. A great majority of learners who prefer learning English in online platforms show some extent of self-efficacy. Therefore, the instructors and the owners of online language learning platforms aim to improve students' self-efficacy levels. The current study aims at finding the learners' perceived self-efficacy level in an online language-learning platform called BukyTalk. The study also aims to explore the learners' opinions about the platform. BukyTalk is an online platform that aims to provide learners with practicing English skills; especially speaking, without any hesitation of committing errors. Thirty active users in different levels in BukyTalk participated in this study. They were asked to fill out the Questionnaire of English Self-Efficacy (QESE) via Google Forms, which constituted the quantitative data. Then, the obtained data were imported to SPSS and lastly the statistics were calculated. In addition, semi-structured interviews were conducted as a qualitative data collection instrument with the aim of finding out the opinions of the participants about BukyTalk. Six participants whose levels are beginner, intermediate, and advanced are selected for the interviews. The qualitative data were analyzed by color-coding. Through the data analysis process, finding specific reasons for the participants' opinions about BukyTalk was intended. These reasons and points were coded to be able to generate recurring and relevant themes. The recurring themes relevant to the opinions of the participants were grouped. These themes were used to interpret the results of the semi-structured interviews. The study yielded interesting results. Results of the self-efficacy questionnaire demonstrated that the overall self-efficacy level of the learners is 4,7 out of 5, which can be interpreted as moderate in the highest cut-off point (3.01-5 is the moderate level). When the self-efficacy level of the learners in four different skills was examined, it was found out that learners have differing self-efficacy levels, speaking as the highest with 4,8. Moreover, learners held positive opinions towards BukyTalk, which were grouped under three major themes: participants' ease, learning by socializing, and opportunities of diversity in learning. This indicated that the learners' perceived self-efficacy level and their opinions of the platform overlapped. Many language learners, especially learners of English in Turkey, may not feel self-efficacious in the target language. As technology evolves throughout the years, it enables learners to use digital gadgets with an Internet connection. The problem addressed by this study was that the self-efficacy levels of the participants who study their English skills in BukyTalk are not the same. They have different self-efficacy

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levels in four different skills. The implications that opinions of the English language learners in this online platform may be an evidence to study further and design the online language learning platforms according to learners' needs in terms of facilitating their self-efficacy levels.

Keywords: *English as a Foreign Language Learners, Self-Efficacy, Online Language Learning Platforms*

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Critical Discourse Analysis of Distance Higher Education in Turkish Higher Education Policy Documents

Asu ALTUNOĞLU[1]

Abstract

A body of literature in higher education research has been discussing how open and distance education may act as a driver of change in the nature and form of higher education, and create new meanings and values regarding the delivery and credentialization of higher education, especially after pandemic times. While the educational value of distance higher education is increasingly being expressed in its disruptive capacity to innovate, there is a need to analyze the meanings attached to it in educational policy-making.

This study examines the distance higher education related policy strategies of the Turkish state. Using critical discourse analysis, based on Norman Fairclough's work, the aim is to analyse the discourses used within policy-related documents and government reports regarding the role and significance of distance education in the Turkish higher education system. In order to achieve this objective, certain key documents including annual activity reports, national youth and education policy documents, and strategic plans produced by the Ministry of National Education and Higher Education Council have been analyzed. Preliminary findings reveal that in the dominant discourses regarding distance education in the Turkish higher education system, the policy makers seem to have very little interest in distance education as a strategic tool. The superficiality and indifference towards the open university system in the analysed documents may come to mean that the policies and envisaged programmes are far away from any solid theoretical background in how distance education may contribute to social inclusion and the development of the society through higher education of masses.

This study is significant in the sense that there has been no prior research into discourses of distance education in the Turkish context. Since discourse analysis in this work has only been conducted on formal policy documents such as reports, further research might be needed to unmask the hidden agendas of the governments regarding distance higher education based on more informal data. The experiences and meanings of the students as part of the open university system could also be investigated to see how their discourses differentiate from the formal policy discourse.

Keywords: *Distance Higher Education, Critical Discourse Analysis, Management of Distance Higher Education*

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Examining Research on Online Learning in Mathematics Education in Turkey

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Abstract

Today, the rapidly developing use of ICT and the global crisis experienced with the COVID-19 pandemic have made online education a necessary and even inevitable teaching method. During the pandemic, research in online education is increasingly being addressed. Researchers and teachers have a dual responsibility to incorporate online environments into our classrooms, as they are a part of many students' daily lives today and tap into their potential for learning and teaching. Interest in online education has grown exponentially in the mathematics education community as well. A better understanding of how students learn mathematics coupled with effective application of online learning can enhance meaningful learning of mathematics and make the subject more exciting. Furthermore, online learning with interactive activities becomes more appealing to enhance students' interest and spirit in learning. Interactive activities also offer individual learning opportunities, as it eliminates the negativities arising from the physical classroom while structuring the mathematical concepts of the students and these activities usually involve instant feedback to the students.

Teaching and learning mathematics is the main interest of research in the field. Considering the importance of online education, the effects of online environments may well improve learning and certainly raise questions for research methodology as well as for teaching. However, in order for meaningful online learning experiences for students, it must be structured in detail and the whole teaching and learning process must be planned very well. While the process of structuring concepts related to mathematics, which is an abstract and difficult discipline by its nature, is quite challenging even in face-to-face environments. This structuring process can become more difficult in online environments as well. Considering the importance of online education especially for mathematics education, the aim of this research is to examine the studies on the online learning practices in mathematics education in Turkey. To conduct the research we will use internet search engines with keywords related to mathematics education and online learning and will review studies placed in Turkey. We primarily will search the following scientific electronic resources: Google Academic, Dergipark and theses in the National Thesis Center of the Council of Higher Education.

The obtained data of the research will be carried out with the basic qualitative research paradigm and will be analyzed by document analysis. The demographic and methodological characteristics of the articles and their distribution in the context of the subject studied and the technology used in the articles will be examined.

Keywords: *Online Learning, Mathematics Education, Content Analysis*

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Reflective Practice of a Novice Academic on the Implementation of Proctored Examination: Auto-Ethnography

Lina METHI[1]

Abstract

Purpose: The study reflects on the challenges experienced during the implementation of proctored examinations as a novice academic in the College of Education at Unisa. This study sought to explore and critique through the process of self-reflection on my own biases, preferences, perceptions, and preconceptions as enablers employed to navigate proctored examinations experiences and how they impact on my well-being and resilience. Admitting to bias is a humbling experience and comes from a place of honesty and humility. As an inexperienced academic, coming from a school environment, adopting new roles and competencies in facilitating proctored examinations, I had the lead role in one of the modules. Making the career transition into academia requires new skills and work adaptations.

Methodology: As a researcher, I reflect on my own experience in administering proctored examination, actions, routines and emotions into the data relevant to the topic of analysis I used auto-ethnography as a qualitative research method to explore and critique my transformational experiences (through the process of self-reflection) in implementing a proctored examination. Auto-ethnography is experience-based, explores only one problem and it is not continual. I learned that the simple act of reflecting during the study could be helpful in debriefing my challenges and successes. Observations of sequence of incidences were recorded in the form of emails, Microsoft Teams meetings recordings and data relating my emotions and any other reflections were shared/ expressed in my interaction with colleagues- the nature, extent and significance of emotions experienced by the researcher. I retrospectively and selectively wrote in my journal about "epiphanies" (remembered events) that I perceived to have significantly impacted on my performance and ultimate results of students. Using grounded theory, I analysed my self-reflections and found that the challenges stemmed from a lack of preparedness, impulsive skilling process in facilitating a proctored examination, increased emotionality, and depletion of collaboration as potential risks.

Findings: The findings cannot be generalised to all academics as the process of online transition affects individuals differently. However, the auto-ethnographic approach revealed my opinions on positive and negative aspects of the experiences of academics in the implementation of proctored examination and provides some practical suggestions to enhance the systems operations in support of the resilience of academics.

Implications: Ensuring and maintaining academic honesty and integrity in any learning environment is vital and significant. Online proctoring is one way to address this challenge. However, the auto-ethnographic approach revealed my opinions on positive and negative aspects of the experiences of academics in the implementation of proctored examination and provides some practical suggestions to enhance the systems operations in support of the resilience of academics.

Keywords: *Auto-Ethnography Debriefing, Proctored Examination, Resilience, Self-Reflection*

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Designing an Online Flipped Classroom in the Era of a Disruptive Change

Alireza MOGHADDAM[1]

Abstract

Purpose: This study aimed to examine how to design an online flipped classroom (FC) at a Canadian university during the COVID disruptive changes. FC consists of two phases: 1) pre-class learning when students study the content; and 2) in-class learning activities guided by the instructor. Below, I will explain how I designed and implemented an FC in a technology-for-preservice-teachers course.

Methodology: I adopted a personal narrative inquiry (NI) methodology to understand "human experience through stories that, in turn, help us better understand the human phenomena and human existence" (Kim, 2016, p. 190). As such, this narrative tells the story of my lived experience in redesigning a course during the pandemic. It reflects the challenges and outcomes of changing a pre-pandemic course to make it more pandemic-era-friendly. My personal narrative was the primary data source, and I adopted Polkinghorne's (1995) narrative analysis method to analyze the data. It "is based on narrative cognition that attends to the particular and special characteristics of human action that takes place in a particular setting" (Kim, 2016, p. 197).

To design my FC, I divided the instructional goals into more manageable learning objectives and redesigned the pre-pandemic face-to-face (f2f) content for an online FC delivery, developing content for each objective. I attempted to design the content appealing and less intimidating in my absence in the FC first phase. I used 'hooks' to grab students' attention and keep them engaged during independent learning. They were relevant short videos followed by thought-provoking questions. Finally, I sent students an email asking them to read the course content to prepare for class participation.

Findings: The outcomes were beyond the expectations. Although it was the pandemic's outset, and I expected less prepared students, they came well-prepared, shared their learning with the class and asked questions. They participated in small-group break-out rooms to further discuss the outlines, and I joined them for a short time moving from one group to another. Students' readiness showed that the FC provided sound instructional design and time to explore the content. Students were engaged because of the FC learner-centred nature, which involved independent practices and participatory learning. The uncomfortable students in the f2f classes were more active in online FC. Technologically, however, students with limited bandwidth had access issues in joining the video conversations and used the audio only to participate in the activities.

Originality/implications: The instructional designs suitable for a time of disruptive change are limited, and most models are for a stable era. The FC adoption during COVID was innovative and original and provided an insight into understanding FC capabilities. The study implies: 1) online FC requires instructional designing skills; and 2) it could improve students' participation and learning when implemented effectively. The outcomes align with the literature that shows FC could lead to more participation and engagement (Stoltzfus, 2016).

Keywords: *Disruption, Flipped Classroom, Narrative Inquiry, Technology, Teacher education*

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An Investigation of Factors Affecting Odl Learners While Conducting Research Projects

Perienen APPAVOO[1], Preetamsingh DOOKHUN[2]

Abstract

Purpose: Most university courses require learners to write a dissertation or thesis which should follow a systematic process. This is an opportunity for them to work independently on a research study of their own design and contribute to scholarly literature. This thesis-writing process gives them a solid understanding of how original research is executed and how to interpret and communicate research results. The advent of technological advances has catapulted the Open and Distance Learning mode to a new horizon. Coupled with the introduction of free education in public universities, Mauritius is witnessing an increase in learner admission at tertiary level. But the successful writing of a dissertation is making the final year of study quite daunting for many learners. The purpose of this paper is to investigate the factors affecting ODL learners while conducting research projects for their thesis. This study was conducted at the Open University of Mauritius.

Design/Methodology/Approach: The research design for this study comprises a thorough literature review, administration of 125 questionnaires targeting different cohorts of undergraduate and postgraduate learners and triangulating data and building knowledge and insights through focus group discussions and personal interviews with ten tutors from the Open University. A mixed-method approach comprising both quantitative and qualitative data collection methods was thus adopted. Both male and female respondents were included in the samples.

Findings: The data analysis process is still on-going, but there are preliminary findings which point to some key factors influencing learners when writing their dissertation. These include home challenges, student-tutor interaction, institutional and situational challenges, recruitment of participants, mastering data analysis software and academic writing skills. Further investigation should reveal if gender and learner profile influenced the responses.

Research Limitations: There was not enough data to analyze differences in responses across courses. It would also have been worth considering the experience of tutors in thesis supervision and see if differences are present. The findings of this study may not be generalized and applicable to other traditional universities where both learners and supervisors are more frequently on campus and thus can have more regular face-to-face meetings.

Practical Implications: This research study will assist academics and thesis supervisors identify the key variables affecting ODL learners while conducting research projects and take corrective measures to improve learners' experience. Practical recommendations based on the findings of the study will be suggested.

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Originality/Value: As at date, no such study has been conducted in Mauritius and the findings should fuel the debate around getting it for learners to confidently embark upon their research thesis, especially in Small Islands Developing States (SIDS), where the mother tongue is not English.

Keywords: *ODL, Research Thesis, Dissertation*

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The Pillars of Remote Assessment Climate in Higher Education

Yaşar KONDAKÇI[1], Yeşim ÇAPA AYDIN[2], Merve ZAYİM KURTAY[3], Sevgi KAYA KAŞIKÇI[4]

Abstract

Purpose: Although distance education has a much longer history, the Covid-19 pandemic accelerated the engagement of higher education institutions with various forms of online teaching. However, online teaching practices are still very controversial due to several different issues. One of the issues in online teaching is related to online assessment practices. Concerns like academic honesty, the quality of infrastructure, providing just opportunities to all of the students, and having necessary skills and competences to conduct online assessment have emerged as core concerns surrounding online assessment, and as a result, online teaching. Based on these issues, the purpose of this study is to develop a framework for online assessment as a result of a review of the literature on online assessment and survey the opinions of key stakeholders (academics, academic leaders, digital learning experts, and administrative staff members) in higher education about online assessment.

Methodology: In stage one, papers published in peer-review journals in English, Dutch, Spanish, Turkish and German on online assessment were reviewed. An analysis of 89 peer reviewed journals indicated that remote assessment has perception, attitudes, and practice (PAP) dimension and these dimensions were used in developing the PAP Framework. In the second stage, an online survey with open-ended questions was conducted to 27 participants working in four higher education institutions in different countries (Belgium, Germany, Spain, and Turkey).

Findings: Both review of the literature and the survey suggest two major outcomes. The first outcome of the study is related to the PAP framework. The second outcome is related to the need of creating a climate of online assessment. Based on review and survey results, four main pillars of online assessment climate were captured. The first pillar of effective online assessment is to develop an overarching policy for online and remote teaching and positioning online assessment in this policy. The second pillar of the climate of online assessment is systematic organizational level support, which covers both didactic aspects and technical aspects. These support mechanisms could be seen as the basis of effective online assessment, and only after providing this support individual academics might initiate and accomplish the online assessment. The third pillar of effective online assessment is related to the technical infrastructures of the institutions. As stated above, these infrastructures are expected to be flexible to accommodate different applications, user friendly and continuously updated by the institution. The final pillar of an effective online assessment climate has emerged as productive

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organizational behavior. Commitment of the academics to their job, professionalism, and affection towards teaching are some of the elements of the productive organizational behavior in universities.

Originality/implications: According to the framework, the universities need to consider several different factors operating at macro-, meso-, and micro-levels. At macro level legal bases and At macro level legal bases and national assessment cultures need to be decoded. At meso-level institutional policy, institutional culture, nature of the discipline, class-size and basic mission of the university are critical factors for effective online assessment.

Keywords: *higher education, remote assessment, online teaching, climate, survey design*

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Qualifications Required to Become an Assessment Specialist in ODL Systems: Exam Services Specialists' Opinions

Damla MUŞTU YALDIZ[1], Nejdet KARADAĞ[2]

Abstract

The assessment process can be considered as one of the most important components of the open and distance learning field. The feedback given to the learners through the assessment process is important in the learning process as well as in terms of the feedback it gives to the open and distance learning system. The quality of the assessment and evaluation process, which provides feedback to both the learners and the system is closely related to the qualifications of the experts in the related field.

With this study, it was aimed to determine the qualifications that assessment specialists should have in open and distance education systems. For this purpose, the opinions of exam services specialists working as support staff in the assessment process at Anadolu University Open Education System were applied.

In this study, which was designed as a case study, the holistic single-case design was preferred among the case study designs. Semi-structured interviews were held with the participants. The views of the participants were analyzed through content analysis and interpreted within the framework of the emerging themes.

Keywords: *Assessment process, Open and distance learning, Support staff, Assessment specialist*

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Accreditation in Open And Distance Teaching İnstitutions in the European Higher Education Area

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Abstract

The main purpose of this study is to investigate the accreditation practices of open and distance teaching universities in the European Higher Education Area and to frame the current situation; to analyze the effects of institutional environment on isomorphism and differences of their accreditation practices. Another aim of the research is to identify the problems experienced during the accreditation processes and to get suggestions from the authorities about their solution. In line with the determined purpose, 11 accredited open and distance teaching universities in the Bologna Countries were taken as a sample and representatives from these institutions were included in online interviews on a voluntary basis. In this study carrying out an embedded mixed method design, a questionnaire was designed considering the literature review, and the basic concepts and assumptions of the systems approach in open and distance learning and new institutionalism which form the theoretical framework of this study. In order to determine the semi-structured interview questions, a matrix was created by choosing the basic principles of the systems approach and new institutionalism. In addition to the questionnaire and interviews, document analysis was also carried out in order to find complete answers to research questions. In the light of the findings obtained as a result of the study, legitimacy is very important for the institutions. However, well-known universities do not see accreditation as the source of their legitimacy. For them, to get approved by the external stakeholders is the main means of legitimacy. Another promising finding is that the institutions are affected by their economic, socio-cultural and mostly regulatory institutional environmental dimensions while in the process of making a decision about getting accredited. Also, all environmental dimensions are interrelated in a way. Another finding reveals that differences were observed between countries and institutions in the implementation of the accreditation criteria although they are designed based on a common document, which is European Standards and Guidelines as an output of the Bologna Process. The study also shows that these criteria do not create any isomorphism in the institutions. These differences might stem from cultural differences between the countries. Another finding is that none of the institutions have experienced decoupling despite the heavy burden and paper work of the accreditation process. One of the most important findings of the study is that getting accredited by the criteria specifically developed for face-to-face education is one of the biggest problems faced by institutions in their accreditation processes. In accordance with the different nature of open and distance learning, it has been suggested that accreditation criteria should be developed according to open and distance education, especially in terms of technology use and delivery.

Keywords: *Bologna process, European standards and guidelines, Quality assurance systems, Accreditation, Accreditation criteria*

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Covıd 19 Emergency Remote Teaching From the Perspective of Distance Education Theories: an Evaluation by Prospective Teachers

Ela AKGÜN-ÖZBEK[1]

Abstract

Purpose: After the COVID 19 pandemic forced millions to move online from brick-and-mortar education, many studies investigated the experiences of different stakeholders regarding emergency remote teaching (ERT). Nevertheless, although many such studies named the process as "distance education" (DE) or "online learning", little emphasis was made in these studies on DE theories asking the participants to evaluate the process from the perspective of DE theories. Also, limited studies were conducted on the "Open and distance learning" undergraduate elective course that is offered in faculties of education in Turkey. Intertwining these two problems, the purpose of the present study is three folds: To check whether the utilized teaching-learning strategy enabled prospective teachers learn DE theories, to discover whether learning DE theories helped prospective teachers to distinguish between DE and ERT, and to discover how prospective teachers evaluate ERT from the perspective of DE theories.

Methodology: The study is designed as a qualitative case study. The research context is the undergraduate "Open and Distance Learning" course conducted during 2021-2022 spring term. The participants were 19 prospective teachers. The research procedure involved a few steps: The prospective teachers were presented with text-based and video materials on DE theories. After studying the instructional materials as guided by the activities, they were asked to participate in a time-bound asynchronous discussion where they were expected to evaluate the COVID 19 ERT from the perspective of DE theories. Once the discussion was over, their responses were reflected on during the synchronous meeting. The data for the present research was collected via the discussion tool of the course LMS, supported by the discussions that were held during the synchronous meetings. During the process, the researcher worked as an active observer. Therefore, the observation notes of the researcher-instructor were also utilized as a source of data. The responses of the prospective teachers and the observation notes of the researcher were analyzed using descriptive analysis and content analysis.

Findings: The results of the study revealed that the implemented strategy helped learners to develop an understanding of DE theories. It was also found that once introduced with DE theories, the prospective teachers were able to distinguish between DE and ERT. It was observed that the prospective teachers evaluated ERT practices particularly weak in terms of communication and interaction by referring to theory of communication and interaction, transactional distance, and community of inquiry. They also referred to the changing roles of learners and made a self-critique by referring to theories of andragogy and theory of independent study. Design and system issues were addressed with a reference to equivalency theory and community of inquiry.

Originality/implications: Although there is a plethora of studies concerning ERT during COVID 19 as of 2022, almost no studies involved prospective learners evaluating the process from the perspective of DE theories. It is believed that the present study will contribute to ERT literature by providing an evaluation guided by theory.

Keywords: *COVID 19, distance education theories, emergency remote teaching*

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The Instructor Parameters of Transition to Fully Online Learning: Ankara University Case

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Abstract

Purpose: In this study, the perspectives of the instructors (all levels) working at Ankara University regarding the emergency remote teaching period have been examined in terms of their professional experience, the time they spent in the profession, online learning experience, discipline area, and whether they got training in the online learning field.

Methodology: A mixed research design has been used in this study. The sample included 1591 instructors working at Ankara University in the 2020-2021 Fall Semester. The measurement tool has been designed as 19 items and a 5-point Likert-type. The factor analysis, validity, and reliability studies were carried out on the data obtained from 300 participants. As a result of the exploratory factor analysis, the scale was finalized as 9 items and 2 dimensions. The finalized version of the scale showed high reliability in both dimensions and overall. After scale development, descriptive statistics and clustering analyses were conducted on the data obtained from 1291 participants. In addition to the quantitative data, content analysis was performed on the answers given to the open-ended question directed to the participants.

Findings: The present study's findings showed that there was no significant difference in the perceptions of the instructors regarding the online learning process they experienced during the pandemic period in terms of their professional experience, the time they spent in the profession, and their discipline areas (faculty of medicine, engineering, law, etc). A statistically significant difference was found between the participants who participated in the training program on online learning and system use and those who did not, in terms of the use of different measurement-evaluation activities, access to technical support, access to support documents, and use of virtual classrooms. As a similar result, a statistically significant difference was found between the participants who had previously online learning experience and those who had no online learning experience regarding the use of the system. As a result of the cluster analysis, it was found that the instructors had self-reflections in three different profiles. Accordingly, the first cluster consists of instructors who do not perceive the use of the system as easy and set goals to improve their knowledge and skills. The second cluster consists of instructors whose perceived ease of use is high and do not set goals to improve their knowledge and skills. The third cluster consists of instructors who perceive the system as easy to use and set goals to improve their knowledge and skills. As a result of the content analysis made

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on the qualitative data, it was determined that the problems experienced in the process are generally technical problems. Unstable internet connection problems and hardware problems are the featured themes in this analysis.
Originality/Implications: The current study has focused on a general overview of the online learning experience during the pandemic time from the instructors' point of view. In this regard, instructors have been clustered into three groups based on their self-reflection and perceived ease of use regarding system usage.

Keywords: *Online learning, higher education, clustering, instructor perspective*

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A Comparative Study on Bangladeshi Undergraduate Learners' Attitude Towards Online and on-Campus English Language Classes: a Case Study From a Private University

MD Asif KAMAL[1]

Abstract

While changing every aspect of human life, Covid-19 pandemic has also changed the mode and methods of teaching and learning across the world. After the first confirmed case of Covid-19 patient detected on March 8, 2020 in Bangladesh, all the educational institutions from March 17, 2020 were closed by the Government of Bangladesh (Islam et al., 2020). Soon, the studies in Higher Educational Institutions started to resume online using different teaching-learning platforms such as MS Teams, Zoom, Google Meet etc. on an emergency basis, and using some regular learning management systems (LMSs) on a permanent basis. However, with the inauguration and rapid acceptance of online regular or emergency or remote or distance teaching and learning, learners' attitude and perspectives towards online and on-campus English language classes and assessments has demonstrated a significant twist. A concurrent mixed-method design (Creswell & Creswell, 2018) was employed in this research using survey questionnaire and Focus Group Discussions (FGD). The survey questionnaire was distributed using Google Form among English language learners (N=110). Findings reveal that the learners who had the experience of both the online and on-campus classes had incredibly mixed feelings towards both the modes of learning. The concerns were raised in terms of learners' motivation, interest, internet connectivity, physical and mental stress, and financial condition of the learners' parents. This study has some significant future implications as directives for the decision makers on whether to continue, online on-campus or blended learning in Bangladeshi educational institutions. The research also comes up with and informed guidelines for making online teaching and learning effective for undergraduate students of English classes.

Keywords: *Learners' Attitude, Online Classes, On-campus Classes, Blended Learning, Learners' Motivation, Internet Connectivity, Physical and Mental Stress, Bangladesh, Undergraduate English Classes,*

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Cultural Pools With Web2 Tools

Gamze ARGIT[1], Fernando PİNHO[2], Blanka Vondrášová KORTÁNOVÁ[3] Ivančica SKLEPİĆ[4]

Abstract

People should agree on the idea that language is an indispensable part of communication. However, teaching a foreign language may sometimes be laborious.It was observed that many students felt shy while using a foreign language and they needed a free and real-like teaching environment.One of the best ways to overcome these problems seemed to integrate cultural items into language teaching.eTwinning is a suitable platform to work with cultural items and language simultaneously.For these reasons, an eTwinning project including 5 countries (Türkiye, Portugal, Czech Republic, Austria, Croatia) and 71 members was created in the 2021-2022 Academic Year.The main aim of this project was to make participants learn a foreign language and cultural items through using web2.0 tools in a particular concept.It can be said that CLIL method, game-based method, and task-based method were melted in the same pot in the project.The project itself was in a game concept.During the project, participants played a kind of scavenger hunt game by using a cultural pool map.They worked in mixed international groups online to have a strict interaction with each other and created joint products by using digital tools.They worked on cultural items such as books, songs, stories, and cuisines that enabled them to work in a multidisciplinary approach.In the project, beginning and ending surveys for both teachers and students were conducted.There was also a survey to get feedback for the tasks.A project diary was integrated to see the opinions of participants.Pie charts and analyses were displayed on related project pages.The project was designed after having searched if there were similar projects to provide originality. It can be clearly said that using several methods differently made the project special. It can also be said that the project was a good example for open and distance learning. Moreover, the project was awarded with a quality label by several countries.It can be suggested that the project can be applied to various age groups or levels.

Keywords: *CLIL, Game-Based, eTwinning, Open and Distance Learning, Digital Education*

Note: *Austrian partner didn't want to be mentioned with full name in the paper because of safety issues. She only wanted to be mentioned as "an Austrian School".*

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International Legal Aspects of on-Line And Distance Education: A Scoping Exploration in the Context of Africa

Tajudeen SANNİ[1] & Amana Amade ROBERTS[2]

Abstract

The outbreak of Covid-19 pandemic has left a revolutionary impact on the education sector in many ways. It is indeed a case of disruptive change. One of the most notable impacts is the widespread resort to online studies at all levels of education- from primary to tertiary levels with all its attendant challenges especially in countries in the Global South including Africa where access to digital facilities is limited. Indeed, in addition to bringing to the fore socio-economic disparities within and between counties in all aspects of life including education, the pandemic has further helped to highlight traditional legal issues associated with online and distance education such as regulatory aspects of recognition, data privacy, intellectual property, taxation, among others. While the regulation of online education is done at national level, it has international contexts due to the nature of online activities especially when these involve foreign elements such as foreign learners and instructors. Against this background, the objective of this paper is to do a scoping review of international legal aspects of online education in general and with particular reference to Africa drawing on primary sources of international (and national) law as well as relevant literature.

Keywords: *Online and Distance Education, International Legal Aspects, Africa*

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Implementation of Delone and Mclean Information System Success Model to Measure the Success of MOODLE LMS at Allama Iqbal Open University

Kamran MİR[1] [2]

Abstract

Purpose: One of the United Nations sustainable development goals is Quality Education, which means "ensuring inclusive and equitable quality education and promoting lifelong learning opportunities for all (UNDP, 2015)". This feat cannot be achieved solely by traditional means of education. Open universities are instrumental in widening the access of people to education and promoting lifelong learning. At least in Asia, member universities of the Asian Association of Open Universities (AAOU) are known to be implementers and promoters of Open Educational Resources (OER) and free online courses, which allow people from all walks of life to be able to access the vast wealth of knowledge that these institutions, together with their partners, possess. One of the key factors that enable and maintain the success of open universities, which mostly offer courses in various modalities, including eLearning, is the use of Free Open-Source Software (FOSS). One of which is MOODLE. Since it has been adopted and implemented by many learning institutions, the interest in utilizing it as a virtual learning environment or a learning management system for eLearning is increasing. Despite success stories published and shared by various open universities using MOODLE, it is important for early adopters, onlookers, and prospective users to examine its success as an information system systematically.

Methodology: This study primarily subscribed to the Delone and Mclean Information Systems Success Model, which investigates system quality, information quality, service quality, user satisfaction, intention to use, and net benefits to measure the success of AAGHI Learning Management System implemented at Allama Iqbal Open University. The data was collected from students and tutors of AIOU using an online questionnaire comprising 27 questions.

Findings: The responses of 735 students and tutors collectively shows that tutors are more satisfied with AAGHI LMS as compared to students. The highest success score is achieved in information quality measure whereas the least score is achieved in user satisfaction measure. Correlation analysis shows that user satisfaction measure is highly correlated with perceived net benefit measure, whereas in primary factors which are information quality, service quality and system quality, the most correlated measures are service quality and information quality. Qualitative response analysis shows that learning content available on AAGHI LMS may be improved by adding interactivity and more involvement of students during online classes.

Originality/Implications: This study is a subset of the broader study of Moodle implementation comparison between Asian open universities of Pakistan, Indonesia,

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and Philippines. This study will help Allama Iqbal Open Universities and other open universities and institutions who are using Moodle as a Learning Management System (LMS) to analyze it critically and improve the relevant segments to increase the overall efficiency and effectiveness of LMS.

Keywords: *Information System Success Factors, MOODLE, LMS, User Satisfaction, Delone and Mclean*

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Use of Digital Books as Learning Materials: The Case of Anadolu University Open Education System

Erdem ERDOĞDU[1], Emel GÜLER[2], Merve UÇAR[3]

Abstract

In distance education, digital books that are presented to learners can be prepared in different formats. The design and use of books and the publishing process are affected by the characteristics of these formats. In the Anadolu University Open Education System, digital books have been published through the learning management system since the 2015-2016 academic year. There are approximately 1 million students per semester in the Open Education System. In this study, the use of digital books in the Open Education System was examined. In this context, the use of digital books is investigated according to the number of learners (per semester) and the rate of use of the learning management system. In addition, the usage rates of digital books offered in different formats since 2018 were compared. The study was designed as a case study and structured with a holistic single case pattern. At the end of the research, suggestions were presented for institutions, learners and researchers for the use of digital books.

Keywords: *Digital Book, e-Book, Digital Publishing, Electronic Publishing, Open and Distance Learning, e-Learning*

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Can Massive Open Online Courses (MOOCs) Develop the Pragmatic Competence of Language Learners?

İlknur CIVAN[1], Sibel SÖĞÜT[2], Serap ATASEVER BELLI[3]

Abstract

The Common European Framework of Reference for languages (CEFR) defines pragmatic competence as an essential part to have communicative competence in a language. As Kasper (1992) suggests, pragmatic competence in a second language is a crucial skill for every language learner to perform real-life communicative functions appropriately as it covers the knowledge of linguistic choices in certain contexts and their possible effects on all the interlocutors during communication (Taguchi, 2009; Crystal, 2011). Despite all of the advances in pragmatic knowledge description, instruction, and evaluation, foreign language teachers and learners still confront numerous obstacles. Besides, in the EFL classroom, communicative and grammatical competence are taught and practiced, but pragmatic competence in the second language is often ignored. EFL teachers must be aware of the various manifestations of pragmatic competence because it can have a significant impact on learners' English-speaking skills in different contexts. In line with this need and significance, this study aimed to explore **(a)** prospective and in-service teachers' understanding of the concept of pragmatic competence and MOOCs, **(b)** their perceptions about the role of MOOCs in fostering pragmatic competence in the second language **(c)** possible factors that may affect pragmatic competence through MOOCs. This exploration would bring valuable implications for language teaching through illustrating how technology-mediated instruction can be a critical benefit in the acquisition of pragmatic competence and how the learners can be socialized into the pragmatic tactics of expert language users to get insights of both the inservice and prospective language teachers. An online open-ended survey was delivered to prospective and in-service English language teachers having at least 5 years of experience in the field working at different schools. Data from 31 participants from three different cities (Eskişehir, Sinop and Erzurum) in Turkey were manually analyzed through content analysis at random intervals by three coders. We found out that the prospective and in-service teachers perceive the role of MOOCs as a significant tool to enhance L2 pragmatic knowledge with a particular emphasis on the provision of lifelong learning, autonomous and self-regulated learning environments, and content-rich, inclusive, free and open access learning platforms. Accordingly, they also perceive MOOCs as the courses that provide affordances in relation to blending formal and informal learning environments, fostering intercultural competence through providing contextual and real-life cases. We also elucidated the prominent needs centered around

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the necessity of being more interactive, focusing on receptive and productive skills, including authentic data. In line with these findings, we offer pedagogical implications to foster awareness about the relationship between MOOCs and pragmatic competence, developing real-life tasks and function-based lesson design using MOOCs.

Keywords: *Pragmatic Competence, MOOCs, Foreign Language, Pre-service and In-service Language Teachers*

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Teaching Clinical Decision Making Skills to Undergraduate Nursing Students via Web-based Virtual Patients during the COVID-19 Pandemic: A New Approach to CyberPatientTM Simulator

Toktam Masoumian HOSSEİNİ[1], Soleiman AHMADY[2], Karim QAYUMİ[3]

Abstract

Purpose: One of the most important aspects of nursing education is teaching clinical decision-making skills. In this field, there are many simulated environments designed to enhance students' scientific and practical skills and prepare them for real-life situations. One of the simulators currently being used in clinical education is the CyberPatient platform. Thus, the present study aimed to investigate the impact of using this virtual patient simulator on the acquisition of clinical decision-making skills by nursing students at Shahid Beheshti University of Medical Sciences in Iran.

Methodology: This was a quasi-experimental study with a pretest-posttest design. All third-year nursing students who had completed their clerkship at the time of the study (n=58) were selected. Based on the educational strategy of case-based learning, the educational intervention was designed and implemented in five steps (pre-activities, introduction, scenario briefing, Web-based clinical scenarios, presentation, and de-briefing).

Findings: Clinical decision-making skills of nursing students were compared before (48/04±12/77) and immediately after training (91/49±7/66) using paired tests, and a statistically significant difference was found (P=0/009). A statistical difference was also observed in clinical decision-making skills before and after one month of follow-up (P=0/001). Comparison of clinical decision-making ability immediately after training with that after one month of follow-up (89/06 ±4/9) also revealed no statistically significant difference (P=0/235).

Originality/implications: The results show that students' clinical decision-making skills can be improved in a controlled environment using the CP simulator. Students can practice their skills in a safe environment without harm to patients. The use of CP-based clinical simulation is a good way for nursing students to combine, relate, and finally apply their theoretical knowledge in nursing practice. The educational intervention and simulator used in this study can be incorporated into undergraduate nursing education curricula to help students acquire clinical decision-making skills. In addition, it is proposed to evaluate the impact of using the CP virtual patient

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simulator on nursing students' critical thinking skills. Using the CyberPatient simulator in a comprehensive clinical education course can enhance the clinical decision-making skills of undergraduate students. A CyberPatient simulator can be used to learn pattern recognition for any type of disease by practicing on a standard virtual patient.

Keywords: *Students, Nursing, Virtual Patient, Simulation Training, Decision-Making Skills*

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Redesigning a Formal Massive Open and Distance Course Using Community of Inquiry Framework

Abdullah SAYKILI[1], Evrim GENÇ KUMTEPE[2]

Abstract

This study attempts to design, develop, implement and evaluate a learning design model based on the Community of Inquiry framework (CoI) for a massive course delivered in a formal undergraduate program through open and distance learning (ODL). Therefore, the study seeks to explore the learner experiences as well as CoI presence manifestations in a massive formal ODL course. The research on CoI primarily focuses on graduate courses with a limited number of learners. This particular study is unique in that it aims to develop and evaluate a learning design model based on CoI, a social-constructivist model, for a massive formal course at the undergraduate level delivered completely through ODL.

The study mainly followed three stages including 1) design and development of the course using CoI framework, 2) delivery of the course, and 3) evaluation. For the purposes of the study, a qualitative phenomenological case study design was employed to unearth learner experiences and CoI manifestations since the study aimed to unearth the shared experiences of a community experiencing the same phenomenon. The qualitative data was collected through various resources including interviews with learners, discussion forum posts, video-conferencing chat posts, and online surveys. Thematic analysis was conducted using NVIVO12 after the data was organized for analysis. Thematic analysis is a qualitative data analysis technique that allows to discover, analyze and report the patterns (themes) observed within the data. Two coding techniques were used to discover codes and themes; open coding to unearth learner experiences of the CoI-based course design, and axial coding to reveal the level of presences as manifested in the various qualitative data collected both with interviews and artifacts on the course.

The analysis of the array of qualitative data revealed themes which include "learner-related findings", "COVID-19 pandemic impact", "findings on learning experiences", and finally "findings on CoI presences". Several positive outcomes were reported in terms of the new course design experience. In addition to positive outcomes, some challenges and unfavorable experiences related to course design and COVID-19 were also discovered. In terms of CoI presence manifestations, the most referenced presence was found to be "teaching presence" followed by cognitive presence, and finally social presence. The results revealed that the CoI framework could prove to be useful in developing an enriched learning experience in massive formal courses delivered through ODL. This study, which attempted a paradigm shift from a behaviorist & cognitive learning design to a socio-constructivist design in massive formal ODL courses, also demonstrated that twenty-first century skills were fostered with the new course design.

Keywords: *Community Of Inquiry, Learning Experience Design, Instructional Design, Open And Distance Learning, Qualitative Research*

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Artificial Intelligence Applications in Distance Education During Covid 19: A Systematic Review of Recent Research Areas

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Abstract

Artificial Intelligence (AI), which is an umbrella term for machine learning, deep learning, algorithms, neural networks, and expert systems, is thought to spark a fourth revolution in education. Artificial Intelligence applications in education (AIEd) are on the rise and have received a great attention especially during Covid 19 pandemics, through which most of the universities and colleges must swift to distance education. According to many experts, artificial intelligence (AI) may provide pedagogical and system-wide solutions to the problems that administrators, educators, and students face during e-learning. Since this topic constitutes a new domain with largely unstudied potential, our study aimed to systematically review research areas of AI applications in open and distance education from 2019-2021, which are disruptive times for the world. With this respect, 104 selected articles regarding explicit inclusion and exclusion criteria, were analysed in terms of the year/ place of the paper, the method applied, and the journals in which they were published. Then the research areas of AI applications in distance education were coded iteratively. First, the results indicated that most of the articles published during Covid 19 were written by Chinese (n=19), Spanish (n= 8), American (n= 8) and Indian (n= 7) academics. They are followed by British (n= 5) and Turkish researchers. Second, the findings reveal that *practice-based* studies constitute the most employed methodology (n =63). Such studies may indicate the tendency of designing AI technologies for education in the research era, which would be also favourable in contributing to the achievement and sustainability of AIEd. Furthermore, the second most widely used methodologies are *quantitative research* (n = 24), and data *mining and analytics* (n = 12). Finally, mixed methods (n= 3), and *qualitative studies* (n = 2) constitute the least used type of research methodologies. Third, our review results show that the leading journal with eight articles published on AI applications in distance education is the *International Journal of Artificial Intelligence in Education.* It is followed by the journals *Complexity* (n= 6), *Education & Information Technologies* (n= 5), and the *Journal of Computing in Higher Education* (n= 4). Next, in our review, six areas of AI applications in open and distance education were coded with 28 subcategories in the publications: a) Intelligent tutoring systems, b) Adaptive systems and personalisation, c) Assessment and Evaluation, d) Profiling and Prediction/ Learner Analytics, e) Affect Recognition/ Affect sensitive E-learning, and f) Virtual Learning Environments. Based on the results, our study revealed that recent research on AI application in distance education focused mainly on providing e-learners with more adaptive, personalised and affective sensitive learning environments by using virtual assistants, learning analytics

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and recommendation systems. Applying predictive analytics for dropout rate or/ and academic achievement of e-learners was another popular research area. Furthermore, a trend for intelligent evaluation and assessment studies was observed, especially for user authentication and proctored exams. Lastly, it was observed that the demand for virtual learning environments to train professionals, especially those in the health sector, has increased greatly due to the shortage of human resources, the increase in educational costs, and the need to maintain social distance during the pandemic outbreak. In conclusion, the prospect of open and distance learning is likely to be AI-powered, as artificial intelligence technologies can bring effective solutions to disruptive situations in e-learning even in times of crisis.

Keywords: *Artificial Intelligence, Covid 19, Open and Distance Education, Systematic Review*

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Perceptions of High School Students About Using Google Forms as an Online Assessment Tool

Aylin ACAR[1]

Abstract

Purpose: In today's increasingly online world, offering e-learning has become not only as an alternative but also a necessity during COVID-19. As an important part of education, assessment has been also evolving from paper-based assessment to online assessment. This study aims to find out the perceptions of the high school students regarding the use of Google Forms as an assessment tool in English courses.

Methodology: This is an empirical study in which high school students participated. During COVID-19, online education had to be conducted. As a part of online education, Google Forms were used as an online assessment. About 100 students ranging in age from 14 to 17 from Lüleburgaz High School had experienced e-assessment. For this study an online survey was prepared on Google Forms. The online survey was sent to all the students who had taken quizzes on Google Forms. However, only 70 of the students responded.

The survey contained 25 items to collect information about the students' opinions about having tests on Google Forms and also e-assessment. The items in the questionnaire were prepared in the light of the previous research studies in this field and adapted from two studies by Alsadoon (2017) and Kundu & Bej (2021).

Findings: According to the results, the students believe that online assessment is suitable for English courses with a mean of 38.6% strongly agreeing, and online quizzes on Google Forms are appropriate for testing their English skills with a mean of 51.4% agreeing. On the other hand, they don't think that online assessment is suitable for all courses (27.1%). The majority of the students agree that they like having online quizzes on Google Forms (34.3%) and the statement that taking online quizzes on Google Forms is a bad idea with the mean of 45.7% disagreeing also supports the idea that students are delighted to experience e-assessment. Furthermore, they think that online assessment enhances self-learning (34.3%).

The results revealed that most of the students prefer online quizzes on Google Forms to paper-based quizzes (35.2%). The reasons for this preference can be that they feel less stressed (42.9%) and more comfortable (41.4%) while taking an online quiz on Google Forms. The statement that they feel more stressful while having online quizzes than paper-based quizzes with the mean of 40% disagreeing confirmed their positive opinions about e-assessment. The most favorable points of Google Forms as online assessment are providing unbiased and fair grading (51.4%), giving immediate feedback on their performance (57.7%). They strongly agreed that getting immediate feedback from online assessment motivates them. However, 34.3 % of the students are neutral about the item that online assessment facilitates cheating and 25,7% of them agree.

Originality/implications: The findings of the study provide valuable information about using Google Forms as an online assessment tool in English courses at the high school level.

Keywords: *Online Assessment, Google Forms, Online Quiz, e-Learning, e-Assessment*

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A Case of an Assessment Module in Distance Education at the University of Pretoria

Maryke MIHAI[1]

Abstract

Purpose: The purpose of the study was to thoroughly investigate the experiences of all role players in a Distance Education module. This study wanted to shed light on how the organisation of a specific Distance Education module, namely Assessment Approaches, could be improved. The study looked at the students' experiences of the pedagogy (like the contact sessions) and the staff involved (the organisation and management of the module), the students' and tutors' experiences of the technology used, and the content and assessment of the module.

Methodology: The methodology followed was a qualitative study, using semi-structured interviews and online questionnaires. Semi-structured interviews were held with the current, and previous instructional designer of Distance Education, as well as the academic supporter of the assessment module. Questionnaires in Google Form format were sent to the tutors of the module as well as the students. Responses were obtained from three tutors and 22 students. The data was analysed through content analysis. This was also an explorative, descriptive case study, studying one module at a specific university.

Findings: Findings concluded that students chose the Distance Education qualification as a result of Covid-19 for their personal and professional development. The Distance Education administration is working effectively and is very helpful to the students, but strategies to increase student participation are needed. The contact sessions are effective but need to be done more often. The learning management system, Blackboard, is easy to use and user-friendly. Students specifically make use of the discussion board to communicate with each other and lecturers. They also find the contact sessions organised on Blackboard Collaborate useful and use the recordings of the sessions if they cannot attend virtually. They experience the assessment module as very relevant to their teaching practice. They would like to learn more about different subject-related applications and digital games. They believe the assessment activities for the module are well planned and they benefit specifically from the elementary statistical procedures. One of the three assignments is seen as taking too much time in comparison with the others and students are not able to complete it thoroughly in the allotted time.

Implications: From the findings, it is clear that the students are satisfied with the module overall. The researcher understood again how the use of the LMS, Blackboard, helped the students to cope with the Covid-19 implications. Instead of sending study material by post like the University did pre-Covid, all the study materials appeared on the LMS. Although the students indicated that they liked the face-to-face contact sessions more, the recorded classes gave them the opportunity to attend any time, any place. This module is a showcase of working together, from the Distance Education Administration to the instructional designer, the academic supporter, tutors, the module coordinator, and students.

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A Comparison of EFL Teachers' Current Self in Online Teaching and In-Person Teaching Environments: Two Sides of the Same Coin

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Abstract

Given the increasing trend toward online teaching all over the world, many components of learning and teaching had to be redefined and new roles have been assigned to both teachers and learners. For the learners who have been constantly engaged in digital platforms and thus have developed digital competence, the transition to online teaching seems to be smooth whereas for the teachers who have been conducting their lessons mostly face to face such a radical change may have caused changes in the methods they adopt, classroom management strategies they use or the way they perceive themselves as the teacher. Just as in many areas of education, these abrupt changes have affected language teaching, leading to a context where almost everything is digital. As a result, language teachers have started to feel the need to redefine their roles and question their aptitude for online teaching. Many studies have been carried out to explore language teachers' perceptions of online teaching and these studies have mostly dealt with teachers' attitudes towards teaching online. However, there seems to be little evidence of comparative analysis of how language teachers perceive themselves in online teaching and face-to-face teaching environments. For this very specific reason, this study attempted to scrutinize the self-perceptions of EFL teachers both in online and face-to-face teaching contexts to contribute to the existing literature. The study specifically dwelled on comparing teachers' self-perceptions in two different teaching contexts with a specific reference to their personality traits and teacher roles and thus presented a new perspective. The mixed-method which includes both qualitative and quantitative analyses was utilized in the current study to explore teachers' current selves in two different teaching environments. The participants were 50 EFL teachers employed in various universities in Turkey. Data collected through the questionnaire were analyzed using descriptive statistics while qualitative data collected via semi-structured interviews were analyzed through content analysis to see the similarities and differences in teachers' self-perceptions in online teaching and in-person teaching. The findings of the study revealed that regardless of such variables as age, teaching experience, and gender, participants perceived themselves differently in online teaching and face-to-face teaching environments. The personality traits they claimed to have and the roles they assumed to adopt displayed significant changes. The findings of the study had some implications both for EFL teachers and teacher trainers as it emphasized reflections of participants regarding the "current self" and the changes they undergo in different teaching environments.

Keywords: *Online Teaching, Face-to-Face Teaching, Teacher Perceptions.*

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Developing an ICT-Based Solution for the Purpose of Teaching Practicum Supervision: An ODeL Case Study

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Abstract

Purpose: In South Africa, educational institutions offering teaching qualifications are confronted with the mandatory task to provide Work-integrated-learning (WIL) in the form of Teaching Practicum (TP) supervision. The university where this project was conducted is an Open and e-learning institution that registers students from across the country and internationally. Consequently, the institution struggles to conduct physical supervision of the Teaching Practicum. The purpose of this presentation is to explore the use of technology in education and in particular, the development of an ICT-based solution in TP, which resulted in a digital application to supervise students virtually and face-to-face. This presentation reports on the project's pilot-study that demonstrated the veracity of the application.

Methodology: The project team included technical and academic expertise that collaborated to 1) develop the application 2) provide input on its format and functionality to fulfil the requirements of the TP supervision. The software development was outsourced, and the application was developed with constant collaboration between technical and academic participants. A three-tier architectural design was adopted to provide all the technical dimensions of the application including end-user functionalities. The academic team consisted of lecturers with experience in TP supervision and at least one of their students. Informed by the research question: how did TP supervisors experience the use of the TP-app during the pilot-study? participants provide feedback in the form of qualitative reports and a focus group discussion, which provided the basis for the findings below.

Findings:

1. That the project was acclaimed for its appropriateness, especially with COVID-19 conditions that were imposed on the mobility of lecturers and students. The project was however designed for both virtual and face-to-face supervision.
2. Developing a mobile app as a comprehensive TP solution is progressive and desirable, especially during COVID-19.
3. Technology integration into TP procedures is suitable to carry out core TP functions such as placement, supervision, mentoring, student support and assessment.
4. To be effective, the TP app should take into consideration institutional demographics and resources, especially the availability of hard – and software, and internet connections.
5. The TP app is a supplementary device to facilitate TP and not as a substitute.
6. Full college and institutional support will be elicited before propelling the project to its next phase to ensure long-term sustainability, improvement, maintenance, and research.

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Originality/implications: The project will transform the TP landscape from manual to digital format in alignment with 21st century, 4th Industrial Revolution expectations and standards. The project holds massive financial and resource savings at an institutional and student level. Considering the economy of scale, given that the host institution is tasked with the supervision of more than 70,000 students per annum, the project embraces eco-friendliness as it replaces the use of paper with digitality and will potentially reduce the carbon-footprint normally required for the visitation of students at school-level. Staff and students will acquire 21st century literacy skills as a common course which will raise the standard and quality of education at both university and school contexts.

Keywords: *Teaching Practicum, Supervision, Digital Application*

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Web-Based Distance Learning in Undergraduate Healthcare Education: A Systematic Review

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Abstract

Purpose: Distance education enables various fields to conduct their educational processes in different environments. Web-based distance learning has an open learning environment with enormous information sources, such as texts, videos, pictures, social media tools etc. As with other undergraduate programs, web-based distance education has been growing rapidly in the health sciences, such as medicine. With the effects of the COVID-19 pandemic, the importance of web-based education has come to the fore. In this systematic review, we aimed to reveal the current situation and trends in web-based education in Turkish undergraduate education for healthcare students.

Methodology: The systematic review was conducted according to PRISMA 2020, in June 2022, considering the Turkish literature index TRDizin, without time restriction. The research terms are used as "uzaktan eğitim" to ensure access to the articles written in Turkish. Afterwards, results are evaluated as per their content one by one and included as per their relation to health sciences and web-based distance education.

Findings: There were 948 results for the keyword "uzaktan eğitim" and %60,65 of them were published after 2020. Only 1.9% of these publications were related to health education. There were 5 studies for medical education, 3 for dentistry, 6 for nursing, 1 for physiotherapy program, 1 for speech and language therapy program and 2 for vocational school programs. Notably, only 4 of those 18 were published before 2020, which are 3 for nursing and 1 for vocational school programs.

Originality/Implications: Web-based distance learning is considered an alternative in health sciences education with its unique characteristics such as accessibility, providing many ways for communication, and independence from time and place conditions. Within the pandemic period, students from health-related science have to shift to web-based distance education. Despite its advantages, studies show that many students have not satisfied with distance learning activities. The study of physiotherapy programs shows that students have a different perception of web-based distance education comprising face-to-face education. Similarly, a study about nursing students indicated that nursing students have negative perceptions on web-based distance education because of not having practical courses, low efficiency of education and technical issues.

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Likewise, the study for vocational school programs has found that the students are mostly worried about the practical courses. However, a study for medical education revealed that efficiency, having course records and fast access to the information were positive perceptions stated by students. On the other hand, similar to the other studies, they expressed that the opportunity of having practical courses is not subjected to web-based education as negative sentiment. In conclusion, even though web-based distance education is beneficial with its advantages, the issues on the practical courses remain a problem for students. As a result, further studies need to be conducted in order to explore the ways to overcome these issues for web-based education in health science education.

Keywords: *Distance Education, Health Education, Web-based Education.*

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Academic Motivation of Gifted Middle School Students in Online Education During 2020 Pandemic Period

Bircan ERGÜN-BAŞAK[1]

Abstract

The first Covid 19 case was announced on 11th March 2020 by the Minister of Health in Türkiye. After this date, Türkiye was placed on lockdown, face to face education was suspended and online education was started. Depending on the sudden transition to online education, teachers were unprepared to adapt their duties like conducting their course, leading students academically, following the homeworks, making exams and grading etc. Because their educational background and professional experience didn't include online education skills. At the same time they experienced the pandemic situation cognitively,behaviorally or emotionally like other people. They needed to do parenting to their own children or manage their daily life during lockdown. In this context, their professional skills had become different and this differentiation affected academic motivation of the students. In this study, it was aimed to investigate online education experiences of middle school students with a gifted diagnosis. In the scope of this study a phenomenological study was conducted. Seven students participated in this study. They were defined as individuals with special needs. Their age ranged between 13 to 15. When online education started one participant was fifth grader, four were sixth graders and two were seventh graders. Two of them were going to a public school and five were going to a private school. One participant was male and the other six participants were female. Data were collected in June 2022 via a questionnaire which was prepared by researchers for this study. In order to collect data a focus group meeting, lasting approximately one hour, was held with the participants. In the focus group meeting participants were asked questions about their online schooling such as the way the lessons were taught, their level of participation in the lesson, attendance-absence tracking system of the school, their homework effort, exam system and experience of passing grade. While participants answered the questions they also displayed their feelings. According to the preliminary analysis on the data, the participants stated that lack of a common attitude in teaching methods of the teachers, giving less importance to the homework control, limited participaction to the lessons and flexibility in the grading system reduced their academic motivation. Additionally students said that due to their giftedness, the supplementary materials and courses opportunities they used in face to face education weren't accessible during the online education process. On the other hand participants underlined that the factor that had the most positive effect on their academic motivation was self-discipline. Findings indicate that it is important to consider the needs of gifted children when shifting to online education. Findings of this study are expected to be useful for the educators who will create online education environments in the future.

Keywords: *Academic Motivation, Online Education, Gifted Students*

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Designing a Mobile App for Teaching Practice Supervision in an Open Distance e-Learning Context

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Abstract

Pre-service teachers use teaching practice as an opportunity to confirm or reject their philosophies about teaching and learning and integrate theory into practice. However, the assessment of students and supervision during the teaching practice period is a challenge in South African distance institutions. This study proposes a mobile app that can be implemented with technology in teaching practice supervision in an open distance learning context to enhance students' supervision experiences and achievement in the learning process. Mobile apps usage in higher education is gaining momentum as the affordances of mobile learning become more evident in the dynamic and complex educational spaces. Mobile learning affords students the opportunity to work together, learn, share ideas with the help of the internet and technology development. This study used design-based research to outline measures taken by lecturers with limited programming experience in shaping the app's design, functionality, and educational content with the help of the app developer. It is anticipated that the developed mobile app would address the logistical and administrative challenges experienced by teaching practice students and supervisors and improve the pedagogy of learning. This study highlights the educational value of mobile app design by lecturers, and it is hoped that the study might encourage lecturers to develop mobile apps to meet their various teaching and learning needs.

Keywords: *Mobile Applications, Mobile Learning, App Design, Teaching Practice, Supervision*

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A Remedy for Lifelong Learners: Micro-Credentials

Aslıhan BAGCI SEZER[1], Evrim GENC KUMTEPE[2]

Abstract

Today, due to the constantly developing technologies and the changing life, the skills needed are developing and changing so rapidly that until a learner graduates from a four-year degree program, new knowledge and skills become sought after by employers and a serious skills gap emerges. The World Economic Forum (2020) estimates that 50% of all employees will need to refresh their skills by 2025 as one of the economic impacts of the COVID-19 pandemic. But for individuals, it can be very dreadful to spend time and effort retraining and learning new skills.

Continuous self-renewal of the individual can only be achieved through lifelong learning. All kinds of learning activities undertaken throughout life in order to develop knowledge, skills and competencies from a personal, social and/or employment-related perspective can be considered as lifelong learning activities (Council of European Union, 2000). Hence, lifelong learning supports the development of knowledge and competencies that enable individuals to adapt to the changing world.

We can benefit from micro-credentials to enable learners to prepare and update themselves for the critical competencies needed in life and their professional fields during their education and/or after graduation. The micro-credentials system is an education model that is being recently discussed more and more around the world. A very popular definition was made by Oliver in 2019 on this subject: "micro-credentials are an assessment-based learning certificate awarded as an additional, alternative or complementary component of a formal qualification" (p.19).

The topics for which we can obtain micro-credentials include not only the knowledge needed to get a job done on a specialized subject but also some of the skills we will generally need to best adapt to the century we live in. For example, these topics can be about self-control, effective communication or teamwork, as well as digital marketing or data analytics. Micro-credentials can teach learners the knowledge and skills they want to acquire in a much shorter time and in a subject-oriented manner. In the future, employers may even be encouraged to list the micro-credentials they are looking for as additional skills/qualifications in their job postings to better guide job seekers.

The term 'micro-credential' is not the only label people use to describe a shorter skill acquisition. In fact, ICDE (International Council for Open and Distance Education) (2019) frequently refers to the concept of "Alternative Credentials" as a broader umbrella term that includes not only micro-credentials but also digital badges and industry-recognized certifications.

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With this study, a valuable contribution will be made to the literature on micro-credentials which can in return form the basis for the dissemination of its applications. As a result, ways to adopt an innovative model in the digital age we live in and to benefit from this system in the best way will be discovered. For this reason, it is thought that this study is significant in terms of its contributions to the field of open and distance education.

Keywords: *Micro-Credentials, Lifelong Learning, Reskill, Upskill*

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Identifying Students' Behavioral Online Learning Patterns Through Learning Analytics: A Case of Universitas Terbuka

Dewi Juliah RATNANINGSIH[1], Tian BELAWATI[2], Kristanti Ambar PUSPITASARI[3], Mery NOVIYANTI[4]

Abstract

Universitas Terbuka (UT) is a university in Indonesia that implements an open and distance education system. As a distance education institution, UT's students are learning independently using pre-produced learning materials. As one of its support services, UT provides online tutorials with which students can interact with tutors and other students in the same tutorial classes. The online tutorial is designed asynchronously using Moodle-based LMS, which automatically records all students' learning activities and thus provides rich data of learning analytics. This paper reports the results of study on learning analytics to see students' online learning behavioral patterns (in the online tutorials) and their correlations with students' performances. The study is explorative and correlational in nature. The population of the study is all students who registered for online tutorials in 2019 (2 semesters) in all courses offered by four faculties at UT, namely the Faculty of Education (FEDUC), the Faculty of Science and Technology (FST), the Faculty of Law, Social, and Political Sciences (FLSPS), and the Faculty of Business and Economics (FBE). UT offers around 1.363 courses, and the total number of students registering in online tutorials in 2019 was around 310.974. The sample of the study was all students in selected courses, and course selection was done through two steps: (1) course categorization and (2) course selection. Each course has a different number of registered students resulting in a different number of tutorial virtual classes; courses with a larger number of registered students would have a larger number of virtual tutorial classes. Accordingly, for sample selection purposes, courses were categorized as large, middle size, and small courses. Further, as courses can also be categorized as exact and social sciences in nature, the sample was also selected based on this categorization. Therefore, the sample courses were grouped into six types namely (1) large exact courses, (2) middle size exact courses, (3) small exact courses, (4) large social courses, (5) middle size social courses, and (6) small social courses. The results of the analysis show that in general, the trend of student participation in online tutorials decreases as the semester progresses. The correlational analysis results show that there are positive significant relationships between students' performance in tutorial and examination, tutorial and final course score, as well as between students' performance in the examination and final course score. The analysis also found significant differences in students' final course performance in a different course category, which indicates that course size does have an impact on students' performance. The analysis also indicates that course size significantly correlates to students' performance as shown by the statistically significant

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differences in students' final course performance in different course sizes. The results of this research imply that course size is one of the effects that need to be considered in the learning model. In this case, the course size is a random effect in statistical modeling. The involvement of random effects in modeling needs to be considered.

Keywords: *Learning Analytics, Moodle, Course Size, Random Effect Universitas Terbuka*

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The Development of Instructional Design using Animation in Elementary Teacher Education Program of Universitas Terbuka

Astri Dwi Jayanti S.[1], Della Raymena JOVANKA[2], Monika HANDAYANİ[3],

Abstract

As the center of the Elementary Teacher Education program of the Universitas Terbuka, the Professional Capability Consolidation (PKP/microteaching) course is a special concern both for lecturers and students. Apart from being a substitute for thesis, this course facilitates students to master the ability to perform problem solving in five fields of study by applying the rules of Class Action Research (CAR) to improve the quality of learning. The study applies the R&D method with the ADDIE model, whose analysis (A) stage aims to comprehend the typical background of students that participated in the program, and the learning constraint that they face. The design (D) stage was overcoming the plan of instruction and identifying resources. The study has developed (D) these following learning materials: (1) animation videos of the course implementation procedures, (2) instructional videos of Action Research procedures, (3) animation videos of the course report writing procedures, and (4) instructional videos of student supervisions. Before the final version of the video is implemented (I), it was evaluated by material, multimedia, and learning design experts. The results of this formative evaluation show that the videos developed are considered feasible to be tested on students who take PKP courses in the current semester. The reasons were because, (1) the developed video is able to show the procedure for the course practice more clearly and detail, (2) the videos become a reference for students in conducting classroom action research. These follow-up trials can be implemented after the researchers make improvements based on the expert validation.

Keywords: *Microteaching, Action Research, Instructional Design, Animation Video, Addie Model*

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Experiences and Concerns of Student Teachers About Teaching Practice During COVID-19

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Abstract

Purpose: The purpose of this research study was to assess the learning experiences of student teachers in the teaching practice course at the university level in Pakistan. These learning experiences were related to the orientation workshop and teaching in school-related work of the teaching practice course.

Introduction: Teacher education programmes allow student teachers to learn, improve, and develop their teaching competencies in the classroom setting (Aglazor, 2017). The teaching practice course is offered in teacher education programmes for providing hands-on practice to the student teachers about the teaching-learning process and teaching strategies at the elementary and secondary school level. It intends to connect the theory and practice for student teachers. In this course, student teachers implement the techniques of teaching to prepare themselves for real-world classroom and school settings (Mannathoko, 2013; Aglazor, 2011: as cited in Aglazor, 2017).

Course Structure: In a teaching practice course, the student teachers attend the school and teach elementary school students under the guidance of supervisors (i.e., teachers appointed by the university for the supervision of student teachers). This course consists of three graded components: (i) orientation workshop (2-3 days), (ii) teaching practicum 6-weeks work and (iii) presentation of model lessons. Before attending the school for teaching practicum (6-8 weeks duration) work, the supervisors provide orientation and practice to the student teachers in a 12-hours workshop about the ingredients of the teaching-learning process, lesson planning, audio-visual aids and teacher-student interaction. After the orientation workshop, the student teachers perform teaching-related tasks in the school assigned by the school head during the teaching practicum (6-weeks duration) at school. The school head and the university supervisor may provide tailored support to the student teachers during this period. After the successful completion of teaching practicum in school, the student teachers present their work to university examiners and this work contributes to the final grade of the course.

Methodology: The research design of the study was a qualitative survey design. The data were collected through an open-ended questionnaire via Google Forms. Out of 28,000 student teachers, 3750 submitted their responses through Google Forms. The data was analyzed through thematic analysis whereas open and selective coding techniques were used at the initial stage of data analysis.

Findings: The responses of student teachers about their learning experiences were related to the teaching-learning process during the orientation workshop, their interaction with the supervisor, use of educational technology during the workshop and teaching in school, and interaction with the cooperating teachers in the school. The students were quite satisfied with the learning experiences in the workshop and teaching practice due to the support and cooperation of the supervisor and the schoolteachers, the

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teaching skills of the supervisors and the staff, provision of opportunities for practical use of knowledge by the trainee teachers, and discussion and hands-on practice during the course activities. The problems highlighted by the student teachers were related to problems faced in the teaching-learning process due to social distancing, and SOPs for COVID-19, large class size, lack of teaching-learning materials, less interaction with the supervisor during teaching practice in school, and lack of resources for teaching and learning effectively in the course. The suggestions provided by the student teachers were related to increasing the time period for orientation workshop and practice time for teaching in school, their frequent interaction with the supervisors and the cooperating teacher in school, extensive support to student teachers for teaching and promoting personalized learning experiences for school students. The study recommended integrating the course objectives with students' experiences and concerns every semester so that the student teachers in upcoming batches have more improved and flexible teaching practice experiences.

Originality/Implications: The study suggests a practical approach to the offering of teaching practice courses for effective learning experiences for student teachers.

Keywords: *Student Teachers, Teaching Practice, Teacher Education, Student Learning, Professional Development, Teaching During COVID-19*

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The Instructors' Competencies and Experiences in Online Teaching

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Abstract

The pandemic has necessitated the educational institutions to adapt to new ways of providing their services. The higher education institutions have rapidly gone on to emergency remote and online teaching because of the pandemic. Moving a course online requires new ways of thinking about teaching and learning and online tutors need to go beyond the competencies required by the traditional environment. Therefore, defining new competencies were required for the instructors who found themselves teaching compulsory online classes in the pandemic process. As a matter of fact, after the pandemic, higher education institutions continue to use online and blended methods.
As the number of undergraduate students enrolling in online programs and courses increases, the demand for quality education is increasing day by day, and this is becoming a necessity. Especially during the pandemic period, an urgent transformation occurred in educational institutions all over the world. The instructors transferred the courses they gave face-to-face to online environments. Instructors who had no previous online teaching experience had to use various online educational platforms and tools. However, it has become a necessity to design and implement courses befitting online education and to organize assessment and evaluation activities accordingly. While this rapid transition process provides an advantage for students and teachers in terms of ensuring continuity of education, it also brought various difficulties and problems with it. At this point, it is vital to determine the experiences, needs and aspirations of online instructors, to identify the problems they encounter in the online environment, to develop solutions, to ensure continuity in online learning environments and to improve the education process.
In this study it is aimed to examine the online teaching processes of the instructors in higher education in detail and to reveal their online teaching competencies. A convergent parallel mixed method design was used in this study. While the comparative method was used in the quantitative part of the research, the qualitative part was designed as a descriptive case study. The data were collected from 490 online instructors who have been working in various departments of a state university in Turkey. A questionnaire was used to reveal the practices, experiences, opinions, and online teaching competencies of the instructors in the emergency remote teaching process. According to the results, it was observed that the instructors preferred Zoom for synchronous and Canvas for asynchronous applications the most in online education. The online teaching competencies of the instructors in pedagogy, technology and facilitation dimensions turned out to be quite high. Course administration competencies were intermediate. According to the results obtained from the qualitative dimension of the research, most of the instructors stated that online education significantly increased their workload. On the other hand, they cited the advantages of online education as well as pedagogical and technical difficulties.

Keywords: *Teaching Competencies, Online Instructors, Online Higher Education, COVID-19 Pandemic*

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Open Educational Resources for Equitable Quality Education: Some Reflections During COVID-19

Pushpa CHAKRAPANI[1]

Abstract

30 years ago, it would have been far from possible to imagine one attending classes on a tiny screen from the comfort of their home. However, with passage of time, humans have learnt to adapt to the ever-changing demands it brings with itself, ranging from technological advancements to scientific breakthroughs that have altered everyday lifestyle. The year 2020 would go down as the most unique and unpredictable case in recent history. The unprecedented crises the year presented itself with, from healthcare to education, have overtime taught one the importance to be adaptive to these needs of time and responsive to the changes of times. Along with everyday life coming to pause, the pandemic also shut doors for the field of education, forcing tens and thousands of schools, colleges, and other higher educational institutions across the globe to close down. Though the world found the sudden changes challenging to navigate initially, thanks to the developments in information technology, new opportunities surfaced in teaching and learning pedagogies, simultaneously challenging the traditional classroom practices. However, in a world that is ever divided in terms of equality in access to opportunities, education was no exception. While adapting to an unfamiliar online mode of teaching and learning was a challenge in itself, the larger challenge lay in the lack of access to online education and technology to students coming from different socio-economic backgrounds. The educational pursuit of millions of students who could not afford to shift to this new, unconventional mode came to a halt during the pandemic, preventing them from achieving their goals. Though over the past two years, several higher education institutions have been using digital technologies in imparting education to their learners, there have been some significant barriers that make the reach and access to the learning materials to several students. At a time when the world awaited a disruptive change in the existing classroom environment, Open Educational Resources (OER) presented themselves as harbingers of opportunities with the potential to revolutionize the future of education and classroom learning. With free of cost resource availability, for not just tertiary, but also primary and secondary education levels, OERs' flexibility makes them easy to be reproduced and remodelled to better adapt to a diverse set of needs, including but not limited to print, audio, video and electronic media during such uncertain times. A very crucial part of the OER system is credited to Open Universities, which play an important role in making open education accessible to all masses, taking a step closer to the 2030 vision of "universities without walls". With a special emphasis on the educational crisis during the COVID-19 Pandemic, this paper explores the importance of Open Educational Resources and the need of the hour to promote and sustain their initiatives. Talking about some of the barriers that teachers or instructors face in delivering the OER materials, it also sheds light on the types of useful licenses and some of the significant challenges in using OER.

Keywords: *COVID-19, Open Educational Resources (OER), Online Education, Licenses.*

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Teacher Experiences in Creating and Integrating MOOCs into Formal Courses

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Abstract

This paper proposes to reveal the results of a descriptive study in which teachers' experiences in creating and integrating MOOCs or MOOC-based pedagogies into their courses. MOOCs are online courses designed for large numbers of participants, that can be accessed by anyone anywhere as long as they have an internet connection, are open to everyone without entry qualifications, and offer a full/complete course experience online for free. They do not only support informal and non-formal learning but also formal learning. Since MOOCs' rise in the early 2010s, a number of studies have been conducted to examine the feasibility of integrating MOOCs into formal courses. An Erasmus+ project,*Curricular modernization by implementing MOOCs model, MODE-IT*, was also designed to support HE teachers' gain required competencies to design and develop MOOCs or MOOC-based pedagogical strategies related to their formal courses, and also to provide guidance to discover innovative approaches to integrate MOOCs or MOOC based pedagogies into formal courses. As one of the intellectual outputs of the MODE-IT project, teachers from five partner institutions (Fachhochschule des Mittelstands, FHM of Germany; Kaunas University of Technology, KTU, Lithuania; Universitatea Politehnica Timisoara, UPT, of Romania; Instituto Politecnico do Porto, IPP, of Portugal; and Anadolu University, AU, of Turkey), first, designed and developed MOOCs or MOOC-based instructional strategies, then integrated these MOOCs or strategies into their formal courses and also offered as standalone MOOCs or learning opportunities for non-formal learners. During the previous intellectual outputs of the project, those teachers were also required to participate in an online training to gain competencies to create and integrate MOOCs into formal courses. At the end of their piloting of their courses and strategies, they were asked to complete an online survey where close-ended and open-ended questions were asked to learn their experiences in the project. The teachers were very satisfied with their integrations/implementations.

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They all indicated higher levels of satisfaction in almost all the close-ended questions and also clearly stated their satisfaction in open-ended questions. Most importantly, they pointed out that overall, this was a very encouraging and valuable experience, and that they will work on creating better MOOCs and look for more innovative ways of integrating MOOCs into formal courses and programs. So, one can easily infer that the MODE-IT Project has created a high-level awareness among teachers and provided a crucial experience in creating and integrating MOOCs into formal curricula. Briefly, this paper might be beneficial for those who are interested in creating MOOCs and integrating them into formal curricula.

Keywords: *MODE-IT, Erasmus+, MOOCs, Integration into Formal Courses, Teacher Experience*

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ODL Experiences of International Students During Crisis Times

Elif Tuğçe GÜLER[1], Avni ÜNAL[2]

Abstract

International students can be considered one of the most vulnerable groups during crisis times. On a regional and national basis, various prevention, intervention, and postvention implementations were implemented to facilitate the higher education experiences during pandemics in Turkey. This longitudinal case study aims to explore the outcomes of these measures, considering the phenomenological experiences and issues of African students' (n=6) open and distance learning experiences since the beginning of the pandemics. The researchers utilized the Interpretative Phenomenological Analysis to analyze semi-structured online interviews conducted at the beginning of the pandemics (May to July 2020) and very recently (June to July 2022) to explore students' experiences. Interviews were conducted via online meeting programs such as Skype, Zoom, and video phone calls in both English and French and transcribed immediately after the meetings. Researchers used MAXQDA qualitative analysis program to combine two different analyses and provide holistic findings. The ethical permission was gathered by applying to the University's Ethical Commission. Researchers collected data in encrypted data files by confidentiality measures. The names of those students and universities were anonymously labeled, and results were revealed based on ethical cautions. Three different researchers coded the findings to ensure the research's credentials and transparency. Overall results revealed that the international students' experiences might differ from the local students, and further difficulties may disrupt their educational processes and overall mental well-being. International students had to cope with different pandemic-based psychosocial, financial, and health problems throughout the pandemics. Besides, their experiences were exacerbated by the fact that they were foreigners. During confinement, international students experience further loneliness in addition to their overall experiences of xenophobia, discrimination, and segregation. According to participants, since the beginning of the pandemics, the national and local measures taken to solve international students' problems were insufficient, and in most cases, these students lack support. Under the Emergency Remote Education, the instructional design regarding language teaching under the TÖMER was not efficient as it may demand different ways to instruct, and the digital gap among students exacerbated participating classes. Most participants revealed that a lack of technological devices and internet connection prevented them from attending lectures. As a result, receiving failures impacted their adjustment to follow-up studies in Turkish and caused additional financial difficulties for their families. Recent interview results revealed that to deal with the disruption, those students created ways to overcome the hardships and had to find alternative solutions, including dropping out of school, relocating to bigger cities, and creating business opportunities apart from their

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educational aspirations and work under severe conditions. To cope with those problems, some students revealed they started to be part of various organizations, religious groups, and communities in their ways to seek out psychosocial and financial support. The findings suggest that if instructors, education administrators, policymakers, and non-governmental organizations gain insight into international students' issues in those times, they may implement culture-specific and need-based precautions to facilitate their overall experiences and adjustment problems.

Keywords: *Open and Distance Learning (ODL), International Students, Disaster Risk Management, Digital Division, COVID-19*

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E-Argumentation Software: A New Perspective for Technology Assisted Argumentation in Blended Learning Context

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Abstract

Argumentation can be defined as a process in which claims, data, justifications and supporters, which are accepted as the basic building blocks of an argument, are meaningfully linked. It is a process in which the components of claim, evidence and reasoning are brought together. On the other hand, argumentation is accepted as the language of scientific debate in international literature. Argumentation also emerges as a teaching-learning approach, especially in Science Education. Developing technological opportunities enable argumentation processes to be carried out more effectively with technology support, both in face-to-face and online environments. In this context, software and online tools, that allow us to use argumentation in distance education and blended learning, have been used in recent years. In this study, a design-based research that resulted in the development and testing of E-Argumentation software, within the scope of a TUBITAK project, is presented in detail. This new E-argumentation software is compatible with current technologies that can be used in both distance education and blended learning environments. The software has been tested in secondary school Science Education context. The design-based research steps, the features of the developed software and its pedagogical value and usability are presented and discussed in this study.

Keywords: *argumentation, software, technology, blended learning*

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Fostering Learning Through a Community of Inquiry in Online Discussions: A Case of a Postgraduate Open Distance Learning Course

Patience Kelebogile MUDAU[1],

Abstract

The 21st century has ignited the increased demand for online courses thus instructors are challenged to facilitate discussions that promote critical thinking and mastery of content. The online discussion forums create opportunities for learning through knowledge sharing, engagements and collaboration through Community of Inquiry (COI) across four respective modules in a Postgraduate course.

Purpose: Central to this case study was to explore how the community of inquiry fosters student engagements with content, amongst themselves and the facilitators to create opportunities for learning in a postgraduate module.

Methodology: This qualitative study used an online discussion forum as a pedagogical tool in identifying emergent themes from the posted deliberations by postgraduate students. Within an interpretive paradigm, postgraduate students' deliberations in the discussion forums platform were retrieved verbatim to explore the relevance of discussion forums in enhancing deep learning.

Findings: This study revealed that students benefit from the discussion forums as they are able to engage with content, other students and the facilitator.

Originality/implications: Thus, this study recommends that more meaningful engagements should be created in the discussion forums for students to bridge the gap between students and facilitators fostering the three presences of COI in an Open distance learning (ODL) learning environment.

Keywords: *Online discussion forum, community of enquiry, learning, open distance learning*

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The Inter-Relationship Between the Covid-19 Pandemic Related Situational Changes in Educational Settings: Job Satisfaction and Motivation of EFL Teachers

Merve Nur BOLDAN[1], Serhat AŞIK[2]

Abstract

This study aims to investigate the perceptions of EFL teachers in Preparatory schools in state universities in Turkey on job satisfaction and motivation before, while, and after Covid-19 pandemic. The definitions of job satisfaction and motivation, the situational changes related to Covid-19 pandemic, the factors affecting job satisfaction and motivation of teachers during the three different periods in education: face-to-face (before pandemic), Emergency Remote Teaching (a temporary type of teaching due to the pandemic crisis without including information about clear teaching instructions, teacher and student responsibilities, preparation and planning, assessment, and evaluation procedures) (while pandemic), and hybrid education (after pandemic) were examined in the present study. A phenomenological research design was conducted as one of the approaches of qualitative inquiry in order to define the experiences of the participants (9 English instructors in diverse Preparatory schools). Google forms including open-ended questions and online in-depth interviews were conducted as data collection tools. The themes and codes were established by the authors and transferred to NVivo12. Furthermore, the interviews were recorded via an online teleconferencing application and uploaded to a software for automatic transcription. The findings of the data were presented in separate tables (the codes of job satisfaction, the codes of job motivation (intrinsic and extrinsic factors), positive and negative factors perceived to affect job satisfaction, positive and negative factors perceived to affect job motivation. The analysis of the data displayed that job satisfaction and motivation are related to numerous factors involving both intrinsic and extrinsic elements. Moreover, the different factors about job satisfaction and motivation in different education periods (face-to-face, Emergency Remote Teaching, hybrid) were compared and contrasted by the participants and these comparisons provided comprehensive insight to the teaching field in terms of the situational changes in Covid-19 pandemic and its effect on teachers' job satisfaction and motivation.

Overall, the participants suggested the transitions between the periods required them to adjust to the new situation. In particular to tertiary-level education, the instructors had to teach in an unfamiliar setting without attending any seminars or workshops. Without additional assistance, they had to rely on their own capabilities in this process. They underlined the need to form groups of collaboration or workshops led by the administration to mitigate the problems caused by swift situational changes.
This relevant study addresses an unprecedented issue in that the Covid-19 pandemic caused swift changes in educational settings, and the fluctuation of teachers' job satisfaction and motivation throughout this period have not been studied comprehensively.

Keywords: *teachers' job satisfaction, teaching motivation, situational changes in Covid-19 pandemic*

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Lessons Learned from Instructional Design Experiences of pdMOOCs

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Abstract

Instructional designers are active elements in designing a predictive analytical solution in MOOCs. Their involvement in the ID process is critical but their perspective seems to be underestimated (Yanchar et al., 2010; Williams et al., 2011; Er et al., 2019; Zhu et al., 2020) even though they create MOOCs, deal with several challenges, and solve the problems before a course turns into a MOOC in the current literature findings.

Purpose: Therefore, this study aims to reflect instructional designers' (IDs) experiences in everyday design practice and also through a project including all organizational and communicational dynamics and encompassing all analysis, design, development, and evaluation stages of pdMOOCs1. We selected bilgeis.net pdMOOC platform as the case, which is one of the biggest professional development MOOC projects in Turkey. The research question is "What are the suggestions for an effective and efficient ID process of pdMOOCs?".

Methodology: So, this is a case study, and several data sources concerning the ideas and beliefs of 20 instructional designers that gained from their comments/feedback on the 247-course files, 503 e-mails, and 20 interview recordings have been examined. Generally, the answers to the questions "What worked?, How should the ID Process be more effective?", "How should pdMOOCs be more effective and qualified?" and "What would you change, if it was possible to start?" emerged the themes concerning the phases and codes.

Findings: Based on the qualitative analysis results, 5 categories (Analysis, Raw content preparation, Storyboarding, Production- Initial testing, Organizational issues) ; orientation, need analysis, raw content, storyboarding, testing and revising, process, instructional approach, portal, quality management, organizational communication, and human resources related 11 themes emerged.

Originality/implications: So in-depth analysis of pdMOOC designers' experiences was expected to contribute to the MOOC and OER research community by examining all stages of MOOC development and MOOC project in a unique, holistic and critical approach and emerging several important socio-cultural considerations. Since the study presents real-life empirical evidence regarding which factors are likely to affect instructional designers, the findings share not only the suggestions the IDs pointed out during the MOOC development, but more importantly, how MOOC ID projects should be specified and what MOOC educators need for better implementation and what is needed for collaboration of different teams.

Keywords: *MOOC design, pdMOOC, Instructional Design Process, Instructional Designer, Case Study*

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Exploring the Impact of Digital Activity and Material Design in Open and Distance Learning Course: An Inquiry into Pre-Service English Language Teachers' Behavioral Intention and Actual Use

Cemil Gökhan KARACAN[1]

Abstract

Purpose: The advent of digital resources and the transformation of education into an open form have led to growing awareness, acceptance, and spread of distance language education. Recent developments in open and distance learning have changed teachers' day-to-day practices and brought about a renewed need for the development of digital materials and activities that are more interactive, personalized, and multimedia-rich. With these in mind, pre-service English language teachers, who are going to be joining the workforce very soon, need to gain a sense of how digital language learning materials and activities are designed. In achieving this goal among many others, a competence-based Open and Distance Learning course was developed. This instrumental case study aims to explore senior pre-service English language teachers' experiences with digital material and activity design.

Methodology: The sample of this study was composed of 16 pre-service English language teachers selected through the purposive sampling method in an ELT program at a foundation university located in Istanbul, Turkey. The data were collected through triweekly semi-structured reflection papers during the semester (n= 27), and one-off open-ended retrospective reports (n= 10).

Findings: Qualitative content analyses through the bottom-up inductive method revealed that participants highly value digital material and activity design, apply their knowledge to their practices, and possess intentions to do so in their upcoming careers on account of many reasons.

Implications: Moreover, this study offers implications for teacher education programs regarding "Open and Distance Learning" courses as well as for pre-service language teachers in their digital activity and material design.

Keywords: *Open and Distance Learning, digital material design, digital activity design, digital competence.*

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Language Teaching/Learning in the Post-COVID19 Pandemic

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Abstract

COVID-19 brought about certain changes in educators' perspectives. Educators experienced a serious compulsion to abandon face-to-face teaching and seek refuge in online education. Language teaching, with all its difficulties, was no exception. To make language teaching more productive, insistence has been laid on the use of Task-based Language Teaching (TBLT). This approach necessarily demands active participation of the parties involved, i.e., teachers and students. Online teaching brought about limitations to enact TBLT completely. The result has been a break-down in learning. Research shows that this break-down has been significant in all educational levels. Now that COVID 19 has been brought under control and teachers are back to educational settings, a new atmosphere, in which both teachers and learners are revitalized, has grown up. In this new condition, both sides are trying to benefit from face-to-face as well as online education. As teachers and learners grew accustomed to distance and online learning, this can be seen as the positive outcome of the dreadful times all countries undertook during the fatal pandemic. The purpose of the present study is to emphasize the significance of online instruction, as an aid to face-to-face education, along with the need to benefit from digital achievements of the world's Digital Age.

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Teaching Language Skills: Is it Really Fun When Online?

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Abstract

Purpose: Despite a common perception that online teaching could be an imminent beneficial solution for restricted periods of instruction such as COVID-19, it is not certain to what extent such a medium could substitute for face-to-face education environment duly. The outcome of such bitter experiences as pandemic periods is to be investigated through empirical case studies to project the efficiency of the instruments utilized. Therefore, it is assumed that the case studies realized following the pandemic period will provide a more reliable vision regarding the real benefits or harms of online teaching and learning experiences in retrospect. The present study, in this context, is a quantitative exploration that is due to provide necessary information regarding the whereabouts of online foreign language teaching as a contribution to the foreign language teaching literature.

Methodology: The aim of this quantitative research is to explore the impact of online foreign language teaching on the students' achievement and anxiety levels in terms of their gender. In this sense, the students attending the English Language and Literature Department of Selcuk University were selected as a model. Following a 14-week course period, 103 students that attended the Teaching Language Skills Course were handed in a case-specific questionnaire. The questionnaire consisted of a 34 item Likert scale designed to scrutinize the purpose of the study. 102 questionnaires were returned to the researcher with a moderate loss of only one questionnaire. Accordingly, the students' attitudes towards online teaching were examined through statistical procedures to find an explanation to three research questions:

Research Question 1. What are the negative effects of online teaching that cause students anxiety during academic writing courses most?

Research Question 2. Is there any relation between students' achievement and their gender differences in terms of online foreign language teaching?

Research Question 3. Is there any relation between students' anxiety levels and their gender differences toward online foreign language teaching?

Findings: In view of the findings of the current study, as far as research question1 is concerned, the results indicated that four items pertaining to the questionnaire were prominent with their most effective sides as negative factors that lead students to anxiety during online foreign language teaching. As for research question 2, the results revealed no significant correlation between students' achievements and their gender. Finally, the results for the research question 3 again designated no significant correlation between students' anxiety levels and their gender.

Originality/Implications: Suggested implications for further studies would be similar investigations to be implemented focusing on different levels of education such as primary or high school courses.

Keywords: *Quantitative Research, Online Foreign Language, Teaching, Anxiety, Scale Development.*

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Student Engagement Strategies and Academic Performance During Emergency Remote Learning

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Abstract

Student engagement strategies play a very important role in the quality of student experience in higher education as well as student's academic performance. The purpose of this study is to determine the student engagement strategies and academic performance during the implementation of emergency remote learning in the Philippines. Using descriptive qualitative phenomenological research, this study was guided by the types of interaction inherent in effective online courses developed by Moore as a guiding framework. The participants were students who enrolled in the Basic Calculus subject from a State University and College (SUC) in the CARAGA Region. A semi-structured open-ended questionnaire was used; these were then analyzed using manual thematic analysis such as learner-learner, learner-content and learner to instructor engagement strategies. Findings revealed that learner-content is the most preferred form of interaction of the students followed by learner-instructor. This consists of the organization of instructional materials and planned activities, crucial to student success. In other words, it refers to the time students are involved in reviewing instructional content such as textbook, video, audio, and interactive games. The students made use of technology and educational videos online to assist their learning. This form of student interaction and engagement obtained the highest number of responses. Results of analysis revealed that students would initiate getting content from other online sources like the use of learning materials from the Department of Education and explore other websites to obtain additional information about their course. Among the most dominant sub-themes that emerged under the learner-content are: *"watching educational videos online"*, *"reviewing notes and learning materials"* and *"making use of other technology like radio, t.v. and website for news update."* Results also showed that the academic performance of students are better during the emergency remote learning as compared to the performance during the pre-pandemic period or face-to-face. The results suggest that higher education institutions (HEIs) need to develop activities for the students that will help them determine reliable sources on the internet. Future researchers should consider covering other areas or regions in the Philippines. The implications for online instructors and course designers as well as administrators who intend to improve student engagement in the online courses may also be explored.

Keywords: *remote learning, student engagement, academic performance*

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A Turkish ASAG System: i-rater

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Abstract

Purpose- Assessing and measuring learners' knowledge gain are crucial for evaluating the quality of the learning process of learners. Learners' knowledge can be tested by multiple choice (MC), short-answer (SA), constructed-response (CR) questions and essays. Multiple-choice questions are closed form questions while short-answer, constructed-response questions and essays are open-ended questions. Open-ended questions (SA, CR, essays), in which students are expected to construct rather than select their responses, test whether learners remember certain facts and assess important skills such as critical thinking and problem solving. Grading multiple-choice questions is straightforward and immediate; however, it is more difficult and time and cost-ineffective to grade SA, CR questions and essays. The assessment of the latter is challenging because of learner comments in answers, natural language use and a need to grade answers objectively and consistently. All of these challenges can deter educators from their use. Especially in educational settings that have a large number of learners such as open and distance learning environments (ODL), it takes a lot of effort and time to grade learner answers. Thus, using an automated grading system to grade open-ended questions might assist to reduce time and effort burden while also ensuring more consistent results. ASAG is defined as the task of assessing short natural language responses by using computational methods. These systems automatically classify student answers into, correct or incorrect, based on the referred correct answer(s) by checking the syntactic, lexical, and semantic similarity of the sentences. These systems are crucial because they are time and cost effective, consistent and useful both in summative and formative assessment. They also eliminate human factors such as fatigue, prejudice and provide immediate feedback.

Methodology- This design-based study aims to develop a Turkish ASAG system called *i-rater* to be used in Anadolu University Open Education system exams. The proposed ASAG system will be used for grading the open ended questions of four courses. The proposed *i-rater* grading system will have four modules, namely, data collection, pre-processing, model building and model evaluation modules. Data collection module comprises exam questions, answer keys, learner answers and scores assigned by teachers. In the pre-processing module, the collected data will be prepared for machine learning by text cleaning, information retrieval and tokenization. Model building module will use some supervised machine learning algorithms to calibrate the system and model. Finally, the algorithms used in the system and their performances in grading learner answers will be evaluated in the model evaluation module.

Originality- To the best of our knowledge, this study is the first study that develops an ASAG system for Anadolu University. Our system will use both SA and CR questions of four different courses unlike the research in the literature focused on one course and one question type. Because the Turkish language has some unique features in terms of word order, word building, plurality, gender and article usage, developing a Turkish ASAG system is believed to contribute to the literature.

Keywords: *automated grading, ASAG, constructed-response, short-answer, machine learning*

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Emergency Remote Teaching in an Efl Context: High School Students' Self-Efficacy Perceptions and Opinions

Orkun Bozkurt GÖNÜLTAŞ[1], Rana YILDIRIM[2]

Abstract

COVID-19 pandemic has changed people's lives dramatically, the way people socialize and go shopping, the way teachers teach, and students learn. Due to the need to reduce the physical contact among people and thus stop the spread of the virus, many people were obliged to stay at home. Accordingly, this resulted in giving a pause to schooling made up of bricks and moving to emergency remote teaching (ERT) made up of internet connections and online social networks. However, that movement was not like a planned transition from face-to-face education to hybrid or online, but it was a sudden, temporary and, most importantly, unplanned change. This unplanned nature of ERT created a substantial academic, social, and mental space that needed to be fulfilled mainly by students themselves. Therefore, the concept of self-efficacy gained more importance for students to take action in their learning process. The picture is almost the same for students who learn English as a foreign language (EFL) as they found themselves in a situation which allowed them to observe their strengths and weaknesses in EFL. Drawing on this, this study aims to investigate the effects of ERT on self-efficacy perceptions of high school students in learning EFL alongside with their opinions about the ERT.

This study was framed through the sequential explanatory design. It employed both quantitative and qualitative data collection tools; namely, the English Self-Efficacy Scale (E-SES) and semi-structured interviews with the students. In order to investigate students' self-efficacy perceptions in learning EFL, the E-SES adapted from Başaran (2010) was distributed to 109 high school students selected through purposive sampling. To explore the potential effects of ERT on the participating students' self-efficacy perceptions, the E-SES was administered before and after the students went through the experience of the ERT. By employing extreme case sampling, put differently on the bases of the students' responses given to the E-SES, 20 students were chosen for the semi-structured interviews. The student participants' views concerning their experience of ERT were elicited through these interviews held at the end of their experience in the ERT process. The quantitative data were analysed through SPSS 25.0, and content analysis was utilised to analyse the qualitative data. The findings indicated that the participants' self-efficacy perceptions of their such language skills as listening, reading, speaking, and writing, and their motivation and expectations in learning English improved in a more positive direction at the end of the ERT process as compared to those before the ERT process. However, the findings also revealed that the participant students' opinions were to a great extent negative regarding the ERT process. The study provided several implications for EFL teachers, curriculum and materials developers, and the Ministries of Education.

Keywords: *COVID-19 Pandemic, Emergency remote teaching, self-efficacy perceptions, EFL, high school students.*

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Evaluation of Foreign Language Courses Delivered Via Emergency Distance Teaching

Gönül ÖZSARI[1], Abdullah SAYKILI[2]

Abstract

Adopting the Kirkpatrick Evaluation Model, this research aims to evaluate the foreign language courses delivered via emergency distance teaching during the COVID-19 pandemic when the face-to-face education processes were interrupted. Along with the other life domains, one of the first and foremost domains drastically disrupted by the pandemic was traditional education. The COVID-19 pandemic has created the largest disruption of education systems in history, affecting nearly 1.6 billion learners in more than 190 countries and all continents. Closures of schools and other learning spaces have impacted 94 per cent of the world's student population, up to 99 per cent in low and lower-middle income countries. Following the World Health Organization's announcement of Covid-19 outbreak as a pandemic, campus-based tertiary education in Turkey was interrupted, which required all universities to abruptly switch to emergency distance teaching without any notice. The higher educational institutions in Turkey had to make use of existing resources to adapt to this sudden and unexpected switch. A wide variety of experiences are reported by both on the student and instructor sides including challenges, good practices, concerns and issues regarding the emergency distance teaching during this trying period. For this reason, it is of paramount importance to evaluate the student experiences using a robust evaluation model such as the Kirkpatrick Model. The evaluation of foreign language learning experiences during the pandemic is of particular value due to the nature of language learning, which requires students to develop certain productive skills along with receptive ones. Therefore, this study attempted to evaluate the foreign language courses delivered at a private university in Turkey via emergency distance teaching utilizing the Kirkpatrick Model, which involves four stages of reactions, learning, behavior, and results. Data was collected to evaluate each evaluation stage using an online questionnaire developed by the researchers during the spring semester of 2020 academic year. A total of 114 students studying at the Preparatory School voluntarily took part in the study.

In addition to demographic data regarding the participants, students' satisfaction level with the emergency distance language teaching was investigated. Also, students' attitudes and motivations towards both distance learning and distance language learning was examined regarding before and after the emergency teaching, which allowed us to compare before and after attitudes and motivations. Suggestions for policy-makers and practitioners, and future research areas were offered.

Keywords: *Emergency distance language learning, Kirkpatrick Evaluation Model, Foreign language teaching and learning, COVID-19*

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Reflections From the Preservice Language Teachers' Online Tutoring Experience

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Abstract

The notion of reflection is a valuable characteristic of an effective teacher, and reflective practice is one of the most widely researched areas in the English Language Teaching field. In teacher education programs it is fairly common that language teacher educators often create a vast array of opportunities for their students to do micro-teaching in class via assignments. However, educators had to look for other alternatives to provide opportunities for their students to develop their teaching practice when COVID-19 pandemic began to spread across the world. Looking on the bright side of it, during and post COVID-19 era educators greatly experienced the merits of online teaching for both themselves and their students.

This presentation aims to explore the effectiveness of online tutoring experience for preservice teachers' professional growth during the period of coursework. The presenter will provide a detailed course content which includes the online tutoring model for the third year preservice teachers' in the English Language Teaching Program. The data elicited for this research derive from the preservice teachers` one semester long weekly reflection journals and interpretations of their own practice. Preliminary results indicate that preservice teachers concentrated particularly on pedagogical aspects of online teaching and they regularly encountered difficulties in online connections. Since there is a great need in the Age of Constant Change in today's world for preservice English language teachers gain experience in teaching online platforms, the presenter will conclude the implications of this model in the teacher education programs and will set out to identify key digital competencies which language teachers need to develop before they complete their undergraduate programs.

Keywords: *reflective practice, online tutoring, pre-service teachers, professional development, digital competency*

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Acil Uzaktan Eğitimde Öğrencilerin Çevrimiçi Öğrenme Hazırbulunuşlukları ve Doyumları Arasındaki İlişkinin İncelenmesi

Beyza ASLAN[1], Mustafa Murat İNCEOĞLU[2]

Özet

Acil uzaktan eğitim, kriz durumları nedeniyle eğitim sunumlarının geçici olarak alternatif bir sunum moduna taşınması olarak ifade edilmektedir. İlk vakanın 31 Aralık 2019'da Çin'de ortaya çıkması ile tüm dünyaya yayılan Covid-19 salgını da bu kriz durumlarından biridir. Bu çalışmanın amacı, pandemi döneminde gerçekleştirilen acil uzaktan eğitim sürecinde üniversite öğrencilerinin çevrimiçi öğrenmeye yönelik hazır bulunuşlukları ile doyumları arasındaki ilişkiyi incelemek ve araştırma sonuçlarını öğrenci görüşleri ile desteklemektir. Bu çalışmada karma desen araştırma yöntemlerinden açıklayıcı karma desen yöntemi kullanılmıştır. Çalışmaya, 2020-2021 bahar döneminde Türkiye'de pandemi sürecinde çevrimiçi eğitim almış olan 236 Eğitim fakültesi ve 232 Sağlık bilimleri fakültesi öğrencisi olmak üzere toplamda 468 öğrenci katılmıştır. Araştırmada veri toplama araçları olarak "Çevrimiçi Öğrenmeye Yönelik Hazırbulunuşluk Ölçeği" ve "İnternet Temelli Uzaktan Eğitim Öğrencileri Doyumu Ölçeği" kullanılmıştır. Araştırmada verilerin normal dağılıp dağılmadığını tespit etmek amacıyla normallik analizleri yapılmıştır. Daha sonra çevrimiçi öğrenme hazırbulunuşluğu ve uzaktan eğitim doyumu arasındaki ilişki düzeyini belirlemek için korelasyon analizi yapılmış ve korelasyon katsayısı olarak Pearson korelasyon katsayısı kullanılmıştır. Çevrimiçi öğrenme hazırbulunuşluğu ve uzaktan eğitim doyumu arasındaki ilişki düzeyinin fakülte değişkenine göre anlamlı bir farklılık gösterip göstermediğinin tespit edilebilmesi için ilişkisiz örneklem t-testi kullanılmıştır. Odak grup görüşmesi ve anketten elde edilen nitel verilerin analizinde ise içerik analizi yöntemi kullanılmıştır. Araştırma sonuçlarından elde edilen bulgulara göre, Türkiye'de pandemi döneminde gerçekleştirilen acil uzaktan eğitim sürecinde üniversite öğrencilerinin çevrimiçi öğrenmeye yönelik hazır bulunuşlukları ile uzaktan eğitim doyumları arasında pozitif yönde, orta düzeyde ve anlamlı bir ilişki olduğu sonucuna ulaşılmıştır ($r = .454$. $p < 0.05$). Çevrimiçi öğrenmeye yönelik hazırbulunuşluk düzeyi ile fakülte değişkeni arasında ise anlamlı bir farklılık olduğu bulunmuştur ($p < 0.05$). Eğitim fakültesi öğrencilerinin çevrimiçi öğrenmeye yönelik hazır bulunuşlukları sağlık bilimleri fakültesi öğrencilerinden daha yüksek çıkmıştır. Uzaktan eğitim doyumu ile fakülte değişkeni arasında ise anlamlı bir farklılık bulunmamıştır ($p > 0.05$). Yapılan odak grup görüşmesi ve anketten elde edilen nitel bulgular da bu sonuçları destekler niteliktedir. Literatürde daha önce bu çalışmaya benzer çalışmalar yapılmıştır, ancak pandemi döneminde uygulanan uzaktan eğitim sürecinde öğrencilerin çevrimiçi öğrenme hazırbulunuşluğu ile uzaktan eğitim doyumu arasındaki ilişkinin incelendiği bir çalışmaya rastlanmamıştır. Çalışma, pandemi döneminde yapıldığı ve öğrencilerin pandemi sürecindeki çevrimiçi öğrenme hazırbulunuşluğu ve uzaktan eğitim doyumları arasındaki ilişkiyi incelediği için pandemi öncesi yapılmış

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olan diğer benzer çalışmalardan ayrılmaktadır. Bir farklılık ise, çevrimiçi öğrenme hazırbulunuşluğu ve uzaktan eğitim doyumu daha önce fakülte değişkeni olarak eğitim fakültesi ve sağlık bilimleri fakültesi bakımından kıyaslanmamıştır. Sonuç olarak bu araştırma sonuçları pandemi sonrasında yapılandırılacak ve uygulanacak olan uzaktan eğitim çalışmalarına katkı sağlayacaktır.

Anahtar Kelimeler: *Acil Uzaktan Eğitim, Çevrimiçi Öğrenme, Doyum, Hazırbulunuşluk, Pandemi.*

Bu çalışma, yüksek lisans tezinden üretilmiş bir çalışmadır.

GİRİŞ

Eğitim, geçmişten günümüze kadar salgınlar, doğal afetler, savaşlar vb. durumlar nedeniyle kesintiye uğrayabilen bir süreç olmuştur. 2019'da Çin'de ortaya çıkan ve Covid-19 olarak adlandırılan bir virüsün pandemi haline gelmesiyle dünya ülkelerinin eğitim kurumlarını geçici olarak kapatması da (United Nations Educational, Scientific and Cultural Organization [UNESCO], 2020) bu durumlardan biridir. Bu süreçte, her 10 öğrenciden 9'unun eğitimi kesintiye uğramış ve bir buçuk milyardan fazla öğrenci bu durumdan etkilenmiştir (UNESCO, 2020b). Krizle başa çıkma yöntemi olarak da bir çok ülke açık ve uzaktan eğitim sistemlerini tercih etmiştir (UNESCO, 2020b). Türkiye de bu sürece dahil olan ülkelerden biridir. Covid-19 salgının Türkiye'ye sıçraması ile dönemin YÖK Başkanı Prof. Dr. Yekta Saraç, yaptığı basın açıklamasında 23 Mart 2020 tarihinden itibaren uzaktan eğitime geçilmesi kararı alındığını ifade etmiş (Saraç, 2020) ve bu tarihten itibaren bazı üniversiteler Zoom sınıfları üzerinden Moodle paylaşımlı, bazıları da Blackboard, Teams gibi programlar ile sanal sınıf oluşturmuşlar, bazıları ise kendi yazılımlarını kullanmayı tercih etmiştir (YÖK, 2020). Bir kriz veya felaket durumunda çevrimiçi sunulan dersler, planlaması yapılmış çevrimiçi öğrenme yaklaşımlarından anlamlı ölçüde farklılaşmaktadır (Hodges, Moore, Lockee, Trust ve Bond, 2020). Eğitim sunumlarının kriz durumları nedeniyle alternatif bir sunum ortamına taşınması Acil Uzaktan Öğretim (AUÖ) olarak adlandırılmaktadır (Hodges ve diğerleri, 2020). AUÖ'nün uzaktan eğitimden farkının anlaşılması bu araştırmanın amacının anlaşılması bakımından önemlidir. İlerleyen dönemlerde bu tür durumlar ile yeniden karşılaşılabilir. Akkoyunlu ve Bardakçı'ya (2020) göre, gelecekte benzer durumlara hazırlıklı olmak adına veriye dayalı çözüm önerileri oluşturulması gerekmektedir. YÖK'e (2020b)'e göre de yeni normal veya sonrasında uygulanacak olan uzaktan eğitim mümkün olduğunca yapılandırılmış ve çerçevesi çizilmiş bir uzaktan eğitim olmalıdır. Öğrenci doyumu (memnuniyeti) internet temelli eğitimdeki başarının önemli bir göstergesi olarak ifade edilmektedir (Parlak, 2004). Hazırbulunuşluk da, bir eylemi gerçekleştirebilmek için gerekli olan bilgi, beceri ve yeterliliklere sahip olma durumudur. Öğrencinin bir durumdan doyum elde edebilmesi için öncelikle o durum ile ilgili hazırbulunuşluğa sahip olması gerekmektedir. Bu yüzden bu araştırmada internet temelli eğitimde başarıya giden yolda doyumun varlığı ve doyum için gerekli ön koşul olan hazırbulunuşluğun varlığı ve bu iki değişken arasındaki ilişki araştırılmıştır. Bu araştırmanın amacı, AUE'de üniversite öğrencilerinin çevrimiçi öğrenme hazırbulunuşluğu ile doyumu arasındaki ilişkiyi fakülte değişkenine göre inceleyip, araştırma sonuçlarını öğrenci görüşleri ile desteklemektir.

Acil Uzaktan Eğitim

Acil uzaktan eğitim, örgün eğitim sürecinin bir aksaklık nedeniyle kesintiye uğraması sonucu, aksaklık ve beraberinde gelen sorunların ortadan kalkacağı zamana kadar normal eğitime alternatif olarak uygulamaya konan bir eğitimdir (Hodges ve diğerleri, 2020). Burada öncelikli amaç, iyi bir eğitim alt yapısı oluşturmaktan ziyade, eğitime geçici, güvenilir ve hızlı bir şekilde erişim sağlamaktır. Dolayısıyla, acil uzaktan eğitim, plansız ve hazırlıksız olması nedeniyle uzaktan eğitimden ayrılmaktadır. Bozkurt (2020) çalışmasında, acil uzaktan eğitimin uzaktan eğitimden farklı olduğunu dört neden altında açıklamıştır: Birincisi, uzaktan eğitim bir seçenek olmasına karşın, acil uzaktan eğitim zorunluluktur. İkincisi, uzaktan eğitim ömür boyu süren kalıcı çözümlere odaklanırken, acil uzaktan eğitim içinde bulunulan durumun gerektirdiği ihtiyaca yönelik geçici çözümler oluşturur. Üçüncüsü uzaktan eğitim, kuram ve uygulamalar ışığında planlı ve sistemli bir şekilde eğitimi devam ettirme çabasıyken acil uzaktan eğitim, kriz durumlarında mevcut olanaklar ile eğitimi devam ettirme çabasıdır. Son olarak dördüncü farklılık, acil uzaktan eğitim (emergency remote teaching) ile uzaktan eğitim'de (distance education) uzaklık anlamına gelen "remote" ve "distance" kavramlarının farklı olmasıdır. "Remote" fiziksel uzaklığa karşılık gelirken, "distance" fiziksel, psikolojik ve iletişimsel boşluğa karşılık gelmektedir (Bozkurt, 2020).

Çevrimiçi Öğrenme Hazırbulunuşluğu

Thorndike'e (1971) göre, bireyin bir etkinliğe hazır olmadığı halde, o etkinliği yapmaya zorlanması bireyde kızgınlık yaratmaktadır (Akt., Koloğlu, 2016). Pandemi sürecinde de bireyler, istemeden de olsa acil uzaktan eğitime zorunlu kılınmışlardır. Bu ifadeden yola çıkarak, öğrencilerin sürece karşı olumsuz bakış açısı sergilemelerinde hazırbulunuşluk düzeylerinin etkili olduğu söylenebilir. Alsancak Sırakaya ve Yurdugül (2016) çevrimiçi öğrenme süreçlerinde öğrencilerin başarılı olabilmesi için çevrimiçi öğrenme hazırbulunuşluğuna sahip olmalarının önemli olduğunu ifade etmişlerdir. Öğrencilerin acil uzaktan eğitim sürecindeki çevrimiçi öğrenme hazırbulunuşluk durumlarının belirlenmesi ve eksikliklerin tespit edilmesi, gelecekte benzer senaryolar ile karşılaşıldığında hazırlıklı olmak bakımından önemlidir. Hung, Chou, Chen ve Own (2010) çevrimiçi öğrenme hazırbulunuşluğunun bilgisayar ve internet kullanımı öz yeterliği, kendi kendine öğrenme becerisi, öğrenen kontrolü, içsel motivasyon ve çevrimiçi iletişim öz yeterliği olmak üzere 5 boyutta ölçüldüğünü ifade etmektedir.

Doyum (Memnuniyet)

Parlak (2004), öğrenci doyumunu, öğrencinin almış olduğu hizmete yönelik tatmin ve memnuniyeti olarak ifade eder. Öğrenimin devamlılığı için internet temelli uzaktan eğitimde öğrenci doyumu önemli bir rol oynamaktadır (Parlak, 2004). Weerasinghe, Lalitha ve Fernando (2017) öğrencilerin eğitim deneyimleri, hizmetleri ve olanaklarına yönelik kısa zamandaki tutumlarını öğrenci memnuniyeti olarak ifade etmektedirler. Tüzün ve Yörük Toraman (2021) çalışmalarında öğrencilerin acil uzaktan eğitim sürecinden genel olarak memnun olmadıkları sonucuna ulaşmışlardır. Demir ve Eren (2021) memnuniyetin hazırbulunuşlukla ilişkili olduğunu ve memnuniyetin hazırbulunuşluğun varlığınca arttığını ifade etmişlerdir. Dolayısıyla gelecekte pandemi vb. durumlarda uygulanan acil uzaktan eğitim süreçlerinde, öğrencilerin memnuniyetsizlik

yaşamamaları adına Covid-19 pandemisi sürecinde uygulanan uzaktan eğitime dair memnuniyet durumlarının ve buradaki memnuniyetsizlik yaratan durumların belirlenmesi önemlidir.

YÖNTEM

Çalışmanın bu bölümünde araştırma modeli, çalışma grubu ve veri toplama araçları bulunmaktadır.

Araştırma Modeli

Bu araştırmada karma desen araştırma yöntemlerinden açıklayıcı karma desen yöntemi kullanılmış ve nicel araştırma sonuçları nitel veriler ile desteklenmiştir. Nicel araştırma modellerinden tarama modeli ve ilişkisel tarama modeli kullanılmıştır.

Çalışma Grubu

Araştırmanın çalışma grubu 2020-2021 bahar yarıyılında pandemi sürecinde Türkiye'de çevrimiçi eğitim görmüş olan Eğitim Fakültesi ve Sağlık Bilimleri fakültesi öğrencileridir. Çalışmaya 236 Eğitim Fakültesi öğrencisi (% 50.4) ve 232 Sağlık Bilimleri Fakültesi öğrencisi (% 49.6) olmak üzere toplamda 468 öğrenci katılım göstermiştir.

Tablo 1. Fakültelere Göre Öğrenci Dağılımı

Fakülte	*n*	%
Eğitim Fakültesi	236	50.4
Sağlık Bilimleri Fakültesi	232	49.6
Toplam	468	100.0

Veri Toplama Araçları

Bu araştırmada veri toplama araçları olarak Parlak (2004) tarafından geliştirilen "İnternet Temelli Uzaktan Eğitimde Öğrenci Doyumu Ölçeği" ve Hung, Chou, Chen ve Own'un (2010) geliştirdiği, Türkçeye uyarlama ve geçerlik güvenirlik çalışmasını İlhan ve Çetin'in (2013) yapmış olduğu "Çevrimiçi Öğrenmeye Yönelik Hazır Bulunuşluk Ölçeği" kullanılmıştır. Nitel veri toplama aracı olarak ise yarı yapılandırılmış görüşme formu kullanılmıştır.

İnternet Temelli Uzaktan Eğitim Öğrencileri Doyum Ölçeği (İTUEDÖ)

Ölçek, 35 olumlu, 3 olumsuz olmak üzere toplamda 38 madde ve öğrenci-öğrenci etkileşimi, öğrenci-öğretmen etkileşimi, ders yapısı, kurumsal destek ve esneklik olmak üzere 5 alt boyuttan oluşmaktadır. Ölçek güvenirliği cronbach alfa ile hesaplanmıştır. Hesaplanan iç tutarlılık, tüm ölçek için .95, ders yapısı alt boyutu için .92, kurumsal destek alt boyutu için .88, öğrenci-öğretmen etkileşimi alt boyutu için .80, öğrenci-öğretmen etkileşimi alt boyutu için .93, esneklik alt faktörü için ise .59 bulunmuştur. Güvenirlik analizi sonucunda cronbach alfa .96 bulunmuştur. Ölçekte bulunan maddeler, tüm varyansın 60.880'ni ifade eden beş faktörde birleşmektedir (Parlak, 2004). Ölçekte 60.880'lik toplam varyans oranı, geçerlik için yeterli görülmektedir.

Bu çalışmada da cronbach alfa hesaplanmış ve .96 bulunmuştur. Dolayısıyla, bu ölçek Türkiye'de bu çalışmaya katılan üniversite öğrencilerinin doyum düzeylerini belirlemede geçerliği ve güvenirliği yüksek bir ölçektir.

Çevrimiçi Öğrenmeye Yönelik Hazırbulunuşluk Ölçeği (ÇÖHBÖ)

Ölçek, öğrenme motivasyonu, kendi kendine öğrenme, bilgisayar ve internet kullanımı öz yeterliği, çevrimiçi iletişim öz yeterliği ve öğrenen kontrolü olmak üzere toplamda 5 alt boyut ve 18 maddeden oluşmaktadır. İlhan ve Çetin (2013), Hung ve diğerleri (2010) tarafından geliştirilmiş olan ÇÖHBÖ'nün İngilizce ve Türkçe formlarındaki maddeler arasındaki ilişkinin .79 ile .98 arasında anlamlı ve güçlü olarak değiştiğini bulmuştur. ÇÖHBÖ ve Eğitsel Amaçlı İnternet Kullanımı Öz Yeterlik İnancı Ölçeği arasındaki ilişki uyum geçerliği kapsamında analiz edilmiş ve her iki ölçek arasında orta düzeyde, pozitif yönde ve anlamlı bir ilişki olduğu bulunmuştur. Güvenirlik için yapılan, bileşik güvenirlik, test tekrar test, iç tutarlılık ve test yarılama uygulamaları sonucunda elde edilen güvenirlik katsayılarının uygun aralıklar dahilinde olduğu sonucuna ulaşılmıştır. Bu çalışmada da cronbach alfa güvenirlik katsayısı hesaplanmış ve .89 bulunmuştur. Dolayısıyla ÇÖHBÖ, geçerliği ve güvenirliği yüksek bir ölçektir.

BULGULAR

Çalışmanın bu bölümünde, acil uzaktan eğitimde üniversite öğrencilerinin; çevrimiçi öğrenmeye yönelik hazır bulunuşlukları ve doyumları arasındaki ilişki, çevrimiçi öğrenmeye yönelik hazırbulunuşluk ve doyum düzeyleri ve bu düzeylerin fakülte değişkenine göre durumlarına ait veri analizi sonuçları bulunmaktadır.

Acil Uzaktan Eğitimde Üniversite Öğrencilerinin Çevrimiçi Öğrenmeye Yönelik Hazırbulunuşluk ve Doyumları Arasındaki İlişki

Türkiye'de pandemi döneminde çevrimiçi eğitim gören ve bu çalışmaya katılan öğrencilerden alınan verilerden yola çıkılarak yapılan analizler sonucunda öğrencilerin çevrimiçi öğrenmeye yönelik hazırbulunuşlukları ve doyumları arasında orta düzeyde, pozitif yönde ve anlamlı ($p < 0.05$) bir ilişki olduğu sonucuna ulaşılmıştır. Analiz sonuçlarına ait bulgular Tablo 2'de verilmektedir.

Tablo 2. *Öğrencilerin Çevrimiçi Öğrenme Hazırbulunuşluğu ve Doyumları Arasındaki İlişki*

Ölçekler	*n*	*r*	*p*
A. Çevrimiçi Öğrenme Hazırbulunuşluğu	468	.454	.000
B. İnternet Temelli Uzaktan Eğitim Öğrencileri Doyumu			

Acil Uzaktan Eğitimde Çevrimiçi Öğrenme Hazırbulunuşluğu

Öğrencilerin çevrimiçi öğrenmeye yönelik hazır bulunuşlukları ve ÇÖHBÖ alt boyutlarına ait ortalama puanlar Tablo 3'de verilmektedir. Analiz sonuçlarından elde edilen bulgular öğrencilerin acil uzaktan eğitim döneminde çevrimiçi öğrenme hazırbulunuşluklarının orta düzeyde olduğunu göstermektedir ($\underline{X} = 3.77 \pm .51$).

Tablo 3. Acil Uzaktan Eğitimde Öğrencilerin Çevrimiçi Öğrenmeye Yönelik Hazırbulunuşlukları

Ölçek ve alt boyutları	n	Madde	$\underline{X}$	sd
ÇÖHBÖ	468	18	3.77	.51
BİT kullanımı öz yeterliği	468	3	3.76	.70
Kendi kendine öğrenme	468	5	3.71	.65
Öğrenen Kontrolü	468	3	3.43	.65
Öğrenme Motivasyonu	468	4	4.03	.58
Çevrimiçi İletişim Öz Yeterliği	468	3	3.86	.75

Öğrencilerin Çevrimiçi Öğrenme Hazırbulunuşluklarının Fakülte Değişkenine Göre Analizi

Aşağıda Tablo 4 incelendiğinde öğrencilerin çevrimiçi öğrenme hazırbulunuşlukları, fakülte değişkenine göre anlamlı bir farklılık göstermektedir ($t\ [468] = 4.095$, $p < 0.05$). Eğitim fakültesi öğrencilerinin çevrimiçi öğrenme hazırbulunuşlukları ($\underline{X} = 3.86$), Sağlık Bilimleri Fakültesi öğrencilerinin hazırbulunuşluklarından ($\underline{X} = 3.67$) daha yüksek çıkmıştır.

Tablo 4. Öğrencilerin Çevrimiçi Öğrenme Hazırbulunuşluklarının Fakülte Değişkenine Göre Durumu

Öçekler ve alt boyutları	Fakülte	n	$\underline{X}$	sd	t testi	
					t	p
Çevrimiçi Öğrenme Hazırbulunuşluk Ölçeği	Eğitim Fakültesi	236	3.86	.49	4.095	.000
	Sağlık Bilimleri Fakültesi	232	3.67	.52		
Bilgisayar ve İnternet Kullanımı Öz Yeterliği	Eğitim Fakültesi	236	3.86	.70	3.287	.001
	Sağlık Bilimleri Fakültesi	232	3.65	.70		
Kendi Kendine Öğrenme	Eğitim Fakültesi	236	3.82	.62	3.691	.000
	Sağlık Bilimleri Fakültesi	232	3.60	.66		
Öğrenen Kontrolü	Eğitim Fakültesi	236	3.51	.61	2.918	.004
	Sağlık Bilimleri Fakültesi	232	3.34	.68		
Öğrenme Motivasyonu	Eğitim Fakültesi	236	4.11	.60	2.848	.005
	Sağlık Bilimleri Fakültesi	232	3.95	.55		
Çevrimiçi İletişim Öz Yeterliği	Eğitim Fakültesi	236	3.95	.74	2.752	.006
	Sağlık Bilimleri Fakültesi	232	3.76	.76		

Odak Grup Öğrenci Görüşlerine İlişkin Bulgular

Odak grup öğrencilerine hazırbulunuşluk durumlarını anlamak için bir takım sorular sorulmuş ve görüşme sorularına verilen yanıtlar Tablo 5'de ifade edildiği gibi belli kategorilere ve kodlara ayrılmıştır. Öğrencilerin bir kısmı çevrimiçi eğitim sürecinde kendine güvendiğini bir kısmı da güvenmediğini, yine bu sürece isteklilik bakımından da öğrencilerin bir kısmı istekli olduğunu bir kısmı da istekli olmadığını ifade etmiştir. Öğrenme süreçlerini yönetme bakımından, merak ettikleri bir konu olduğunda araştırma yaptıkları, öğretmenlerine veya arkadaşlarına sordukları ve ders kaydını tekrar izlediklerini ifade etmişlerdir. Bir diğer öğrenme süreci yönetimi bakımından derslere katılım göstermeye özen gösterdikleri ile ilgili de görüş bildirmişlerdir. Bilgisayar ve internet kullanımı ve çevrimiçi öğrenme yazılımlarını yönetme konusunda öğrencilerin belirtmiş olduğu görüşlerden yola çıkarak hazırbulunuşluklarının olduğu anlaşılmıştır. Kendi kendine çalışma kategorisi altında öğrenci görüşleri öğrenme sorumluluğuna ve bunun için gereken yeterliliklere sahip olduklarını göstermektedir. Sonuç olarak öğrencilerin sürece yönelik olumlu görüşlerinin yanında olumsuz değerlendirmelerde de bulunmalarından yola çıkarak orta düzeyde bir hazırbulunuşluğa sahip oldukları çıkarımı yapılabilir.

Tablo 5. *Hazırbulunuşluk Teması, Kategorileri ve Kodları*

Tema / Kategori / Kod	***Referans***
Hazırbulunuşluk	
Kendine Güvenme Durumu	
Güvenim var	3
Güvenim yok	3
İsteklilik (Motivasyon)	
Olumsuz	3
Olumlu	3
Öğrenme Süreci Yönetimi	
Araştırma yapma	4
Öğretmene veya arkadaşa sorma	3
Tekrar izleme	5
Derse girme	2
Bilgisayar ve İnternet Kullanımı	
İnternet kullanımı	3
Sorunla karşılaşmadım	6
Çevrimiçi Öğrenme Yazılımı Yönetimi	
Çevrimiçi yazılımlar	3
Arayüz	2
Kendi Kendine Çalışma	
Ödev teslim tarihi	1
Zaman yönetimi	6

Konuyu anlama	1
Çalışma şekli	
Not tutarak	2
Uygulama yaparak	1
Planlı çalışma	1
Ders öncesi	2
Sınava yakın	2
Hedef odaklı	1
Şematize ederek öğrenme	1

Acil Uzaktan Eğitimde Çevrimiçi Öğrenme Doyumu

Öğrencilerin çevrimiçi öğrenme doyumları ve İTUEÖDÖ alt boyutlarına ait ortalama puanlar Tablo 6'da verilmektedir. Analiz sonuçlarından elde edilen bulgular öğrencilerin acil uzaktan eğitim döneminde çevrimiçi öğrenme doyumlarının orta düzeyde olduğunu göstermektedir ($\underline{X}$ = 3.14 ± .74).

Tablo 6. *Acil Uzaktan Eğitimde Öğrencilerin Çevrimiçi Öğrenme Doyumları*

Ölçek ve alt boyutları	*n*	*Madde*	$\underline{X}$	*sd*
İnternet Temelli Uzaktan Eğitim Öğrencileri Doyum Ölçeği	468	38	3.14	.74
Öğrenci-Öğrenci Etkileşim	468	3	3.01	.99
Öğrenci-Öğretmen Etkileşim	468	12	3.24	.90
Ders Yapısı	468	12	3.46	.78
Kurumsal Destek	468	8	2.38	.99
Esneklik	468	3	3.55	.99

Öğrencilerin Çevrimiçi Öğrenme Doyumlarının ve Fakülte Değişkenine Göre Analizi

Aşağıda Tablo 7 incelendiğinde, acil uzaktan eğitimde öğrencilerin çevrimiçi öğrenme doyumları ile fakülte değişkeni arasında anlamlı bir farklılık olmadığı görülmektedir ($t\,[468] = 1.659$, $p > 0.05$).

Tablo 7. Öğrencilerin Çevrimiçi Öğrenme Doyumlarının Fakülte Değişkenine Göre Durumu

Ölçek ve alt boyutları	Fakülte	n	$\underline{X}$	sd	t testi	
					t	p
İnternet Temelli Uzaktan Eğitim Öğrencileri Doyum Ölçeği	Eğitim Fakültesi	236	3.19	.74	1.659	.098
	Sağlık Bilimleri Fakültesi	232	3.08	.73		
Öğrenci-Öğrenci Etkileşimi	Eğitim Fakültesi	236	3.23	.97	4.692	.000
	Sağlık Bilimleri Fakültesi	232	2.80	.98		
Öğrenci-Öğretmen Etkileşimi	Eğitim Fakültesi	236	3.27	.87	.802	.423
	Sağlık Bilimleri Fakültesi	232	3.21	.93		
Ders Yapısı	Eğitim Fakültesi	236	3.46	.77	.203	.839
	Sağlık Bilimleri Fakültesi	232	3.47	.80		
Kurumsal Destek	Eğitim Fakültesi	236	2.50	1.03	2.748	.006
	Sağlık Bilimleri Fakültesi	232	2.25	.94		
Esneklik	Eğitim Fakültesi	236	3.62	1.03	1.431	.153
	Sağlık Bilimleri Fakültesi	232	3.48	.95		

Odak Grup Öğrenci Görüşlerine İlişkin Bulgular

Odak grup öğrencilerine doyum (memnuniyet) durumlarını anlamak amacıyla bir takım sorular sorulmuş ve sorulara verilen yanıtlar kategori ve kodlara ayrılarak memnuniyet durumu teması altında toplanmıştır. Genel olarak öğrenciler bu süreçte öğretmen ve diğer öğrenenler ile etkileşimde bulunduklarını farklı görüşler ile ifade etmişlerdir. Öğretmen ve kurumun performansını olumlu ve olumsuz anlamda değerlendirmişler ve rahatlık, ders sürecinde yaşanan durumlar ve mesajlaşma gibi dikkat dağıtıcı unsurların varlığından bahsetmişlerdir. Çevrimiçi eğitim süreci kategorisi altında da bu sürecin deneyim kazandırdığını, ancak staj imkanlarının olmadığını, bu duruma bir alışma süreci yaşadıklarını ifade etmişler ve süreci yüz yüze eğitim ile olumlu ve olumsuz bakımdan kıyaslamışlardır. Acil uzaktan eğitim sürecinde yapılan olumlu ve olumsuz değerlendirmelerden yola çıkarak odak grup öğrencilerinin memnuniyetlerinin orta düzeyde olduğu söylenebilir.

Tablo 8. *Doyum Teması, Kategorileri ve Kodları*

Kategori / Kod	*Referans*
Memnuniyet durumu	
Etkileşim	
Öğretmenle etkileşim	3
Öğrencilerle etkileşim	5
Performans	
Öğretmen performansı	
Ders anlatımı	2
Geri bildirim hızı	2
Öğretmen farklılığı	5
Kurumun performansı	
Sistem kaynaklı sorunlar	5
Gelişim gösterme	3
Dikkat dağıtıcı unsurlar	
Rahatlık	3
Ders süreci	3
Mesajlaşma	6
Süreç	
Deneyim	3
Staj	3
Alışma süreci	2
Yüz yüze eğitim ile karşılaştırma	3

Öğrencilerin Acil Uzaktan Eğitim Süreci ile İlgili Görüşleri

Öğrencilere gönderilen anket sonuna öğrencilerin pandemi döneminde dahil oldukları uzaktan eğitim süreci ile ilgili varsa görüşleri belirtmeleri istenmiş ve Eğitim fakültesi ve Sağlık bilimleri fakültesi öğrencilerinin görüşleri ayrı ayrı kategori ve kodlara ayrılmıştır. Aşağıda Tablo 9 ve Tablo 10 da her iki fakülteye ait kategori ve kodlar bulunmaktadır.

Tablo 9. *Eğitim Fakültesi Öğrencilerinin Görüşlerine İlişkin Kategori ve Kodlar*

Tema / Kategori / Kod	*Referans*
Çevrimiçi Eğitim	
Olumlu	
Memnuniyet	2
Tekrar kullanılabilirlik	1
Düşük maliyet	1
Zaman	4
Erişilebilirlik	3
Tecrübe	1
Esneklik	2
Ortam	2
Bazen/Bazı	2
Eğitime devam etme	1
Verimli	3
İçsel motivasyon	1
Olumsuz	
Hazırbulunuşluk	1
Rahatlık	1
Etkileşim	3
Fırsat eşitsizliği	7
Yorucu	4
Dışsal faktörler	4
Yetersiz	7
Alt yapı sorunu	11
Verimsiz	9
Uygulama	3
Öğrenme	5
Değerlendirme	1
Sorumluluk	1
Motivasyon	2
Üniversite	
Performans	10
Sistemsel sorunlar	3
Yüz yüze eğitim talebi	12
Uyum	2
Öneri	3
Öğretmen	
Performans	11
Geri bildirim	3
Değerlendirme	1
Ödev	6
Uyum	2

Tablo 10. Sağlık Bilimleri Fakültesi Öğrencilerinin Görüşlerine İlişkin Kategori ve Kodlar

Tema / Kategori / Kod	*Referans*
Çevrimiçi Eğitim	
Olumlu	
Yeterli	6
Verimli	2
Memnuniyet	2
Tekrar dinleme	3
Kendini ifade etme	1
Olumsuz	
Yetersiz	4
Verimli değil	15
Alt yapı sorunu	5
Etkileşim	2
Motivasyon	2
Dış faktörler	1
Adaletsizlik / Haksızlık	3
Fırsat eşitsizliği	4
Anlama sorunu	2
Yorucu	3
Performans	
Üniversite	10
Öğretmen	10
Dersler	
Teorik	10
Uygulama	22
Yüz yüze	12

Her iki fakülte öğrencilerinin görüşleri olumlu, olumsuz, üniversite ve öğretmen performansı ve uygulanan ders türü gibi başlıklar altında kodlanmıştır. Genel olarak Eğitim fakültesi ve Sağlık bilimleri fakültesi öğrencileri süreci olumlu ve olumsuz anlamda değerlendirmişlerdir. Sonuç olarak, öğrencilerin de belirtmiş oldukları görüşlerden elde edilen bulgular, nicel araştırma sonuçlarını destekler niteliktedir.

TARTIŞMA VE SONUÇ

Bu çalışmada acil uzaktan eğitim sürecinde üniversite öğrencilerinin çevrimiçi öğrenmeye yönelik hazırbulunuşlukları ile doyumları arasındaki ilişki incelenmiş, hazırbulunuşluk ve memnuniyet düzeyleri ortaya konmuş ve hazırbulunuşluk ve memnuniyet düzeyleri fakülte değişkenine göre incelenmiştir. Elde edilen bulgular sonucunda öğrencilerin çevrimiçi öğrenmeye yönelik hazırbulunuşluk ve doyumları arasında

pozitif yönde, orta düzeyde ve anlamlı bir ilişki olduğu sonucuna ulaşılmıştır. Wei ve Chou (2020), 356 Tayvanlı lisans öğrencisi üzerinde yapmış oldukları çalışmada, çevrimiçi öğrenme hazırbulunuşluğu için gerekli olan bilgisayar ve internet öz yeterliğine sahip olan öğrencilerin kurs memnuniyetlerinin de yüksek olduğu sonucuna ulaşmıştır. Öztürk, Öztürk ve Özen (2018), internet tabanlı uzaktan eğitime hazırlık ve memnuniyetleri arasındaki ilişkiyi ölçmek için 493 öğretmen adayı ile yapmış oldukları çalışma sonucunda öğrencilerin hazırbulunuşluk ve doyum düzeyleri arasında anlamlı bir ilişki olduğunu bulmuşlardır. Sonuç olarak bu araştırma bulgularının pandemi öncesinde yapılmış olan benzer çalışmalar ile tutarlılık gösterdiği söylenebilir. Öğrencilerin acil uzaktan eğitimde çevrimiçi öğrenmeye yönelik hazırbulunuşluk düzeylerini anlamak için yapılan araştırma sonucunda elde edilen bulgulara bakıldığında, çevrimiçi öğrenme hazırbulunuşluklarının düşük olmadığı ancak çokta yüksek olmadığı orta düzeye yakın bir yükseklikte hazırbulunuşluğa sahip oldukları söylenebilir. Sarıtaş ve Barutçu (2020) pandemi döneminde 2835 öğrenci ile yapmış oldukları çalışmada üniversite öğrencilerinin çevrimiçi öğrenme hazırbulunuşluklarını olumlu olarak değerlendirmiştir. Kuzu (2020) çalışmasında üniversiteyi yeni kazanmış öğrencilerin hazırbulunuşluk düzeylerinin orta ve yüksek seviye çıktığı sonucuna ulaşmıştır. Odak grup görüşmesi ve anket sonuna eklenen kısımdan alınan olumlu ve olumsuz öğrenci görüşlerinden yola çıkarak da öğrencilerin hazırbulunuşluk durumlarına ilişkin nitel verilerin nicel verileri desteklediği söylenebilir. Pandemi sürecinde öğrencilerin hazırbulunuşluk durumlarını belirleme amaçlı yapılan çalışmalarla bu çalışma sonuçları tutarlılık göstermektedir. Acil uzaktan eğitimde üniversite öğrencilerinin çevrimiçi öğrenmeye yönelik doyum (memnuniyet) düzeylerine bakıldığında, ölçeğin tamamına ve kurumsal destek alt boyutu hariç diğer alt boyutlarına ait doyumları orta düzeyde bulunmuştur. Kurumsal destek alt boyutuna ait doyum düzeyleri ise düşük bulunmuştur. Genel itibariyle öğrencilerin araştırmaya farklı üniversitelerden katıldıkları göz önünde bulundurulduğunda kurumların acil uzaktan eğitim sürecinde, öğrencilere destek verme konusunda yetersiz kaldığı çıkarımı yapılabilir. Odak grup görüşmesi ve anket sonuna eklenen kısımdan alınan olumlu ve olumsuz öğrenci görüşlerinden yola çıkarak da öğrencilerin doyum durumlarına ilişkin nitel verilerin nicel verileri desteklediği söylenebilir. Basith, Rosmaiyadi, Triani ve Fitri (2020), 357 öğrenci ile gerçekleştirdikleri çalışmada öğrencilerin acil uzaktan eğitim sürecinde çevrimiçi öğrenme doyumlarının yüksek olduğu sonucuna ulaşmışlardır. Jiang, İslam, Gu ve Spector (2021) 928 Çin'li üniversite öğrencisi ile gerçekleştirdikleri çalışmada öğrencilerin çevrimiçi öğrenmeden çok memnun kaldıklarını bulmuşlardır. Tüzün ve Yörük Toraman (2021), 22 Mayıs-6 Haziran 2020 tarihleri arasında 289 sosyal bilimler öğrencisi ile gerçekleştirdikleri çalışmada öğrencilerin uzaktan eğitimden genel olarak memnun olmadıkları ve çoğunluğun yüz yüze eğitimi tercih ettiği sonucuna ulaşmışlardır. Tüzün ve Yörük Toraman'ın (2021) çalışmasında sonucun olumsuz çıkmasının nedeni verilerin tek bir kurumdan alınmasının yanı sıra, pandeminin başlarında gerçekleştirilen bir çalışma olması ve üniversitenin bu sürece alışma aşamasından kaynaklı, deneyimlerle gelişme süreci ve izlediği çevrimiçi politikaların yetersiz kalması olabilir. Araştırma sonuçlarında yapılan yorumlar da bu görüşü destekler niteliktedir. Bu çalışmada doyum orta düzeyde bulunmuş ancak literatürdeki benzer çalışmalarda doyum çok yüksek veya düşük bulunmuştur. Bu farklılığın sebeplerinin çalışmanın yapıldığı ülke, acil uzaktan eğitim sürecini daha iyi yönetme durumu veya araştırmanın

uygulandığı zamana bağlı olduğu söylenebilir. Çevrimiçi öğrenme hazırbulunuşluğu ile fakülte değişkeni arasında anlamlı bir farklılık olup olmadığına bakıldığında, elde edilen bulgular sonucunda eğitim fakültesi ve sağlık bilimleri fakültesi öğrencilerinin hazırbulunuşluk düzeyleri arasında anlamlı bir farklılık olduğu sonucuna ulaşılmıştır. Eğitim fakültesi öğrencilerinin hazırbulunuşluk düzeyleri, sağlık bilimleri fakültesi öğrencilerinin hazırbulunuşluk düzeyinden daha yüksek çıkmıştır. Yılmaz, Sezer ve Yurdugül (2019) farklı fakültelerden 5021 öğrenci ile gerçekleştirdikleri çalışmada öğrencilerin e-öğrenme hazırbulunuşluk durumlarının fakülte değişkenine göre anlamlı bir farklılık gösterdiği sonucuna ulaşmışlardır. Talan (2021) farklı fakültelerden 727 öğrenci ile gerçekleştirdiği çalışmada, öğrencilerin e-öğrenme hazırbulunuşluklarının bulundukları fakülteye göre anlamlı bir farklılık göstermediği sonucuna ulaşmıştır. Bununla beraber, sağlık bilimleri fakültesi öğrencilerinin hazırbulunuşluk düzeylerinin diğer fakültelere göre oldukça düşük çıktığı bulunmuştur. Hergüner, Son, Hergüner ve Dönmez (2020)'in farklı üniversite ve fakültelerden 306 öğrenci ile gerçekleştirdiği çalışmada, öğrencilerin bağlı bulunduğu fakülte ile hazırbulunuşluk durumları arasında anlamlı bir farklılık bulunmamıştır. Genel olarak bu araştırma ile diğer araştırma sonuçları kıyaslandığında sonuçların değişkenlik gösterdiği görülmektedir. Bunun sebebinde kullanılan ölçek, araştırmaya katılan öğrenci sayısı, fakülte türü ve sayısı, yaş, cinsiyet gibi bileşenlerin etkili olduğu söylenebilir. Gelecek çalışmalarda, farklı fakülteler ve daha büyük bir örneklem ile aynı konu çalışılabilir. Pandemi sonrasında öğrencilerin pandemi sürecine göre hazırbulunuşluk ve doyum düzeylerindeki gelişmeyi ortaya koymak adına bir çalışma yapılabilir. Nitel araştırma yöntemleri asıl araştırma yöntemi olarak kullanılıp, farklı bir öğrenme grubu ile çalışma gerçekleştirilebilir.

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Öğrencilerin Uzaktan Eğitim Hizmet Kalitesi Hakkındaki Görüşleri

Betül ÖZAYDIN ÖZKARA[1]

Özet

Uzaktan eğitim ile eğitim veren kurum sayısının her geçen gün arttığı bilinmektedir. Pandemi ile birlikte örgün eğitim kurumlarında uzaktan eğitim ile verilen ders sayılarında da artış olmuştur. Bu artış ile birlikte niteliksel durumun analizi de önemli bir hal almaktadır. Bu çalışmada örgün eğitim öğrencisi olan ve bazı derslerini uzaktan eğitim platformunda alan öğrencilerin uzaktan eğitim derslerinin kalitesi ile ilgili görüşlerinin incelenmesi amaçlanmıştır.

Çalışmada Gök ve Gökçen (2016) tarafından geliştirilen "Uzaktan Eğitim Hizmet Kalitesi (UE-SERVQUAL)" ölçeği ile veri toplanarak nicel bir çalışma gerçekleştirilmiştir. Ölçek e-öğrenme, güvenirlik, erişilirlik ve heveslilik olmak üzere toplam dört alt faktörden oluşmaktadır. Çalışma Anadolu'da bulunan bir devlet üniversitesinde gerçekleştirilmişidir. Üniversite Ortak Seçmeli dersi olan Bilişim Teknolojileri ve Uygulamaları dersini alan önlisans öğrencileri çalışmaya katılmıştır. Çalışmada, Sağlık Kurumları İşletmeciliği, Bilgisayar Programcılığı, Fotoğrafçılık ve Halkla İlişkiler Bölümünde okuyan toplam 159 öğrenci bulunmaktadır. Öğrencilerin hizmet kalitesi ölçeğine verdiği cevaplar betimsel istatistikler, t-tesi ve ANOVA testi ile analiz edilmiştir. Öğrencilerin hizmet kalitesi ile ilgili görüşlerinin belirlenmesinde betimsel istatistik kullanılmıştır. Cinsiyete göre farklılığın belirlenmesinde t-tesi ve bölümlere göre farklılığın belirlenmesinde ANOVA testi kullanılmıştır.

Çalışma sonunda öğrencilerin hizmet kalitesi ile ilgili görüşlerinin olumlu olduğu, her bir alt faktörde değerlerin ortalamanın üstünde çıktığı belirlenmiştir. Öğrencilerin cinsiyetlerinin ve okudukları bölümün hizmet kalitesi ile ilgili görüşlerinde anlamlı bir farklılık oluşturmadığı tespit edilmiştir.

Yapılan çalışmada araştırma yapılan dersin uzun yıllardır online olarak verilmeye devam ettiği buna rağmen öğrencilerin dersin uzaktan olmasına pek fazla adapte olamadığı ve genellikte katılım sorunu yaşandığı bilinmektedir. Ancak öğrencilerin pandemi ile birlikte dersin online olarak verilmesini kabul ederek sürece daha çok dahil olduğu görülmüştür. Literatürden farklı olarak hizmet kalitesindeki olumlu görüşün ana nedenini bu durumun oluşturmuş olabileceği düşünülmektedir. Bu nedenle çalışma sonucunda dile getirilen öneriler arasında hizmet kalitesi ile ilgili çalışmaların farklı dersler kapsamında tekrar edilebileceği bulunmaktadır.

Anahtar kelimeler: *Uzaktan Eğitim, Hizmet Kalitesi, Pandemi Süreci*

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GİRİŞ

Yükseköğretime olan ilgi her geçen gün artmaktadır. 2019-2020 Eğitim-Öğretim yılında ülkemizde yükseköğretimde okuyan öğrenci sayısı 7.541.890 iken 2021-2022 Eğitim-Öğretim yılında bu sayının 9.323.239 olduğu görülmektedir. Açık öğretim ve uzaktan eğitimde okuyan öğrenci sayısının ise 2019-2020 Eğitim-Öğretim yılında 3.185.236, 2021-2022 Eğitim-Öğretim yılında ise 3.713.234 olduğu belirlenmiştir (https://istatistik.yok.gov.tr/). Bu sayılar bireylerin hem örgün hem de uzaktan eğitime olan ilgisinin arttığını göstermektedir.

Günümüz insanlarının kariyerlerini ve yaşam alanlarını hayatları boyunca en az birkaç defa değiştirdikleri düşünülürse geleneksel öğrenme konseptinin, öğrenci, öğretici ve programların değiştiği hayat boyu öğrenme felsefesine uymadığı söylenebilir (Zhang ve Nunamaker, 2003). Bu durum ise uzaktan eğitim ortamının gün geçtikte önemli hale gelmesinin bir nedeni olarak değerlendirilebilir. Bunun yanı sıra son yıllarda yaşanan pandemi süreci uzaktan eğitimin her yaş ve her kademeden bireye eğitim vermek amacıyla kullanımını gündeme getirmiştir. 2020 yılında 188 ülkede okulların kapatıldığı, bir gün açık bir gün kapalı olan okullar nedeni ile öğrenmelerde kesintilerin yaşandığı bir dönem geçirilmiştir (OECD, 2022). Bu süreçte eğitim sürekliliğinin sağlanabilmesi için her eğitim kademesinde uzaktan eğitime geçiş sağlanmıştır.

Pandemi öncesinde açık ve uzaktan eğitim fakültelerinde, uzaktan eğitim meslek yüksekokullarında ya da örgün eğitimlerin bazı programlarında uzaktan eğitim verilmekteyken pandemi ile birlikte uzaktan eğitimin daha çok kabul gördüğü birçok üniversitede 2021-2022 Eğitim-öğretim yılında yüz yüze eğitime geçilmesine rağmen uzaktan eğitim ile verilen ders sayılarının arttığı bilinmektedir. Bu artış ile birlikte uzaktan eğitim ortamda verilen derslerden beklenen hizmet kalitesinin de artmış olması beklenen bir durumdur. Uluslararası rekabet gücü dikkate alındığında tüm alanlar için iyi kalitede hizmet sunmanın başarı açısından ne kadar değerli olduğu bilinmekte ve birçok uzman tarafından kabul edilmektedir (Abdullah, 2005). Dolayısıyla eğitim alanında da hizmet beklentisinin olması son derece doğaldır.

Hizmet kalitesi tanımlaması, ölçülmesi ve anlaşılması zor olan soyut bir kavramdır (Kao et al., 2009). Hizmet kalitesini ölçek amacıyla kullanılan farklı modeller ve yöntemler olduğu görülmektedir. Bu yöntemler arasında en yaygın olan ve çoğunlukla kullanılanı Parasuraman vd.'nin (1988) geliştirdiği Servqual yöntemdir. Parasuraman vd.'nin (1988) çalışmasında hizmet kalitesini belirlemek için SERVQUAL ölçeği geliştirilmiş ve hizmet kalitesi, hizmet alan bireylerin algıları ile beklentileri arasındaki farklılığın derecesi ve yönü olarak ifade edilmiştir. Beklenen hizmet, algılanan hizmetten büyük ise, algılanan kalite düşük düzeydedir. Beklenen hizmet ile algılanan hizmet eşit ise, algılanan kalite memnun edici olarak ifade edilmektedir. Beklenen hizmetin, algılanan hizmetten düşük olması durumunda ise, algılanan kalitenin beklentiden daha yüksek olduğu ve ideal kalite düzeyini oluşturduğu ifade edilmektedir (Parasuraman vd.,1988).

Kalite belirleme ile ilgili birçok alanda farklı çalışmaların olduğu görülmektedir. E-öğrenme ile ilgili yapılan bazı kalite belirleme çalışmaları aşağıda verilmiştir.

Duman vd. (2019) toplam 455 öğrenci ile gerçekleştirdiği çalışmada öğrencilerin pedagojik formasyonda uzaktan eğitim ile ilgili servis kalitesine yönelik düşüncelerinin cinsiyet, çalışma durumu ve daha önce uzaktan eğitim dersi alma durumu açısından incelemiştir. Daha önce geliştirilen bir "Çevrimiçi Uzaktan Eğitim Programlarının Hizmet Kalitesi" ölçeğinin Türkçe'ye uyarlanması ile veri toplanmıştır. Ölçek öğretimsel hizmet kalitesi, yönetim ve idare ile iletişim olmak üzere üç boyuttan oluşmaktadır. Araştırma sonucunda iletişim faktörüne yönelik cinsiyete göre anlamlı bir farklılık olmadığı, erkek öğrencilerin öğretimsel hizmet kalitesi, yönetim ve idare faktörlerine yönelik puanlarının kadın öğrencilerden daha yüksek olduğu belirlenmiştir. Çalışma durumu ve daha önce uzaktan eğitim dersi alma durumu açısından ise anlamlı farklılık belirlenmemiştir.

Dursun (2011) uzaktan eğitimde e-mba programı bulunan 5 farklı üniversiteden toplam 463 öğrenci ile yapılan çalışmada sunulan eğitimin hizmetinin kalitesinin ölçülmesini hedeflemiştir. Bu amaçla Servqual yöntem kullanılmış ve öğrencilere anket uygulanmıştır. Çalışma sonunda öğrenci görüşlerine göre hizmet kalitesine etki eden beş boyutun hepsinde beklenen hizmetin karşılanmadığı, en fazla memnuniyetsizlik boyutunun ise heveslilik olduğu görülmüştür.

Udo vd. (2011) e-öğrenme kalitesini değerlendirmek için yapısal eşitlik modellemesini kullandığı çalışmalarında servqual ölçekte değişiklikler yapmışlardır. Güvence, empati, duyarlılık, güvenilirlik ve web sitesi içeriği olmak üzere beş boyuttan oluşan ölçme aracının güvenirlik boyutu dışındaki diğer dört boyutunda e-öğrenme hizmet kalitesini ölçmede önemli bir rol oynadığını belirlenmişlerdir.

Al-Mushasha ve Nassuora (2012) 189 öğrencinin katıldığı çalışmasında e-öğrenme ortamında eğitimin kalitesini etkileyen faktörleri incelemiştir. Arayüz tasarımı, güvenirlik, cevaplanabilirlik, güven ve kişiselleştirmenin hizmet kalitesini etkilediğini belirlemiştir.

Çelik ve Perçin (2019) çalışmalarında Bilim, Sanayi ve Teknoloji Bakanlığı'nın Üniversitelerarası Yenilikçilik ve Girişimcilik Endeksi sıralamasına giren ve uzaktan eğitim hizmeti veren otuz devlet üniversitesinin e-hizmet kalitesini incelemişlerdir. Bu amaçla Kalite Fonksiyon Göçerimi, Bulanık Regresyon, 0-1 Hedef Programlama ve Entropi–Ağırlıklı Uzaklık Metriği yöntemleri kullanılmıştır.

Karaca ve Kelam (2020) pandemi sürecinde lise öğretmenleri ile servqual ölçeği temel alarak hazırladıkları yapılandırılmış mülakat formu ile bir çalışma yapmışlardır. Çalışma sonucunda öğretmenlerin genel olarak uzaktan ortamında kendilerini yeterli buldukları ve kaliteli bir hizmet sunma çabası gösterdikleri belirlenmiştir. Bazı sistemsel, teknik konularla ve değerlendirme, dönüt verme konusunda sorunlar yaşandığı belirlenmiştir.

Çakmak (2013) Karabük Üniversitesi Uzaktan Eğitim Merkezi'nde toplam 140 öğrenci ile gerçekleştirdiği çalışmasında, servqual ölçekten faydalanılarak hazırladığı anketi kullanmıştır. Çalışma sonucunda öğrencilerin beklentilerinin karşılanmadığı belirlenmiştir.

Bu çalışmada örgün eğitim öğrencisi olmasına rağmen uzaktan eğitim ile aldıkları bir derse yönelik hizmet kalitesi hakkındaki öğrenci görüşlerinin değerlendirilmesi hedeflenmiştir. Çalışma uzun yıllar boyunca örgün eğitim öğrencilerine uzaktan eğitim ortamında verilen üniversite ortak seçmeli dersi kapsamında gerçekleştirilmiştir. İlgili dersin pandemi öncesinde uzaktan eğitim ortamında veriliyor olmasının öğrenciler tarafından çok fazla kabul görmediği ve pandemi süreci ile birlikte daha fazla dikkate alındığı belirlenmiştir. Çalışmada öğrencilerin uzaktan eğitim hizmet kalitesi ile ilgili düşünceleri, düşüncelerinin cinsiyetleri ve okudukları bölümlere göre anlamlı bir şekilde değişip değişmediği araştırılmıştır.

YÖNTEM

Araştırma Modeli

Yapılan çalışmada önceden ya da mevcut zamanda var olan olay ve olguların betimlendiği, araştırma konusunun kendi koşulları içinde olduğu şekliyle tanımlandığı tarama modeli (Karasar, 2012) yaklaşımı kullanılmıştır.

Çalışma Grubu

Çalışmaya Anadolu'da bulunan bir devlet üniversitesinin ön-lisans programlarında okuyan, uzaktan eğitim ortamında üniversite ortak seçmeli dersi olan "Bilişim Teknolojileri ve Uygulamaları" dersini alan toplam 159 öğrenci katılmıştır. Öğrencilerin 50'si erkek, 109'u kadındır. Sağlık Kurumları İşletmeciliği Bölümü'nde 46, Bilgisayar Programcılığı Bölümü'nde 40, Fotoğrafçılık Bölümü'nde 36 ve Halkla İlişkiler Bölümü'nde 37 öğrenci bulunmaktadır.

Veri Toplama Aracı

Çalışmada öğrencilerin uzaktan eğitim kalitesi hakkındaki görüşlerini belirlemek için Gök ve Gökçen (2016) tarafından geliştirilen, geçerlik ve güvenirlik testi yapılan "Uzaktan Eğitim Hizmet Kalitesi (UE-SERVQUAL)" ölçeği kullanılmıştır. Ölçek e-öğrenme ortamı, güvenilirlik, erişilirlik ve heveslilik olmak üzere toplam 4 faktörden ve 22 maddeden oluşan 7'li likert tiptedir. Cronbach Alfa iç tutarlılık katsayısı e-öğrenme ortamı için 0,929; güvenilirlik için 0,849; erişilirlik için 0,807 ve heveslilik için 0,957 olarak belirlenmiştir. Ölçeğin tamamına ait Cronbach Alfa değeri 0,97'dir. Ölçeğe ait uyum iyiliği indeksleri $\chi 2/df=3,67$, GFI=0,88, IFI=0,92, CFI=0,92 ve RMSEA=0,07 olan ölçeğin geçerli ve güvenilir bir ölçek olduğu belirlenmiştir (Gök ve Gökçen, 2016).

BULGULAR

Çalışmada ön-lisans öğrencilerinin uzaktan eğitim hizmet kalitesi ile ilgili görüşleri incelenmiştir. Yapılan betimsel analizler sonucunda Tablo1'de öğrencilerin hizmet kalitesi alt boyutlarına verdikleri cevapların ortalama değerleri görülmektedir.

Table 1. *Öğrencilerin Hizmet Kalitesi Hakkında Görüşleri ile İlgili Betimsel Analizler*

Alt kategori	N	Min	Max	$\bar{X}$	SS
E-ögrenme	159	10	49	38.50	9.47
Güvenirlik	159	4	21	17.20	3.78
Erişilirlik	159	3	21	18.11	3.76
Heveslilik	159	17	63	51.28	11.92
Toplam	159	36	154	125.10	26.86

Tablo 1'e göre öğrencilerin uzaktan eğitim hizmet kalitesi ölçeğine verdikleri cevap puanlarının ortalamanın üstünde olduğu görülmektedir. Öğrencilerin hizmet kalitesi hakkındaki görüşlerinin olumlu olduğu söylenebilir. Hizmet kalitesinin alt boyutlarında yer alan e-öğrenme, güvenirlik, erişilirlik ve heveslilik alt boyutlarının da her biri ile ilgili puanların cevapların ortalamanın üstünde olduğu dolayısıyla her alt boyut için görüşlerinin olumlu olduğu ifade edilebilir.

Öğrencilerin hizmet kalitesi ile ilgili düşüncelerinin cinsiyetlerine ve bölümlerine göre farklılık gösterip göstermediği Tablo 2 ve Tablo 3'de incelenmiştir. Cinsiyetlere göre olan değişim bağımsız örneklem t testi ile bölümlere göre olan değişim ise ANOVA testi ile analiz edilmiştir.

Table 2. *Hizmet kalitesi hakkında görüşlerin cinsiyete göre değişimi ile ilgili T-Testi sonuçları*

Alt kategori	Cinsiyet	n	$\bar{X}$	SS	sd	t
e-öğrenme	Kadın	50	38,64	9,31	157	.123*
	Erkek	109	38,44	9,58		
Güvenirlik	Kadın	50	17,36	3,81	157	.357*
	Erkek	109	17,12	3,79		
Erişilirlik	Kadın	50	17,68	4,24	157	-.996*
	Erkek	109	18,32	3,52		
Heveslilik	Kadın	50	51,74	11,74	157	.326*
	Erkek	109	51,07	12,03		

**p>.05*

Öğrencilerin hizmet kalitesi ölçeğinde yer alan alt faktörlerin cinsiyete göre farklılaşma gösterip göstermediği Tablo2'de görülmektedir. Analiz sonuçlarına göre, öğrencilerin e-öğrenme (t(157)= .123), güvenirlik (t(157)= .357), erişilirlik (t(157)= -996.) ve heveslilik (t(157)= .326) ile ilgili düşüncelerinin cinsiyetlerine göre anlamlı bir farklılık göstermediği belirlenmiştir (p>.05).

Tablo 3. *Öğrencilerin hizmet kalitesi hakkında görüşlerinin okudukları bölümlere göre farklılığına ilişkin ANOVA testi sonuçları*

Alt kategori	Varyansın Kaynağı	Kareler Top.	sd	Kareler Ort.	F	P
E-öğrenme	Gruparası	252,15	3	84,05	,935	,425
	Grupiçi	13931,59	155	89,88		
	Toplam	14183,74	158			
Güvenirlik	Gruparası	51,153	3	17,051	1,192	,315
	Grupiçi	2216,407	155	14,299		
	Toplam	2267,560	158			
Erişilirlik	Gruparası	40,155	3	13,385	,942	,422
	Grupiçi	2202,574	155	14,210		
	Toplam	2242,730	158			
Heveslilik	Gruparası	371,973	3	123,991	,870	,458
	Grupiçi	22086,291	155	142,492		
	Toplam	22458,264	158			

Tablo 3'de yer alan ANOVA testi sonuçlarına göre çalışmaya katılan öğrencilerin hizmet kalitesi hakkındaki görüşlerinin okudukları bölümlere göre e-öğrenme alt boyutunda ($F(3\text{-}155)=.935$, $p>0.5$), güvenirlik alt boyutunda ($F(3\text{-}155)=1.192$, $p>0.5$), erişilirlik alt boyutunda ($F(3\text{-}155)=.942$ $p>0.5$) ve heveslilik alt boyutunda ($F(3\text{-}155)=.870$, $p>0.5$) anlamlı bir şekilde farklılık göstermediği belirlenmiştir.

TARTIŞMA VE SONUÇ

Üniversite ortak seçmeli dersi olan ve farklı birçok birim öğrencisi tarafından seçilen "Bilişim Teknolojileri ve Uygulamaları" dersi pandemi öncesinde uzaktan eğitim ile verilen pandemi sürecinde de uzaktan eğitim ortamında verilmeye devam eden bir derstir. Ancak pandemi öncesinde öğrencilerin hangi platformdan ders işlendiği konusunda çok fazla farkındalık göstermedikleri belirlenmiştir. Pandemi sürecinin yaşanması ile bütün derslerin uzaktan eğitim ortamında verilmeye başlaması, öğrencilerin farkındalık düzeyini arttırmış ve uzaktan eğitim konusunda kabullenmeyi arttırmıştır. Bireylerin hayatlarının her alanında hizmet kalitesi beklentisi içinde oldukları bir gerçektir. Bu nedenle çalışmaya katılan öğrencilerin uzaktan eğitim hizmet kalitesi hakkındaki düşünceleri araştırılmıştır.

Yapılan çalışma sonucunda öğrencilerin uzaktan eğitim hizmet kalitesi ile ilgili görüşlerinin olumlu olduğu belirlenmiştir. Hizmet kalitesini oluşturan e-öğrenme, güvenirlik, erişilirlik ve heveslilik alt boyutlarının her birinde de olumlu görüş belirttikleri görülmüştür. Çalışmanın aksine yapılan bazı çalışmalarda (Çakmak, 2013) hizmet kalitesinin beklentiyi karşılamadığı görülmüştür.

Cinsiyet ve öğrencilerin okudukları bölümün hizmet kalitesi ile ilgili görüşleri anlamlı bir şekilde farklılaştırmadığı görülmüştür. Benzer şekilde Dursun'un (2011) çalışmasında da e-mbe öğrencilerinin hizmet kalitesi toplam servqual puanları cinsiyete göre bir farklılık göstermemektedir. Fakat hizmet kalitesi puanı, fiziksel özellikler alt boyutunda farklılık göstermektedir. Bayan öğrencilerin e-mba eğitim programının fiziksel özelliklerinden beklentilerinin, erkeklerin beklentilerinden daha az karşılandığı belirlenmiştir. Yani erkeklerin fiziksel özellikler bakımından eğitim aldığı okuldan bayanlardan çok daha memnun oldukları görülmüştür.

Çalışma sonunda son derece önemli bir konu olan hizmet kalitesi ile ilgili çalışmaların farklı dersler kapsamında tekrar edilebileceği ve dersi veren öğretim elemanlarında farkındalığın arttırılması gerektiği düşünülmektedir.

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Yükseköğretimde Harmanlanmış Öğrenme Deneyimine Yönelik Bir Durum Çalışması

İlknur KAYNARCA[1], Nuh YAVUZALP[2]

Özet

Bu çalışmanın amacı yükseköğretimde harmanlanmış öğrenme yöntemini kullanmayı tercih eden bir üniversitedeki uzaktan eğitim personel deneyimlerini incelemektir. Çalışmada nitel araştırma yöntemlerinden durum çalışması deseni kullanılmıştır. Araştırmaya bir vakıf üniversitesinde çalışmakta olan uzaktan eğitim personelleri katılmıştır. Verilerin toplanması için uzaktan eğitim personelleri ile yarı yapılandırılmış mülakatlar gerçekleştirilmiştir. Toplanan veriler içerik analizi tekniği ile analiz edilmiştir. Araştırmanın sonucunda test süreci, ekipmanların sınıf ortamına entegrasyonu, eğitimler, ders planlaması, uygulama ve sorunlar şeklinde temalar bulunmuştur. Çalışmanın sonunda araştırmaya ve uygulamaya dönük önerilerde bulunmuştur.

Anahtar Kelimeler: *Harmanlanmış Öğrenme,Öğretim Yöntemleri, Durum Çalışması.*

GİRİŞ

11 Mart'ta Dünya Sağlık Örgütü'nün salgın olarak tanımlamasıyla birlikte bütün dünyayı etkisi altına alan koronavirüs (COVID-19), tüm dünyada eğitimde kullanılan yaklaşımları ve yöntemleri de etkiledi. 2020 yılı Mart ayında Türkiye'de ilk koronavirüs vakasının görülmesi ile birlikte eğitim sisteminde yüzyüze eğitimden uzaktan eğitime hızlı bir geçiş yapılmıştır. Zaman ve mekandan bağımsız çalışmayı sağlayan bu öğretim türü salgınla birlikte eğitim-öğretim faaliyetlerinin aksamaması için kolaylık sağlamıştır. Ancak bazı bölgelerde kesintisiz internetin olmaması, uzaktan eğitimin etkililiği için çok fazla öz disiplin ve bağımsız çalışma yeteneğinin gerekmesi (Kotrikadze ve Zharkova, 2021) öğrenme süreçlerini olumsuz etkileyebilmektedir. Böyle bir durumda öğrenenlerin insiyatifine bırakılarak isteyen öğrencilerin sınıf ortamında derse katılımlarını sağlamak bu olumsuzlukların önüne geçebilir. Beden eğitimi, hemşirelik gibi uygulama gerektiren alanlarda; öğrencilerin derslerin teorik kısmı uzaktan olsa da uygulama düzeyindeki öğrenme hedefleri için belirli yer ve ortamlarda bulunması gerekebilir. Bu gibi alanlarda öğrencilerin hem yüz yüze hem de uzaktan eğitim alabilecekleri harmanlanmış öğrenme yöntemi etkili olabilir (Mulyadı ve diğerleri, 2021; Zheng, Ma ve Lin, 2021; Bayyat, 2020).

Harmanlanmış öğrenme yüzyüze ve çevrimiçi eğitimin birlikte kullanılmasıdır (Bourne, Harris ve Mayadas, 2005). Bazı çalışmalar harmanlanmış öğrenmeyi eş zamanlı ve eşzamansız öğretimin bir arada kullanıldığı,uzaktan öğrenmenin bir çeşidi olarak ele

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almıştır (Zheng, Ma ve Lin, 2021). Bosh ve Laubscher (2019), harmanlanmış öğrenmeyi, öğrencilerin ve öğretmenlerin eşzamanlı ve eşzamansız çevrimiçi durumlarda öğrenip öğretebilmeleri için eşzamanlı ve eşzamansız uzaktan öğretimin avantajlarını ve öğretim süreçlerini bütünleştiren bir öğretim türü olarak ifade etmiştir. Sharp ve diğerleri (2006) göre ise harmanlanmış öğrenme öğrenmeye rehberlik edecek şekilde sınıfta öğretmenler ve öğrenciler arasında yüz yüze iletişim ve tartışmayı içerir ve sınıf dışında öğrenciler, internet aracılığıyla daha fazla kaynağa erişebilir, ödevlerini tamamlayabilir. Bu çalışmada harmanlanmış öğrenme ifadesi öğretimin hem yüz yüze hem de çevrimiçi olarak sunulduğu öğrenme biçimi olarak kullanılmıştır.

Pandemi sürecinde çeşitli yükseköğretim kurumlarının iletişimini sağlamaya yönelik uzaktan eğitim iletişim grupları kurulmuştur. Bu gruplarda bazı üniversitelerin pandeminin etkisini yavaş yavaş yitirmesi ile harmanlanmış öğrenme yöntemini tercih ettiği belirlenmiştir. Bazı üniversiteler ise personel yetersizliği, altyapı yetersizliği, süreç hakkında yeterli bilgiye sahip olmamaları nedeniyle bu öğrenme yöntemini kullanmakta çekingen kalmışlardır. Bu çalışmanın amacı harmanlanmış öğrenmeyi halihazırda kullanmakta olan bir üniversite üzerinden bu yöntemle ilgili deneyimleri uzaktan eğitim personeli açısından ortaya koymaktır. Çalışmanın bu yöntemi uygulamaya istekli yükseköğretim kurumlarına, bu örnek harmanlanmış öğrenme durumunu kendi kurumlarına uygulanabilirliğini değerlendirebilmek açısından yol gösterici olması hedeflenmiştir.

Araştırma Soruları

Bu çalışma kapsamında "Pandemi sürecinde harmanlanmış öğrenmeye geçiş süreci nasıl gerçekleşmiştir?" sorusuna cevap aranmıştır.

YÖNTEM

Bu çalışmada nitel araştırma yöntemlerinden durum çalışması kullanılmıştır. Durum çalışması deseni; araştırmacının bir durumu, olayı, eylemi, süreci veya bir ya da birden fazla kişiyi derinlemesine analize kattığı bir araştırma desenidir (Creswell ve Poth, 2016).

Çalışma Grubu

Araştırmanın çalışma grubunu bir vakıf üniversitesinde çalışmakta olan uzaktan eğitim personelleri oluşturmaktadır.

Veri Toplama Araçları

Veri toplama aracı olarak araştırmacı tarafından oluşturulmuş yarı yapılandırılmış görüşme formları ve UZEM personeli tarafından çizilen iş akış diyagramları kullanılmıştır. Yarı yapılandırılmış görüşme formu soruları:

1. Harmanlanmış öğrenmeye geçiş sürecinizde karar aşamanızı değerlendirir misiniz?
2. Harmanlanmış öğrenme için gerekli olan donanım ve ekipmanlara nasıl karar verdiniz?

3. Harmanlanmış öğrenme için gerekli olan donanım ve ekipmanlar sınıf ortamına nasıl entegre edildi?
4. Harmanlanmış öğrenme sürecindeki deneyimlerinizi değerlendirir misiniz?
5. Harmanlanmış öğrenme süreci bittiğinde yaşadıklarınızı değerlendirir misiniz?
6. Harmanlanmış öğrenme sürecinizi bu öğrenme sürecine geçmek isteyen bir kuruma anlatacak olsanız nasıl anlatırsınız?

şeklindedir.

İş akış diyagramı çizimi için UZEM personeline şu soru yöneltilmiştir:

- Harmanlanmış öğrenme sürecini en başından en sonuna kadar anlatan bir akış diyagramı çiziniz.

Veri Toplama Süreci

Verilerin toplanması sürecinde her bir katılımcı ile online görüşme platformları üzerinden bireysel görüşmeler gerçekleştirilmiştir. Görüşmeler katılımcıların izni ile kayıt altına alınmıştır.

Verilerin Analizi

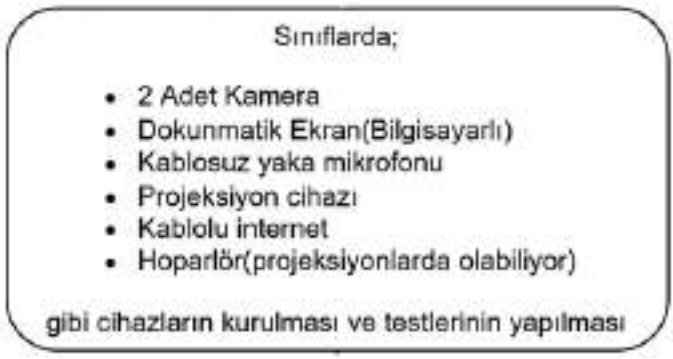
Toplanan veriler içerik analizi tekniği ile analiz edilmiştir. Krippendorff (2018), içerik analizini birçok alanda aktif olarak kullanılan hem nitel hem de nicel yönleri birleştiren güçlü bir araştırma aracı olarak tanımlamıştır. Tek tek veya metin grupları içinde belirli kelimelerin veya kavramların varlığını belirlemek için kullanılır. Herhangi bir metin üzerinde içerik analizi yapmak için, metnin kodlanması veya farklı ayrıntı düzeylerinde yönetilebilir kategorilere ayrılması gerekir.

BULGULAR VE YORUMLAR

İçerik analizi tekniği ile görüşmelerden çıkan kategoriler belirlenmiştir. Buradan yola çıkarak harmanlanmış öğrenme süreci; test süreci, ekipmanların sınıf ortamına entegrasyonu, eğitimler, ders planlaması, uygulama ve sorunlar şeklinde raporlanmıştır. Creswell ve Poth (2016) nitel araştırma raporunun yazımında alıntılarla desteklenerek yazılabileceğini belirtmişlerdir. Buna göre belirlenen temaların altında katılımcılarla yapılan görüşmelerden alıntılar sunulmuştur.

Test Süreci

Harmanlanmış öğrenme sürecinin başında üniversite senato kararının alınmasından hemen sonra ekipmanların sınıf ortamına uygunluğunu test etmek üzere 3 farklı sınıfda kurulum yapılmıştır. Testler sonucunda eğiticinin sesinin online eğitimdeki öğrencilere aktarılması kısmında sorunlar yaşandığı tespit edilmiştir. Bundan dolayı mikrofonların sesi ayırt edebilecek yaka mikrofonları şeklinde seçilmesi kararlaştırılmıştır. Test sürecinde sınıflarda kurulan ekipmanlar Şekil 1'de sunulmuştur.



Şekil 1. *Test Sürecinde Sınıf Tasarımı*

Ekipmanların Sınıf Ortamına Entegrasyonu

Ekipmanların sınıf ortamına entegrasyonu için öncelikle eğitici ve öğrenciyi bir araya getirecek bir öğrenme yönetim sistemi seçilmiştir. Bunun için ALMS adlı öğrenme yönetim sistemi seçilmiştir. ALMS öğrenme yönetim sistemi içinde canlı derslerin yapılabileceği Perculus sistemi mevcuttur. Sınıf ortamında yapılan derslerin canı olarak online ders alan öğrencilere aktarılması kısmı bu sistemle sağlanmıştır.

Harmanlanmış öğrenme için sınıflara iki kamera takılmıştır. Kameralardan birincisi tahtayı ve eğiticiyi görürken ikincisi sınıfı görmektedir. İki görüntünün birleştirilip online ders alan öğrencilere canlı olarak aktarılması için OBS Studio programı kullanılmıştır. Bununla ilgili süreci katılımcı şöyle ifade etmiştir:

> *"Bizim kendi üniversitemizde biz şunu yaptık. Hibrit de ilk önce tabi planlamamız şu şekilde oldu, hybriddeki dışarıda işte online takip eden öğrenci içerideki öğrencileri görebilecek tahtayı görebilecek… Hocanın işte kendisini işte hocanın kendi mimikleri vardır, anlatım şekli vardır, onu görebilecek tahtayı görebilecek bu şekilde bir yapı kurmayı başardık. Bunu kaç kamerayla iki kamerayla kurduk. Bir tanesi normal tahtaya bir tanesi de sınıfa bakıyor. İşte tahtayı gören kamera hocayı da görüyor. Diğer kameraya ise sınıfı görüyor. Bir tane program kullanarak bu iki kameranın görüntüsünü bir yerde birleştirdik ."*

Öğretmenin konuşmasının sortam sesinden yalıtılıp online ders alan öğrencilere aktarılması için ise yaka mikrofonları kullanılmıştır. Katılımcı bu süreci şöyle anlatmıştır:

> *"Biliyorsunuz ki şimdiki mikrofon kayıtlarında sen sınıfın içindesin bir kaç tane öğrenci konuşunca mikrofon bildiğiniz ses karışıklığına mahal veriyor ve öğrenci karşı tarafta duyamıyor. Burada da başta da dediğim gibi sürdürülebilirlik dedik. Hani çok iyi kameralar çok iyi ses kayıt cihazlarının kullanılması gerekiyor. Biz burada bunu başardık.. Ses kayıt cihazları hazırladık. Profesyonel ses kayıt cihazları bu ses kayıt cihazları sınıf içerisinde hani deyim yerindeyse ağza en yakın neresi ise oradaki sesi seçiyor. Direk filtreler diğer sesi direk manipüle ediyor böyle bir ses kayıt mikrofonu."*

Öğretmenin tahtada yaptığı işlemleri aynı anda online öğrenenlere aktarılması için sınıflara akıllı tahta kurulumu yapılmıştır. Akıllı tahtalar EmkoTech adlı yerli bir firmadan temin edilmiştir. Sınıflarda ek olarak projeksiyon cihazı ve hoparlör kullanılmıştır. Hoparlör online öğrenenlerle eğitici arasındaki iletişimin yüz yüze öğretimdeki öğrencilerin de duyulabilmesini sağlamaktadır.

Eğitimler

Eğitimler ekipmanların kurulduğu ve testlerin yapıldığı 3 sınıfta gerçekleştirilmiştir. Eğitimlerin verilmesi için demo öğrenci ve demo eğitici hesapları oluşturulmuştur. Sistem ve sınıf ortamlarının oluşturulmasından sonra test sınıflarında kurumdaki tüm akademisyenlere 2-3 saat aralığında planlı eğitimler verilmiştir. Eğitim süreci görüşme sırasında şu şekilde ifade edilmiştir:

> *"3 tane sınıf ortamında işte araştırma görevlisi arkadaşlarımız ve öğretim görevlisi arkadaşlarımız, öğretim elemanı arkadaşlarımıza direk rektörlük bünyesinde bir eğitime tabi tuttuk. Işte sabah saat 9'dan akşam saat 7'ye kadar sınıf içerisinde davet ettik. Kendilerine ikişer saatlik eğitim yaptık ve hocalarımız geldi. Ses kayıt cihazlarını incelediler. Oradaki profesyonel arkadaşlarımızdan sınıfı nasıl kullanacaklarını gördüler."*

Ders Planlaması

Eğitimler sonrasında kurum genelinde harmanlanmış eğitim tanıtımları yapılmış ve dersini harmanlanmış öğrenme şeklinde vermek isteyen hocaların talepleri alınmıştır.

> *"Daha sonradan işte hibrit eğitim vermek istiyor musun istemiyor musun şeklinde biz kendilerine(akademisyenlere) soru sorduk. Işte bilgi işlem ekibimizin bizde olması sayesinde hemen sistem tarafından bir güncelleme yapıp küçük bir anketle bunu kendileri paylaştı ki inanılmaz bir sonuç geldi. Hocalarımız kullanmak istiyor, hibriti tanımak istiyorlar."*

Akademisyenlerden dersin online, yüzyüze veya harmanlanmış şekilde verilmesi yönünde talepler alındıktan sonra öğrencilere ders kayıtları sırasında dersi yüz yüze, online veya harmanlanmış biçimlerden hangisiyle almak istediği alınmıştır. Öğrencilerden ders kayıtları sırasında alınan bu veri sayesinde dönem için öğrencinin devamsızlığının nasıl takip edileceği belirlenmiştir. Ders kayıtları sırasında akademisyen ve öğrencilerden gelen talepler göz önünde bulundurularak 100 harmanlanmış öğrenme sınıfı oluşturulmuştur.

Uygulama

Bu kısımda harmanlanmış öğrenme yöntemiyle bir ders verme sürecinin nasıl gerçekleştiği sunulacaktır. Hangi harmanlanmış öğrenme sınıfında hangi derslerin verileceği dönem başında belirlenmiştir. Eğiticiler derslerine girmeden 15-20 dakika öncesinde yaka mikrofonlarını buradan almaktadır. Görüşmeler sırasında bu durum şöyle belirtilmiştir:

> *"Dersin hocası ilgili sekreterliklere gidiyor. Ders öncesi mikrofonu temin ediyor. Zaten sekreterlikleri öncesinde ilgili kayıt cihazlarının şarjını, bakımını her şeyini yapmış oluyor. Daha sonra dersine gidiyor, yakasına takıyor ve dersini anlatıyor."*

Eğitici sınıfa girdiğinde bilgisayar üzerinden öğrenme yönetim sistemi ve canlı dersi açmaktadır. Ardından akıllı tahtayı aktif etmektedir. Derse başladıktan sonra herhangi bir problemle karşılaşması halinde fakülte binalarındaki bilgi işlem personelleri yüzyüze ve UZEM personelleri ise online olarak destek vermektedir. Ders bitiminde ise teslim etmektedir. Teslim edilen mikrofonlar bir sonraki derste kullanılmak için dezenfekte edilmektedir.

Sorunlar

Harmanlanmış öğrenme deneyimini gerçekleştiren kurumun yaşadığı problemlerden ilki internet hızı problemidir. İnternet hızının harmanlanmış öğrenme için yetersiz geldiğini fark eden üniversite internet altyapısını güçlendirmiştir.

Yaşanan diğer problem ise ders sırasında yaşanan teknik aksaklıklara anında çözüm verme noktası olmuştur. Bunun için tüm fakültelere bilgi işlem birimleri kurulmuş ve bilgi işlem personelleri ekipmanların kullanımı hakkında UZEM personelleri hakkında bilgilendirilmiştir. Bu sayede dersler esnasında yaşanan problemlere anında çözümler sunulabilmiş, UZEM personellerinin iş yükü hafiflemiştir.

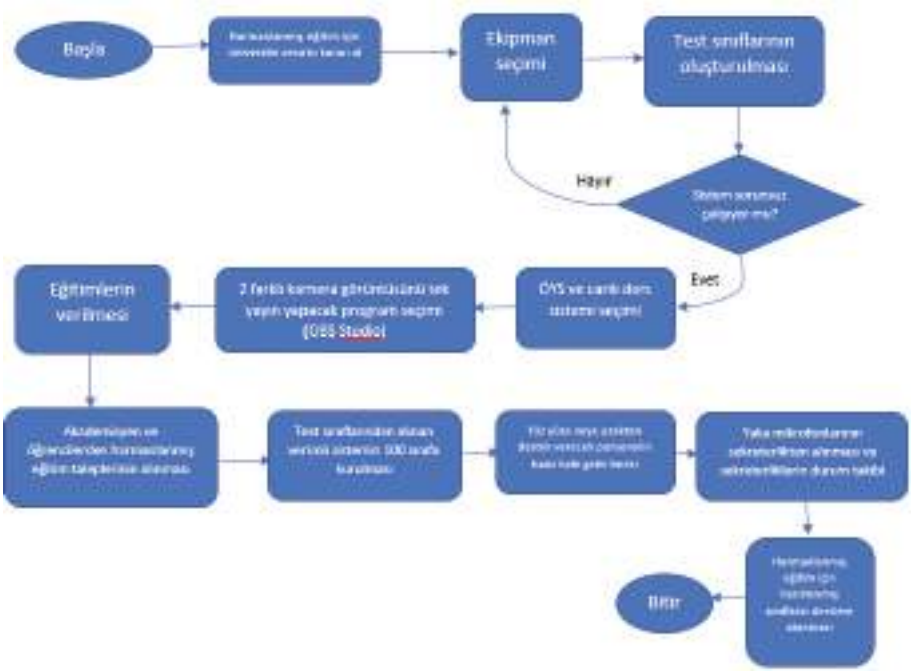
Ders esnasında eğiticinin sesinin online sitemden katılan öğrencilere aktarılması kısmı yaka mikrofonları ile çözülmüştür. Ancak sınıf ortamında bulunan öğrencilerin sordukları soruların online eğitimdeki öğrencilerin duyması noktasında problem yaşanmıştır. Bu da eğiticinin sınıf ortamındaki öğrencinin sorduğu soruyu sesli olarak tekrarlaması ile çözülmüştür.

Kaynakların sınırlı olmasından dolayı yaka mikrofonlarının eğiticiler ders esnasında kullanıp bitiminde bir sonraki ders için hazırlanması gerekliliği ortaya çıkmıştır. Bu da yaka mikrofonlarının bölüm sekreterliklerine bırakılıp imza karşılığında alınıp ders bitiminde yine imza karşılığında teslim edilmesi ile çözülmüştür. Pandemi ortamında mikrofonların bir sonraki derse kadar dezenfekte edilmesi bölüm sekreterlikleri tarafından yapılmıştır.

SONUÇ VE ÖNERİLER

Bu çalışmada yükseköğretimde harmanlanmış öğrenme deneyimi edinmiş bir üniversite ile durum çalışması yapılmış çalışmanın harmanlanmış öğrenme ile eğitim vermek isteyen kurum veya kuruluşlara bir yol haritası olması amaçlanmıştır. Çalışmanın sonuçları test süreci, ekipmanların sınıf ortamına entegrasyonu, eğitimler, ders planlaması, uygulama ve sorunlar şeklinde raporlanmıştır. Yapılan görüşmeler sonunda katılımcılara "Bu öğrenme yöntemini diğer kurumlara önerir misiniz?" sorusu yöneltilmiştir. Katılımcılar öğrenci ve eğitici kısımlarında bu öğrenme yönteminin sevildiğini, bu nedenle pandemi bitiminde de devam ettiklerini, hazır sınıf kapasitelerinin arttırılarak sonrasında da bu öğrene yöntemine devam etmek istediklerini belirtmişlerdir. Harmanlanmış öğrenmenin öğrenenlere eğitim süreçlerinde esneklik ve eğitim kaynaklarına sonradan ulaşma noktasında ise kolaylık sağladığı ifade edilmiştir.

Çalışmanın sonucunda harmanlanmış eğitime geçiş iş akışı süreci Şekil 2'de verilmiştir.



Şekil 2. *Harmanlanmış Eğitim Geçiş Süreci*

Araştırmaya Yönelik Öneriler

- Bu çalışmanın verileri bir vakıf üniversitesinde çalışmakta olan UZEM personelleri ile sınırlıdır. Çalışma harmanlanmış öğrenme sürecinin paydaşları olan yöneticiler, akademisyenler, öğrenciler ve bilgi işlem personelleri ile tekrar yapılabilir.
- Çalışma 20-30 bin aralığında öğrencisi olan bir vakıf üniversitesinde yapılmıştır. Daha az veya daha yüksek öğrenci sayılarındaki vakıf veya devlet üniversitelerinde yapılabilir.
- Toplanan veriler araştırmacı tarafından oluşturulan yarı yapılandırılmış görüşme soruları ile sınırlıdır. Farklı veri toplama araçları ile öğrenci ve eğiticilerin harmanlanmış öğrenmeye yönelik tutum ve benimsemeleri araştırılabilir.

Uygulamaya Yönelik Öneriler

- Harmanlanmış öğrenmeyi uygulamak isteyen kurumlar çalışmanın bulgularından ilham alabilir.
- Öğretim teknolojileri alanında çalışmakta olan firmalar harmanlanmış öğrenme paketleri oluşturabilir. Bu paketin içinde öğrenme yönetim sistemi, canlı ders sistemi, yüzyüze ve online eğitimi birleştirmeyi sağlayan ekipmanlar ve destek hizmetleri yer alabilir.

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Muhasebe Eğitiminin Sürdürülebilirliği İçin Açık ve Uzaktan Eğitimden Yararlanma Olanakları ve Kovid19 Pandemi Deneyimi

Ergün KAYA[1]

Özet

Bu araştırma, muhasebe eğitiminin lisans düzeyinde sürdürülebilirliği için açık ve uzaktan eğitim olanaklarından yararlanma durumunu ortaya koymayı amaçlamaktadır. Bu amaçla Kovid19 Pandemisi dönemindeki uygulamalar incelenmiştir. Araştırmada yararlanılan veriler detaylı bir literatür taraması ve Türkiye'de konu ile ilgili kurumsal web sayfalarının incelemesi yapılarak toplanmış ve değerlendirilmiştir. Ayrıca kademinin ücretsiz kullanımına sunulan YÖK Dersleri Platformundaki dersler incelenmiş ve bu yolla sağlanan katkı belirlenmiştir. Özellikle Kovid19 Pandemisi nedeniyle örgün eğitimde yaşanan aksaklıkların giderilmesinde, açık ve uzaktan eğitim sistemlerinin öğrenme ortam ve malzemeleriyle sağlanan destek söz konusu katkıyı açıkça göstermektedir. Her alanda hızlı dönüşümlerin yaşandığı dijital çağda, örgün eğitim uygulamalarında uzaktan eğitim yöntemlerinin kullanımı da yaygınlaşmaktadır. Muhasebe eğitimi hem örgün eğitim hem de açık ve uzaktan eğitim yöntemleriyle yapılabilmektedir. Bu konuda farklı görüşler ileri sürülmekle birlikte hem eğitim kurumlarında hem de muhasebe mesleğinde yaşanan dijital dönüşüm, muhasebe eğitiminde daha çok açık ve uzaktan eğitim olanaklarından yararlanılmasını gerektirmektedir. Aslında yıkıcı değişim yerine sürdürülebilir değişim yollarının aranması gerekmektedir. Bu çalışma ile muhasebe eğitimi özelinde mesleki eğitimin sürdürülebilirliği için açık ve uzaktan eğitimden yararlanmanın önemi vurgulanmaktadır. Muhasebe eğitimi alanında örgün eğitim yanında açık ve uzaktan eğitimden yararlanma olanaklarının geliştirilmesi, özellikle ölçme-değerlendirme ile ilgili endişeleri ortadan kaldıracak nitelikte iyileştirmelerin yapılması ve kurumsal iş birliğine önem verilmesi gerekmektedir.

Anahtar Kelimeler: *Muhasebe Eğitimi, Açık Öğretim, Uzaktan Eğitim, Kovid19 Pandemisi, Sürdürülebilirlik.*

GİRİŞ

Muhasebe mesleği, öğretim kurumlarında ve uygulama deneyimi ile kazanılan, derin uzmanlık bilgisi yanında, ahlaki davranış, güncel teknolojiyi kullanma becerisi ve etkili iletişim özelliklerinin ağır bastığı bir mesleki uygulama alanıdır. Hemen her alanda olduğu gibi, muhasebe mesleğinin sürdürülebilirliği için de eğitim ortamının sürdürülebilirliği büyük önem taşımaktadır. 1980'li yılların sonlarından itibaren dünya çapında gerçekleşen pek çok köklü değişimle birlikte, Birleşmiş Milletler Genel Kurulu toplantılarının gündeminde yer almaya başlayan sürdürülebilirlik kavramı, insan ve doğa arasındaki ilişkinin sağlıklı bir şekilde devam ettirilmesine odaklanmaktadır.

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Ekonominin ve doğal çevrenin sürdürülebilirliğinde baş aktör insandır. İnsan düşünce ve davranışlarının belli ölçüde eğitimle şekillendirilmesi olanaklıdır. Sürdürülebilirliğin sağlanabilmesi için eğitim temel çıkış noktasıdır. Eğitimden etkin şekilde yararlanabilmek için, öncelikle eğitimin güvenilir, tutarlı ve sürdürülebilir olması gerekmektedir. Muhasebe eğitiminin farklı düzeyleri olduğu gibi, uygulamanın içinde bulunan meslek mensupları ile akademisyen ve araştırmacılar tarafından "yaşamboyu öğrenme" gereksiniminin gittikçe artan bir eğilime sahip olduğu da gözlemlenmektedir.

Bu çalışmada açıköğretim sisteminde muhasebe mesleğine temel oluşturan lisans düzeyinde eğitim programları incelenmiştir. Bu çerçevede işletme, iktisat, maliye, kamu yönetimi programlarında verilen muhasebe dersleri ile ilgili Kovid19 Pandemi dönemi uygulamaları ve YÖK Dersleri Platformu ayrıntılı şekilde ele alınmıştır. Bu bağlamda hem muhasebe mesleğinde sürdürülebilirliğin eğitim yönüyle sağlanması için gereklilikler hem de muhasebe mesleğinin sürdürülebilir gelecek için olası katkıları üzerinde durularak, açık ve uzaktan eğitim yöntemlerinden yararlanma olanakları değerlendirilmektedir.

AÇIK VE UZAKTAN MUHASEBE EĞİTİMİ

Araştırmanın Amacı, Kapsamı ve Yöntemi

Araştırmanın amacı, muhasebe eğitiminin lisans düzeyinde sürdürülebilirliği için açık ve uzaktan eğitim olanaklarından yararlanma durumunu ortaya koymaktır. Açık ve uzaktan muhasebe eğitimi kaynakları Pandemi döneminde mesleki eğitimin sürdürülebilirliğine katkı sağlamış mıdır? sorusu temel alınarak, açıköğretim sisteminde verilen muhasebe eğitimi ve özellikle Kovid19 Pandemisi dönemindeki uygulamalar incelenmiştir. Araştırmada yararlanılan veriler detaylı bir literatür taraması yapılarak ve Türkiye'de konu ile ilgili kurumsal web sayfalarından elde edilmiş ve gerektiğinde örgün öğretim sisteminde verilen muhasebe eğitimiyle karşılaştırmalı şekilde değerlendirilmiştir. Kovid19 Pandemisi döneminde akademinin serbest kullanımına sunulan YÖK Dersleri Platformundaki dersler detaylı incelenmiş ve bu yolla muhasebe eğitimine sağlanan katkı belirlenmeye çalışılmıştır. Türkiye'de 40 yıllık kurumsal geçmişi olan açık ve uzaktan muhasebe eğitimi deneyim ve birikiminin küresel salgın döneminde muhasebe eğitiminin sürdürülmesine sağladığı katkı ortaya konulmuştur.

Açık ve Uzaktan Eğitim Kavramı

Açık ve uzaktan öğrenme, bireyin kendi kendine öğrenmesini merkeze alan, öğrenmede zaman, mekân ve kaynak esnekliği sağlayan, uzaktan erişimli eğitim ve iletişim teknolojilerini kullanan, kurumsal yapıya sahip etkileşimli, yenilikçi öğrenme sistemi olarak tanımlanabilir. Açık ve uzaktan öğretim sistemi ile yaşamboyu öğrenenlere, önkoşul ve sınırlama olmadan, eğitimde fırsat eşitliği sunulması amaçlanmaktadır. Açık ve uzaktan eğitim ise, öğrenme, öğretme ve yönetme süreçlerini kapsayan şemsiye kavram olarak kullanılmaktadır.

Açık ve uzaktan eğitimin kökeni 300 yıl öncesine kadar dayandırılabilmektedir (Bozkurt, 2017:86). Uzaktan (çevrimiçi) ve geleneksel eğitim süreçlerinin bir arada kulla-

nılması, dağıtık öğrenme kavramıyla (Mason ve Rennie, 2006:17) açıklanabildiği gibi benzer durumlar için harmanlanmış (blended) ve karma (hybrid) eğitim kavramlarının kullanıldığı da görülmektedir. Dağıtık öğrenme (distributed learning) kavramı, öğretme ve öğrenme süreçlerinin sürekliliğini sağlayabilmek için bir ekosistem oluşturulması anlamında kullanılmaktadır. 2000'li yıllardan itibaren Kitlesel Açık Çevrimiçi Dersler (Massive Open Online Course: MOOCs) (Rodriguez, 2013; Gomez-Zermeno, 2020) dünya çapında serbest kullanıma açılan uygulamalar olarak, eğitim ve sürdürülebilirlik ilişkisini en çarpıcı şekilde ortaya koyan örneklerdir. İnteraktif online öğrenme teknolojilerinin öğrenmeyi kolaylaştırıcı özelliklerinden yararlanmak için farklı öğrenme yöntemlerinin muhasebe eğitiminde denenmesi gerekmektedir (Potter ve Johnston, 2006:31).

Açık ve uzaktan eğitimin "açıköğretim" tarafı daha çok kolay erişilebilen ve herkese fırsat eşitliği sağlayan yönünü vurgulamakla birlikte, "açıköğretim" ve "uzaktan öğretim" kavramları burada açık/uzaktan öğretim ve/veya açık/uzaktan öğrenme şeklinde birlikte kullanılmıştır.

Açık ve Uzaktan Eğitimin Türkiye'deki Gelişimi

Eğitim, öğrenen ile öğreten arasında etkileşimi sağlayan araçlar kullanılarak, öğrenen tarafın bilgilenme ve bu sayede davranış değişikliğini gerçekleştirme çabaları ile ilgilidir. Eğitimde uzaklık kavramı ise öğrenen ile öğretenin coğrafi olarak farklı mekanlarda bulunmasını vurgulamak için kullanılmaktadır. Bunun yanında "uzaklık" yalnızca mekânsal değil aynı zamanda sosyal ve psikolojik etkileri de barındırır. Uzaktan eğitim sürecinde, öğreten ve yöneten tarafın yeri ve öğrenme sürecine katılımı genellikle belli bir yer ve zaman ile tanımlanabilirken, öğrenenin öğrenme sürecinin çok büyük bir kısmına istediği yerden, istediği zamanda ve istediği süre ile katılma özgürlüğü bulunmaktadır.

Yükseköğretim Genel Kurulu 01.02.2013 tarihli toplantısında alınan (güncelleme: 24.09.2020) kararla, yükseköğretim kurumlarında uzaktan öğretime ilişkin usul ve esaslar kapsamında **uzaktan öğretim** şöyle tanımlanmaktadır; *Yükseköğretim kurumlarında öğretim faaliyetlerinin bilgi ve iletişim teknolojilerine dayalı olarak planlandığı ve yürütüldüğü, öğrenci ile öğretim elemanı ve öğrencilerin kendi aralarında karşılıklı etkileşime dayalı olarak derslerin öğretim elemanı tarafından aynı mekanda bulunma zorunluluğu olmaksızın eşzamanlı ve/veya eşzamansız biçimde verildiği öğretim*"dir (md.4/f).

Bu çalışmada üzerinde durulan eğitim modeli, daha çok açıköğretim olarak adlandırılan ve ülkemizdeki uygulaması "Açık Yükseköğretim Yönetmeliği" ile çerçevelenen uygulamalardır. Açık ve uzaktan öğretim, dünyanın farklı yerlerinde iki yüzyıldan fazla süredir uygulanagelen ve farklı uygulamalar için her iki ismin de kullanıldığı eğitim modelidir (Alkan, 1987; Bozkurt, 2017:88; Tezcan, 2000:5). Türkiye'deki uygulama ise iki farklı düzenleme ile birbirinden ayrı şekilde yürütülmektedir (Yönetmelik, 1982; Usul ve Esaslar, 2010).

Açık Yükseköğretim Yönetmeliğinde (1982) tanım verilmeden; "***Açık Yükseköğretim;*** *A- Anadolu Üniversitesinde merkezi açık yükseköğretim, B- Diğer üniversitelerde açık yükseköğretim olmak üzere iki farklı ortamda yürütülür* (md.2) ifadesi yer almakta-

dır. Ayrıca Yönetmeliğin 5.maddesinde; "*Bir yükseköğretim kurumunda açıköğretime uygulanacak öğretim programları örgün öğretimde uygulananların kapsam olarak aynıdır.*" 13.maddede ise; "*Açıköğretim öğrencileri ile aynı öğretim programına göre örgün öğretim öğrencileri arasında öğrenci hakları bakımından fark bulunmadığı gibi her iki yoldan mezun olanlar eşit hak ve yetkilere sahip olurlar"* hükmü yer almaktadır.

Sürdürülebilirlik açısından kurumsal hafıza ve istikrar önemlidir. Bu bakımdan Türkiye'deki açıköğretim uygulamalarının 40 yıllık kesintisiz ve sürekli gelişen yapısına değinmekte yarar var. Anadolu Üniversitesi bünyesinde Açıköğretim Fakültesi, Yükseköğretim Kurumları Teşkilâtı Hakkında Kanun Hükmünde Kararname (41 sayılı KHK/md.21/c) ile kurulmuştur. 496 sayılı Kanun Hükmünde Kararname ile (md.1/c) *Rektörlüğe bağlı İktisadi ve İdari Bilimler Fakültesi ile önlisans, lisans tamamlama ve her türlü mesleki sertifika programları ile yaygın eğitim hizmetlerini yapmasının yanı sıra, üniversitenin tamamıyla açıköğretim uygulayan fakülte ve yüksekokulları ile örgün öğretiminin yanında ekstern öğrenci alan birimlerine, açıköğretim sistemi ile ilgili kitap, radyo-TV programları, bilgisayar, akademik danışmanlık, organizasyon, sınav ve her türlü öğrenci işleri gibi servisleri vermekle yükümlü olan Açıköğretim Fakültesinden;*" (md. 1/j) *Açıköğretim Fakültesi İktisat ve İs idaresi programlarına dahil öğrencilerin devredilmesi ile yeniden oluşturulan ve merkezi açıköğretim sistemine göre eğitim-öğretim yapan İşletme Fakültesi ile İktisat Fakültesinden oluşur.*" hükümleri eklenmiştir.

Aynı KHK'de (2809 s. Yükseköğretim Kurumları Teşkilat Kanunu Ek Madde 32) "*Anadolu Üniversitesi, yurt düzeyinde ve yurtdışında çağdaş iletişim ve eğitim-öğretim teknolojilerini kullanan Açıköğretim Fakültesinin kendi programlarının yanı sıra, bu fakültenin servis ve organizasyonu ile diğer birimlerinin ekstern öğrencilerine ve yalnızca açıköğretim sistemi uygulamak üzere kurulan fakülte ve yüksekokullarına hizmet vererek, aynı zamanda ağırlıklı* ***açık üniversite*** *fonksiyonu yapmakla görevli bir üniversitedir.*" ifadesi yer almaktadır.

Türkiye'de 1982 yılında iki lisans programıyla başlayan, 40 yıldır kesintisiz ve sorunsuz sürdürülen, günümüzde 64 akademik programla 40 ülkeye eğitim hizmeti sunan açıköğretim kurumu mevcuttur (https://www.anadolu.edu.tr/acikogretim). Ayrıca *e-sertifika* program çeşitliliği ve bunlara ilgi sürekli artmaktadır. E-sertifika programlarının sonunda yapılan gözetimli sınavlarda başarı durumuna göre katılımcılara sertifika verilmektedir. Tam bir gönüllülük esasına dayalı topluma katkı projesi olan, ücretsiz *Akadema* eğitimleri de çeşitlenmekte ve talep sahiplerine nitelikli yaşamboyu öğrenme deneyimi fırsatı sunmaktadır. Araştırma ve sunum tekniklerinden enstrüman çalmaya, bitki bakımından finansal konulara kadar çok farklı alanlarda derslerin yer aldığı *Akadema* öğrenme ortamında herhangi bir sınav koşulu bulunmayıp, düzenli devam sağlayan katılımcılara katılım belgesi verilmektedir.

Zaman içinde ülkemizde 3 üniversite daha bu yolculuğa katılmıştır. Web tabanlı açık/uzaktan eğitim, Anadolu Üniversitesi, Atatürk Üniversitesi, İstanbul Üniversitesi ve Ankara Üniversitesi bünyesinde bu amaçla kurulan fakültelerde sürdürülmektedir. Ayrıca bazı üniversitelerin Uzaktan Öğretim Uygulama ve Araştırma Merkezleri (UZEM) aracılığı ile gerçekleştirilen eğitimler de bulunmaktadır.

Alanyazın İncelemesi

Çalışmanın kapsamına uygun olarak alanyazın incelemesi Covid19 Pandemi döneminde açık/uzaktan eğitim yoluyla muhasebe eğitimi ve eğitimde sürdürülebilirlik yönleriyle ele alınmıştır. Muhasebe eğitiminde uzaktan eğitim teknolojilerinin kullanımı ile ilgili literatür incelendiğinde, ülkemizde açık ve uzaktan öğretim yoluyla muhasebe eğitimi üzerine ilk çalışmalardan biri Sürmeli (1987) "Eğitim Teknolojisindeki Son Gelişmeler ve Muhasebe Eğitimi" adıyla yapılmış olup, burada uzaktan eğitim teknolojisinin muhasebe derslerinde etkin şekilde kullanımı örneklerle açıklanmıştır. Banar ve Kaya, (1996) açıköğretim sisteminde muhasebe eğitimi süreçlerini ve ders içeriklerini inceleyerek, uzaktan öğretim yoluyla muhasebe eğitimine verilen katkıyı ortaya koymuş, Sürmeli ve Kaya (1999) muhasebe öğretiminde uzaktan eğitim teknolojisi çeşitliliği ve ölçme değerleme sistemi üzerinde durmuştur.

Bryant, Kahle ve Schafer (2005) uzaktan eğitim tanımları, yöntemleri ve pedagojisi ile ilgili literatürü tarayarak muhasebe eğitimcileri için bir model önerisinde bulunmuşlardır. Stanley ve Edwards (2005) uzaktan eğitim teknolojilerinin muhasebe öğrenimini kolaylaştırıcı etkisine vurgu yaparak, muhasebe bilgi sistemi dersi üzerinde bir uygulama gerçekleştirmiştir. Ülker Ayyıldız, Günlük ve Nil Erbey (2006) Muhasebe Öğretim Elemanlarının Uzaktan Eğitim ve Uzaktan Muhasebe Eğitimine Yönelik Tutumları Üzerine Bir Araştırma yapmış, katılımcı 54 öğretim elemanının görüşlerini değerlendirerek, uzaktan eğitim konusunda önyargıların kırılması gerektiğini vurgulamıştır. Mutlu, Gümüş ve Okur (2008) muhasebe eğitiminde e-öğrenme sürecini Muhasebe Bilgi Sistemi dersi üzerinden uygulamalı olarak açıklamışlardır. Uçma ve Beycan (2009) web tabanlı interaktif e-öğrenme modeli sayesinde öğrenen-öğreten ve öğrenen-öğrenen arasında bütüncül etkileşimin sağlanabildiğini, böylece öğrenen merkezli eğitime geçişle eğitim kalitesinin artacağını vurgulamıştır.

Kovid19 Pandemi döneminde uzaktan muhasebe eğitimi uygulamaları ile ilgili literatür incelendiğinde ise aşağıdaki kaynaklara ulaşılmıştır.

Sangster, Stoner ve Flood (2020) Accounting Education dergisinin özel sayısında, Türkiye'den İstanbul Üniversitesindeki uygulamanın da yer aldığı, 45 ülkeden Covid19 Pandemi döneminde muhasebe eğitimi deneyimlerini özetleyerek biraraya getirmiştir. Akgün (2020) son zamanlarda uzaktan eğitim uygulamalarındaki hızlı yükselişe dikkat çekerek, Sağlık Yönetimi programında muhasebe dersi alan öğrencilerin uzaktan eğitim deneyimini incelemiş ve öğrencilerin zaman ve maliyet avantajı memnuniyetine karşılık gelecek beklentilerinin olumsuz olduğunu tespit etmiştir. Serçemeli ve Kurnaz (2020) diğer bir üniversitede Sağlık Yönetimi programı öğrencilerine uyguladıkları anket ile öğrencilerin uzaktan eğitime uyumda sorun yaşamadıkları, esnek eğitim olanakları ve zaman tasarrufu nedeniyle memnuniyetlerine karşılık internet erişiminde kesintiler, öğretim elemanına ulaşamama ve sosyalleşme eksikliği gibi olumsuzlukların olduğunu belirlemiştir.

Kurnaz ve Serçemeli (2020) muhasebe akademisyenlerinin uzaktan eğitime ilişkin görüşlerini araştırdıkları çalışmada ise, belirgin bir sorun olmamakla birlikte öğrenen ve öğreten arasında etkileşim eksikliğine dikkat çekmişler ve harmanlanmış eğitim yöntemini uygulamanın daha yararlı sonuçlar vereceğini önermişlerdir. Güngör Kar-

yağdı (2020) Salgın döneminde muhasebe ve finans dersleri veren 11 akademisyenin uzaktan eğitimde yaşanan sorunlara ilişkin yarı yapılandırılmış görüşme formu ile derlediği görüşlerine göre, genel olarak yüz yüze eğitimin daha verimli olduğu sonucuna varmıştır.

Tuğay (2021) Muhasebe dersi alan Bankacılık ve Finans, İktisat, İşletme, Maliye, Siyaset Bilimi ve Kamu Yönetimi ile Sağlık Yönetimi öğrencilerini kapsayan araştırmasında, öğrencilerin uzaktan eğitimi genel olarak benimsedikleri ve yüz yüze eğitimle eşdeğer gördüklerini tespit etmiştir. Pandemi döneminde teknoloji kullanımında bazı zorluklar yaşandığı, uzaktan eğitimden memnuniyet düzeyi arttıkça muhasebe derslerinde başarı düzeyinin de arttığı belirtilmiştir. Süklüm (2021) İİBF, Sağlık Bilimleri Fakültesi ile Meslek Yüksekokulu öğrencilerini kapsayan çalışmasında, uzaktan muhasebe dersi alan öğrencilerin olumlu ve olumsuz görüşlerinin dağılımının birbirine yakın olduğunu, internete erişim kesintileri dışında önemli bir sorun yaşamadıklarını, online ders süresinin 15-25 dakika civarında olmasını, uzaktan eğitimin muhasebe dersleri için ek iş yükü gerektirmediği, ancak daha iyi öğrenme ve sosyal ilişkilerin geliştirilmesi gibi nedenlerle derslere daha çok kampus ortamında katılmayı tercih ettiklerini belirtmiştir. Ezin (2021) Pandemi döneminde muhasebe dersleri alan İİBF ve Sosyal Bilimler MYO öğrencilerine SWOT analizi uygulamış, olumlu ve olumsuz görüşler ayrı ayrı değerlendirilmiştir.

Yelgen (2022) teorik bir yaklaşımla 20 ulusal, 60 uluslararası makale ve 5 sektör raporu ile 26 üniversite web sayfasını inceleyerek yaptığı çalışmada, Pandemi sonrası muhasebe eğitiminde müfredat, öğretim ortamı ve öğretim yöntemlerinde değişimin gerekliliğini vurgulamış ve öğrenmede etkileşimin önemi üzerinde durmuştur. Azaltun vd. (2022) yaptıkları çalışmada, araştırma döneminde TÜRMOB bünyesindeki 111.361 meslek mensubundan (106.554 SMMM, 4.807 YMM) 1.048'ine ulaşarak, Covid19 Pandemisinin muhasebe meslek mensupları üzerindeki etkisini çok yönlü olarak incelemiştir. Muhasebe meslek mensuplarının uzaktan çalışma koşullarına hızlı uyum sağlayarak, kayıt ve raporlama süreçlerinde teknolojiyi kullanma becerisi artan, teknolojiye daha çok yatırım yapan ve daha çok finansal danışmanlık, finansal analiz gibi hizmetlerle ekonomik krizin aşılmasına önemli katkı sağlayan, dijital dönüşümü zorunluluk olarak bulan bir görünüme kavuştuğunu belirlemişlerdir.

Kovid19 Pandemisi döneminde uzaktan eğitim yanında uzaktan çalışma da gündemi meşgul eden önemli bir konu olmuştur. Bu dönemde meslek mensuplarına bürolarında çalışabilmeleri için özel izin verilmiştir. Ancak bu durum kapalı ve dar alanlarda sürekli bilgisayar başında oturarak çalışan meslek mensupları için aynı zamanda hastalığa yakalanma riskini artıran bir uygulama olmuştur. İlgili mevzuatta büro açma zorunluluğunun esnetilmesi ve evde çalışma serbestisinin tanınması gibi düzenlemelerin yapılmasına ihtiyaç bulunmaktadır (Açıkgöz ve Mutlu, 2022:858).

Beller Dikmen, Özçelik ve Deran (2022) 841 öğrenci katılımıyla yaptıkları araştırmada, teknolojik araçların kullanım kolaylığının ve çevredeki rol modellerin öğrencilerin online derslere devam etme niyeti üzerinde etkili olduğunu tespit etmişler ve üniversitelerde online öğrenme süreçlerinin artırılmasını önermişlerdir. Bülbül, Ayanoğlu ve Yanık (2022) ise 215 işletme bölümü öğrencisinin görüşlerini alarak değerlendirdikleri

çalışmada, öğrencilerin online ders süresinin 40 dakika civarında olmasını istedikleri ve pandemi sonrası derslerin yüzyüze yapılmasını tercih ettiklerini tespit etmişlerdir.

Çavuşoğlu (2022) çalışmasında YÖK Dersleri Platformundaki muhasebe kitaplarının bibliyometrik analiz yöntemiyle incelemesini yapmış, bu kapsamda kitap formundaki kaynakları sayfa sayısı, yazar ünvanı, kaynak dili, türü ve yılı gibi özellikler açısından incelemiştir. İncelenen 41 kaynaktan 28'inin Anadolu Üniversitesi'ne, 13'ünün ise Atatürk Üniversitesi'ne ait olduğu belirtilmiştir. Saban, Vargün, Özcan ve Günlük (2022) muhasebe derslerini yürüten 138 akademisyenle yaptıkları araştırmada, eğiticilerin dijital okuryazarlık ve uzaktan eğitimden memnuniyet düzeyleri ile uzaktan eğitimin etkinliği arasında ilişki olduğunu tespit etmiş ve uzaktan eğitimden memnuniyet düzeyini artırmaya yönelik çalışmaların yapılmasını önermişlerdir.

Uzaktan muhasebe eğitiminin sürdürülebilirliği ile ilgili literatürde aşağıdaki kaynaklar incelenmiştir.

Bourke ve Simpson (2009) "sustainability in education: is distance learning an answer?" adlı çalışmalarında, sürdürülebilir eğitim için; müfredatın, kültürel örgütlenmenin ve eğitim ortamının önemli olduğunu vurgulamaktadır. Yüzyüze eğitime göre uzaktan eğitimde enerji tüketiminin %13'e karbon salınımının (CO_2) %18'e gerilediğini belirtmektedir. Vyas-Doorgapersad (2011) Bilgi çağında açık ve uzaktan eğitimin sürdürülebilirlik açısından önemli bir öğrenme ortamı olarak kabul edildiğini ve kaliteli eğitimin sürdürülebilmesi için öğrenenlere, iş arayanlara ve toplumun geneline yararlı bir öğrenme ortamı sunduğunu ifade etmektedir. Oladipo (2016) çalışmasında, Nijerya'da işletme ve muhasebe alanında 15 yıllık dönemde öğrenci ve mezun sayılarını inceleyerek, açık ve uzaktan eğitime olan talep artışını ve Uzaktan Eğitim Enstitüsü'nün yükseköğretime sunduğu katkıyı değerlendirmiştir.

Semenets-Orlova vd. (2021) Sürdürülebilir eğitim için çevrenin korunmasını sağlayan, sosyal eşitliği ve ekonomik sürdürülebilirliği teşvik eden bilgi, beceri, anlayış, değerler ve eylemlerin geliştirilmesinin önemini vurgulamıştır. Bu bağlamda eğiticilerin eğitimi için umut verici bir uzaktan eğitim modeli önermektedirler. Rybakova vd. (2021) Mesleki eğitimin sürdürülebilirliği için uzaktan öğrenme çevresinin mesleğin yapısına uygun hale getirilmesi, engellerin kaldırılması ve öğrenenlerin öğrenme deneyimlerinin iyi anlaşılması gereğini ileri sürmektedirler. Çalışmada, Covid19 Pandemisi'nin yükseköğretimde oluşturduğu dijital dalgalanmaya değinerek, bu deneyimin uzaktan eğitim teknolojilerinin sürdürülebilirliğinin gerekliliğini pekiştirdiği vurgulanmaktadır.

Otto ve Kerres (2022) Uzaktan eğitimde yeni modeller ile sürdürülebilirlik politikalarıyla uyumlu ulusal, bölgesel ve kurumsal düzeylerde eğitim yapılanmasına gidilebileceğini vurgulamaktadır. Özerhan ve Sultanoğlu (2022) Sürdürülebilirlik konusunun Türkiye'de işletme ve muhasebe eğitimi verilen programlarda ders olarak genellikle yer almadığını, buna karşılık etik, kurumsal yönetim, sosyal sorumluluk gibi derslerin içinde işlendiğini tespit etmiştir. Hamutoğlu, Bozkurt ve Erdoğan (2022) Sürdürülebilir kalkınma amaçlarından 4.sü olan "eğitimde sürdürülebilirliğin", eğitimde eşitlik, adalet, hakkaniyet ve demokrasi gibi temel değerler bağlamında açık ve uzaktan öğrenme uygulamaları ile nasıl desteklendiğini ortaya koymuştur. Açıklık felsefesinin

küresel düzeyde etkisine değinerek yaşamboyu öğrenmenin sürekliliği için, sürdürülebilir bir açık ve uzaktan öğrenme ekolojisinin oluşturulması gereği üzerinde durmuştur. Bozkurt (2022) Covid19 üzerine yapılan çalışmalardan çıkarılan sonuçları irdeleyerek, etkilenmenin yalnızca sağlıkla ilgili olmadığına değinmiş ve konuyu üç ana başlık altında toplamıştır; 1) yeni normalde yükseköğretimin dayanıklılık, uyarlanabilirlik ve sürdürülebilirlik temalarına dayandırılması, 2) psikolojik baskılar ve sosyal belirsizlik karşısında öğrenenlerin zihinsel esenliği, 3) çevrimiçi-karma uzaktan eğitim modelinin yaygınlaşması.

AÇIK VE UZAKTAN MUHASEBE EĞİTİMİNİN SÜRDÜRÜLEBİLİRLİĞİ

Açık ve Uzaktan Eğitim Sistemlerinde Muhasebe Eğitiminin Yeri

Muhasebe eğitimi gereksinimi, genel olarak muhasebenin kuramsal yapısını kavramak ve mesleki uygulamayı yönlendiren kurumsal, yasal, davranışsal ve bireysel yetkinlikleri kazanmak üzere ortaya çıkmaktadır. Söz konusu yetkinliklerin önemli bir kısmı eğitim kurumlarında kazanılmaktadır. Mesleki gelişim ve öğrenme süreci, mesleki uygulama deneyimi ile pekişmekte ve hayat boyu devam etmektedir. Muhasebe eğitim-öğretiminde uzaktan eğitim teknolojisi ve öğrenme ortamlarının kullanılması yeni olmayıp, gittikçe yaygınlaşan çağdaş eğitim uygulamaları olarak kabul görmektedir. Uzaktan eğitim, açıköğretim, online veya çevrimiçi öğrenme gibi kavramlar, her alanda yoğun bilgi-iletişim teknolojilerinin kullanıldığı günümüzün vazgeçilmezleri arasında yer almaktadır. Doğal olarak muhasebe eğitimleri de bu gelişmelerden etkilenmektedir.

Açık ve uzaktan muhasebe eğitiminin hedefi, mesleğe yeni başlayacaklara gerekli eğitimi vermenin yanında, meslek ünvanını kazanmış meslek mensupları ya da staj aşamasında meslek adayları için tazeleme, sınava hazırlık, kendini geliştirme ve güncel uygulamaları pekiştirme gereksiniminin karşılanması olabilir. Bununla birlikte, örgün öğrenime devam etme olanağı bulamayan fiziksel, ekonomik, coğrafi, kültürel, sosyal, vb. engellere maruz kalan ya da zaman kıtlığı çeken öğrenme sevdalıları için sınırsız olanaklar sunmaktadır. Buna "eğitimde fırsat eşitliği" denilmektedir. Açık ve uzaktan muhasebe eğitimini gerçekleştirebilmek için kurumsal yönetim, eğitim teknolojisi, uzman insan kaynağı, öğrenciler, öğrenme ortamları, düzenlemeler ve destek hizmetler gereklidir. Bu çalışmanın sınırları içinde, bunlardan yalnızca öğrenme ortamı hakkında kısa açıklama yapılmıştır.

Açık ve Uzaktan Muhasebe Eğitiminde Öğrenme Ortamlarının Değişimi

Açık ve uzaktan eğitimde öğrenme ortamı, öğrenenlere sunulan çeşitli öğrenme malzemelerinin ve uzaktan katılabilecekleri serbest etkinliklerin yer aldığı, elektronik araçlarla uzaktan erişimli ve etkileşimli elektronik ortamlardır. Öğretme-öğrenme süreci bu ortam üzerinden gerçekleştirilmektedir. Öğrenme ortamı, teknoloji ve insan etkileşiminin en yoğun olduğu ve öğretimin-öğrenmenin fiilen gerçekleştiği yerdir. Bu kapsamda uzaktan muhasebe eğitiminin araçları; kitap, soru-çözüm, özet, canlı ders, videolar, tartışma forumları, e-danışmanlık hizmeti, deneme sınavları, açık kütüphane, öğrenen geri bildirimlerinin yanıtlanması, vb. (https://ekampus.anadolu.edu.tr) bu

ortamda yer almakta ve sürekli güncellenerek 7 gün 24 saat kullanıma hazır bulundurulmaktadır. Öğrenme ortamları, açık ve uzaktan eğitim teknolojisi ile eğitim öğretim faaliyetinin gerçekleştirilebilmesi için yararlanılan teknolojik araç-gereç, sistem ve ortamların tümünü kapsar. Uzaktan eğitim teknolojisinin edinilmesi, kurulumu ve güvenli işleyişinin sağlanması, sistemin yatırım boyutunda en önemli kararlardan biridir. Bu teknolojinin kısa aralıklarla yenilenmesi ve amaca uygun şekilde işletilmesi, eğitimin sürdürülebilirliği bakımından son derece önemlidir.

Öğrenme ortamlarının hazırlanmasında tasarım ve içerik senaryoları sorumlu öğretim elemanları tarafından şekillendirilse de üretim, teknik ve operasyonel insan kaynağının yoğun ve koordineli çalışmalarıyla gerçekleşmektedir. Öğrenenlerin ilk başvuru ve geri bildirimlerinin alındığı yer de bu birimlerdir. Öğrenme ortamlarındaki tüm süreç, kurumsal yönetimin gözetiminde sürekli izlenmekte, öğrencilerle etkileşimli olarak faaliyetlerin sorunsuz yürütülmesi sağlanmaya çalışılmaktadır. Hızla dijitalleşen dünyada eğitim ortamlarının da yapay zekâ, büyük veri, sanal gerçeklik gibi teknolojilerin kullanıldığı tamamen dijital ağlara dönüştüğü söylenebilir. Bilgi çağında muhasebe eğitiminde teknolojik gelişmelerden daha çok yararlanılması, internet ve web tabanlı uygulamaların muhasebe derslerine dahil edilmesiyle eğitim kalitesinde ve ülke refahında artış olacaktır (Hacırüstemoğlu, 2008:6). Dolayısıyla eğitim kurumlarının sosyal değişime daha duyarlı ve geleceğe hazırlıklı bir yapıya dönüşme zarureti bulunmaktadır (Dwivedi ve Joshi, 2021:85).

Açık ve Uzaktan Muhasebe Eğitiminde Sürdürülebilirlik Gereksinimi

Sürdürülebilirlik, herhangi bir olgunun kendi varlığını devam ettirebilmesi (Öztürk, 2017:3) anlamına gelmektedir. Sürdürülebilirlik, öncelikle çevre ve yaşam döngüsü ile ilişkilendirildiği halde, konunun ekolojik, sosyo-ekonomik ve kültürel boyutlarının olduğu da bilinmektedir (UN, 2015). Sürdürülebilir Gelişme Odaklı Eğitim ise kuşaklar ötesi bir gelişmenin hedef olarak belirlenmesidir. Sürdürülebilir Gelişme Odaklı Eğitim, *bireylerin sürekli kalkınma bilincini kazanıp eyleme dönüştürebilmeleri için güdülendiği, eleştirel düşünme, geleceği tasarlayabilme ve karar verebilme yetkinliğini kazandıran, katılımcı öğrenme yöntemlerinin benimsendiği bir yaklaşım* (UNESCO, 2020) olarak ifade edilmektedir. Burada eğitim öğretim faaliyetinin toplumları dönüştürmedeki gücü ve sürdürülebilirlik kavramının tüm unsurlarının hayata geçirilmesinin ancak eğitimle gerçekleşebileceği vurgulanmaktadır.

Kovid19 Salgını döneminde gerek eğitimde gerekse yaşamın tüm kesimlerinde yaşananlar, sürdürülebilirlik kavramının içini dolduracak eylemlerin acilen hayata geçirilmesi zorunluluğunu çok çarpıcı bir şekilde ortaya koymuştur. Eğitimde sürdürülebilirlik, açık ve uzaktan öğretim boyutuyla yakından ilgilidir. Kovid19 salgın krizi, kampüslerin devasa operasyonel maliyetlerinin sürdürülebilirliğini de gözden geçirme fırsatı vermiştir (Casado-Aranda, vd. 2020). Bu dönemde eğitimin sürdürülebilirliği büyük ölçüde açık ve uzaktan eğitim sayesinde gerçekleşmiştir. O halde açık ve uzaktan eğitim sistemlerinin güçlendirilerek devamlılığının sağlanması insanlığın yararına olacaktır.

PANDEMİ DÖNEMİNDE AÇIK VE UZAKTAN EĞİTİM DENEYİMİ

Yükseköğretimde Pandemi Dönemi Krizi ve Kriz Yönetimi Tedbirleri

Hayat alışılagelen seyrinde akıp giderken, Aralık 2019'da Çin'in Whan kentinde tespit edilen ve hızla dünyaya yayılan Coronavirus (Covid-19) salgını önce hayatın akışını yavaşlattı, sonra da bazı alanlarda durma noktasına getirdi. Yüzyüze eğitim de söz konusu durma noktasına gelen alanlardan biri oldu. Covid19 Pandemisinin etkisi her alanda hissedilmeye başladığında eğitimde köklü değişikliklerin yapılmasına ihtiyaç duyuldu. Sağlık Bakanlığı ve Milli Eğitim Bakanlığı'nın aldığı kararlarla, Yüksek Öğretim Kurumu (YÖK) tarafından ülkemizde virüsün yayılımının yavaşlatılması ve eğitim-öğretimdeki olumsuz etkilerinin azaltılması amacıyla, 16 Mart 2020 tarihinden itibaren üniversitelerde eğitim ve öğretime üç hafta ara verildiği duyuruldu. Bunun devamında Salgın sürecinin belirsizliği nedeniyle, YÖK Genel Kurulu 26 Mart 2020 tarihli toplantısında alınan kararla, 2019-2020 eğitim-öğretim yılı bahar yarıyılında yüz yüze ders yapılmayacağını, uygulamalı dersler dışında eğitimin uzaktan eğitim, açıköğretim ve dijital öğretim imkanları ile sürdürüleceğini duyurdu. Böylece Covid-19 Pandemisi nedeniyle yükseköğretimde dersler uzaktan eğitim sistemi üzerinden verilmeye başlandı. Bu dönemde Türkiye'de farklı eğitim düzeylerinde yaklaşık 25 milyon öğrenen bu durumdan etkilendi.

Uzaktan eğitim uygulama örnekleri ve yapılanmaları pek çok üniversitenin alt yapısında bulunsa da Salgın döneminde *acil uzaktan eğitim* adıyla yeni çözümlere uyum gereksinimi ortaya çıkmıştır. Bu noktada acil uzaktan eğitim ile açık ve uzaktan eğitimin kavramsal farklılıklarına değinmekte yarar var. Acil uzaktan eğitimin öteden beri uygulanagelen açık ve uzaktan eğitimden farklılıkları şöyle özetlenebilir (Bozkurt, 2020:117); *acil uzaktan eğitim* zorunluluk olarak ortaya çıkmış, içinde bulunulan dönemin sorunlarına geçici çözümler sunan, fiziki uzaklık ve kriz yönetimi sorunlarını mevcut olanaklarla çözmeye çalışarak eğitimi ayakta tutma gayretinin bir ifadesi iken, *açık ve uzaktan eğitim* alana özgü eğitimin sürdürülebilirliği için fiziksel, etkileşimsel ve psikolojik uzaklığa dayalı eğitim sorunlarına ve yaşamboyu öğrenmeye kalıcı sistematik çözümler sunan bir seçenek olmaktadır.

Bu süreçte bir yandan her kurum kendi olanakları çerçevesinde pratik çözümlerini üretmeye çalışırken, Yükseköğretim Kurumu da derslerin uzaktan erişimli çevrimiçi yürütülmesi için gerekli tedbirleri almış ve düzenlemeleri yapmıştır. Bu arada kamuoyunun serbest kullanımına sunulan binden fazla ders, YÖK dersleri platformu adıyla oluşturulan portal üzerinden erişime açılmıştır (https://yokdersleri.yok.gov.tr). Söz konusu uygulamada mevcut açıköğretim deneyimi ve kaynakları, yükseköğretim için çözüm seçeneği olarak değerlendirilmiş ve pek çok akademik programda açıköğretim ders kaynakları kullanılmıştır. Bunun yanında gerek açıköğretim gerekse uzaktan eğitim yapan üniversitelerde mevcut kaynaklar ve uygulama deneyimi kurum içi akademik birimlerle paylaşılmış, pek çok üniversite bu alanda yeni yatırımlar yapmış, çevrimiçi öğrenme yönetim sistemleri kurmuştur. Bu arada işletme, ekonomi, muhasebe gibi en çok kaynak çeşitliliğine sahip programların bu dönüşümü en hızlı ve sorunsuz şekilde gerçekleştirdiği de söylenebilir. Salgın sonrasında da, yeni dersler eklenerek ve gerekli güncellemeler yapılarak uygulamanın devam ettirilmesi beklenmektedir.

Açık ve Uzaktan Eğitim Sürecine Kurumsal Katkılar

Açıköğretim yöntemiyle muhasebe eğitimi Türkiye'de 1982 yılından beri sürdürülmektedir. Bu süre içinde, muhasebe meslek adayı olabilen mezunlardan çok sayıda meslek mensubu yetişmiştir. Ülkemizde halen Anadolu Üniversitesinde 64, Atatürk Üniversitesinde 43, İstanbul Üniversitesinde 40 ve 2020 yılında kurulan Ankara Üniversitesi Açık ve Uzaktan Eğitim Fakültesinde de 2 program olmak üzere toplam 149 akademik programda açıköğretim yöntemiyle eğitim verilmektedir. Bunlardan muhasebe mesleği ile doğrudan ilgili olan 5 lisans programının üniversitelere dağılımı Tablo 1'de gösterilmiştir. Bunların bazıları muhasebe mesleği ile yakından ilişkilidir.

Tablo 1. *Açıköğretim Yapan Üniversitelerde Muhasebe Meslek Adayı Yetiştiren Programlar*

Üniversite	Anadolu Üniversitesi	Atatürk Üniversitesi	İstanbul Üniversitesi	Ankara Üniversitesi
Fakülte	Açıköğretim, İktisat, İşletme	Açıköğretim (Açık ve Uzaktan Eğitim)	Açık ve Uzaktan Eğitim	Açık ve Uzaktan Eğitim
Program	İşletme, İşletme (İng.), İktisat, Maliye, Siyaset Bilimi ve Kamu Yönetimi	İşletme, Kamu Yönetimi	İşletme, İktisat, Siyaset Bilimi ve Kamu Yönetimi	-

Ülkemizde 1982'den beri açıköğretim yapan Anadolu Üniversitesi başta olmak üzere, benzer uygulamaları 2010'dan beri yürüten Atatürk ve İstanbul üniversiteleri ile Orta Doğu Teknik Üniversitesi mevcut ders malzemelerini, adı geçen platformda kullanıma sunmuşlardır. Bu öğrenme ortamında yayımlanan binden fazla derse, çevrimiçi 4160 farklı noktadan erişim olanağı bulunmaktadır.

Tablo 2. *YÖK Dersleri Platformunda Yer Alan Muhasebe Derslerinin Dağılımı*

Üniversite/ Dersler	Anadolu Üniversitesi	Atatürk Üniversitesi	İstanbul Üniversitesi	Orta Doğu Teknik Üniversitesi
Ders Sayısı	32	12	16	1
Erişim Noktası	90	33	33	1

Tablo 2'de yalnızca muhasebe derslerine ilişkin bilgiler bulunmaktadır. Söz konusu öğrenme ortamında yer alan derslerden 61'i muhasebe dersi olup bunların listesi Tablo 3'te verilmiştir.

Tablo 3. *YÖK Dersleri Platformundaki Muhasebe Dersleri*

Anadolu Üniversitesi	Atatürk Üniversitesi	İstanbul Üniversitesi
Accounting I	Banka Muhasebesi	Değerleme ve Dönemsonu İşlemleri
Accounting II	Dış Ticaret İşlemleri Muhasebesi	Değerlendirme ve Dönemsonu İşlemleri
Banka ve Sigorta Muhasebesi	Dönemsonu Muhasebe İşl.	Denetim
Bankaların Yönetimi ve Denetimi	Genel Muhasebe	Dönemsonu Muhasebesi
Cost & Management Accounting	İnşaat Muhasebesi	Finansal Analiz
Denetim	Lojistik Maliyet Analizi	Finansal Muhasebe
Dış Ticaret İşlemlerinin Muhaseb.	Mali Tablolar Analizi	Finansal Tablolar Analizi
Dönemsonu İşlemleri	Maliyet Muhasebesi I	Finansal Kurumlarda Fin. Analiz
Envanter ve Bilanço	Maliyet Muhasebesi II	Genel Muhasebe
Finansal Tablolar Analizi	Muhasebe Denetimi	Lojistik ve Raporlama Teknikleri
Genel Muhasebe	Sağlık Kurumlarında Maliyet Yönetimi	Maliyet Muhasebesi
Genel Muhasebe I	Şirketler Muhasebesi	Muhasebe
Genel Muhasebe II		Muhasebe Değerleme ve Dönemsonu İşlemleri
Havacılık İşletmelerinde Muh. Uyg.		
İnşaat ve Gayrimenkul Muhasebesi		Muhasebeye Giriş
Konaklama İşletmelerinde Muh.Uyg.		Muhasebe Uygulamaları
Lojistik Maliyetleri ve Raporlama		Yönetim Muhasebesi
Lojistik Maliyetleri ve Raporlama I		
Lojistik Maliyetleri ve Raporlama II		
Mali Analiz		
Maliyet Analizleri		
Maliyet Muhasebesi		
Maliyet Yönetimi		
Muhasebede Bilgi Yönetimi		
Muhasebe Denetimi		
Muhasebe Denetimi ve Mali Analiz		
Muhasebe ve Hukuk		
Muhasebe Uygulamaları		
Muhasebe Yazılımları		
Ön Muhasebe Yazılımları ve Kullanımı		
Sağlık Kurumlarında Maliyet Muhas.		
Sağlık Kurumlarında Maliyet Yönetimi		
+Orta Doğu Teknik Üniversitesi: Engineering Economy and Cost Analysis		

Tablo 3'te yer alan Anadolu Üniversitesi'ne ait kaynaklara hem kağıt baskı hem de dijital kitap formunda erişilebilirken, Atatürk Üniversitesine ait kaynaklar dijital kitap formunda, İstanbul Üniversitesine ait kaynaklar ise ders notu ya da derleme kaynak şeklindedir. Pandemi döneminde öğretim elemanlarının uzaktan eğitime uyumunu hızlandırma ve akademik gelişimine katkı sağlama amacıyla, Anadolu Üniversitesi tarafından hazırlanan **Dijital Eğitim Ortamlarına Giriş** dersi tüm üniversitelere açılmış ve "yükseköğretimde dijital dönüşüm projesi" kapsamında birkaç yıldır uygulanagelen eğitimler yaygınlaştırılmıştır. Bu da açık ve uzaktan eğitime nispeten yabancı olan fakat bu süreçte uygulamak zorunda kalanlar için son derece yararlı olmuştur.

SONUÇ

Sürdürülebilirlik çabaları içinde gelecekte eğitim teknolojisinin dönüştürme kapasitesinden yararlanarak, öğrenenlerin istek ve ihtiyaçlarının uzaktan eğitim yoluyla karşılanması önemli bir yer tutacaktır. Eğitim, sürdürülebilirliğin sağlanmasının en kolay yolu olarak her zaman her yerde ulaşılabilen durumda olmalıdır. Bunu bugün ve gelecekte sağlamanın en uygun yolu açık ve uzaktan eğitimin yaygınlaştırılmasıdır. Açık ve uzaktan eğitim yoluyla her alanda yaşamboyu öğrenme fırsatları yanında uzmanlık alanlarına ait mesleki eğitimlerin de desteklenmesi ve sürekli güncel tutulması olanaklıdır. Muhasebe mesleği, teknolojik olanaklar ile gerekli içeriklerin sağlanması ölçüsünde her aşamada açık ve uzaktan eğitim olanaklarından yararlanmaya uygun görünmektedir. Dünyada pek çok örneği olduğu gibi ülkemizde de muhasebe eğitiminde hem lisans ve lisansüstü düzeyde hem de mesleki gelişim için yaşam boyu öğrenme süreçlerinde açık ve uzaktan öğretim sistemi ve kaynaklarından geniş ölçüde yararlanıldığı görülmektedir. Covid19 Pandemisi örneğindeki gibi küresel kriz dönemlerinde de açık ve uzaktan eğitim, sürdürülebilirliğin kurtarıcılarındandır.

Internet, eğitimin vizyonunu değiştirmiştir. Buna karşılık ne yazık ki hala yeterli internet erişimi olanağı bulunmayan binlerce öğrenen bulunmaktadır. Günümüzde her alanda eğitimin sürdürülebilirliği için kesintisiz internet erişimi elzemdir (Kaya ve Karagül, 2001:11). Ayrıca internet veya diğer iletişim ağları aracılığıyla web tabanlı, çevrimiçi ders içeriklerine erişimi sağlayacak akıllı telefon, tablet, bilgisayar gibi gelişmiş teknolojilerin de erişilebilir durumda olması son derece önemlidir.

Sürdürülebilirlik için bilmenin yetmeyeceği açıktır. Sürdürülebilirlik ve eğitim kavramları birlikte ele alındığında, öğrenme ve sınav başarısının ötesinde, öğrenilenlerin hayata geçirilmesi, sorunlarla ilgilenme ve çözüm üretme sorumluluğuna ortak olma bilinci ve bununla birlikte dünya çapında kültürel dönüşümün gerçekleştirilmesi mümkündür. Açık ve uzaktan eğitim olanakları bu amaçla çok geniş bir alanda etkili şekilde kullanılabilir. Aslında söz konusu sorumluluk yalnızca açık ve uzaktan eğitimle değil, tüm eğitim kurumları ve özellikle de üniversite yerleşkelerinin sürdürülebilir yaşam merkezlerine dönüştürülmesi (Akpulat, 2019:38) ve toplumun diğer kesimlerine de örnek olmasının sağlanması ile belli ölçüde karşılanabilecektir.

Eğitimde sürdürülebilirliğin sağlanması için, açık/uzaktan eğitim fırsatları hakkında farkındalığa sahip olmak, eğitim içeriklerinin güncel tutulması için akademik ve uzman insan kaynağını yetiştirmek, teknolojik olanakları tüm kullanıcılar için yeterli kapasitede ve erişilebilir kılmak, finansman sorunlarını çözecek dayanıklı, uyarlanabilir, sürdürülebilir kurumsal yapılanmayı gerçekleştirmek gerekmektedir. Bundan sonrası, bireysel zaman yönetimi becerisi ve öğrenenlerin tercihi ile ilgili olacaktır. Açık ve uzaktan eğitimin arzu edilen yararlı sonuçları verebilmesi ve sürdürülebilmesi için akıllı eğitim teknolojilerinin güvenilir, ekonomik, dayanıklı, uyarlanabilir ve erişilebilir olması, akıllı ve ahlaklı insanların bireysel öğrenme becerilerini geliştirmeye odaklanması ve öğrendiklerini sürdürülebilir yaşamlara dönüştürebilme kapasitesini artırması gerekmektedir.

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Acil Uzaktan Öğrenmede Destek Hizmetleri:

Erasmus+ Değişim Programlarıyla Gelen Öğrenciler Üzerine Bir Araştırma

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Özet

Küreselleşmenin ve teknolojinin gelişmesiyle birlikte yaşam pratiklerimizde önemli dönüşümler hızlı bir şekilde gerçekleşmektedir. Bu dönüşümler Covid-19 salgınıyla birlikte daha da hız kazanmıştır. Karantina sürecinde birçok kişi evlerinden dışarı çıkamamış ve yüz yüze eğitim durdurulmuştur. Bu nedenle kurumlar acil uzaktan eğitim faaliyetleri (AUE) ile öğrencilerine ulaşmaya çalışmışlardır. Bu çalışmada Erasmus+ projeleri kapsamında gelen öğrencilerin acil uzaktan eğitim sürecinde destek hizmetlerine erişim deneyimleri, kültürel farklılıklar ve çevrimiçi öğrenmeye yönelik kalite ölçütleri bağlamında ele alınmıştır. Nitel araştırma süreçlerinin tekli durum çalışma deseni uygulanarak, Erasmus+ kapsamında gelen sekiz öğrenci ile yarı yapılandırılmış görüşme soruları ile derinlemesine mülakatlar yapılmıştır. NVivo programında yapılan betimsel içerik analizi sonucunda ulaşılan kategori ve temalar çerçevesinde tartışılan araştırma sonuçlarına göre; sunulan destek hizmetlerinde iyileştirmeler yapılması için öğrenenlerin kültürel farklılıklarının dikkate alınması yolu ile destek hizmetlerinin yapılandırılması gerekmektedir. Ayrıca, kurum içerisindeki bölüm ve birimlerin birbiriyle uyumlu ve etkin bir şekilde çalışmasının, destek hizmetlerine erişimi ve dolayısıyla memnuniyeti arttırdığı görülmüştür.

Anahtar Kelimeler: *Kültür, Çevrimiçi Öğrenme, Acil Uzaktan Öğrenme, Covid-19, Destek Hizmetleri.*

GİRİŞ

Küreselleşmenin ve uluslararasılaşmanın son yıllarda giderek artması farklı kültürler arasında etkileşime neden olmaktadır. Bir başka ifadeyle günümüzde gerçekleşen gelişmeler ve değişimler ile birlikte ülkeler arasındaki yakınlaşmalar farklı kültürdeki insanları öğrenme ortamlarında da buluşturmaktadır (Bozkaya ve Aydın, 2011, s. 29-42). Fakat bu buluşmalar Pandemi'de kesintiye uğramış ve yüz yüze eğitimden farklı ortamlara taşınmıştır. Pandemi nedeniyle Erasmus+ kapsamında gelen öğrenciler ilk defa eğitim faaliyetlerine acil uzaktan eğitim ile devam etmek zorunda kalmışlardır. Bu durum kurumların eğitim kalitelerini koruyabilmeleri ve diğer kurumlar ile rekabet edebilmeleri için farklı politika ve stratejileri geliştirmeleri gerektiğini ortaya koymaktadır. Bir başka ifadeyle kurumların öğrencilerine bu süreç içerisinde kalite-

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li eğitim verebilmeleri ve öğrenci memnuniyetini sağlayabilmeleri için öğrenenlerin kültürel özelliklerini dikkate alması ve bu özelliklere göre destek hizmetlerini geliştirmesi gerekmektedir.

Kavramsal ve Kuramsal Çerçeve

Kültür

Bu araştırmanın temel konularından biri olan kültür kavramının, birçok disiplinin içerisinde yer almasından dolayı, tanımının yapılması zorlaşmaktadır. Hukuk filozofu Alman Samuel von Pufendorf'e göre "kültür, doğaya karşıt olan ve belli bir toplumsal bağlam içinde ortaya çıkan tüm insan eserleridir". Pufendorf'un da bahsettiği gibi bu insan eserleri, bir toplum bağlamında ortaya çıkan bütünlerdir (Aktaran Saylık, 2019, ss.1860-1881). Antropolog Edward Tylor'a göre kültür; "bir toplumun bireyi olarak "insanın kazandığı bilgi, inanç, gelenek, sanatsal faaliyet, ahlaki değerler ve diğer yetenek ve alışkanlıkları içeren karmaşık bir bütündür" (Aktaran Kottak, 2008, s.46). İnsanlar birlikte yaşama ihtiyacı duymaktadırlar. Kültür ise bu topluluklar arasındaki ilişkileri düzenleyen bir araçtır (Demirel ve Kişman, 2014, ss. 689-705). Kültür; insanların iletişim becerilerini etkileyerek onların olaylar karşısında farklı davranmalarına, yorumlamalarına ve farklı bakış açılarına sahip olmalarına neden olmaktadır. Küreselleşmenin giderek arttığı, toplumların giderek birbirine yakınlaştığı günümüzde kültür kavramı giderek daha önemli hale gelmektedir. İnsanların birbirini daha iyi anlayabilmesi için kültürel farklılıkları dikkate alması gerekmektedir. Bu bağlamda bu araştırmanın da konularından olan kültürel farklılıkların öğrenen beklentileri üzerindeki etkisi; Hofstede'nin kültürel boyutları çerçevesinde incelenmiştir. Hofstede'ye göre bireyin sahip olduğu kültür, birey büyürken elde ettiği deneyimlerin ve değerlerin zihinsel kodlamalarıdır. Kültür, kalıtsal olarak doğuştan değil öğrenilerek bireyin içinde yaşadığı çevre sayesinde oluşmaktadır. İnsan doğasında var olan aşk, korku, kaygı, utanma vb. kavramlar, içinde bulunulan toplumda şekillenerek kişiliği oluşturmaktadır. Kişilik, hem toplum içinden gelen (kültür) hem de insan doğasından veya bireysel deneyimlerden gelen zihinsel programlar ile oluşmaktadır (Hofstede ve Minkov, 2010, ss. 5-9).

Hofstede kültür kavramını altı boyut çerçevesinde toplamaktadır. Hofstede'nin kültür boyutlarını bir çatı altında toplaması kültürel farklılıkların anlaşılmasını daha olanaklı hale getirmektedir. Hofstede'nin tanımladığı altı ulusal kültür boyutu; bireyselcilik-toplulukçuluk, erkeklik-dişilik, güç mesafesi, belirsizlikten kaçınma, uzun-kısa döneme yönelik olma, müsamaha-kısıtlama boyutlarıdır. Bireyselcilik- toplulukçuluk boyutu kültürler arası davranış farklılıklarını açıklamada kullanılan ana boyutlardan bir tanesidir. Bu boyut bireyin kendini nasıl konumlandırdığı ile ilgilidir. Bireyselcilik boyutunda bireyin çıkarları ön planda iken toplulukçuluk boyutunda toplumunun çıkarları ön plandadır. Erkeklik-dişilik boyutuna göre, eril kültür özelliklerine sahip toplumlarda başarı ve rekabet ön planda iken dişil toplumlarda insan ilişkileri ve yardımlaşma ön plana çıkmaktadır. Eril özellikte toplumlarda; bireyler daha rekabetçidir ve yüksek kazanç elde etme arayışının erkeğe yüklendiği görülmektedir. İyi bir işte çalışmak ve rekabet normal bir süreçtir. Dişil özellikte betimlenen toplumlarda ise; bireyler daha çok birbirleriyle yardımlaşma ve işbirliği içerisindedirler. Güç mesafesi boyutu;

bireyler arasındaki güç farklılıklarının yarattığı eşitsizlik derecesini ve bunu bireylerin kabullenme derecelerini ifade etmektedir. Hiyerarşik yapılarda güç mesafesi, ast ile üst arasındaki ilişkinin ve davranışların hangi derecelerde gerçekleştiğini belirlemektedir. Hoftstede'ye göre belirsizlikten kaçınma boyutu, toplumların belirsizliği oluşturan durumlara karşı sergilenen güven, risk ve kaygı tutumlarının bütünüdür. Uzun-kısa döneme yönelim boyutu diğer boyutlardan bağımsız olarak Hofstede ve Bond'un 1988 yılında gerçekleştirdiği "The Confucius Connection: From Cultural Roots to Economic Growth" çalışmasının sonuçlarından biri olarak ortaya çıkmıştır. Bu boyut bireyin deneyimleri ve fikirleriyle yakından ilişkilidir. Temel olarak "Confucian-Dynamism" (Konfüçyus Dinamizmi) kavramına dayandırılan bu boyut sonralarında uzun-kısa dönem yönelimi Long, Short-Term Orientation" olarak adlandırılmıştır (Hofstede ve Bond, 1988, s. 5-21). Müsamaha ve kısıtlama boyutu, bireylerin bir olaydan keyif alma isteklerini baskılama veya haz alma eğilimlerini yansıtmaktadır. (Vrânceanu ve Iorgulescu, 2016, s. 878). Müsamaha boyutu, kültürel farklılıkların oluşumundaki ahlaki kodlamaları kapsayan bir boyuttur. Bir başka ifadeyle insanların yaşama dair bakış açılarının bütünüdür. Yaşamdan zevk almalarına olanak veren dürtülerin kontrolü ile bu dürtülerin tatmin etme seviyeleri arasındaki seçimdir.

Destek Hizmetleri

Bilgi toplumundan ağ toplumuna geçildiği 21. yüzyıl dünyasında tüm alanlarda olduğu gibi uzaktan eğitim alanında da değişim ve dönüşümler çok hızlı bir şekilde gerçekleşmektedir. Bir başka ifadeyle gerçekleşen bu dönüşüm nedeniyle eğitim kurumlarının, var olan hizmet kalitelerini devam ettirebilmeleri, arttırabilmeleri ve diğer kurumlar ile rekabet edebilmeleri için destek hizmetlerine önem vermeleri gerekmektedir. Yaşanan bu gelişmeler ve dönüşümler uzaktan eğitim alanında önemli aksaklıklar da meydana getirebilmektedir. Geleneksel eğitimde olduğu gibi uzaktan eğitimde de destek hizmetleri bu aksaklıkların geribildirimler doğrultusunda giderilmesi adına önemli bir yere sahiptir. Bir başka ifadeyle destek hizmetleri uzaktan eğitimin kaliteli, verimli sürdürülebilmesi için önemli bir bileşenidir (Garrison ve Baynton 1987, s.7). Keagan (2003) öğrenci destek hizmetlerini, "ders içeriğinin oluşturulmasının yanında uzaktan veya elektronik öğrenmenin parçaları" olarak tanımlamaktadır. Keagan, öğrenci destek hizmetlerini öğrenen desteği veya "öğrenme desteği" olarak görmektedir. Öğrenen destek hizmeti, öğrenenleri elde tutmak ve kaybetmemek için e-öğrenmenin en önemli bileşenidir (Hardman ve Dunlap, 2003, s. 2). Öğrenen destek hizmetinin ana amaçları arasında öğrenciyi sistemde tutma, öğrenen başarısı ve memnuniyeti yer almaktadır. Öğrenen desteği, öğrencilerin akademik kariyerlerinde başarı sağlayabilmeleri için bilgi ve yetenek kazanmalarına katkı sağlayan tüm hizmetlerin bütünüdür (Brindley, Walti ve Zavachki-Richter, 2004, ss. 9-27). Bir başka ifadeyle Tait'in de belirttiği gibi öğrenen destek hizmetleri, öğrenenlerin bilişsel, duyuşsal ve yönetsel yönlerine katkı sağlamak için hazırlanan öğelerin ve etkinliklerin tamamıdır (Hardman ve Dunlap, 2003, s. 3).

Kurumların öğrenenlere sunduğu hizmetleri sürekli iyileştirmek üzere yaptığı iş birliklerinden biri E-xcellence kalite etiketi değerlendirmesidir. Bu etiketi sağlayan European Association of Distance Teaching Universities (EADTU), kurumlar açısından çevrimiçi performansların da ölçüldüğü bir el kitabı, rehber niteliğindedir. EADTU

alanda gerçekleştirilen iyi uygulamaların kurumlar arasında yayınlaşmasını sağlarken yeni teknolojilerin de kurumlar arasında transfer olmasına olanak sağlamaktadır. Bir başka ifadeyle kurumların markalaşmasını kolaylaştırmaktadır.

EADTU, kalite standartlarının yakalanması adına yapılması gereken destek hizmetleri ölçütlerini ders tasarımı, ders verme, personel desteği, stratejik yönetim, müfredat tasarımı ve öğrenen desteği altında toplamaktadır. Bu ölçütleri sağlayan kurumlara da E-xcellence kalite etiketi verilmektedir. Bu araştırma öğrenen desteği kapsamında ele alınmıştır. EADTU öğrenen desteği kapsamında teknik ve idari sorunlarda erişim kolay olması gerekmektedir. Ayrıca web sayfasında ders bilgileri detaylı, güncel olarak açıklanmalı ve bu sayfalara erişim rahat sağlanabilmelidir. Yardım masası ve danışmanlık hizmetleri kurum tarafından sağlanmalıdır. E-kütüphane hizmetleri güncel olarak sağlanmalıdır. Öğrenci toplulukların çevrimiçi desteklenmelidir. Bu ölçütler, araştırmaya ait görüşmeler sorularının oluşturulmasında bu ölçütlerden yararlanılmıştır (http-1).

YÖNTEM

Çevrimiçi öğrenenlerin bir akademik dönem içerisinde destek hizmetleri deneyimlerinin kültürel farklılıklar bağlamında incelendiği bu çalışma nitel araştırma tekniklerinin uygulandığı, tekli durum desen çalışmasıdır. Hofstede'nin ulusal kültürel boyutları bağlamında çevrimiçi ders alan öğrenenlerin deneyimlerinin derinlemesine analiz edildiği bu çalışmada Erasmus+ değişim programı kapsamında gelen uluslararası öğrencilerin acil uzaktan eğitimde sunulan destek hizmetleri konusundaki görüşleri incelenmiştir. Bu çalışmada belirli dönem içerisinde gelen ve çevrimiçi ders alan öğrenen deneyimlerinin kültür ve destek hizmetleri bağlamında ve doğal akışı içerisinde incelenmesine imkân sağladığı için tekli durum deseni ve keşfedici yaklaşım kullanılmıştır.

Evren ve Örneklem

Gerçekleştirilen araştırmada amaçlı örneklem yöntemi ile katılımcılar belirlenmiştir. Amaçlı örneklem seçimi nitel araştırmalarda etkin örneklem yöntemlerinden birisidir (Creswell, 2005). Bu örnekleme yöntemi ile birlikte araştırmacı, araştırmada daha zengin veri alabileceği ve araştırma sorularını en detaylı şekilde yorumlayabileceği birey ve durumları kendi belirlemektedir (Creswell ve Clark, 2011). Amaçlı örneklem ile görüşme yapılacak öğrenciler için, 2020-2021 akademik yılı bahar dönemi içinde Erasmus+ değişim programı ile Anadolu Üniversitesine kayıt yaptırmış olması ve eğitime çevrimiçi devam etme ön koşulu aranmıştır. Bu kapsamda 24 öğrencinin Anadolu Üniversitesi'ne kayıt yaptırdığı belirlenmiştir. Kayıt olan bu 24 öğrenci 10 farklı ülkeden gelmektedir. Dolayısıyla farklı kültürlerden gelen çevrimiçi öğrenenler ile araştırmaya derinlik ve çeşitlilik kazandırılması amaçlanmıştır. Araştırmaya katılım gönüllülük esasına dayanmıştır.

Veri Toplama ve Analizi

Yapılan nitel araştırmada, amaca yönelik yarı yapılandırılmış görüşme formu kullanılmıştır. Yarı yapılandırılmış, açık uçlu görüşme soruları ile katılımcıların konuya ilişkin daha derinlemesine cevap vermesi amaçlanmıştır. Bu yöntem ile araştırmacı daha önceden amaçladığı konular hakkında daha derinlemesine bilgi sahibi olabilmek için katılımcılara ek sorular sorabilir. Bu sayede bir yapıya ve forma dayanan görüşmeler, farklı bireylerden elde edilen daha sistematik ve karşılaştırılabilir verilerin oluşmasına olanak sağlamaktadır (Yıldırım ve Şimşek, 2018). Araştırmaya hepsi farklı ülkelerden olmak üzere sekiz katılımcı katılmıştır. Katılımcılar ile görüşmeler yaklaşık birer saat sürmüş ve bu görüşmeler kayıt altına alınmıştır. Soruların hazırlanmasında EADTU E-xcellence e-öğrenmede destek hizmetleri kıyaslama ölçütleri ve Hofstede'nin kültürel boyutları referans alınmıştır.

Araştırmada, nitel araştırma yöntemlerinde sıklıkla kullanılan içerik analizi ve betimsel analiz teknikleri kullanılmıştır. Literatür detaylı olarak taranarak ve incelenerek önsel ve kavramsal kodlar belirlenmiştir. Bu kodlar çerçevesinde görüşme soruları oluşturulmuştur. Çalışma sırasında kendiliğinden ortaya çıkan kodlar ile döngüsel bir süreç içerisinde kodlama şeması için sürekli kategori üretimi yapılmıştır. Görüşme soruları hazırlanırken oluşturulan ön kodlar ve daha sonra görüşme sorularından elde edinilen verilerden oluşturulan kodlardan kategoriler belirlenmiştir. Benzer kategoriler ilişkilendirilerek temalara ulaşılmıştır. Tüm bu aşamalardan sonra kodlar, kategoriler ve temalar düzenlenerek elde edinilen bulgular yorumlanmıştır.

BULGULAR

Covid-19 salgını ile birlikte yüz yüze eğitim yerine AUE almak zorunda kalan Erasmus+ öğrencilerinin destek hizmetlerine erişiminin kültür bağlamında incelendiği bu araştırmada çeşitli kaynaklardan elde edinilen veriler bir bütün olarak ele alınmıştır. Bu verilerin destek hizmeti ve kültür olgusuna ilişkin bir ana tema belirlenmiştir. Söz konusu duruma ait bulgular destek hizmeti ve kültür bağlamında, belirlenen tema ve bu temanın içerisinde yapılandırılan kategori ve alt kategorilerin her birinin altında bir arada yorumlanmıştır. Ayrıca her tema ve kategori altında o tema ve kategori ile ilgili kuramsal ve kavramsal açıklamalar belirtilmiştir. Bu araştırmada yer alan katılımcıların ikisi erkek, altısı ise kadındır. Katılımcıların altısı 20-35, ikisi de 25-30 ve 30-35 yaş aralığındadır. Katılımcıların ikisinin eğitim durumu lisansüstü, geri kalanlarının ise lisans düzeyindedir. Katılımcıların ikisi dışında hepsi daha önceden çevrimiçi ders alma deneyimine sahiptir.

Öğrenen destek hizmeti dinamiklerini etkileyen önemli faktörlerden biri kültürel farklılıklardır. Bu bağlamda araştırma bulguları değerlendirildiğinde destek hizmeti olgusu etrafında acil uzaktan eğitimde destek hizmetlerine erişim temasını destekleyen dört kategori ortaya çıkmıştır: bilişsel, duyuşsal, teknik, yönetsel. Öğrenenin akademik olarak desteklenmesi ve geliştirilebilmesi için birçok faktörün bir arada değerlendirilmesi ve dikkate alınması gerekmektedir. Örneğin Uluslararası İlişkiler Biriminin sağladığı "kanka ve ev arkadaşlığı" hizmeti ile öğrenenlere duyuşsal ve yönetsel destek ihtiyaçları karşılanırken öğretenin sağladığı destek ile de bilişsel destek ihtiyacı karşılanmaktadır. Duyuşsal destek hizmetleri, öğrenenleri motivasyon bağlamında

destekleyen kuruma karşı aidiyet ve bağlılık oluşmasını sağlayan destek hizmetleridir. Sosyal medya ortamları, mezunlar birliği, tartışma forumları vb. kanallar duyuşsal destek hizmetinin sağlanmasına olanak sağlamaktadır.

Teknoloji insan hayatını kolaylaştırırken yaşam kalitesinin de artmasını sağlamaktadır. Gerçekleşen bu değişimlerin etkileri eğitim alanında da hissedilmektedir. Acil uzaktan eğitim ile birlikte hızla dijitalleşen eğitim sürecinde teknik destek hizmetlerinin önemi daha çok artmıştır. Çünkü öğrenen fiziki olarak kurumda bulunmadığı ve genellikle karantina sürecinde evinde kaldığı için yaşadığı bir teknik sorunun çözümü konusunda daha fazla belirsizlik yaşamaktadır. Yönetsel destek hizmetleri, öğrenenlerin idari işlemlerini hızlı, etkin ve şeffaf olarak gerçekleştirmesi adına önemlidir. İdari süreçler genellikle bürokratik, zaman alan ve kapsamlı işler olduğundan dolayı, özellikle Erasmus+ kapsamında gelen yabancı öğrenciler tarafından takip edilmesi zor olmaktadır.

Acil Uzaktan Eğitimde Destek Hizmetlerine Erişim Üzerine Bulgular

Erasmus+ programı kapsamında farklı kültürden gelen öğrencilere eğitimlerini AUE'de ilk defa yüz yüze yerine çevrimiçi almak zorunda kalmışlardır. Bu durum her öğrenen farklı zamanlarda farklı destek hizmetlerine ihtiyaç duymuştur. Her öğrenenin destek hizmetine duyduğu ihtiyaçlar kültürel özellikleriyle de farklılaşmaktadır. Bir başka ifadeyle bireyselciliğin baskın olduğu toplumsal kültür özelliklerini gösteren bir öğrenenin veya dişil toplumsal kültür özelliklerini gösteren öğrenenin aynı tür ve düzeyde destek hizmetine ihtiyaç duymayabildiği görülmüştür. Bu nedenden dolayı her öğrenenin kültürel özelliklerinin dikkate alınması ve bu kültürel özelliklere göre destek hizmetlerinin sağlanması öğrenenlere sağlanan destek hizmetlerinin kalitesini arttıracaktır.

Bilişsel Destek Üzerine Bulgular

Öğrenme yönetim sistemi (ÖYS) üzerinden kurulan iletişimlerin yabancı dil gelişimine katkı sağladığı ortaya çıkmıştır. ÖYS'de yer alan sohbet bölümü öğrenenlere akran desteği sağlamaktadır. Öğrenenin öğretene rahat ulaşabilmesi öğrenene akademik açıdan olumlu katkı sağlamaktadır. Acil uzaktan eğitimde öğrenenler sosyal medyayı birbirleriyle iletişim kurmak için daha aktif kullanmıştır. Sosyal medya üzerinden bilgi paylaşımları öğrenenlerin akademik başarılarını etkilemektedir.

Duyuşsal Destek Üzerine Bulgular

Akran desteği öğrenme süreçlerinde önemli bir enstrümandır. Akran desteğinin duyuşsal destek sağlamasının, öğrenenlerin yalnızlıklarını streslerini ve yaşadıkları belirsizlikleri azaltması açısından önemli olduğu ortaya çıkmıştır. AUE'de sağlanan kulüp etkinlikleri öğrenenler üzerinde motivasyonu artırmıştır. Öğreten ve öğrenen arasındaki diyalog duyuşsal desteği etkilemektedir. Derslerde katılımcı sayısı arttıkça öğrenen-öğreten arasındaki diyalog ve etkileşim azalmaktadır. Uluslararası İlişkiler Birimi öğrenenlere duyuşsal destek verebilmek için ev arkadaşlığı sistemi uygulamaktadır. Bu sistem öğrenenlere akran desteği sağladığı gibi aynı zamanda öğrenenlerin yalnızlık, stres ve güven boşluklarının doldurulmasında önemli rol oynamaktadır.

Yönetsel Destek Üzerine Bulgular

AUE'de öğrenenler evlerinde karantinada olduklarından dolayı kampüste sağlanan idari hizmetlerden uzak kalmışlardır. Bu noktada akran desteğinin idari süreçlerin yürütülmesinde önemli rol oynadığı görülmektedir. Bu noktada bölümlerin web sayfalarında süreçlere ait bilgilere eksiksiz yer vermesi öğrenenlerin belirsizlik yaşamasını önlemektedir. Aynı zamanda Erasmus Student Network kulübünün sağlamış olduğu destek hizmetleri AUE belirsizlikleri önlerken öğrenenlerin daha az stres ve kaygı yaşamasını sağlamıştır. UİB'nin sağlamış olduğu ev arkadaşlığı sistemi AUE'de öğrenenlerin idari süreçlerin çözülmesine olanak sağlamaktadır.

Teknik Destek Üzerine Bulgular

AUE'de en önemli destek hizmetlerinden bir tanesinin de teknik destek hizmetleri olduğu ortaya çıkmaktadır. İnternete erişimde yaşanan problemlerin çözülmesi önemlidir. ÖYS hakkında öğrenenlere kayıt aşamasında oryantasyon yapılması öğrenenlerin yaşadığı belirsizliklerin ortadan kalmasını sağlamaktadır. Ayrıca sistem ara yüzünün mobil cihazlara uygun olarak tasarlanması, teknik aksaklıkların yaşanmasının önüne geçmesini sağlayacaktır. AUE'de teknik desteğe hızlı ve zamanında ulaşabilmek, öğrenen üzerinde olumlu etki yapmaktadır. Aynı zamanda öğrenenlerin motivasyonuna katkı sağlamaktadır.

SONUÇ VE TARTIŞMA

Küreselleşme ile birlikte dünyada her alanda rekabetler artarken dönüşümler gerçekleşirken aynı zamanda devletler, kurumlar birbirine daha bağlı ve bağımlı hale gelmektedir (Chanda, 2007, s. 246). Günümüzde küreselleşme nedeniyle bireylerin, kurumların, devletlerin birbirine karşılıklı bağımlı olması farklı kültürler arasındaki etkileşimi arttırmaktadır. Bu araştırmaya gönüllü katılan öğrenciler yaşadıkları toplumun kültürel özellikleriyle genel olarak aynı zihin kodlarına sahip bulunmaktadır. Fakat her birey kültürel olarak yaşadığı toplumdan etkilendiği gibi farklı özellikler de sergileyebilmektedir. Özellikle duyuşsal destek hizmetlerinin öğrenenlerin motivasyonunu sağlamada önemli katkısı bulunmaktadır. Ayrıca öğrenenlerin kuruma olan bağlılık ve aidiyet duygularını geliştirmektedir. Kurum tarafından gezi, etkinlik gibi faaliyetlerin gerçekleştirilmesi kuruma olan bağlılığı arttırmaktadır. Öğrenenlerin idari süreçlerini eksiksiz ve zamanında yürütebilmesi için yönetsel destek hizmetlerinin etkin, hızlı ve şeffaf olması gerekmektedir.

Sonuç olarak Covid-19 salgını süresince eğitim süreçlerinde dramatik değişimler meydana gelmiş ve hibrit/çevrimiçi öğrenme kavramının önemi daha da artmıştır. Bazı öğrenenler AUE ile eğitimlerine kısıtlı da olsa Türkiye'de veya kendi ülkelerinde devam edebilme imkânı yakalayabilmiştir. Bu sayede pandemi döneminde ülkesinden ve ailesinden uzak olan öğrenenlerin yalnızlık hislerinin önüne geçilebilmesi adına gerçekleştirilen destek hizmetleri önem arz etmektedir. Ayrıca öğrenenlerin kültürel özelliklerini dikkate alarak destek hizmetlerinin sağlanması, öğrenen memnuniyetini arttırdığı gibi öğrenenin kuruma olan aidiyetini de sağlamaktadır. Ayrıca tüm destek hizmetleri öğrenenin bilişsel öğrenme sürecine de olumlu katkılar sunmaktadır. Çevresel, bölgesel herhangi bir sorun ve/veya krizin yaşanması durumunda dahi kurum-

ların hazır olabilmesi ve yakın gelecekte hibrit/çevrimiçi öğrenme ortamlarına artan ilginin devam edeceği de göz önünde bulundurularak kurumların önlemlerini alması gerekmektedir.

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Açıköğretim Sistemi'nde Öğrenenlerin Canlı Derslere İlişkin Görüşleri

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Özet

Gelişen bilgi-iletişim teknolojileri ile değişen toplumsal koşullar, öğrenenlerin bilgiye zaman ve mekân sınırlaması olmaksızın erişmelerini zorunlu kılmıştır. Yüz yüze öğrenme ortamları yaşanan gelişmeleri takip etmede yetersiz kalmaya başlayınca da çevrimiçi öğrenme ortamları işe koşulmuştur. Çevrimiçi öğrenme ortamları, zaman ve mekân kısıtlaması olmaksızın öğrenenlere özgür ve esnek bir öğrenme deneyimi sunmaktadır. Öyle ki çevrimiçi öğrenme ortamlarında öğrenenler ihtiyaçları doğrultusunda çalışma planlarını hazırlayıp belirli süreçleri takip ederek öğrenme ihtiyaçlarını karşılayabilmektedir. Etkileşimli bir yapı üzerinde temellendirilen çevrimiçi öğrenme ortamları, geleneksel öğrenme ortamlarının fiziksel sınırlarını ortadan kaldırarak öğrenme sürecini çevrimiçi ortama taşımaktadır. Böylelikle öğrenenlerin etkileşimli bir biçimde öğrenme sürecini gerçekleştirmelerine olanak tanımaktadır. Diğer taraftan öğrenenler, öğrenme ortamlarında metinsel, görsel, işitsel ya da görsel-işitsel biçimlerde kendilerine sunulan öğrenme malzemelerini ihtiyaçları doğrultusunda kullanabilmektedir. Bir çevrimiçi öğrenme ortamı olarak Anadolu Üniversitesi Açıköğretim Sistemi'nin Anadolum eKampüs platformunda öğrenenlere sunulan malzemelerden biri olarak canlı dersler, öğretim elemanının, dersin kitabı üzerinden hazırladığı, görsel-işitsel biçimde sunumunu gerçekleştirdiği ve öğrenenlerden gelen sorulara eşzamanlı olarak yanıt verdiği öğrenme malzemesini temsil etmektedir. Yaklaşık olarak 45 ile 60 dakika arasında süren canlı derslerde konu anlatımı, soru-cevap ile konu tekrarı etkinlikleri yürütülmekte ve öğrenenler sorularına etkileşimli bir biçimde yanıt alabilmektedir. Bu çalışmada nicel araştırma yönteminin kesitsel tarama modelinden faydalanılmıştır. Çalışmada Açıköğretim Sistemi'nde kayıtlı olan ve canlı ders öğrenme malzemesini en az bir kez kullanmış açık ve uzaktan öğrenenlerin canlı derslere ilişkin görüşleri incelenmiştir. 2021-2022 Akademik Yılı Bahar Döneminde Açıköğretim Sistemi'nde 566 ders, 12 haftalık bir sürede başarıyla yürütülmüştür. Dolayısıyla inceleme aralığı, gerçekleştirilen 12 haftalık canlı ders etkinlikleriyle sınırlı tutulmuştur. Çalışmada söz konusu dönemin sonunda gerçekleştirilen canlı ders memnuniyet anketi verisi kullanılmıştır. Son olarak, çalışmadan elde edilen bulgular aracılığıyla canlı ders etkinliklerinin iyileştirilmesi ve geliştirilmesi yönünde çeşitli önerilere yer verilmiştir.

Anahtar Kelimeler: *Açıköğretim Sistemi, Öğrenenler, Çevrimiçi Öğrenme Ortamları, Öğrenme Malzemesi, Canlı Ders.*

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GİRİŞ

Uzaktan eğitim teknolojilerinin sağlamış olduğu çeşitli olanaklar, yüz yüze öğrenme ortamlarının çevrimiçi öğrenme ortamları olarak genişlemesini sağlamıştır. Bir zamanlar zaman ve mekân sınırları içerisinde gerçekleşen öğrenme deneyimi ise çevrimiçi öğrenme ortamları aracılığıyla bu sınırlılığı ortadan kaldırmıştır. Çevrimiçi öğrenme ortamlarında öğrenenlere sunulan içerikler, öğrenme deneyimini zenginleştirerek özgür ve esnek bir öğrenme ortamı sağlamasının yanı sıra öğrenenlerin farklı aktörlerle etkileşim kurmasının da önünü açmıştır. Özellikle etkileşimli bir yapı üzerinde kurgulanan bu ortamlar, öğrenenlerin öğrenme süreçlerini takip etmelerini kolaylaştırmıştır. Çevrimiçi öğrenme ortamlarında öğrenenlere öğrenme malzemeleri gibi çeşitli içerikler sunulmaktadır. Söz konusu öğrenme malzemeleri, öğrenenlerin bilgiye her an ve her yerde ulaşmasını mümkün hale getirerek daha etkili bir öğrenme deneyimi yaşanmasını sağlamaktadır. Bu malzemelerden biri olarak canlı dersler, öğrenenlerin öğretenle eş zamanlı ya da eş zamansız olarak etkileşime geçebildiği, sorularına öğretenden cevaplar alabildiği ve konu tekrarı gibi etkinliklerin yapılabildiği içeriği temsil etmektedir.

Bu çalışmanın problemini Anadolu Üniversitesi Açıköğretim Sistemi'nin çevrimiçi öğrenme ortamı olan Anadolum eKampüs platformu üzerinden öğrenenlere sunulan Canlı Ders öğrenme malzemesini kullanan öğrenenlerin bu malzemeyi nasıl değerlendirdiği, bir başka ifadeyle Açıköğretim Sistemi'nin en önemli paydaşlarından biri olarak öğrenenlerin canlı dersler hakkındaki görüşlerinin incelenmesi oluşturmaktadır. İnceleme, 2021-2022 Akademik Yılı'nın Bahar Döneminde Açıköğretim Sistemi'nde 12 haftalık bir sürede gerçekleştirilen 566 dersi kapsamaktadır. İlgili canlı derslere en az bir kez katılım göstermiş öğrenenlerin görüşleri değerlendirmeye alınmıştır.

KAVRAMSAL ÇERÇEVE

Günümüzde yaşanılan bilgi-iletişim teknolojilerindeki gelişmeler her alanda olduğu gibi uzaktan eğitim alanına da nüfus ederek çevrimiçi öğrenme kavramını ortaya çıkarmıştır. Çevrimiçi öğrenmeyle birlikte öğrenme sürecinin yalnızca fiziksel sınıflarda yüz yüze eğitim biçiminde gerçekleşmediği, zaman ve mekân fark etmeksizin öğrenmenin çevrimiçi bir biçimde gerçekleşebildiği ve öğrenenlerin çevrimiçi ortamlarda gerek öğrenme malzemeleriyle gerekse öğretenlerle ve diğer öğrenenlerle buluşabilmesi söz konusu olmuştur (Özen ve Karaca, 2021, s. 747; Tuğtekin, 2022, s. 11-12). Kavramsal olarak değerlendirildiğinde çevrimiçi öğrenme, öğrenen odaklı bir eğitim sürecine atıf yaparak, öğrenmenin öğrenen tarafından kontrol altına alındığı bir sürece işaret etmektedir. Böylelikle çevrimiçi öğrenme, öğrenenlerin diğer öğrenenlerle, öğretenlerle ve öğrenme malzemeleriyle etkileşime geçerek hem eş zamanlı hem de eş zamansız bir biçimde öğrenmeyi deneyimledikleri bir süreci ifade etmektedir. Nitekim, zorunlu nedenler ile teknolojik dönüşümler neticesinde eğitim ve öğretim anlayışındaki yaşanan değişimler, bireysel öğrenme anlayışlarının önemini artırmış ve teknoloji destekli öğrenmeyi her alanda işe koşarak öğrenme sürecini fiziksel sınıflar özelinde ve öğreten odaklı olmaktan çıkarmıştır (Bayındır, 2022, s. 23). Çevrimiçi

öğrenmeyi eş zamanlı olarak deneyimleyen öğrenenler hem diğer öğrenenlerle hem de öğretenlerle eş zamanlı bir biçimde etkileşim kurabilmektedir. Diğer taraftan, eş zamansız olarak deneyimleyen öğrenenler ise eş zamansız bir biçimde öğrenme ortamlarında bulunduklarında dâhi öğrenme malzemelerine istedikleri zaman ulaşabilmektedir. Kısacası öğrenenler, zaman ve mekân sınırlarından arındırılmış bir öğrenme ortamında öğrenme sürecini destekleyici malzemelerden faydalanabilmektedir (Tuğtekin, 2022; Şahin ve Yurdugül, 2022).

Öğrenme sürecinin zenginleştirilmesinde ve öğrenenlere etkili bir öğrenme ortamının tasarlanmasında uzaktan eğitim teknolojilerinin önemli bir rolü vardır. Özellikle geçmişten günümüze değerlendirildiğinde 1920'li yıllarda "Testing Maching" olarak geliştirilen öğrenme ortamının takip eden yıllarda "Decision Support System", "Adaptive Hypermedia System" ve "Learning Management System (Öğrenme Yönetim Sistemi - ÖYS)" gibi örneklerle zenginleşip farklı modülleri bünyesine katarak genişlediği görülmektedir. Günümüzde ise yükseköğretim kurumlarının ÖYS'yi etkin bir şekilde kullandıkları dikkat çekmektedir (Şahin ve Yurdugül, 2022, s. 250). Bu yönüyle ÖYS'ler, hazırlanan içeriklerin öğrenenlere sunulabildiği, öğrenenlerin mevcut bilgilerinin ve öğrenme analitiklerinin depolanabildiği, dersle ilgili öğretenlerin değerlendirme yapıp not verebildikleri öğrenme ortamlarını ifade etmektedir. Çeşitli etkileşim biçimleri aracılığıyla öğrenenler, bu ortamlarda kendileri gibi diğer öğrenenlerle, öğretenlerle ve öğrenme malzemeleriyle etkileşime girebilmektedir (Şahin vd., 2017, s. 175-176). Anadolu Üniversitesi Açıköğretim Sistemi bünyesinde kullanılan Anadolum eKampüs platformu da bir ÖYS olarak öğrenenlere sunulan çevrimiçi öğrenme ortamıdır.

Çevrimiçi öğrenme ortamlarında öğrenenlerin akademik başarılarının, fiziksel sınıflarda gerçekleştirilen yüz yüze eğitimdeki gibi olması gerektiği, eğitim araştırmacıları tarafından altı çizilen bir hususdur (Yılmazsoy vd., 2018, Şahin ve Yurdugül, 2022). Öğrenenlerin nitelikleri göz önünde bulundurularak tasarlanmış ve etkileşim temelli çevrimiçi öğrenme ortamlarında, öğrenme sürecini zenginleştiren çeşitli malzemeler yer almaktadır. Bu malzemelerden biri de canlı derslerdir. Canlı dersler, geleneksel yüz yüze sınıflarda olduğu gibi bir öğretenin ilgili dersin kitabından hazırlamış olduğu sunumunu gerçekleştirdiği, öğrenenlerin sormuş olduğu sorulara eş zamanlı olarak yanıt verebildiği ve böylelikle öğrenenlerle etkileşime geçtiği, bir kamera ve mikrofon eşliğinde derse görsel-işitsel bir biçimde katılabildiği öğrenme malzemesini temsil etmektedir (Yılmazsoy vd., 2018, s. 515-516). Yaklaşık olarak 45 ile 60 dakika arasında süren canlı derslerde konu anlatımı, soru-cevap ile konu tekrarı etkinlikleri yürütülmekte ve öğrenenler sorularına etkileşimli bir biçimde yanıt alabilmektedir. Ayrıca işlenen derslerin ve derslerdeki etkinliklerin kayıt altına alınabilmesi, canlı ders kayıtlarına tekrar izlenebilme özelliği katmaktadır. Özetle, canlı derslerde eş zamanlı bir biçimde içerik akışı sağlanabilmekte ve ders esnasında yapılan etkinliklerin kaydedilebilmesi, dersi daha sonra eş zamansız bir biçimde öğrenenlerin izleyebilmesine olanak tanımaktadır. Böylelikle bir öğreten rehberliğinde farklı lokasyonlarda bulunan öğrenenlerin eş zamanlı ya da eş zamansız bir biçimde bir araya gelmesi ve dersle ilgili ortak kazanımlara ulaşması söz konusu olmaktadır (Bayındır, 2022, s. 23).

YÖNTEM

Çalışmanın yöntemi olarak nicel araştırma yöntemi benimsenmiş ve bu yöntemin alt desenlerinden biri olarak kesitsel tarama modeli, bu çalışmada kullanılmıştır. Kesitsel tarama modeli, bir evrenin temsil edildiği alt örneklemlerde bulunan birimlerdeki güncel eğilim ve görüşler gibi hususların doğrudan olması suretiyle belirlenmesine olanak vermektedir (Creswell, 2014, s. 13). İlgili model bu çalışmada kullanılarak Anadolu Üniversitesi Açıköğretim Sistemi'nde 2021-2022 Bahar Döneminde Anadolum eKampüs platformu üzerinden sunulan canlı derslere en az bir kez katılım göstermiş öğrenenlerin canlı derslere ilişkin görüşleri incelenmeye çalışılmıştır. Söz konusu görüşler bir memnuniyet anketi kullanılarak irdelenmiş ve memnuniyetin, öğrenenlerin canlı derslerle ilgili bilgileri çerçevesinde nasıl farklılık gösterdiği mercek altına alınmıştır.

Amaç ve Önem

Çalışmanın amacı, Anadolu Üniversitesi Açıköğretim Sistemi'nde 2021-2022 Bahar Döneminde Anadolum eKampüs platformu üzerinden sunulan canlı derslere en az bir kez katılım göstermiş öğrenenlerin canlı derslere yönelik görüşlerinin belirlenmesidir. Bu bağlamda çalışmada öğrenenlerin söz konusu dönemdeki canlı derslere ilişkin görüşleri, memnuniyetleri açısından ele alınmış olup memnuniyetlerinin, canlı derslerle ilgili bilgileri açısından nasıl farklılık gösterdiği tespit edilmeye çalışılmıştır. Çalışma, öğrenenlerin canlı derslerle ilgili görüşlerine yönelik genel bir değerlendirme sunması ve memnuniyetlerini yine öğrenenlerin birtakım özellikleri çerçevesinde değerlendirmesi bakımından önem taşımaktadır. Dolayısıyla çalışmada aşağıdaki araştırma sorularına yanıt aranmıştır:

- Öğrenenlerin canlı derslere ilişkin memnuniyetlerinin betimsel dağılımı nasıldır?
- Öğrenenlerin canlı derslere ilişkin memnuniyetleri, canlı derslerle ilgili bilgileri açısından anlamlı bir biçimde farklılaşmakta mıdır?

Evren ve Örneklem

Bu çalışmada Anadolum eKampüs platformu üzerinden öğrenenlere sunulan canlı derslere ilişkin görüşler incelendiği için çalışmanın evrenini 2021-2022 Akademik Yılı Bahar Döneminde canlı derslere en az bir kez katılım göstermiş öğrenenler oluşturmaktadır. 2021-2022 Akademik Yılı Bahar Döneminde Açıköğretim Sistemi'nde 566 ders, 12 haftalık bir sürede başarıyla yürütülmüştür. Dolayısıyla inceleme aralığı, gerçekleştirilen 12 haftalık canlı ders etkinlikleriyle sınırlı tutulmuştur. Öğrenenlerle 11. hafta sonunda (son haftada) canlı ders esnasında çevrimiçi memnuniyet anketi paylaşılmış ve canlı derslere eş zamanlı ya da eş zamansız (canlı ders kayıtları) katılım gösteren öğrenenlerin ilgili anketi gönüllü bir biçimde doldurmaları sağlanmıştır. Bu bağlamda çalışmada amaca uygun örnekleme yöntemi kullanılmıştır. Amaca uygun örneklemede evrende yer alan ve araştırma amacına uygunluk taşıyan ulaşılabilir birimler örnekleme dâhil edilmektedir (Başaran, 2017, s. 489). Araştırmaya gönüllü olarak dâhil olduğunu beyan eden toplamda 1364 öğrenenden veri toplanmıştır. Dolayısıyla ulaşılan 1364 öğrenen, bu araştırmanın örneklemini temsil eder niteliktedir.

Veri Toplama Yöntemi ve Aracı

Anket tekniği aracılığıyla araştırma verileri elde edilmiştir. Söz konusu anket, Google Anketler aracılığıyla elektronik olarak oluşturulmuş ve anket linki öğrenenlere Anadolum eKampüs platformunda canlı ders etkinlikleri esnasında çevrimiçi olarak sunulmuştur. Öğrenenlerin canlı derslere ilişkin görüşlerini tespit etmeye çalışan memnuniyet anketi, Öğrenme Teknolojileri Ar-Ge (ÖTAG) biriminde canlı ders düzenleme ekibi tarafından kapsam geçerliği yapılarak oluşturulmuştur. Söz konusu anket yedi (7) maddeden oluşmakta ve 5'li Likert tipi şeklinde ölçümlenmektedir. Bununla birlikte, öğrenenlerin canlı derslerle ilgili bilgilerini ölçümleyebilmek maksadıyla 1) öğrenenlerin canlı ders etkinliklerinden nasıl yararlandıkları, 2) öğrenenlerin canlı ders etkinliklerini takip ettikleri ortamlar, 3) öğrenenlerin canlı ders etkinliklerinin akşam saatlerinde gerçekleştirilmesine ilişkin görüşleri, 4) öğrenenlerin günü ve saatinde yapılamayan canlı ders etkinlikleri telafilerinin hafta sonu gerçekleştirilmesi konusundaki görüşleri ve 5) öğrenenlerin telafi gün-saat duyurularına erişmede sorun yaşama durumları olmak üzere beş (5) soru, yine canlı ders düzenleme ekibi tarafından çalışma anketine eklenmiştir.

Veri Analizi ve Kullanılan Testler

Araştırma verilerinin analizinde IBM SPSS 25 paket programı kullanılmıştır. Öğrenenlerin canlı derslere ilişkin görüşlerini ölçümlemek için kullanılan memnuniyet anketinin geçerliği açımlayıcı faktör analizi kullanılarak ve güvenirliği Cronbach's Alpha güvenirlik analizi kullanılarak sağlanmıştır. Söz konusu ölçeğin öğrenenlerin canlı derslerle ilgili bilgileri açısından farklılaşıp farklılaşmadığını test edebilmek için ise bağımsız örneklemler t-test ile tek yönlü varyans analizi (ANOVA) istatistiklerinden yararlanılmıştır.

BULGULAR

2021-2022 Akademik Yılı Bahar Döneminde uygulanan ankete 1364 öğrenen katılmıştır. Araştırma verisine yapılan ön incelemeler neticesinde uygunsuz tekrarlı yanıtın olmadığı görülmüştür. Bu sonuca müteakiben araştırma verisinin kullanılacak kestirimsel istatistik testleri için normallik varsayımını sağlayıp sağlamadığı teyit edilmiştir. Tek değişkenli normallik incelemesinde araştırmada kullanılan memnuniyet ölçeğinin mutlak eğiklik ve basıklık değerleri kontrol edilmiştir. İnceleme sonucunda Kim (2013, s. 53) tarafından önerilmiş $n>300$ ilkesi göz önünde bulundurularak belirlenen eşik değerlerin üstünde mutlak değerler olmadığından ötürü verinin tek değişkenli normallik için sorun taşımadığı anlaşılmıştır. Öte yandan, çok değişkenli normallik incelemesi için ölçek maddelerine yönelik Mahalonobis uzaklığı hesaplanarak kritik ki-kare değeriyle madde sayısı göz önünde bulundurularak karşılaştırılmış ve belirlenen eşik değeri geçen bir gözlem olmadığı sonucuna ulaşılmıştır (Arifin, 2015, s. 73). Sonuç olarak 1364 öğrenenden toplanan araştırma verisinin normal dağılım gösterdiği görülmüştür.

Öğrenenlerin Canlı Derslerle İlgili Bilgileri

Öğrenenlerin canlı derslerle ilgili bilgileri Tablo 1'de paylaşılmıştır.

Tablo 1. *Öğrenenlerin Canlı Derslerle İlgili Bilgilerinin Dağılımı*

Değişken	Seçenekler	*n*	%
Öğrenenlerin canlı ders etkinliklerinden genellikle nasıl yararlandıkları	Canlı ders etkinliklerine gün ve saatinde aktif olarak katıldım.	546	40,0
	Canlı ders etkinliklerinin kayıtlarını daha sonra izledim.	818	60,0
	Toplam	1364	100,0
Öğrenenlerin canlı ders etkinliklerini takip ettikleri ortamlar	Masaüstü/dizüstü bilgisayar	986	72,3
	Android sistemli akıllı telefon/tablet	298	21,8
	IOS sistemli akıllı telefon/tablet	80	5,9
	Toplam	1364	100,0
Öğrenenlerin canlı ders etkinliklerinin akşam saatlerinde gerçekleştirilmesine ilişkin görüşleri	Derslerin hafta içi akşam saatlerinde olmasından memnunum.	1182	86,7
	Derslerin hafta içi gündüz saatlerinde olması gerektiğini düşünüyorum.	182	13,3
	Toplam	1364	100,0
Öğrenenlerin günü ve saatinde yapılamayan canlı ders etkinlikleri telafilerinin hafta sonu gerçekleştirilmesi konusundaki görüşleri	Telafi derslerin hafta içi gündüz saatlerinde olması gerektiğini düşünüyorum.	233	17,1
	Telafi derslerin hafta sonu olmasından memnunum.	1131	82,9
	Toplam	1364	100,0
Öğrenenlerin telafi gün-saat duyurularına erişmede sorun yaşama durumları	Evet	247	18,1
	Hayır	1117	81,9
	Toplam	1364	100,0

Tablo 1'de öğrenenlerin canlı ders etkinliklerini ağırlıklı olarak kayıtlardan takip ettikleri görülmüştür (n = 818; %60,0). Canlı ders etkinlikleri çoğunlukla masaüstü/dizüstü bilgisayar ortamından takip edilmiştir (n = 986; %72,3). Öğrenenlerin %86,7'si (n = 1182) derslerin hafta içi akşam saatlerinde olması gerektiğini düşünmektedir. Öte yandan, öğrenenler çoğunlukla telafi derslerinin hafta sonu olmasından memnun olduğunu dile getirmektedir (n = 1131; %82,9). Son olarak, öğrenenler telafi derslerinin gün-saat duyurularına erişmede ağırlıklı olarak sorun yaşamamaktadır (n = 1117; %81,9).

Çalışmada Kullanılan Memnuniyet Ölçeğinin Geçerliği ve Güvenirliği

Çalışmada kullanılan canlı ders memnuniyet ölçeğinin geçerliğini ve güvenirliğini kanıtlayabilmek amacıyla açıklayıcı faktör analizi ve Cronbach's Alpha güvenirlik analizi gerçekleştirilmiştir. Açıklayıcı faktör analizinde çıkartma yöntemi için temel bileşenler

analizi tercih edilirken döndürme yöntemi olarak Varimax kullanılmıştır (Çokluk vd., 2016, s. 198-203). Güvenirlik analizinde Büyüköztürk (2017, s. 181-182) tarafından önerilen 0,70 eşik değeri göz önünde tutularak söz konusu eşik değerin geçilmesi suretiyle memnuniyet ölçeğinin güvenilir olarak kabul edilmesi uygun görülmüştür. İlgili değerlendirmelere müteakiben ölçek maddelerinin ortalamaları ile standart sapmaları paylaşılmıştır.

Yapılan açıklayıcı faktör analizinde KMO değerinin yeterli (0,875), Barlett'in testinin anlamlı olduğu tespit edilmiştir (x^2 = 5827,23; df = 21, p<0,001). Açıklanan toplam varyansın %60,65 ve özdeğerin 4,25 olduğu görülmüştür. Faktör yüklerinde 0,877 ile 0,554 arasında yeterli düzeyde yüklenme olduğu belirlenmiştir (Hair vd., 2014, s. 102). Diğer taraftan, elde edilen güvenirlik katsayısının 0,88 olması da ölçeğin güvenilir olduğuna işaret etmektedir (Kalaycı, 2017, s. 405). Bu sonuçlar Tablo 2'de gösterilmiştir.

Tablo 2. *Çalışmada Kullanılan Memnuniyet Ölçeğinin Geçerliği ve Güvenirliği*

Ölçek/Madde	$\underline{x}$	*s*	FAY	AÇV	ÖD	*α*
Canlı Ders Memnuniyet Ölçeği				60,56	4,25	0,88
Canlı ders etkinliklerinde görev alan öğretim elemanlarının ders içeriklerini öğrencilere aktarmada iyiydi.	4,30	1,04	0,877			
Canlı ders etkinliklerinde görev alan öğretim elemanlarının kullandığı sunuların belirli standartlarda hazırlanması dersleri takip etmemi kolaylaştırdı.	4,36	1,01	0,875			
Canlı ders etkinlikleri derslerdeki başarımı arttırdı.	4,37	0,99	0,871			
Canlı ders etkinliklerinde görev alan öğretim elemanlarının öğrencilerle iletişimi iyiydi.	4,45	0,96	0,859			
Canlı ders etkinlikleri/kayıtları Açıköğretim Sistemi'nde en fazla kullandığım yardımcı materyallerin başında geliyor.	4,53	0,95	0,683			
Açıköğretim Fakültesi Öğrenme Teknolojileri Ar-Ge Birimi stüdyolarının dışında ev/ofis ortamında yapılan canlı ders etkinlikleri teknik açıdan (ses-görüntü-bağlantı kalitesi) yeterlidir.	4,04	1,12	0,664			
Canlı ders etkinliklerinin gerçekleştirildiği web konferans sistemini kullanmada sorun yaşamadım.	4,16	1,21	0,554			
Aritmetik Ortalama	4,31	0,79	-			

KMO = 0,875; x^2 = 5827,23; df = 21, p<0,001; (1 = Hiç Katılmıyorum; 5 = Tamamen Katılıyorum); FAY = Faktör Yükü, AÇV = Açıklanan Varyans; ÖD = Özdeğer.

Tablo 2'de canlı ders memnuniyet ölçeğinin maddelerine ilişkin betimsel istatistikler değerlendirildiğinde, en yüksek ortalamaya sahip maddenin *"Canlı ders etkinlikleri/kayıtları Açıköğretim Sistemi'nde en fazla kullandığım yardımcı materyallerin başında geliyor"* maddesi olduğu görülmektedir ($\underline{x}$ = 4,53; s = 0,95). Bununla birlikte, en düşük ortalamaya sahip maddenin *"Açıköğretim Fakültesi Öğrenme Teknolojileri Ar-Ge Birimi stüdyolarının dışında ev/ofis ortamında yapılan canlı ders etkinlikleri teknik açıdan (ses-görüntü-bağlantı kalitesi) yeterlidir"* olduğu dikkat çekmektedir ($\underline{x}$ = 4,04; s = 1,12).

Araştırma Sorularının Cevaplanması

Öğrenenlerin a) canlı ders etkinliklerinden genellikle nasıl yararlandıkları, b) canlı ders etkinliklerini takip ettikleri ortamlar, c) canlı ders etkinliklerinin akşam saatlerinde gerçekleştirilmesine ilişkin görüşleri, d) günü ve saatinde yapılamayan canlı ders etkinlikleri telafilerinin hafta sonu gerçekleştirilmesi konusundaki görüşleri ile e) telafi gün-saat duyurularına erişmede sorun yaşama durumları açısından canlı ders memnuniyetinin anlamlı bir biçimde farklılaşıp farklılaşmadığını görebilmek maksadıyla bağımsız örneklemler t-test ile tek yönlü varyans analizi (ANOVA) istatistiklerinden faydalanılmıştır. Sonuçlar takip eden başlıklarda sırasıyla paylaşılmıştır.

Öğrenenlerin Canlı Ders Etkinliklerinden Nasıl Yararlandıkları Açısından Canlı Ders Memnuniyetinin İncelenmesi

Öğrenenlerin canlı ders etkinliklerinden nasıl yararlandıkları açısından canlı ders memnuniyetini inceleyebilmek maksadıyla bağımsız örneklemler t-test kullanılmıştır. Analizde Levene istatistiği varyansların eşit olmadığını gösterdiği için analiz sonucunun değerlendirilmesinde eşit olmayan varyanslar seçeneğine bakılmıştır. Sonuçlar ise Tablo 3'te gösterilmiştir.

Tablo 3. *Öğrenenlerin Canlı Ders Etkinliklerinden Nasıl Yararlandıkları Açısından Canlı Ders Memnuniyetinin İncelenmesi*

Değişken	Grup	*n*	$\underline{x}$	*s*	*t*	df	*p*
Canlı Ders Memnuniyeti	Canlı ders etkinliklerine gün ve saatinde aktif olarak katıldım.	546	4,41	0,70	3,836	1300,6	<0,001
	Canlı ders etkinliklerinin kayıtlarını daha sonra izledim.	818	4,25	0,85			

Tablo 3'te öğrenenlerin canlı ders etkinliklerinden nasıl yararlandıkları açısından canlı ders memnuniyetinin anlamlı bir biçimde farklılaştığı görülmektedir (t(1300,6) = 3,836; p<0,001). Canlı ders etkinliklerine gün ve saatinde aktif olarak katılan öğrenenler ($\underline{x}$ = 4,41; s = 0,70), kayıtları daha sonradan izleyen öğrenenlere kıyasla ($\underline{x}$ = 4,25; s = 0,85) canlı derslerden daha çok memnundur.

Öğrenenlerin Canlı Ders Etkinliklerini Takip Ettikleri Ortamlar Açısından Canlı Ders Memnuniyetinin İncelenmesi

Öğrenenlerin canlı ders etkinliklerini takip ettikleri ortamlar açısından canlı ders memnuniyetini inceleyebilmek için tek yönlü varyans analizi (ANOVA) kullanılmıştır. Analizde varyansların eşit dağılım gösterdiği belirlenmiş ve sonucun değerlendirilmesinde ANOVA istatistiğinin anlamlılığı tercih edilmiştir. Sonuçlar Tablo 4'te sunulmuştur.

Tablo 4. *Öğrenenlerin Canlı Ders Etkinliklerini Takip Ettikleri Ortamlar Açısından Canlı Ders Memnuniyetinin İncelenmesi*

Değişken	Grup	*n*	$\underline{x}$	*s*	*F*	*p*	İS
Canlı Ders Memnuniyeti	Android Sistemli Akıllı Telefon/Tablet	298	4,32	0,80	0,42	0,657	-
	IOS Sistemli Akıllı Telefon/ Tablet	80	4,24	0,83			
	Masaüstü/Dizüstü Bilgisayar	986	4,32	0,79			

Tablo 4'te öğrenenlerin canlı ders etkinliklerini takip ettikleri ortamlar açısından canlı ders memnuniyetinin anlamlı bir biçimde farklılaşmadığı belirlenmiştir (p>0,05). Takip edilen ortam fark etmeksizin öğrenenler benzer düzeylerde canlı ders memnuniyetine sahip oldukları düşünülmektedir.

Öğrenenlerin Canlı Ders Etkinliklerinin Akşam Saatlerinde Gerçekleştirilmesine İlişkin Görüşleri Açısından Canlı Ders Memnuniyetinin İncelenmesi

Öğrenenlerin canlı ders etkinliklerinin akşam saatlerinde gerçekleştirilmesine ilişkin görüşleri açısından canlı ders memnuniyeti inceleyebilmek maksadıyla bağımsız örneklemler t-test gerçekleştirilmiştir. Analizde Levene istatistiği varyansların eşit olmadığını gösterdiği için analiz sonucunun değerlendirilmesinde eşit olmayan varyanslar seçeneğine bakılmıştır. Sonuçlar Tablo 5'te gösterilmiştir.

Tablo 5. *Öğrenenlerin Canlı Ders Etkinliklerinin Akşam Saatlerinde Gerçekleştirilmesine İlişkin Görüşleri Açısından Canlı Ders Memnuniyetinin İncelenmesi*

Değişken	Grup	*n*	$\underline{x}$	*s*	*t*	df	*p*
Canlı Ders Memnuniyeti	Derslerin hafta içi akşam saatlerinde olmasından memnunum.	1182	4,34	0,77	2,659	222,91	0,008**
	Derslerin hafta içi gündüz saatlerinde olması gerektiğini düşünüyorum.	182	4,15	0,91			

**p<0,01.

Tablo 5'te öğrenenlerin canlı ders etkinliklerinin akşam saatlerinde gerçekleştirilmesine ilişkin görüşleri açısından canlı ders memnuniyetinin anlamlı bir biçimde farklılaştığı dikkat çekmektedir ($t(222{,}91) = 2{,}659$; $p<0{,}01$). Derslerin hafta içi akşam saatlerinde olmasından memnun olan öğrenenler ($\underline{x} = 4{,}64$; $s = 0{,}77$), derslerin hafta içi gündüz saatlerinde olması gerektiğini düşünen öğrenenlere kıyasla ($\underline{x} = 4{,}15$; $s = 0{,}91$) canlı derslerden daha çok memnundur.

Öğrenenlerin Günü ve Saatinde Yapılamayan Canlı Ders Etkinlikleri Telafilerinin Hafta Sonu Gerçekleştirilmesi Konusundaki Görüşleri Açısından Canlı Ders Memnuniyetinin İncelenmesi

Öğrenenlerin günü ve saatinde yapılamayan canlı ders etkinlikleri telafilerinin hafta sonu gerçekleştirilmesi konusundaki görüşleri açısından canlı ders memnuniyetini inceleyebilmek için bağımsız örneklemler t-test uygulanmıştır. Analizde Levene istatistiği varyansların eşit olduğunu gösterdiği için analiz sonucunun değerlendirilmesinde eşit varyanslar seçeneğine bakılmıştır. Sonuçlar Tablo 6'da sunulmuştur.

Tablo 6. *Öğrenenlerin Günü ve Saatinde Yapılamayan Canlı Ders Etkinlikleri Telafilerinin Hafta Sonu Gerçekleştirilmesi Konusundaki Görüşleri Açısından Canlı Ders Memnuniyetinin İncelenmesi*

Değişken	Grup	n	$\underline{x}$	s	t	df	p
Canlı Ders Memnuniyeti	Telafi derslerin hafta içi gündüz saatlerinde olması gerektiğini düşünüyorum.	233	4,22	0,79	-1,998	1362	0,046*
	Telafi derslerin hafta sonu olmasından memnunum.	1131	4,33	0,80			

*$p<0{,}05$.

Tablo 6'da öğrenenlerin günü ve saatinde yapılamayan canlı ders etkinlikleri telafilerinin hafta sonu gerçekleştirilmesi konusundaki görüşleri açısından canlı ders memnuniyetinin anlamlı bir biçimde farklılaştığı dikkat çekmektedir ($t(1362) = -1{,}998$; $p<0{,}05$). Telafi derslerinin hafta sonu olmasından memnun olan öğrenenler ($\underline{x} = 4{,}33$; $s = 0{,}80$), telafi derslerinin hafta içi gündüz saatlerinde olması gerektiğini düşünen öğrenenlere kıyasla ($\underline{x} = 4{,}22$; $s = 0{,}79$) canlı derslerden daha çok memnundur.

Öğrenenlerin Telafi Gün-Saat Duyurularına Erişmede Sorun Yaşama Durumları Açısından Canlı Ders Memnuniyetinin İncelenmesi

Öğrenenlerin telafi gün-saat duyurularına erişmede sorun yaşama durumları açısından canlı ders memnuniyetini inceleyebilmek için bağımsız örneklemler t-test yapılmıştır. Analizde Levene istatistiği varyansların eşit olmadığını gösterdiği için analiz sonucunun değerlendirilmesinde eşit olmayan varyanslar seçeneğine bakılmıştır. Sonuçlar Tablo 7'de paylaşılmıştır.

Tablo 7. *Öğrenenlerin Telafi Gün-Saat Duyurularına Erişmede Sorun Yaşama Durumları Açısından Canlı Ders Memnuniyetinin İncelenmesi*

Değişken	Grup	*n*	$\underline{x}$	*s*	*t*	df	*p*
Canlı Ders Memnuniyeti	Evet	247	4,02	0,95	-5,606	315,94	<0,001
	Hayır	1117	4,38	0,74			

Tablo 7'de öğrenenlerin telafi gün-saat duyurularına erişmede sorun yaşama durumları açısından canlı ders memnuniyetinin anlamlı bir biçimde farklılaştığı dikkat çekmektedir ($t(315{,}94) = -5{,}606$; $p<0{,}001$). Telafi gün-saat duyurularına erişmede sorun yaşamadığını belirten öğrenenler ($\underline{x} = 4{,}38$; $s = 0{,}74$), sorun yaşadığını belirten öğrenenlere kıyasla ($\underline{x} = 4{,}02$; $s = 0{,}95$) canlı derslerden daha çok memnundur.

SONUÇ, TARTIŞMA VE ÖNERİLER

Bu çalışmada öğrenenlerin canlı derslere ilişkin görüşleri incelenmeye çalışılmıştır. İlgili inceleme 2021-2022 Akademik Yılı'nın Bahar Döneminde Açıköğretim Sistemi'nde 12 haftalık bir sürede gerçekleştirilen 566 derse katılım gösteren öğrenenleri kapsamıştır. Öğrenenlerin canlı derslere ilişkin görüşleri bir memnuniyet anketi kullanılarak ölçümlenmiş ve öğrenenlerin çeşitli bilgilerinin memnuniyetleri açısından bir farklılık oluşturup oluşturmadığı da değerlendirilmiştir.

Çalışmada elde edilen bulgular, öğrenenlerin canlı derslere daha çok eş zamansız olarak katılım gösterdiklerini göstermiştir. Bir başka ifadeyle, öğrenenler çoğunlukla canlı ders etkinliklerinin kayıtlarını daha sonra izlediklerini ifade etmiştir. Ancak, bu etkinliklere eş zamanlı katılım gösteren öğrenenlerin oranı da kanıksanmayacak düzeydedir. Öte yandan, öğrenenler eş zamanlı ya da eş zamansız olsun canlı ders etkinliklerini ağırlıklı olarak masaüstü/dizüstü bilgisayarlar aracılığıyla takip ettiklerini beyan etmişlerdir. Mobil cihazlar ise biraz daha arka planda kalmıştır. Bu durum, özellikle Anadolum eKampüs platformu özelinde canlı derslerle ilgili yapılacak iyileştirme ve geliştirme çalışmalarında, masaüstü/dizüstü bilgisayarlardaki kullanıcı deneyimlerinin daha çok göz önünde bulundurulmasına işaret etmektedir.

Öğrenenler çoğunlukla canlı ders etkinliklerinin hafta içi akşam saatlerinde gerçekleştirilmesi gerektiğini değerlendirmektedir. Nitekim hafta içi gündüz saatleri, özellikle herhangi bir işte çalışan öğrenenler açısından derslerin eş zamanlı bir şekilde takip edilmesinde birtakım sorunlar oluşturabileceğinden hafta içi akşam saatlerinin gerek öğrenenler gerekse öğretenler açısından daha uygun olacağı düşünülmektedir. Bununla birlikte, öğrenenler daha az oranda bu ders etkinliklerinin hafta içi gündüz saatlerinde olması gerektiğini ifade etmektedir. Diğer taraftan, öğrenenler günü ve saatinde gerçekleştirilemeyen canlı ders etkinliklere yönelik telafi derslerinin çoğunlukla hafta sonu olmasından memnundur. Özellikle hafta içinde bir saate telafi dersinin konulmaması, öğrenenlerin diğer derslerin canlı derslerine kolay bir biçimde katılım göstermelerinin önünü açmaktadır. Zira ders konulduğu takdirde öğrenenlerin o günkü diğer dersleriyle telafi dersi saatinin çakışması durumu söz konusu olabileceği ve öğrenenlerin ilgili derse katılımlarının sağlanamayabileceği değerlendirilmektedir.

Öğrenenlerin telafi derslerinin yapılacağı gün ve saat duyurularına erişmede çoğunlukla sorun yaşamadıkları belirlenmiştir. Dolayısıyla söz konusu duyuruların Anadolum eKampüs platformu üzerinden dersin sayfasında yayınlanıyor olması, çoğu öğrenen için görünür olmaktadır. Diğer taraftan az bir oranda öğrenen, bu duyurulara erişmede sorun yaşadığını beyan etmektedir. Bu bulguyla ilgili yapılacak ileri bir araştırmada öğrenenler tarafından ne gibi sorunlar yaşandığı araştırıldığında ve öğrenenlerin bu konuyla ilgili beklentileri öğrenildiğinde Anadolum eKampüs özelinde gerçekleştirilen araştırma-geliştirme çalışmalarına katkı sunulabileceği düşünülmektedir.

Öğrenenler, canlı ders etkinlikleri/kayıtları öğrenme malzemesini Açıköğretim Sistemi'nde en fazla kullandıkları yardımcı materyallerin başında geldiğini beyan etmiştir. Canlı ders etkinliklerini takip eden öğrenenlerin bu malzemeye yönelik ilgili olma düzeyi yüksek olabileceği ve yüksek ilgili olma durumunda öğrenenlerin canlı ders öğrenme malzemesini ilk olarak tercih edebileceği için söz konusu madde ortalamasının yüksek çıktığı düşünülmektedir. Bununla birlikte öğrenenler, Açıköğretim Fakültesi Öğrenme Teknolojileri Ar-Ge Birimi stüdyolarının dışında ev/ofis ortamında yapılan canlı ders etkinliklerinin teknik açıdan (ses-görüntü-bağlantı kalitesi) yeterli olduğuna ilişkin beyan verseler de ilgili maddeye yönelik ortalamanın diğer ölçek maddelerine oranla daha düşük çıktığı tespit edilmiştir. Bu bağlamda birim stüdyolarının dışında yapılan canlı derslerde zaman zaman kopmalar ve internete bağlı diğer teknik sorunlar yaşanabildiği için bu madde ortalamasının diğer maddelere kıyasla daha düşük çıktığı değerlendirilmektedir. Ayrıca teknik sorun yaşanan derslerdeki öğretenlerin zorunlu haller dışında birim stüdyolarında canlı ders etkinliklerini yapmaları tavsiye edilmektedir.

Canlı ders etkinliklerine gün ve saatinde aktif olarak katılan öğrenenlerin, bu etkinliklerin kayıtlarını daha sonra izleyen öğrenenlere kıyasla canlı derslerden daha memnun olduğu belirlenmiştir. Bu durumun, eş zamanlı olarak öğretene soru sorabilme, sorulara cevap alabilme ve diğer öğrenenlerle dersle ilgili konularda etkileşim kurabilme gibi eş zamanlı canlı derslerin öğrenenlere sağlamış olduğu olanaklardan kaynaklandığı düşünülmektedir. Dolayısıyla her ne kadar önemli bir oranda çalışan öğrenen söz konusu olsa da öğrenenlerin canlı dersleri eş zamanlı olarak takip etmeleri konusunda Anadolum eKampüs platformunda duyurular yapılabilir. Diğer taraftan, öğrenenlerin canlı dersleri takip ettikleri ortamlar açısından memnuniyetlerinde anlamlı bir farklılık olmadığı tespit edilmiştir. Bir başka ifadeyle, öğrenenlerin masaüstü/dizüstü bilgisayarlar ya da mobil cihazlar aracılığıyla canlı dersleri takip etmeleri fark etmeksizin benzer düzeylerde memnuniyete sahip oldukları görülmektedir.

Canlı ders etkinliklerinin hafta içi akşam saatlerinde olmasından memnun olan öğrenenlerin, hafta içi gündüz saatlerinde olması gerektiğini düşünen öğrenenlere kıyasla canlı derslere ilişkin memnuniyetinin daha yüksek olduğu tespit edilmiştir. Bu bağlamda canlı ders etkinliklerinin gelecek dönemlerde hafta içi akşam saatlerinde gerçekleştirilmesi önerilmektedir. Ancak, nispeten küçük sayılabilecek bir oranda öğrenenin bu derslerin hafta içi gündüz saatlerinde olması gerektiğini değerlendirdiği

göz önünde bulundurulmalıdır. Benzer biçimde, telafi derslerinin hafta sonu olmasından memnun olan öğrenenlerin, telafi derslerinin hafta içi olması gerektiğini düşünen öğrenenlere göre canlı derslere ilişkin memnuniyeti daha fazladır. Dolayısıyla telafi derslerinin gelecek dönemlerde hafta sonu yapılmasının, öğrenenlerin memnuniyetini daha fazla artırabileceği düşünülmektedir. Son olarak, telafi gün ve saat duyurularına erişmede sorun yaşamayan öğrenenlerin, erişmede sorun yaşayan öğrenenlere kıyasla daha memnun oldukları görülmüştür. Duyuruların öğrenenler tarafından görülecek bir biçimde Anadolum eKampüs platformu üzerinden sunulması tavsiye edilmektedir.

Her bilimsel çalışmada olduğu gibi bu çalışmada da belirli sınırlıklar söz konusudur. Çalışma 2021-2022 Akademik Yılı Bahar Döneminde gerçekleştirilen 566 dersle ve bu derslere katılım gösteren öğrenenlerle sınırlıdır. Öte yandan çalışma, öğrenen memnuniyetini ders özelinde değil söz konusu dönemde canlı ders olarak verilmekte olan bütün dersler genelinde incelemektedir. İleri yapılacak çalışmalarda özellikle öğrenen sayısının fazla olduğu dersler özelinde memnuniyet incelemesi yapılabilir. Ayrıca dönemsel olarak uygulanan memnuniyet araştırmaları önceki dönemlerle karşılaştırmalı bir biçimde irdelenerek memnuniyetin nasıl değişim gösterdiği de tespit edilebilir. Böylelikle elde edilecek bulgular aracılığıyla Anadolum eKampüs özelinde gerçekleştirilen araştırma-geliştirme faaliyetlerine destek sağlanabilir.

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Açık ve Uzaktan Öğrenme Uygulamalarında Bilişüstü Öğrenme Stratejilerinin Kullanımı

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Özet

Bilişüstü öğrenme yüksek düşünme yetisi, aktif kontrol ve objektif değerlendirme süreçlerini ifade eder. Bilişüstü farkındalık geliştirilmesi, yetişkin eğitiminde yaşam boyu öğrenme sürecini kapsayan öğrenme yolunda strateji oluşturulmasını kolaylaştırır. Bilişüstü öğrenmede öğretenin aktif, öğrenenin pasif rolde olduğu geleneksel öğrenme ortamlarına göre daha öğrenen merkezli bir yaklaşım benimsenmektedir. Bu şekilde öğrenenin hangi bilgi türünü, hangi yollarla kalıcı şekilde edineceğinin belirlenmesi etkili öğrenme deneyimi için önem teşkil etmektedir. Bilişüstü öğrenme stratejisi, öğrenenlerin öğrenme yolculuklarının her aşamasını farkında olarak yürütmelerinin onların öğrenme deneyimlerini daha etkili kılmaktadır. Öğrenenler kendi öğrenme süreçlerinde bilişsel yeteneklerinin, eksikliklerin ve çözümlerin bilincinde olarak süreç yönetiminde aktif rol alırlar. Uzaktan öğrenmede, öğrenenlerin yetenek, algı ve biliş düzeylerinin farkında olarak, ihtiyaç ve yeteneklerine göre öğrenme deneyimlerini artırmak amacıyla sürecin kontrolünü verimli bir uzaktan eğitim deneyimi mümkün hale getirebilir. Bu çalışmada, yetişkin eğitiminde ve uzaktan eğitimde öğrenme deneyimlerinin artırılması ve güçlendirilmesi amacıyla açık ve uzaktan eğitimde bilişüstü öğrenme stratejilerinin kullanımı bağlamında bilişüstü öğrenmenin önemi ele alınmış ve ilgili çalışmalara yer verilmiştir.

Anahtar Kelimeler: *Bilişüstü Öğrenme Stratejisi, Yetişkin Öğrenmesi, Farkındalıklı Öğrenme.*

GİRİŞ

1979 yılında Flavell tarafından yapılandırılan üstbiliş kuramı; bireyin öğrenme yönteminin, sürecinin ve kazanımı geri çağırma süreçlerinin farkında olarak, bilinçli öğrenmeyi başarabilmesi olarak tanımlanabilir. Kişinin öğrenirken zihninde gerçekleşen tahmin, plan, izleme ve değerlendirme kabiliyetlerini ve bunların farkında olarak yapılması öğrenme etkinliğinin niteliğini artırır. Öğrenilen bilginin neden, nasıl, niçin/nerede kullanılmak üzere öğrenildiğini kendinin bilmesi, bu soruların cevaplarını yalnızca öğretenin bilerek ve yönlendirmesiyle öğrenmesinden daha kalıcı ve etkili bir öğrenme durumunu sağlar. Flavell (1979) üstbiliş kavramını; öğrenilen girdileri bilinçli şekilde yapılandırması ve belleğe alınması, bellekte bulunan bilgilerin taranması ve içlerinden gerekli olan bilginin bulup çıkarılması işlemi ve bellekte bulunan bilgileri izleme işlemleri ve depolanmış bilgilerin bilincinde olma olarak açıklamıştır (Flavell, 1979).

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Yaşam boyu öğrenme öğrenilenden ve öğretenden bağımsız olarak kendi öğrenme sürecinin farkında olan bireylerin başarılarının daha kalıcı olduğu düşünülmektedir. Paralel bir şekilde yapılandırmacı öğrenme kuramında, öğrenenlerin keşfederek, deneyimleyerek ve yorumlayarak öğrenmeleriyle öz farkındalıklarını geliştirip başarılı öğrenen olmaya çalıştıkları söylenebilir. Öğretenin aktif, öğrenenin pasif rolde olduğu geleneksel öğrenme ortamlarına göre daha öğrenen merkezli bir yaklaşım benimsenmektedir. Bu şekilde öğrenenin hangi bilgi türünü, hangi şekilde kalıcı edineceğinin belirlenmesi tam öğrenmenin sağlanması adına önem teşkil etmektedir.

Bilişüstü öğrenme stratejisi, öğrenenlerin öğrenme yolculuklarının her aşamasını farkında olarak yürütmelerinin onların öğrenme deneyimlerini daha etkili olmasına yardımcı olabilir. Öğrenenler kendi öğrenme süreçlerinde bilişsel yeteneklerinin, eksikliklerin ve çözümlerin bilincinde olarak süreç yönetiminde aktif rol alırlar. Bu nedenle hem yüz yüze eğitimde hem de otonominin ana etken olarak rol oynadığı uzaktan eğitimde bilişüstü öğrenme stratejilerinin benimsenmesi, öğrenilmesi ve öğretilmesinin öğrenme deneyiminin zenginleştirilebileceği düşünülmektedir. Bilişüstü öğrenme stratejilerinin uzaktan eğitimle harmanlanırken yol göstermesi amacıyla, yapılmış olan çalışmaların incelenmesi bütünsel bir bakış açısının oluşturulması ve yetişkin öğrenmesinde kullanılmasına yönelik genel bir çerçeve çizmek amaçlanmıştır.

BİLİŞÜSTÜ ÖĞRENME

Brown (1987), üstbiliş ile bilişin farkında olunması ve bu farkındalığın karşılaşılan uygun durumlarda uygun şekilde kullanılması olarak değerlendirir. Brown'a göre, bilişsel öğretimde çoğunlukla durumlara uygun stratejilerin kazandırılmasına önem verilirken üstbilişsel öğretimde bu stratejilerin kontrol edilmesi ve sürecin izlenmesi yer alır. Flavell(1979) ve Brown'un(1980) çalışmalarına göre üstbiliş kuramı, üstbilişsel bilgi ve üstbilişsel kontrol olmak üzere iki ana başlık altında incelenir (Flavell, 1979; Brown, 1980):

Üstbilişsel bilgi; yapılacak işin veya öğrenilecek bilginin nasıl başarı ile yapılacağını veya kazanılacağını içeren yordam bilgisi; bireyin bilgiyi veya görevi edinme veya yapabilme kabiliyetinin kendinde bulunup bulunmadığının kendinin farkında olmasını içeren bildirimsel bilgi; bireyin karşılaştığı durumlara karşı bilgiyi kullanabilmesini birey, görev ve strateji değişkenlerine göre sınıflandıran duruma dayalı bilgiyi ifade eder. Üstbilişsel bilgi genel olarak, öğrencilerin kendilerinin ve çevredeki öğrenenlerin bilişsel süreçlerinin farkında olmalarını ifade eder (Stolp, Zabrucky, 2009).

Bir diğer başlık üstbilişsel kontrol ve düzenlemedir. Üstbiliş, bireyin kendi zihinsel faaliyetleri üzerinde tahmin etme, plan yapma, izleme ve değerlendirme gibi yeteneklerini kapsar (Brown, 1980). Tahmin, planlama, izleme ve değerlendirme olmak üzere dört tür üstbilişsel beceri söz konusudur. Bu beceriler öğrenenin kontrollü öğrenme süreci öğrenimin kalitesini artıracaktır. Dört alt boyutta izlenen bilişüstü süreçleri planlamada görev-zaman parametrelerini hesaba katarak farkındalıklı öğrenen,

bir görevin zorluğunu, basamaklarını, edinilme yollarını ve edinimi ölçme yollarını kendi biliş ve algı durumlarına göre farkına vararak ilerlemektedir. Strateji seçiminde ise bilişüstü deneyim ve bilgileriyle birlikte göreve ilişkin tasarımladıkları işlemleri göz önünde bulundururlar. Eylem planını uygularken de hazırlanan stratejide karşılaşılan engellere uygun çözümler üretir, sürecin sorunsuz devam edebilmesi için bilgi birikimini ve uygulama şeklini kontrol ederler. Son olarak değerlendirme sürecinde öğrenme sürecini ne kadar iyi deneyimlediklerini, varsa eksikleri farklı ne şekilde çözebileceklerini, izlenen bilişsel işlem adımlarının farklı alanlarda da nasıl kullanılabileceklerini değerlendirdikleri ve genel olarak öz değerlendirme yaptıkları bir öğrenme yolculuğunu tamamlarlar.

Bilişötesi farkındalıklı öğrenme sürecinde dikkat edilecek ilkeleri Lin (2001), öğrenenin bildiklerini ve bilmediklerini ölçümlemesi için olanak yaratılması, öğrenenin duygu ve düşüncelerini paylaşmalarına imkân verilmesi, etkinliklerin amaçlarının ve neden yapıldığının farkındalığı, öğrenenin edindiği bilginin/davranışın yaşantısındaki yansımalarını fark etmesi şeklinde sıralamıştır. Öğrenenler, güçlü ve zayıf yönlerini keşfetmeyi ve zayıf yönlerini güçlendirmeyi hedefleyerek etkili bir öğrenme süreci deneyimlemeyi amaçlar. Benzer şekilde Kuiper de öğrenenin öğrenme yolculuğunda yapılacak görevlerden önce, görev esnasında ve sonrasında kendisiyle iletişimde kalarak farkındalıklı ilerlemenin önemini vurgulamıştır (Kuiper, 2002). Kuiper'e (2002) göre ilkeler kısaca şöyle tanımlanabilir: problemin çözme yolunun açıklanması, seçilmesi ve uygulanması aşamalarındaki farkında olma ve uygun öğrenme sürecinin ve çevresinin yapılandırılması, etkinliklerle analiz. Dunlop ve Grabinger'e göre de yapılandırmacılık öğrenme sürecinde temel ilke öğrenenin kendi öğrenme sürecini kontrolüdür (Dunlop, Grabinger, 1996). Bu kontrolü sağlayacak olan da öğrenenin bilişötesi becerilerinin farkında olmasıdır. Bu ilke öğrenenlerin süreci yansıtmalarından ve karşılaştırmalar yaparak seçilen stratejinin verimliliğinin keşfedilmesinden bahseder. Lebow'a göre yapılandırmacı süreçte temel ilke, öğretenin öğrenene teşvik ve destek ile öğrenenin sorumluluk alarak bağımsızlığın desteklenmesidir (Lebow, 1993).

Yapılandırmacı Öğrenme Çevrelerinin Bilişüstü Öğrenme Stratejileriyle Geliştirilmesi

Öğrenenler, düşünme biçimleri, öğrenme yöntemleri, zihinsel anlamda güçlü yönlerini yansıtabilen, öğrenme ve performans amaçlarını belirleyebilen, uygun öğrenme stratejilerini seçebilen ve hedefleri doğrultusunda öğrenme sürecindeki gelişimini izleyebilenler olarak görülmektedir. Farkındalıklı öğrenenler, hedeflerine ulaşmada sistematik alternatif yöntemler yaratabilmektedirler. Hedeflenen çıktıların kazanılamaması durumunda daha önce belirledikleri amaçların uygunluğunu tekrar test edebilirler. Bu nedenle bilişüstü öğrenme stratejilerinin geliştirilmesi, yapılandırmacı öğrenme çevrelerinde olan öğrenen merkezli öğrenme bilişsel ve bilişüstü ilkelerle birlikte değerlendirilebilir. Yapılandırmacı yaklaşım bir öğretim kuramı değil, daha çok felsefedir; dünyayı görme ve algılama şeklidir, bilgi ve öğrenmenin doğasıyla ilgili bir yaklaşımdır. (Yurdakul, 2010). Dolayısıyla yapılandırmacılık, öğrenmenin subjektif bir süreç olduğu keşfetme, sorgulama, yorumlama, tartışma ile öğrenci katılımının aktif rol oynadığı bir yaklaşımdır.

Yetişkin Eğitiminde Öz Disiplinin, Öz Farkındalığın ve Otonominin Önemi

Yaşam boyu öğrenme ile birey yalnızca zorunlu eğitim süresince öğrenmeyi tecrübe etmez, bununla birlikte öğrenme deneyimleri yaşamının her anında devam eder. Öğrenme, yaşam boyu formal, non-formal, informal şekilde devam etmektedir. Bu nedenle öğrenme yolculuğunun bilinçli bir şekilde yürütülmesi, zorunlu eğitimden henüz çıkmış öğrenenin öğrenme isteğinin sürdürülebilirliği açısından önemlidir. Aksi halde öğretene bağımlılık ve zorundalık hissi bilginin kalıcı edinimini ve davranışa yansımasını engelleyebilir. Bruner (1966), çağdaş bilgi toplumunda okulların çocukları eğitici olduğu kadar toplumdaki yerini almaları amacıyla donatmak için bir sosyalleştirme ve biçimlendirme işlevi gerçekleştirdiklerinin ya da yenilikçi bir uygulama yapabilen bireyler yarattığını belirtmiştir. Bruner (1966), Bir Eğitim Teorisine Doğru isimli klasik çalışmasında (Toward a Theory of Instruction) öğretene bağımlılığı şöyle ifade etmiştir: … *resmileştirilmiş öğretim gibi herhangi bir didaktik sürecin aslında bağımsızlıktan ziyade öğrenicide bir bağımlılık duygusu yaratmaya yardımcı olduğu iddia edilebilir. Çocuklar yetişkin olduklarında, öğretmenlerin onlara talimat vermesini beklemeyi öğrenmiş olacaklar.* Dolayısıyla bilişüstü stratejilerin benimsendiği bir öğrenme ortamıyla birlikte Bruner'in eleştirdiği öğreten merkezli sistemdeki öğretene bağımlılık azaltılabilir. Bu sayede bireye kendine ait bir sistemle çalışmanın öğretilmesi ile yaşam boyu öğrenmede gerekli olabilecek alışkanlıklar kazandırılarak öğrenme yolculuğuna ışık tutulabilir.

Bilişüstü farkındalık geliştirilmesi, yetişkin eğitiminin sürekli ve yaşam boyu öğrenme sürecini kapsayan öğrenme yolunda strateji oluşturulmasını kolaylaştırır. Öğrenciler kendi düşünce süreçleri üzerinde düşünebilmeyi öğrenirler ve zor işlerde kendi başlarına düşündükleri belirli öğrenme stratejilerini uygularlar. Bu kapsamda öğrenenin becerilerinin farkına varması, öğrenme sürecini tanımlamasında ve tasarlamasında ilk adım olacaktır. Etkili öğrenen öğrenciler (bilişüstü farkındalığı olanlar) aynı zamanda öz düzenleyicilerdir.

Yetişkin eğitiminde, pedagojik eğitimden farklı olarak dışsal bir motivasyon kaynağı olarak bir çıkar gözetimi söz konusudur. Bir sertifika, bir terfi beklentisi, statü kazanımı gibi çeşitli beklentilerden oluşan motivasyon, öğrenme sürecinin mümkün olan en kısa süre ve en verimli yolu belirlemek için yeterli olmalıdır.

Bilişüstü Öğrenme Stratejilerinin Geliştirilmesi

Öğretimin temeli, öğrenme çıktılarının öğrenenler tarafından bilişsel kazanımını sağlamaktır. Bu nedenle davranışçı öğrenme kuramında uyarıcı ile davranış arasında bağ kurulurken, bilişsel öğrenmede öğrenilen hakkındaki algıların zihinsel olarak yeniden düzenlenmesi söz konusudur. Öğretmenler, öğrenme sürecinin nasıl gerçekleştiğini anlayabilirlerse, faaliyetlerinin verimli olmasını ve önceden belirlenen sonuçlara ulaşmasını sağlamak için çaba sarf edebilirler (Jarvis, 2004). Eğer öğretmenler bilişüstü öğrenmeyi öğrencilerini geliştirebilirlerse onlara yaşam boyu öğrenme süreçlerinde gerekli olacak yolu çizmeyi öğretmiş olup onlara kendi öğrenme yolculuklarını keşfetme imkanını sağlayabilirler. Bu nedenle bilişüstü öğrenmenin geliştirilmesi ve aktarılması, kendi öğrenme deneyimini yaşayan ve tanıyan öğrenen yetiştirme konusunda oldukça önem arz etmektedir.

Bilişüstü öğrenme yüksek düşünme, aktif kontrol ve objektif değerlendirme süreçlerini ifade eder. Bilişüstü öğrenmenin öğretiminde doğrudan öğretim, yapılandırılmış uygulamalı öğretim, bilişsel rehberlik ve işbirlikli öğrenme teknikleri yoluyla öğretim olmak üzere dört çeşit yaklaşımdan söz edilmektedir (Gelen, 2003). Yapılan araştırmalara göre bilişüstü öğrenme stratejisinin öğretiminde en çok tercih yöntem yapılandırılmış uygulamalı öğretimdir (Özsoy, 2008). Yapılandırılmış uygulamalarla bilişüstü strateji öğretilirken öğrenenin ileride kendine sorması istenen sorular, öncelikli olarak öğretmen tarafından ona yönlendirilir. Bu süreç sonucunda öğrenen, kendi zayıf ve güçlü yönlerinin farkına varıp öğrenme kimliğini analiz eder hale gelebilir.

Blakey ve Spence (1990) tarafından düşünmeyi düşünme olarak tanımlanan bilişüstü öğrenme bireyin biliş yapısını ve çalışma şeklini tanıması olarak yorumlanabilir. Bilişüstü stratejileri geliştirmek için sırasıyla ne bildiğini/bilmediğini tanımlama, düşündüklerini ifade etme ve düşünceler için bir ajanda tutma, plan yapma ve kendini izleme, düşünme sürecini sorgulama ve kendini değerlendirme yolları izlenir. Öğretmen öğrenciye "Konu hakkında ne biliyorum ve neleri öğrenmek istiyorum?" sorusunu sorar ve onlardan bildiklerinin ve beklentilerinin farkına varmalarını sağlar. Ardından düşüncelerini ifade etmelerini ve bu alışkanlığın düzenli hale getirilmesi için düşünme ajandası tutmaya yönlendirir. Düşüncelerin ifade edilmesi ve not alınması, daha sonraki öğrenme yolculuklarında benzer sorunlarla karşılaşılması halinde yol gösterici olacaktır. Aynı zamanda belirsizliklerin ve zorlukların giderilmesinde strateji belirlemelerine yardımcı olacaktır. Öğrenenlerin plan yapmada ve uygulama esnasında kendilerini objektif olarak izleme davranışlarında sorunlar yaşanır. Bu sebeple öğrenciler plan yapma ve kendi öğrenmelerini düzenleme konusunda artan bir sorumluluğa sahip olmalıdırlar (Özsoy, 2008). Düşünceleri sorgulama aşamasında öğretmen, öğrencilerin süreç sonunda izledikleri stratejilerini ve düşünce yapılarını değerlendirmeye yönlendirir. Böylelikle öğrenciler hangi noktada ne gibi eksikliklerinin olduğunu fark ederek alternatif yollar üretirler. Son olarak her öğrenme sürecinin nihai aşaması olan değerlendirme aşamasına gelinir. Bu aşamada öğrenen kendini ve öğrenme stratejisini değerlendirir ve farklı alan ve disiplinlerde öğrenme yollarındaki benzerliklerini görme imkânı bulur.

Uzaktan eğitimde eğitimi nitelikli hale getirilebilmesi için; öğretenler, öğrenim tasarımı ile öğrenme sürecini sistematik bir şekilde planlayabilirken, öğrenenler de öz disiplin ve otonomi geliştirerek öğrenme sürecini kontrollü ve bilinçli şekilde ilerletebilir.

Baltaş (2004), bilgisayar tabanlı eğitimlere katılanların çoğunluğunun programı tamamlamadan bıraktığı ve bu konuda yapılan araştırmaların tümünün bu durumun, içeriklerin ve eğitim tasarımının niteliğinden kaynaklandığı konusunda birleştiğini belirtir. Bu kapsamda öğrenim tasarım sürecinin öğrenenleri aktif katılan hale getirecek şekilde düzenlenmesi eğitimin devamı ve verimliliğine katkı sağlayabilir. Öte yandan, teknoloji, insan çabasını daha etkin, daha değerli ve daha anlaşılabilir kılmak için bir araçtır. Ancak bu aracı kendi olanakları ve hedefleri doğrultusunda kullanan insanın kendisidir (Baltaş, 2004). Uzaktan öğrenmede, öğrenenlerin yetenek, algı ve biliş düzeylerinin farkında olarak, ihtiyaç ve yeteneklerine göre öğren-

me deneyimlerini artırmak amacıyla sürecin kontrolünü verimli bir uzaktan eğitim deneyimi mümkün hale getirebilir. Aydemir (2019), üstbiliş eğitimi alan ve almayan uzaktan eğitim öğrencilerinin üstbilişsel farkındalık seviyelerini incelediği çalışmasında üstbiliş eğitiminin uzaktan eğitim öğrencilerinin üstbiliş farkındalık seviyeleri üzerinde etkili olduğu sonucuna ulaşmıştır. Bu sonuç, bilişüstü öğrenme stratejilerinin öğrencilere aktarılmasıyla kendi öğrenme eğilimlerinin farkına varmaları ile bağdaştırılabilir.

SONUÇ

Dijital teknolojilerin eğitimde artan hızda kullanılması ile birlikte uzaktan eğitimin verimliliği önem kazanmıştır. Yetişkin eğitiminde ve uzaktan eğitimde öğrenme deneyimleri ağırlıklı olarak otonomiye dayandığından bilişüstü öğrenme stratejisinin açık ve uzaktan eğitimde kullanılması öğrenen başarısını olumlu yönde etkileyebilir. Uygulamada bilişüstü öğrenme stratejisinin uzaktan eğitimde çok fazla tercih edilmemesi sebebiyle bu çalışmada, bilişüstü öğrenme stratejilerinin öğrenenler üzerindeki etkilerinin incelendiği makaleler sistematik taranarak, yetişkin öğreniminde bilişüstü öğrenme stratejilerinin kullanımı konusunda bütünleşik bir görünüm oluşturmak gerekli görülmüştür.

Bilişüstü öğrenme stratejisi, öğrenenlerin öğrenme yöntemlerini keşfetmelerini sağlayan soruları kendilerine sormalarını sağlayarak, öğrenme deneyiminin niteliğini artırmayı amaçlar. Kendi öğrenme yöntemlerini fark eden öğrenenler yaşam boyu öğrenme deneyimlerinde sistematik bir bilgi alımının adımlarını planlayabilir ve değerlendirebilir hale gelebilirler. Bilişüstü öğrenme stratejisi, uzaktan eğitim ve yetişkin eğitiminde öğrenen merkezli yöntemlerin geliştirilmesine katkıda bulunarak hedeflenen çıktıların edinilmesine yardımcı olabilir. Farkındalıklı öğrenmenin kazanılması sonucu sonraki öğrenme etkinliklerinde de verimlilik artışı gözlenebilir. Öğrenme sürecinin planlanması, yürütülmesi ve değerlendirilmesi adımlarının tamamının öğreten tarafından üstlenilmesi yerine öğrenenin kendi öğrenme yolculuğunu keşfetmesine olanak sağlayan bilişüstü öğrenme stratejilerinin uzaktan eğitimde başarının artmasına katkıda bulunacağı söylenebilir. Bilişüstü öğrenme stratejisinin benimsendiği bir açık ve uzaktan öğrenme ortamı ile birlikte öğreten merkezli sistemdeki sorunlardan biri olan öğretene bağımlılığın önüne geçilebilir. Bu sayede öğrenenler, yaşam boyu öğrenme yolculuğunda gerekli basamakları, olası sorunları ve çözümleri keşfetme imkânı bulabilirler. Öğrenenin kendini izleyerek oluşturduğu bir sistemle çalışmayı alışkanlık olarak kazanması kalıcı öğrenme yolculuğuna ışık tutabilir.

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Covid-19 Pandemi Döneminde Öğretmen Adaylarının Dijital Okuryazarlık Düzeylerinin Çeşitli Değişkenler Açısından İncelenmesi

Damla AYDUĞ[1], Hakan ALTINPULLUK[2]

Özet

Bu araştırmanın amacı, öğretmen adaylarının kendi dijital okuryazarlık düzeylerine yönelik görüşlerinin çeşitli değişkenler açısından incelenmesidir. Tarama modelinde olan araştırmanın evrenini, 2021-2022 eğitim-öğretim yılı bahar döneminde bir devlet üniversitesinde ve bir özel üniversitede okuyan toplam 3922 öğretmen adayı, örneklemini ise 223 öğretmen adayı oluşturmuştur. Araştırmanın verileri; "Kişisel Bilgi Formu" ve "Dijital Okuryazarlık Ölçeği" ile elde edilmiştir. Araştırma sonuçları, öğretmen adaylarının dijital okuryazarlık düzeylerinin yüksek olduğunu göstermiştir. Ölçeğin alt boyutları olan tutum, teknik, bilişsel ve sosyal alt boyutlarında da öğretmen adaylarının dijital okuryazarlık düzeylerinin yüksek olduğu belirlenmiştir. Öğretmen adaylarının en yüksek ortalamaya sahip oldukları alt boyutun ise tutum boyutu olduğu belirlenmiştir. Kadın ve erkek öğretmen adaylarının puanlarının teknik alt boyutu açısından farklılaştığı ve bu farklılığın erkek öğretmen adaylarının puanlarının kadın öğretmen adaylarından daha yüksek olmasından kaynaklandığı görülmüştür. Öğretmen adaylarının dijital okuryazarlık düzeylerinin yaşa göre farklılaşmadığı saptanmıştır. Öğretmen adaylarının dijital okuryazarlık düzeylerinin okudukları üniversite türüne (vakıf/devlet) göre de farklılaşmadığı ortaya konmuştur. Son olarak öğretmen adaylarının dijital okuryazarlık düzeylerinin sınıf düzeyine göre değişiklik gösterdiği ve bunun sonucunda 4. sınıfta okuyan öğretmen adaylarının puanlarının diğer sınıflarda okuyan öğretmen adaylarının puanlarından yüksek olmasından kaynaklandığı saptanmıştır. Araştırmanın son bölümünde bulgular doğrultusunda bazı öneriler sunulmuştur.

***Anahtar kelimeler**: Dijital okuryazarlık, Öğretmen adayları, Nicel araştırma.*

GİRİŞ

21. Yüzyıl becerileri arasında yer alan temel becerilerden biri bilgi, medya ve teknoloji becerileridir (Partnership for 21st Century Learning, 2015). Bir bireyin bilgi, medya ve teknoloji becerileri konusunda yetkin olabilmesi dijital okuryazarlık becerisine sahip olmasını gerektirmektedir. Dijital okuryazarlık, bireylerin bilgiyi doğru ve inovatif bir biçimde kullanma, çok sayıdaki kaynaktan elde edilen bilgilerden ilgili olanı ayırt edebilme, bilgiye erişim ve kullanım ile ilgili ahlaki ve hukuki konular bağlamında temel bir görüşe sahip olma gibi yeterliliklere işaret etmektedir (Trilling ve Fadel, 2009). Dijital okuryazarlık, istihdam ve girişimcilik için dijital teknolojiler aracılığıyla güvenli

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ve uygun bir şekilde bilgiye erişme, bilgiyi yönetme, anlama, entegre etme, iletişim kurma, değerlendirme ve oluşturma yeteneği olarak tanımlanmaktadır (Law, Woo ve Wong, 2018).

Gerek günümüzde yaşanan teknolojik gelişmelerin hızı gerekse dünyada yaşanan küresel salgın krizi dijital okuryazarlığın öneminin artmasına yol açmıştır. Dijital yerliler olan Z kuşağını yetiştirecek öğretmen adaylarının ise dijital okuryazarlık düzeylerinin yüksek olmasının daha da önemli olduğu düşünülmektedir. Öğrencilerinin dijital okuryazarlık seviyelerini arttırma görevine sahip olan öğretmenlerin öncelikle kendilerinin bu konuda yeterlilik sahibi olmaları gerekmektedir. Bu nedenle öğretmen adaylarının dijital okuryazarlık düzeyleri incelemeye değer görülmüş ve araştırmanın asıl amacı, öğretmen adaylarının dijital okuryazarlık düzeylerine yönelik görüşlerinin çeşitli değişkenler kapsamında incelenmesi olarak sunulmuştur. Araştırmanın alt amaçları ise şunlardır:

- Öğretmen adaylarının dijital okuryazarlık düzeylerine yönelik görüşleri nelerdir?
- Öğretmen adaylarının dijital okuryazarlık düzeylerine yönelik görüşleri cinsiyet, yaş, üniversite türü ve sınıf düzeyi değişkenlerine göre anlamlı bir farklılık göstermekte midir?

YÖNTEM

Araştırma Modeli

Araştırma, tarama modeli kullanılarak desenlenmiştir. Tarama modelinin tercih edilmesinin nedeni öğretmen adaylarının dijital okuryazarlık düzeyleri ile ilgili görüşlerinin var olduğu şekliyle betimlenmesinin amaçlanmasıdır.

Evren ve Örneklem

Araştırma evrenini 2021-2022 eğitim-öğretim yılı bahar döneminde bir devlet üniversitesinde ve bir özel üniversitede okuyan toplam 3922 öğretmen adayı oluşturmaktadır. Örneklemin belirlenmesinde basit tesadüfi örnekleme yönteminden yararlanılmıştır. Örneklemi 223 öğretmen adayı oluşturmuştur. Araştırma örnekleminde yer alan öğretmen adaylarına ait demografik bilgiler Tablo 1'de sunulmaktadır.

Tablo 1. Araştırma örnekleminde bulunan öğretmen adaylarına ait demografik bilgiler

Özellik	Değişken	f	%
Cinsiyet	Kadın	148	66.37
	Erkek	75	33.63
Yaş	17-18	14	6.28
	19-20	89	39.91
	21-22	87	39.01
	23-24	21	9.42
	25 ve üzeri	12	5.38
Üniversite Türü	Devlet	196	87.89
	Özel	27	12.11
Sınıf Düzeyi	1	42	18.83
	2	86	38.57
	3	83	37.22
	4	12	5.38
Toplam		223	100,0

Veri Toplama Araçları

Dijital Okuryazarlık Ölçeği: Ng (2012) öncülüğünde geliştirilen ve Hamutoğlu ve diğerleri (2017) tarafından Türkçe'ye uyarlanan ölçekten yararlanılmıştır. Ölçek; tutum, teknik, bilişsel ve sosyal olmak üzere 4 alt boyut ve 17 maddeyi içermektedir. Ölçeğin geçerlik çalışması kapsamında, Hamutoğlu ve diğerleri (2017) tarafından 185 öğrenciden elde edilen veriler ile faktör analizi yapılmış ve ölçeğin 4 faktörden oluştuğu saptanmıştır. Bu 4 faktör tarafından açıklanan toplam varyans %65,78'dir. 7 maddeden oluşan tutum boyutu varyansın %10,52'sini, 6 maddeden oluşan teknik boyutu %44,04'ünü, 2 maddeden oluşan bilişsel boyutu ise %6,00'ını ve 2 maddeden oluşan sosyal boyutu %5,22'sini açıklamaktadır. Ölçeğin açımlayıcı faktör analizi sonucu elde edilen dört faktörlü yapısını doğrulamak amacıyla 210 öğrenciden elde edilen bir veri seti üzerinde doğrulayıcı faktör analizi de uygulanmıştır. Doğrulayıcı faktör analizi sonucunda modelin uyum değerlerinden, $\chi 2=268.45$, sd=113 (p=0.00), RMSEA=.071, GFI=.93, AGFI=.91, CFI=.98, NFI=.96, NNFI=.97 ve SRMR=.05 olarak bulunmuş ve ölçeğin faktör yapısının doğrulandığı belirlenmiştir. Ayrıca ölçeğin yapısı ikinci düzey DFA yapılarak da doğrulanmıştır [($\chi 2=286.60$, Sd=115, p=.00), RMSEA=.074, GFI=.96, AGFI=.92, CFI=.97, NFI=.96, NNFI=.97 ve SRMR= .048]. Araştırmada 185 öğrenciden ulaşılan veriler üzerinden iç tutarlılık katsayısı hesaplanmış ve ölçeğin tümü için .93, tutum alt boyutu için .88, teknik alt boyutu için .89, bilişsel alt boyutu için .70 ve sosyal alt boyutu için .72 olarak bulunmuştur. Ayrıca araştırmacılar ölçeğin test tekrar test güvenirliğini de hesaplamışlardır. Test tekrar test yöntemi ile hesaplanan güvenirlik katsayıları ölçeğin tümü için .98, Tutum alt boyutu için .89, Teknik alt boyutu için .90, Bilişsel alt boyutu için .87 ve Sosyal alt boyutu için .79 olarak belirlenmiştir (Hamutoğlu vd., 2017).

Bu araştırma için Dijital Okuryazarlık Ölçeği'nin güvenirlik ve geçerlilik değerleri yeniden hesaplanmıştır. Ölçeğin geçerliğini belirlemek üzere yapılan doğrulayıcı faktör analizi sonucunda erişilen uyum indeksleri ((χ2/sd)= 2.015, RMSEA=0.073, CFI=0.958, TLI=0.948, SRMR=0.051) de ölçeğin dört boyutlu yapısının geçerli olduğunu istatistiksel olarak göstermektedir. Ölçeğin iç tutarlılık anlamındaki güvenirliği (α) ölçeğin tamamı için .950, tutum alt boyutu için .929, teknik alt boyutu için .925, bilişsel alt boyutu için .714 ve sosyal alt boyutu için .750 olarak hesaplanmıştır.

Kişisel Bilgi Formu: Katılımcıların demografik verilerini elde etmek amacıyla araştırmacı tarafından hazırlanan ve içerisinde öğretmen adaylarının yaş, cinsiyet, sınıf düzeyi, okudukları üniversite gibi özelliklerine ilişkin soruların bulunduğu bir formdur.

Verilerin Analizi

Verilerin analizi gerçekleştirilirken betimleyici istatistikler, bağımsız örneklem t testi ve tek yönlü varyans analizi tekniğinden yararlanılmıştır. Analizlerden önce verilerin normal dağılım gösterip göstermediği incelenmiş ve kullanılacak testlere bu doğrultuda karar verilmiştir. Verilerin basıklık ve çarpıklık değerleri –1 ile +1 arasında değiştiğinden dolayı, verilerin analizinde parametrik testlerden yararlanılmıştır. Araştırma verilerinin çözümlenmesinde SPSS 24.0 programından faydalanılmıştır.

Araştırmanın ilk alt amacına yönelik bulgular elde etmek için öğretmen adaylarının Dijital Okuryazarlık Ölçeği'nden aldıkları puanlar doğrultusunda aritmetik ortalama, standart sapma, en düşük puan ve en yüksek puan değerleri hesaplanmıştır. Araştırmada öğretmen adaylarının dijital okuryazarlık düzeylerine ilişkin görüşleri ile cinsiyet ve üniversite türü değişkenleri arasında anlamlı bir farklılık olup olmadığını açığa çıkarmak amacıyla bağımsız örneklem t testinden faydalanılmıştır. Bağımsız örneklem t testindeki farklılıklara neden olan etkinin derecesini belirlemek amacıyla alanyazında önerilen etki büyüklüğü değeri olarak Cohen's d (Fritz, Morris ve Richler, 2012) değeri de hesaplanmıştır.

Araştırmada öğretmen adaylarının dijital okuryazarlık düzeylerine ilişkin görüşleri ile yaş ve sınıf düzeyi değişkenleri arasında anlamlı bir farklılık olup olmadığını belirleyebilmek adına tek yönlü varyans analizi (ANOVA) tekniğinden yararlanılmıştır. Tek yönlü varyans analizi sonucunun anlamlı olduğu ve varyansların homojen olduğu durumlarda post hoc testi olarak Tukey testinden, varyansların homojen olmadığı durumlarda ise Dunnet's C testinden yararlanılmıştır. Tek yönlü ANOVA testindeki farklılıklara sebep olan etkinin derecesini saptayabilmek amacıyla alanyazında önerilen etki büyüklüğü değeri olarak eta kare (Ialongo, 2016) değeri de hesaplanmıştır.

BULGULAR

Araştırmanın ilk alt amacı "Öğretmen adaylarının dijital okuryazarlık düzeylerine ilişkin görüşleri nelerdir?" olarak belirlenmiştir. Bu amaç ile ilişkili olarak öğretmen adaylarının Dijital Okuryazarlık Ölçeği'nden aldıkları puanlara ilişkin betimleyici istatistikler Tablo 2'de sunulmuştur.

Tablo 2. *Öğretmen adaylarının dijital okuryazarlık düzeylerine ilişkin görüşlerine yönelik betimsel istatistik değerleri*

Değişken	n	$\bar{X}$	ss	Min	Max
Tutum	223	3.91	0.94	1.00	5.00
Teknik	223	3.52	0.97	1.00	5.00
Bilişsel	223	3.54	0.98	1.00	5.00
Sosyal	223	3.53	1.05	1.00	5.00
Dijital Okuryazarlık	223	3.68	0.85	1.00	5.00

Araştırmanın ilk alt amacına yönelik bulgular elde etmek için yapılan analizler sonucunda öğretmen adaylarının dijital okuryazarlık düzeylerine ilişkin görüşlerinin "Yüksek" ($\bar{X}$=3.68, ss=0,85) düzeyinde olduğu belirlenmiştir. Dijital okuryazarlık düzeyleri ölçeğin alt boyutları bağlamında incelendiğinde, öğretmen adaylarının tutum ($\bar{X}$=3,91, ss=0,94), teknik ($\bar{X}$=3,52, ss=0,97), bilişsel ($\bar{X}$=3,54, ss=0,98) ve sosyal ($\bar{X}$=3,53, ss=1,05) alt boyutlarına ilişkin görüşlerinin de yüksek olduğu saptanmıştır.

Araştırmanın ikinci alt amacı "Öğretmen adaylarının dijital okuryazarlık düzeylerine ilişkin görüşleri cinsiyet, yaş, üniversite türü ve sınıf düzeyi değişkenlerine göre anlamlı bir farklılık göstermekte midir?" şeklindedir. Öğretmen adaylarının dijital okuryazarlık düzeylerine ilişkin görüşleri ile cinsiyet değişkeni arasında anlamlı bir fark olup olmadığını araştırmak için bağımsız örneklem t testi yapılmıştır. Analiz sonuçları Tablo 3 üzerinden aktarılmaktadır.

Tablo 3. *Öğretmen adaylarının dijital okuryazarlık düzeylerine ilişkin görüşlerinin cinsiyet değişkenine göre incelendiği t-testi sonuçları*

Değişken	Cinsiyet	n	$\bar{X}$	ss	t	sd	p	Etki Büyüklüğü
Tutum	Kadın	148	27.28	6.50	-.288	221	.774	
	Erkek	75	27.55	6.79				
Teknik	Kadın	148	20.48	5.63	-2.278	221	.024*	0.319
	Erkek	75	22.33	5.96				
Bilişsel	Kadın	148	7.04	1.92	-.333	221	.739	
	Erkek	75	7.13	2.06				
Sosyal	Kadın	148	7.12	1.95	.678	126.43	.499	
	Erkek	75	6.91	2.37				
Dijital Okuryazarlık	Kadın	148	61.92	14.27	-.983	221	.327	
	Erkek	75	63.92	14.54				

Öğretmen adaylarının dijital okuryazarlık düzeylerine ilişkin görüşleri ile cinsiyet değişkeni arasında gerçekleştirilen bağımsız örneklem t testi bulgularına göre, kadın ve erkek öğretmen adaylarının puanlarının teknik alt boyutu açısından farklılaştığı ve bu farklılığın erkek öğretmen adaylarının puanlarının kadın öğretmen adaylarından daha yüksek olmasından kaynaklandığı belirlenmiştir. Öğretmen adaylarının cinsiyet-

lerinin, tutum alt boyutuna ilişkin görüşleri (Cohen's d=0,319) üzerindeki etkisinin bir miktar olduğu saptanmıştır. Kadın ve erkek öğretmen adaylarının puanlarının tutum, bilişsel ve sosyal alt boyutları açısından ise farklılaşmadığı belirlenmiştir.

Öğretmen adaylarının dijital okuryazarlık düzeylerine ilişkin görüşleri ile yaşları arasında anlamlı bir fark olup olmadığını saptamak amacıyla tek yönlü varyans analizi (ANOVA) tekniğinden faydalanılmıştır. Öğretmen adaylarının yaş değişkeni ile dijital okuryazarlık düzeyine ilişkin görüşleri arasındaki ilişkilere yönelik analiz sonuçları Tablo 4'te görülebilmektedir.

Tablo 4. *Öğretmen adaylarının dijital okuryazarlık düzeylerine ilişkin görüşlerinin yaş değişkenine göre incelendiği tek yönlü ANOVA sonuçları*

Değişken	Yaş	n	$\bar{X}$	ss	sd	F	p
Tutum	17-18	14	26.21	5.51	4-218	.312	.870
	19-20	89	27.09	6.66			
	21-22	87	27.49	6.68			
	23-24	21	28.14	6.67			
	25 ve üzeri	12	28.50	7.14			
Teknik	17-18	14	19.71	3.63	4-218	.954	.434
	19-20	89	20.54	5.69			
	21-22	87	21.39	5.99			
	23-24	21	22.76	6.80			
	25 ve üzeri	12	21.92	5.23			
Bilişsel	17-18	14	7.00	1.41	4-218	.308	.872
	19-20	89	6.96	1.90			
	21-22	87	7.10	1.97			
	23-24	21	7.48	2.34			
	25 ve üzeri	12	7.08	2.43			
Sosyal	17-18	14	6.57	2.03	4-218	.247	.911
	19-20	89	7.04	1.91			
	21-22	87	7.07	2.09			
	23-24	21	7.29	2.70			
	25 ve üzeri	12	7.08	2.68			
Dijital Okuryazarlık	17-18	14	59.50	8.29	4-218	.579	.678
	19-20	89	61.63	14.25			
	21-22	87	63.06	14.74			
	23-24	21	65.67	16.61			
	25 ve üzeri	12	64.58	14.56			

Öğretmen adaylarının dijital okuryazarlık düzeylerine ilişkin görüşleri ile yaş değişkeni arasında yapılan tek yönlü varyans analizi testi sonuçlarına göre, öğretmen adaylarının dijital okuryazarlık düzeylerinin yaşa göre farklılaşmadığı belirlenmiştir.

Öğretmen adaylarının dijital okuryazarlık düzeylerine ilişkin görüşleri ile üniversite türü değişkeni arasında anlamlı bir fark olup olmadığını analiz edebilmek için bağımsız örneklem t testi kullanılmıştır. Analiz sonuçları Tablo 5'te aktarılmıştır.

Tablo 5. *Öğretmen adaylarının dijital okuryazarlık düzeylerine ilişkin görüşlerinin üniversite türü değişkenine göre incelendiği t-testi sonuçları*

Değişken	Üniversite Türü	n	$\bar{X}$	ss	t	sd	p
Tutum	Devlet	196	27.27	6.56	-.593	221	.554
	Özel	27	28.07	6.86			
Teknik	Devlet	196	20.84	5.65	-1.824	221	.070
	Özel	27	23.00	6.56			
Bilişsel	Devlet	196	7.07	1.86	-.085	29.667	.933
	Özel	27	7.11	2.64			
Sosyal	Devlet	196	6.96	2.00	-1.402	30.200	.171
	Özel	27	7.70	2.66			
Dijital Okuryazarlık	Devlet	196	62.14	13.96	-1.274	221	.204
	Özel	27	65.89	16.89			

Öğretmen adaylarının dijital okuryazarlık düzeylerine ilişkin görüşleri ile üniversite türü arasında yapılan bağımsız örneklem t testi sonuçlarına göre, öğretmen adaylarının dijital okuryazarlık düzeylerinin üniversite türüne göre de farklılaşmadığı görülmüştür.

Öğretmen adaylarının dijital okuryazarlık düzeylerine ilişkin görüşleri ile sınıf düzeyleri arasında anlamlı bir fark olup olmadığını saptayabilmek adına tek yönlü varyans analizi (ANOVA) tekniğinden faydalanılmıştır. Öğretmen adaylarının sınıf düzeyleri değişkeni ile dijital okuryazarlık düzeyine ilişkin görüşleri arasındaki ilişkilere yönelik analiz sonuçları Tablo 6 üzerinden aktarılmıştır.

Tablo 6. *Öğretmen adaylarının dijital okuryazarlık düzeylerine ilişkin görüşlerinin sınıf düzeyi değişkenine göre incelendiği tek yönlü ANOVA sonuçları*

Değişken	Sınıf Düzeyi	n	$\bar{X}$	ss	sd	F	p	Fark	Etki Büyüklüğü
Tutum	1	42	27.10	5.78	3-219	4.270	.006*	1<4	0.055
	2	86	25.94	6.73					
	3	83	28.28	6.67					
	4	12	32.25	4.67					
Teknik	1	42	19.90	5.83	3-219	9.696	.000*	1<4, 2<3 2<4, 3<4	0.117
	2	86	19.50	5.32					
	3	83	22.51	5.64					
	4	12	27.08	3.87					
Bilişsel	1	42	6.71	1.99	3-219	3.945	.009*	1<4, 2<4	0.051
	2	86	6.76	1.64					
	3	83	7.39	2.04					
	4	12	8.42	2.68					
Sosyal	1	42	6.86	2.35	3-219	6.555	.000*	1<4, 2<4, 3<4	0.082
	2	86	6.70	1.69					
	3	83	7.17	2.26					
	4	12	9.42	1.00					
Dijital Okuryazarlık	1	42	60.57	13.80	3-219	8.000	.000*	1<4, 2<4 3>2, 3<4	0.099
	2	86	58.90	13.01					
	3	83	65.34	14.74					
	4	12	77.17	10.68					

Öğretmen adaylarının dijital okuryazarlık düzeylerine ilişkin görüşleri ile sınıf değişkeni arasında yapılan tek yönlü varyans analizi testi sonuçlarına göre, öğretmen adaylarının dijital okuryazarlık düzeylerinin sınıf düzeyine göre farklılaştığı ve bu farklılığın 4. sınıfta okuyan öğretmen adaylarının puanlarının 1., 2. ve 3. sınıfta okuyan öğretmen adaylarının puanlarından yüksek olmasından kaynaklandığı belirlenmiştir. Ayrıca 3. sınıfta okuyan öğretmen adaylarının dijital okuryazarlık puanlarının 2. sınıfta okuyan öğretmen adaylarının puanlarından anlamlı bir biçimde yüksek olduğu da görülmüştür. Öğretmen adaylarının devam ettikleri sınıf düzeylerinin, dijital okuryazarlık düzeylerine ilişkin görüşleri üzerinde orta düzeyde bir etkisinin olduğu da saptanmıştır.

TARTIŞMA, SONUÇ VE ÖNERİLER

Araştırmada ilk olarak öğretmen adaylarının dijital okuryazarlık düzeylerinin yüksek olduğu sonucuna varılmıştır. Türkiye'de öğretmen adayları ile gerçekleştirilen araştırmalarda da benzer şekilde dijital okuryazarlık düzeylerinin yüksek olduğu belirlenmiştir (Akman, 2021; Bay, 2021; Can vd., 2020; Kozan ve Bulut-Özek, 2018). Akman (2021), dijital okuryazarlık, çevrim içi öğrenme ve akademik isteklilik arasındaki iliş-

kileri incelediği çalışmasında 322 öğrenenden veri toplamıştır. Araştırma bulgularına göre, öğrenenlerin dijital okuryazarlık ve çevrimiçi öğrenmeye yönelik tutumlarının öğrenenlerin akademik isteklilikleri üzerinde etki yaratan kayda değer değişkenler olduğu sonucuna varılmıştır. Bu noktada, bu çalışmadaki bulgulara benzer sonuçlar ortaya çıktığı söylenebilir. Bay (2021) ise, okul öncesi öğretmen adaylarının dijital okuryazarlık düzeylerinin belirlenmesini amaçladığı çalışmada 182 okul öncesi öğretmen adayından veri toplamış, okul öncesi öğretmen adaylarının dijital okuryazarlık düzeylerinin yüksek olduğunu ortaya çıkarmıştır. Can vd. (2020) ise Fen Bilgisi öğretmen adaylarından 110 öğrenciyle gerçekleştirdiği dijital okuryazarlık düzeylerinin belirlenmesinin amaçlandığı çalışmada dijital okuryazarlık düzeyinin iyi seviyede olduğu sonucuna varmıştır. Kozan ve Bulut-Özek (2019) ise, 122 BÖTE öğretmen adayının dijital okuryazarlık düzeylerini incelemiş ve bu çalışma sonucunda düzeyin yüksek olduğu sonucuna varmışlardır.

Kadın ve erkek öğretmen adaylarının puanlarının teknik alt boyutu açısından farklılaştığı ve bu farklılığın erkek öğretmen adaylarının puanlarının kadın öğretmen adaylarından daha yüksek olmasından kaynaklandığı belirlenmiştir. Kadın ve erkek öğretmen adaylarının puanlarının tutum, bilişsel ve sosyal alt boyutları açısından ise farklılaşmadığı saptanmıştır. Bay (2021) yaptığı çalışmada cinsiyete göre herhangi bir anlamlı farklılığın ortaya çıkmadığını belirtmiştir. Yontar (2019) ise sosyal bilgiler öğretmeni ve sınıf öğretmeni adayları kapsamında gerçekleştirdiği çalışmada erkek öğretmen adaylarının lehine dijital okuryazarlık düzeyinde anlamlı farklılık olduğu bulgusunu elde etmiştir. Özerbaş ve Kuralbayeva'nın (2018) Türkiye ve Kazakistan'da bulunan öğretmen adaylarıyla gerçekleştirdiği çalışmada, erkek öğretmen adaylarının kadınlara göre dijital okuryazarlık düzeylerinin daha yüksek olduğu saptanmıştır.

Bu çalışmada, öğretmen adaylarının dijital okuryazarlık düzeylerine ilişkin görüşleri ile yaş değişkeni arasında yapılan tek yönlü varyans analizi testi bulgularına göre, öğretmen adaylarının dijital okuryazarlık düzeylerinin yaşa göre farklılaşmadığı tespit edilmiştir. Ayrıca, öğretmen adaylarının dijital okuryazarlık düzeylerine paralel görüşleri ile üniversite türü arasında yapılan bağımsız örneklem t testi sonuçlarına göre, öğretmen adaylarının dijital okuryazarlık düzeylerinin üniversite türüne göre de farklılaşmadığı görülmüştür. Bu iki bulguyla ilgili farklı bir çalışmaya rastlanmamıştır.

Öğretmen adaylarının dijital okuryazarlık düzeyleri ve sınıf değişkeni bağlamında yapılan tek yönlü varyans analizi testi sonuçlarına göre, öğretmen adaylarının dijital okuryazarlık düzeylerinin sınıf düzeyine göre farklılaştığı ve bu farklılığın 4. sınıfta okuyan öğretmen adaylarının puanlarının 1., 2. ve 3. sınıfta okuyan öğretmen adaylarının puanlarından yüksek olmasından kaynaklandığı saptanmıştır. Ayrıca 3. sınıfta okuyan öğretmen adaylarının dijital okuryazarlık puanlarının 2. sınıfta okuyan öğretmen adaylarının puanlarından anlamlı bir biçimde yüksek olduğu da ortaya çıkmıştır. Öğretmen adaylarının devam ettikleri sınıf düzeylerinin, dijital okuryazarlık düzeylerine ilişkin görüşleri üzerinde orta düzeyde bir etkisinin olduğu da saptanmıştır. Sınıf düzeyi ile ilgili farklı çalışmalarda farklı bulgulara ulaşıldığı görülmektedir. Özerbaş ve Kuralbayeva (2018) yaptıkları çalışmada ölçeğin beş boyutundan yalnızca birinde sınıf düzeyine göre anlamlı farklılık olduğu sonucuna ulaşmışlardır. Bu boyut kapsamında ortaya konan anlamlı farklılığın üçüncü sınıftaki öğrenciler lehine olduğu tespit edilmiştir. Sarıkaya'nın (2019) Türkçe öğretmen adaylarının dijital okuryazarlık becerilerine ilişkin gerçekleştirdiği araştırmada sınıf düzeylerine göre anlamlı farklılık ortaya çıkmamıştır. Ancak, 3. sınıf öğretmen adaylarının ortalama puanları bağlamında diğer sınıflardaki öğretmen adaylarına göre daha yüksek ortalama puanlar aldıkları sonucuna ulaşmışlardır.

Öğretmen adaylarının dijital okuryazarlık düzeylerinin yüksek düzeyde olduğu ancak çok yüksek düzeyinde olmadığı ve 21. Yüzyılın teknoloji dünyasında dijital okuryazarlık becerilerinin oldukça önemli bir hale geldiği göz önüne alındığında, öğretmenlik eğitim programlarına dijital okuryazarlık dersinin eklenmesi önerilebilir. Dijital okuryazarlığın günümüz şartlarında vazgeçilmez bir bileşen olduğu dikkate alındığında yalnızca eğitim kurumlarında verilen derslerin yeterli olmayacağı aşikardır. Özellikle küresel salgın süreciyle daha da önem kazanan açık ve uzaktan öğrenme ortamları teknoloji tabanlı olduğu için doğrudan dijital okuryazarlık becerilerinin düzeyinden etkilenmektedir. Bu noktada, hem eğitimcilerin hem öğrenenlerin bu becerileri en üst düzeyde geliştirmesi büyük önem taşımaktadır. Dijital okuryazarlığın teknik, bilişsel ve sosyo-duygusal yeterliliklerin ürünü olduğu dikkate alınarak, her üç alanında geliştirilmesine yönelik eğitimler planlanması da önerilebilir. Ayrıca öğretmen adayları dışında Milli Eğitim Bakanlığı bünyesinde çalışan öğretmenlerin dijital okuryazarlık düzeylerini ortaya koyacak araştırmalar yürütülebilir.

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Yükseköğretimde Podcast Yayıncılığı: Uzaktan Eğitim Merkezi Örneği

Nilay ÖZER[1], Emre BAHTLI[2]

Özet

Yükseköğretimde podcast yayıncılığının (podcasting) kullanımı ve var olan uygulamaları inceleme amacı taşıyan bu çalışmada özellikle uzaktan eğitim merkezlerinin hizmetlerinde podcast yayıncılığının kullanılabilirliği üzerinde durulacaktır. Bu kapsamda ülkemizde devlet üniversiteleri tarafından, spotify ve google podcast platformlarında Türkçe olarak yayınlanan podcastler, literatürde yer alan podcast tasarım analizi çerçevesi kullanılarak incelenmiştir. Ayrıca araştırmacı tarafından geliştirilen uzaktan eğitim merkezi podcast yayını ele alınmıştır. Araştırmanın yöntemini nitel araştırma desenlerinden durum çalışması oluşturmaktadır. Bu kapsamda doküman analizi yapılarak ulaşılan on bir podcast yayını betimsel bir analizle belirli kriterlere göre incelenmiştir. İncelenen podcast yayınları yazar/katılımcı, amaç, içerik türü, sunum şekli, uzunluk, pedagojik yaklaşım, tarz, öğrenme materyalleri, serinin yapısı ve konu bağlamlarında analiz edilmiştir. Bulgulara göre podcast yayınlarının 15 dakika ve üstü zamanları ile uzun yayınlar olduğu, amaçları bakımından öğrenci toplulukları etkinlikleri ve farklı alanlarda uzmanlarla yapılan görüşme kayıtları olarak öne çıktığı görülmektedir. Genellikle öğrenci ve misafirlerin panel şeklindeki sunumu ve karşılıklı diyaloglara dayalı sunum şekillerinin kullanıldığı anlaşılmaktadır. Benimsenen pedagojik çerçevede ise bilgi aktarımına odaklı yaklaşımların öne çıktığı görülmektedir. Podcast yayınlarının seri yapısında doğrusal olmayan bağımsız konuların ele alındığı ve çoğunlukla ek bir öğrenme materyali ile ilişkilendirilmediği görülmektedir. Konu bakımından bilimsel konuların ele alındığı podcastlerde, hikayeleştirme yerine misafirlerle çoklu sunuma dayalı bir seslenme modunun kullanıldığı anlaşılmaktadır. Uzaktan eğitim merkezlerinde öğretim elemanlarının mesleki gelişimi ve öğrenenlerin uzaktan eğitim süreçlerine ilişkin farkındalıklarını artırma bağlamında podcast yayınlarının kullanılabilirliği öne çıkmaktadır. Araştırma, yükseköğretimde podcast teknolojisinin kullanımına yönelik uygulamaları bütünsel bir bakış açısıyla ele alması ve uzaktan eğitim merkezlerinin üreteceği dijital içeriklerde podcast yayıncılığından faydalanılmasına yönelik bir uygulama örneği sunması bakımından önemlidir. Bununla birlikte incelenen yayınlar Türkiye örneklemi ve devlet üniversiteleri ile sınırlıdır. Özellikle uzaktan eğitim merkezlerinin podcast kullanımına yönelik farklı bir örneğin olmaması karşılaştırma ve değerlendirmeler bakımından sınırlılıkla sonuçlanmıştır.

***Anahtar Kelimeler**: Podcast, Podcasting, Uzaktan Eğitim, Uzaktan Eğitim Merkezi, Yükseköğretim*

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GİRİŞ

Ses, tarihsel olarak görüntünün rasyonelliği ile karşılaştırıldığında bilimsel açıdan göz ardı edilen bir etkiye sahiptir (Hilmes, 2005). Oysa sese atfedilen duyuşsal değerin, insanlarla olan etkileşimimiz ve algılarımızı etkileme potansiyeli vardır (Bliss-Moreau vd., 2010). Bu potansiyelin önem teşkil ettiği öğrenme ortamlarında ses ve gürültü kirliliği, öğrenenlerin bilişsel yeteneklerine zarar verirken (Clark ve Stansfeld, 2007), ortamdaki bir diğer ses olan öğreten sesinin öğrenmeyi kolaylaştırıcı etkisi dikkat çekmektedir (Kim vd., 2004). Bu kapsamda eğitim ortamlarında sesin varlığı ve dengeli şekilde kullanımının öğrenmenin gerçekleşmesi açısından destekleyici olduğu söylenebilir. Uzaktan eğitimde ise tarihi sürece bakıldığında radyo programları yoluyla öğrenenlerin desteklendiği anlaşılmaktadır (Bozkurt, 2017). Bu süreçte gelişen teknolojiyle birlikte kullanılan araç ve uygulamaların çeşitlendiği ve öğrencinin kendi öğrenme deneyimini yönetmesine izin veren araçların öne çıktığı görülmektedir. Bu araçlardan biri olan podcastler, internet üzerinden kullanıma sunulan ses dosyalarının bireyin cihazına indirilebilmesi ve dinlenebilmesine imkan sağlayan medya araçları olarak tanımlanmaktadır. Podcasting ise sesli içeriklerin dijital hale getirilerek bir blog ya da web sayfasında yayınlanma sürecidir (Kidd, 2011). Bu kapsamda podcast yayıncılığının sesin gelişimsel yolculuğunda öne çıkan bir durak olduğu ve uzaktan öğrenme ortamlarında kullanılabilirliği ile dikkat çektiği söylenebilir.

Yükseköğretim kurumları ve uzaktan öğrenme ortamlarında kullanımı yaygınlaşan podcastler esnek kullanım olanakları, görece kolay üretim ve entegre edilebilirliği gibi özellikleri ile tercih edilmektedir. Podcasting yükseköğretimde, yabancı dil öğretimi (Yılmaz ve Babacan, 2015; Yorgancı, 2021;) yeni bilgi ve beceri kazanımı (O'Connor vd, 2020), stres yönetimi (Ricks vd., 2011), öğretmen öğrenci ilişkilerinin desteklenmesi (McNeil vd., 2010; Stoltenkamp vd., 2010), sesli geri bildirim (Ribchester vd., 2007; Killingback vd., 2019; biçimlendirici ölçme değerlendirme yöntemi (Forbes ve Khoo, 2015) ve mobil öğrenme aracı (Hoskyns-Long, 2009; Sakarya, 2019) olarak kullanılmaktadır. Tüm bu kullanım alanları düşünüldüğünde, yükseköğretimlerin podcasting ürünlerinin incelenmesi ve Türkiye yükseköğretiminde kullanımına yönelik bir analiz ihtiyacının öne çıktığı söylenebilir.

Bu çalışma, yükseköğretimde podcasting kullanımını alan yazındaki tasarım temaları çerçevesinde incelemeyi ve var olan uygulamaları karşılaştırarak bütünsel bir analiz elde etmeyi amaçlamaktadır. Ayrıca uzaktan eğitim ve uzaktan eğitim merkezlerinde podcasting kullanım alanlarına odaklanma eğilimi taşımaktadır.

Yükseköğretimde Podcasting

Yükseköğretimde podcastler öğrencinin öğrenme deneyimini geliştirmek için tamamlayıcı olarak verilen bilgi içeriği, sınıfta verilen bilgiyi yeniden ele alan destekleyici bilgi aktarımı ve birden çok yöntemle sunulan içeriğin podcast kayıtları gibi farklı kullanımlarla kendine yer bulmaktadır (Taylor & Clark, 2010). Bununla birlikte engelli öğrenenlerin eğitiminde erişilebilir öğrenme materyali olarak da kullanıldığı görülmektedir (Gladhart, 2010). Bu kapsamda podcastlerin tek başına bir öğretim materyali olarak kullanılması yerine, farklı amaçlarla ek materyal olarak kullanımının öne çıktığı söylenebilir.

Podcastlerin kullanımına ilişkin gelişim sürecine bakıldığında geleneksel yapıdan gelişmiş yapıya oradan da özellikle video podcastlere (vodcast) evrildiği görülmektedir. Gelişmiş podcastler resim, fotoğraf, kısa video gibi çoklu medya ögeleri içeren podcastler olarak karşımıza çıkmaktadır. Vodcastler ise videoların podcastlere entegre edildiği podcast türüdür (Fernandez vd., 2015). Böylece podcast teknolojisinin de zengin içerikler oluşturmaya izin veren ve daha fazla duyuya hitap edecek şekilde geliştiği söylenebilir.

Podcastlerin yükseköğretimde özellikle öğrenen becerilerini destekleme ve öğrenme yöntemi olarak kullanılma potansiyeli dikkat çekmektedir (Fernanadez vd., 2009). Bu şekilde podcasting sürecine öğrenenlerin dahil edilmesi ise bu aracın basit bir bilgi aktarımının ötesine geçerek öğrenme çıktılarının başarıya ulaşmasını sağlamıştır. (Forbes, 2015). Bu durum aynı zamanda öğrenenlerin kendi aralarındaki etkileşimi ve öğretenle aralarındaki iletişim engellerinin kaldırılmasına katkı sağlamıştır. Ayrıca grup çalışmalarının yürütülmesini kolaylaştırıcı bir işlevi olduğu anlaşılmaktadır (Stoltenkamp vd., 2010). Böylece podcasting sürecine öğrenenlerin birlikte dahil olması hem sosyal hem bilişsel açıdan olumlu katkılar sağlamaktadır.

Podcastler yükseköğretimde uzaktan eğitim yöntemlerini geleneksel yöntemlere entegre etme konusunda kullanılabilirlik potansiyeli barındırmaktadır (Parson vd., 2009; Manca & Raineri, 2016). Bu durum, yükseköğretimde podcast yayınlarını kullanmanın hem uzaktan öğrenme hem de harmanlanmış öğrenme deneyimlerini destekleyici olduğu şeklinde yorumlanabilir.

Uzaktan Eğitimde Podcasting

Podcasting uzaktan öğrenmeyi eğlenceli bir şekilde benimsemek, çevrimiçi ortamda kurum ve öğretenlerin kendilerini ifade edebileceği ortam sağlamak ve bir çevrimiçi öğrenme kültürü oluşturmak için önemli katkılar sağlamaktadır (Kidd, 2011). Özellikle gelişmiş podcastler ve podcast şeklinde yayımlanan dersler uzaktan öğrenenler tarafından tercih edilmektedir (Walsh & Villiers, 2015; Zawachi-Richter, 2021). Bu tercihlerin karşılandığı çevrimiçi dersler uzaktan öğrenenlerde motivasyon artışı ve sosyal bulunuşluğun artması ile sonuçlanmaktadır (Brown vd., 2009; Bolliger vd., 2010). Ayrıca uzaktan öğrenme ortamlarında podcast yayıncılığının kullanımı uygulama topluluklarının oluşmasını desteklemektedir (Brown vd., 2009). Bu kapsamda podcasting süreçlerinin özellikle uzaktan öğrenenler ve kurumlar için tercih edilebilir olduğu görülmektedir.

Uzaktan eğitim sürecinde podcasting kişiselleştirme, destek ve geri bildirim materyali olarak kullanılmakta ve belirli faydalar sağlamaktadır. Bu faydalardan bazıları, zaman ve mekan açısından erişilebilir formatlarda materyal sunumu, minumum uyarlama çabası, müfredat içi esnek kullanımı ve hareketlilik sağlamasıdır (Nie vd.,2010). Bununla birlikte kitlesel açık çevrimiçi derslerde kullanılabilirliği ve açık eğitsel kaynak olarak paylaşım kültürünü destekleyici işlevi öne çıkmaktadır (Rosell-Aguilar 2013; Rueda vd., 2016).

Podcasting öğrenenler için farklı amaç ve işlevlerle kullanımının yanı sıra, farklı uzman ve öğretim elemanlarının çevrimiçi mesleki gelişimlerinin desteklenmesinde de kullanılmaktadır. Bu kapsamda özellikle örnek uygulama içeriklerinin sunulduğu programların varlığı göze çarpmaktadır (Burns, 2011). Bunun yanı sıra mesleki gelişim süreçlerinde içerik edinme podcastlerinin konunun anlaşılmasında faydalı olduğu

belirtilmektedir (McNamara, 2018). Bu durum özellikle öğrenme ve öğretme merkezleri ve uzaktan eğitim merkezlerinin sunduğu mesleki gelişim eğitim programlarında da podcasting süreçlerinin kullanılabilirliğini öne çıkarmaktadır.

YÖNTEM

Araştırmanın yöntemini nitel araştırma desenlerinden durum çalışması oluşturmaktadır. Durum çalışması sınırları belli olan bir durumun derinlemesine incelenmesi ve betimlenmesidir (Merriam, 2013). Durum çalışmalarında veri toplama aracı olarak gözlem ve görüşmelerin dışında doküman analizleri de yer almaktadır. Bu kapsamda bu çalışmada Google podcast ve Spotify veri tabanlarında yer alan podcast dokümanları belirli kriterlere göre taranmıştır. Tarama esnasında yükseköğretim, uzem, eğitim, podcast anahtar kelimeleri kullanılmıştır. Ayrıca devlet üniversiteleri tarafından Türkçe olarak yayınlanma kriteri dikkate alınmıştır. İki ya da daha az yayını olan podcastler analiz dışı bırakılmıştır. Bu kapsamda doküman analizi yapılarak ulaşılan onbir podcast yayını betimsel bir analizle belirli tasarım kriterlerine göre incelenmiştir. Betimsel analiz ise verilerin belirli temalar kapsamında incelenmesi ve bu kapsamda yorumlanması yöntemidir (Yıldırım ve Şimşek, 2008).

Tüm kullanım alanları ve yararlarının yanı sıra alan yazında vurgulanan eğitici podcast yayıncılığında belirli süreçlerin izlenmesi ve teorik çerçevelerden yararlanılmasının önemli olduğu anlaşılmaktadır (McNamara & Drew, 2019). Bu kapsamda alan yazında farklı araştırmacılar tarafından önerilen, eğitsel podcastlerin incelenmesine yönelik tasarım çerçeveleri Drew (2017) in ele aldığı şekliyle bu araştırmanın amacı doğrultusunda kullanılmıştır. İncelenen podcast yayınları yazar/katılımcı, amaç, içerik türü, sunum şekli, uzunluk, pedagojik yaklaşım, tarz, öğrenme materyalleri, serinin yapısı ve konu temaları bağlamında analiz edilmiştir.

BULGULAR

Analizler sonucu elde edilen bulgulara göre incelenen podcast yayınlarının çoğunluğu öğrenci toplulukları tarafından oluşturulmuştur. Anadolu Üni. Ve Esogü podcastleri öğretim elemanları tarafından oluşturulan, İTÜ, ODTÜ ve NEÜ ise üniversitelerin kurumsal iletişim ve uzaktan eğitim merkezlerinin oluşturduğu podcastlerdir. Alan yazındaki podcast yayınlarının tasarımına yönelik temalar bağlamında incelenen yayınlar Tablo 1'de gösterilmektedir.

Yükseköğretimde Podcast Yayıncılığına İlişkin Bulgular

Alan-yazında belirlenen temalara göre öncelikle podcastler içerik türü bakımından ele alınmıştır. Eğitsel bir podcast yayını; bir inceleme materyali, geribildirim, özgün öğrenme materyali, idari bilgi ya da uzman görüşmeleri şeklinde içerikler barındırmaktadır (Carvalho, 2008). Bu kapsamda incelenen üniversitelerin yayınlarında uzman görüşmelerine dayalı içeriklerin öne çıktığı görülmektedir. Bir diğer tema başlığı olan yazar ve katılımcılar değerlendirildiğinde yayınların çoğunlukla öğrenciler tarafından oluşturulduğu ve alanında uzman misafirlerin davet edildiği görülmektedir. Amaçlara ilişkin temalarda ise Bloom taksonomisene dayanan podcastin öğrenenlere yönelik bilişsel yeterlilik ifadeleri dikkate alınmaktadır (Fernandez vd., 2015).

Tablo 1. *Podcast yayınlarının belirli temalara göre incelenmesi*

Üniversite	İçerik Türü	Yazar ve Katılımcılar	Amaç	Uzunluk	Tarz	Pedagojik Yaklaşım	İlişkili Öğrenme Materyalleri	Seri Yapısı	Konusu	Hitap Modu
Anadolu Üniversitesi	ÖÖM	OG	B	Kısa,Orta	YPD	BAO	-	DO	Bilimsel	DDA
İstanbul Üniversitesi	ÖÖM	OGR	K-U	Kısa,Orta	YP	BAO	-	DO	Bilimsel	HA
Selçuk Üniversitesi	ÖÖM,UG	OGR,MS	K-U	Uzun	YPD	DD	Blog	DO	Bilimsel	MÇS
Dokuz Eylül Üniversitesi	UG	OGR,MS	U	Uzun	YPD	DD	-	DO	Bilimsel	MÇS
Gazi Üniversitesi	UG	OGR,MS	U	Uzun	YPD	DD	-	DO	Bilimsel	MÇS
Galatasaray Üniversitesi	UG	OGR,MS	U	Uzun	YP	DD	Transkript	DO	Kariyer	MÇS
İstanbul Teknik Üniversitesi	UG	OG,OGR,MS	B	Uzun	YPD	BAO,DD	-	DO	Kariyer	DDA,MÇS
Orta Doğu Teknik Üniversitesi	UG	OG	B	Uzun	YPD	BAO,DD	-	DO	Bilimsel	MÇS
Eskişehir Osmangazi Üniversitesi	ÖÖM	OG	B	Orta	YP	BAO	-	DO	Bilimsel	DDA
Trakya Üniversitesi	UG	OGR,MS	B	Uzun	YP	DD	-	DO	Sosyal	MÇS
Necmettin Erbakan Üniversitesi	ÖÖM	OG	B	Orta	YP	BAO	Transkript	DO	Uzaktan eğitim	DDA,HA

ÖÖM: Özgün Öğrenme Materyali, UG: Uzman Görüşmeleri; OG:Öğreten, OGR: Öğrenci, MS: Misafir; B:Bilgi, K:Kavrama, U: Uygulama, A:Analiz, S:Sentez, DD: Değerlendirme; YP: Yapılandırılmış, YPD: Yapılandırılmamış; BAO: Bilgi Aktarım Odaklı, DD: Diyaloğa Dayalı; D: Doğrusal, DO:Doğrusal Olmayan; DDA: Doğrudan Dinleyiciye Aktarım, MÇS: Misafirlerle Çoklu Sunum, HA: Hikaye Anlatı

Bu kapsamda öğrenen açısından bakıldığında podcast yayınlarının çoğunlukla öğrenenlerden oluşması derste, öğrenci topluluklarında öğrenilen içeriklerin kavrama ve uygulama basamağında kullanımını göstermektedir. Bunun dışında ise yoğunlukla bilgi basamağına yönelik kazanım sağlayan içerikler öne çıkmaktadır. Podcast yayınlarının uzunluklarına ilişkin olarak Carvalho (2008), kısa (1-5 dk) orta (5-15 dk) ve uzun (15 + dk) olmak üzere üç farklı kategoriye işaret etmiştir. Bu kapsamda incelenen yayınların çoğunlukla onbeş dk ve daha fazla uzunlukta olan uzun podcastler olduğu görülmektedir. Bir diğer tema olan podcast yayını tarzı ise içeirğin sunumunda belirli yapılandırılmış metinlere bağlı kalınıp kalınmadığını ifade etmektedir (Carvalho, 2008). Bu kapsamda incelenen yayınların çoğunlukla yapılandırılmamış tarza sahip olduğu ve özellikle uzman görüşmeleri ve karşılıklı diyalogları içeren yayınlarda bu tarzın öne çıktığı görülmektedir. Bower vd., (2010) tarafından öne sürülen pedagojik yaklaşımlarda ise öğrenenin sürece dahil edildiği yapılandırmacı, çoklu fikirlerin katılımcılar tarafından konuşularak ele alındığı diyaloğa dayalı ve bilginin aktarımına dayalı yaklaşım temaları öne çıkmaktadır. Bu kapsamda incelenen yayınlarda diyaloğa dayalı farklı katılımcıların fikirlerinin ele alındığı pedagojik yaklaşımlar öne çıkmaktadır. Eğitsel podcast yayınlarının sıklıkla ek bir öğrenme materyali olarak kullanılmasına rağmen incelenen yayınlarda ilişkili öğrenme materyallerinin nadiren kullanımı dikkat çekmektedir. Bu kısımda öne çıkan materyallerin yayın süreci transkripti ve blog yazıları olduğu anlaşılmaktadır. Seri yapısı teması ise yayınlarda ele alınan konuların birbirinin öğrenilmesine önkoşul oluşturan doğrusal ve birbirinden bağımsız konuları oluşturan doğrusal olmayan kategorilerini içermektedir (Fernandez vd., 2015). İncelenen tüm yayınların belirli bir öğrenme sürecinin doğrusallığı yerine birbirinden bağımsız konuları içerdiği, böylece öğrenenlerin tercihine bağlı dinleme olanağı sunduğu görülmektedir. Konu bakımından farklı bilimsel konuların ele aldığı podcast yayınlarının öne çıktığı bunun dışında öğrenen grupları tarafından oluşturulan podcastlerde kariyer, psikoloji, hukuk, tıp ve sosyal konuların ele alındığı anlaşılmaktadır. Seslendirme sürecinde kullanılan hitap etme modu temasında ise podcastlerin seslendirilme ve sunum şekillerine göre; doğrudan dinleyiciye aktarım, hikaye anlatımı ve katılımcı misafirlerle çoklu sunum kategorileri ele alınmaktadır (Drew, 2017). Bu kapsamda incelenen yayınlarda katılımcılarla yapılan çoklu sunumların öne çıktığı, hikaye anlatımının nadiren kullanıldığı anlaşılmaktadır.

Uzaktan Eğitim Merkezi Hizmetlerinde Podcast Yayıncılığına Yönelik Bulgular

Yükseköğretimde yapılan podcast yayınları arasında uzaktan eğitim merkezi tarafından geliştirilen bir podcast yayını olduğu görülmektedir. Özellikle Covid-19 süreciyle birlikte üniversitelerin uzaktan eğitim uygulama ve araştırma merkezleri öne çıkmaktadır. YÖK (2020) verilerine göre toplam 123 üniversitenin uzaktan eğitim uygulama ve araştırma merkezine sahip olduğu anlaşılmaktadır. Uzaktan eğitim uygulama ve araştırma merkezleri yükseköğretim kurumlarında uzaktan eğitim faaliyetlerinin yürütülmesine yönelik altyapı, teknik, içerik, öğretim tasarımı, araştırma, uygulama desteği sunan merkezlerdir. Bu merkezler özellikle öğrenen ve öğretim elemanlarının dijital yeterliliklerini desteklenmesi, uzaktan eğitim sistemlerinin geliştirilmesinde önemli rol oynamaktadır. Yapılan araştırmalar özellikle öğretim elemanı ve yetişkin

öğrenenlerin mesleki gelişimini desteklemeye dayalı podcast yayınlarının varlığına ve işlevselliğine işaret etmektedir (Burns, 2011; Bernstei, 2018; McNamara, 2018). Bu kapsamda ele alınan podcastlerden birinin öğrenen ve öğretenlerin uzaktan eğitime yönelik belirli kavram ve uygulamalara ilişkin farkındalık sağlama amacı taşıdığı görülmektedir. Mesleki gelişim süreçlerinde kullanılabilir özgün öğrenme materyali olarak üretilen yayın, merkez personeli öğretim görevlisi tarafından hazırlanıp, sunulmaktadır. Bilgi verme amacı taşıyan yayının orta uzunlukta yapılandırılmış podcast içeriklerinden oluştuğu görülmektedir. İçeriklerde kavrama ilişkin soru, hikaye anlatımı yöntemlerinin kullanıldığı ve bireysel aktarım odaklı bir anlayışın tercih edildiği anlaşılmaktadır. Ayrıca ele alınan kavramların birbirinden genel olarak bağımsız olduğu ve podcast içeriğinin transkriptlerinin ek olarak sunulduğu görülmektedir. Doğrudan dinleyiciye hitap eden yayın, uzaktan eğitimin tanıtımı, kitlesel açık çevrimiçi ders ve uygulamaların tanıtımı, açık eğitsel kaynaklar, etkileşimsel uzaklık, uzaktan eğitimde motivasyon, pedagojik yaklaşımlar gibi uzaktan eğitim konularını araştırma sonuçları ve eğilimleri ile sunmaktadır.

Çalışmaya ilişkin sınırlılıkların başında Spotify ve Google podcast platformlarında yayınlanmış podcastlerin kullanımı gelmektedir. Birçok eğitimci kendi dersinde hazırlayıp kullandığı podcastleri bu platformlarda yayımlamamış olabilir. Ayrıca araştırma devlet üniversiteleri tarafından eşit teknolojik koşul ve şartlarda hazırlanan yayınları ele almış ve yabancı ülke ve dildeki podcastler analiz dışı bırakıldığı için karşılaştırma ve analizler sınırlı kalmıştır.

TARTIŞMA VE SONUÇ

Araştırmadan elde edilen bulgular Türkiye yükseköğretim kurumlarının podcasting süreçlerinde uzman görüşüne dayalı, bilgi verme odaklı podcast yayınlarının öne çıktığını göstermektedir. Öğretim elemanları tarafından derslerde kullanılabilecek öğrenme materyali yerine, öğrenci topluluklarının misafir katılımcılarla yaptığı, bilgi düzeyinde, diyaloğa dayalı, yapılandırılmamış podcast yayınlarının yaygın olduğu görülmektedir. Bununla birlikte bu yayınların, doğrusal olmayan, ek öğrenme materyali içermeyen, çoğunlukla misafir katılımcılarla çoklu sunum içeren podcastlerden oluştuğu anlaşılmaktadır. Bu kapsamda elde edilen bulgular, Türkiye'de yükseköğretim derslerinde podcasting kullanımının sınırlı olduğu şeklinde yorumlanabilir. Bu durum Fernandez vd. (2015)'in yükseköğretimde öğrenenleri güçlendirmeye ve desteklemeye yönelik az sayıda podcast yayını olduğu sonucunu destekler niteliktedir. Oysa başka bir çalışma ABD yükseköğretiminde büyük devlet üniversitelerinin yaklaşık üçte birinin podcast yayıncılığı girişimi olduğunu göstermektedir (Seo vd., 2010). Bu durum özellikle podcasting süreçleri hakkında öncelikle farkındalığın artması ihtiyacını ortaya çıkarmaktadır (O'Bannon vd., 2011). Ülkemiz yükseköğretiminde ise öğrenci toplulukları podcastlerinin yaygınlığı göze çarpmaktadır. Bu durum, öğrenenlerin birbirlerini ve grup bilincini desteklemeyi önemsediği şeklinde yorumlanabilir. Podcasting süreçlerinin öğrenenlerin birbirleri ile etkileşimi ve grup çalışmalarını kolaylaştırma potansiyeli görüşü (Stoltenkamp vd., 2010) bunu destekler niteliktedir. Diğer bir bulgu olarak podcast yayınlarının 15 dakikadan uzun yayınlar olduğu görülmektedir. Bu konuda farklı görüşler olmakla birlikte genel kanı öğrenenlerin kısa süreli podcastleri daha dikkatli dinledikleri ve tercih ettikleri yönündedir (Villano, 2008; Kidd, 2011; On

Tam, 2012). Bu kapsamda elde edilen bulgular yükseköğretim podcasting süreçlerinde bu tercihlerin ve öğrenen dikkatinin ihmal edildiği şeklinde yorumlanabilir. Bir diğer bulgu olan podcast konularının genellikle farklı bilimsel içeriklerin sunumu şeklinde olmasıdır. Bu içeriklerin özellikle psikoloji, hukuk, tıp alanlarındaki bilimsel içeriklerinden oluştuğu görülmektedir. Bu bulgu, Drew (2017) 'in eğitsel podcast konularına yönelik belirttiği araştırma sonucu ile tutarlılık göstermektedir.

Çalışmamızın diğer bir sonucunda ise özellikle uzaktan eğitim merkezlerinin uzaktan eğitim becerilerini ve mesleki gelişimi destekleme amacıyla öğretim elemanları ve öğrencilere yönelik sunacağı hizmetler arasında podcast yayıncılığının potansiyel olarak kullanılabilirliği üzerinedir. Bu amaçla podcast yayıncılığı hem açık eğitsel kaynak olarak hem de öğrenme yönetim sistemine dahil edilerek uzaktan eğitim programlarında kullanılabilirliği açısından işlevsel bir araç olarak öne çıkmaktadır. Araştırma bulgularına göre bu kapsamda öne çıkan bir podcast yayını olduğu görülmektedir. Yayının Uzem birimi tarafından oluşturulduğu ve mesleki gelişimi, ayrıca çevrimiçi öğrenenlerin farkındalıklarını destekleme amacı taşıdığı görülmektedir. Alan yazında eğitmenlerin mesleki gelişimlerini destekleme amaçlı podcast yayınlarının yararlı bulunduğu, çevrimiçi ortamlarda erişilebilir olmasının memnuniyet ile karşılandığı anlaşılmaktadır (Supanakorn-Davila & Bolliger, 2014; Bernstei, 2018; Walsh & Villiers, 2015). Bu durum bu alanda geliştirilecek podcasting süreçlerinin hem öğrenenler hem öğretenler açısından erişilebilir olması bakımından ve açık eğitsel kaynak olarak kullanımı bakımından önemli potansiyeller taşımaktadır.

Yükseköğretimde eğitsel amaçlı podcast kullanımına yönelik evrensel bir tasarım çerçevesinin kullanımı zorlayıcı olsa da (Drew, 2017), yapılan çalışmanın podcasting süreçlerini derslerinde ve kurumlarında kullanmak isteyenler için yol gösterici olması beklenmektedir. Bununla birlikte uzaktan öğrenenlere yönelik dünyada yapılan diğer podcast çalışmalarının doküman analizi, özel yükseköğretim tarafından yapılan podcasting incelemeleri gelecek araştırmalar için önerilebilir.

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Teknoloji Entegrasyonu Sürecinde Bilişim Teknolojileri Öğretmenlerinin Rolü[1]

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Özet

Sınıfta teknolojinin kullanımı pandemi nedeniyle uzaktan eğitime geçen okulların artması ile önem kazanan bir konu olmadığı bilinmektedir. Teknoloji entegrasyonu üzerine yapılan çalışmaların öğretmenlerin içsel ve dışsal süreçlerine, organizasyonel faktörlere, öğrencilerin öğrenmelerine etkilerine odaklanması eğitim ve öğretimi güçlü bir şekilde etkilediğini ve bu konunun öneminin devam edeceğini göstermektedir. Öğretmenlerin sınıfta teknolojiyi kullanmalarında alan ve pedagojik bilgiye olduğu kadar teknoloji bilgisine de sahip olmaları gerektiği sürpriz değildir. Fakat öğretim sürecini dönüştüren, öğrencilerin bilişsel aktivasyonunu sağlayan, öğretimde derinleştirme ve zenginleştirme çalışmalarını teknoloji ile gerçekleştirmede öğretmenler desteğe ihtiyaç duymaktadır. Bu noktada Bilişim Teknolojileri Öğretmenleri (BTÖ)'nin rolü önem kazanmaktadır. Bu araştırmada teknoloji entegrasyonu sürecinde BTÖ'lerin rolünü incelemek üzere nitel araştırma çerçevesinde derinlemesine inceleme için iki farklı okuldan, farklı alanlardan farklı deneyim sürelerine sahip öğretmenlerle çalışılmıştır. Öğretmenler teknoloji entegrasyonu çalışmalarını hem yüz yüze hem de pandemi nedeniyle uzaktan eğitim sürecinde gerçekleştirmişlerdir. Verilerin toplanmasında yarı yapılandırılmış görüşmeler ve gözlemlerden faydalanılmış, veriler içerik analizi yöntemi ile analiz edilmiştir. Araştırma sonucunda BTÖ'lerin teknoloji entegrasyonu sürecindeki kolaylaştırıcı etkisi vurgulanmaktadır. Teknoloji entegrasyonu sürecinde yaşanan problemlerin çözümünde BTÖ'ler önemli bir rol oynamaktadır. Özellikle pandemi nedeniyle hızlı karar alması gereken okullar BTÖ'lerin rolü ile uzaktan eğitime geçiş sürecini verimli şekilde tamamlamışlardır. Kılavuz Botları Benzetimi ile BTÖ'lerin rolleri açıklanmıştır. Ayrıca teknoloji entegrasyonu süreci için bir yol haritası sunularak okulun olağan programında ya da pandemi gibi acil durumlarda nasıl yol izlemeleri gerektiği ile ilgili çözüm önerisi sunmaktadır. Bu araştırmadaki bulgular ayrıca kurumların eğitim teknolojileri alanında yapacakları yatırımlar, okulların hem yüz yüze hem uzaktan eğitim sürecindeki teknoloji dönüşümleri için yol gösterici niteliktedir.

Anahtar Kelimeler: *Uzaktan Eğitim, Teknoloji Entegrasyonu, Dijital Oyun Tabanlı Öğrenme, Bilişim Teknolojileri Öğretmenleri.*

GİRİŞ

Teknoloji entegrasyonu, öğrenme öğretme sürecinde teknolojinin kullanılmasını benimsenmesini kapsayan bir süreçtir. Öğretmenlerin teknolojiye hâkim olmaları ve

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bunu ihtiyaçlara yönelik olarak kullanarak öğretme sanatıyla zenginleştirerek kullanmaları beklenir. Sadece teknik olarak bir aracın öğretmen ve öğrenciler tarafından kullanılmasından daha kapsamlı bir süreçtir. Teknoloji entegrasyonunda hedeflenenin sadece sayıca daha fazla ya de çeşitli olmasından ötede öğrenme öğretme sürecine katkısının niteliksel olarak değerlendirilmesi olmalıdır. Teknoloji entegrasyonu için yatırımlar, teknolojinin satın alınmasından öteye geçerek, öğretmenlerin ve öğrencilerin zaman ve çabalarını da içerir. Bu değerli yatırımların doğru yönlendirilmesi için teknoloji entegrasyonundaki nitelik iyi değerlendirilmelidir.

Uzaktan eğitim sürecine hızlı geçişte, birçok okul, sadece çevrimiçi erişimi sağlayan köprü niteliğindeki platformların sağlanmasının yeterli olmadığını fark etti. Başarılı uygulamalar yaptıkları kadar aynı zamanda öğretmenler, geleneksel sınıf ortamında teknoloji olmadan yaptıklarından daha geleneksel ve yetersiz biçimde dersler uygulamak durumunda da kaldılar. Öğretmenlerin ve kurumların ihtiyaçlarına yönelik çözümlerin geliştirilmesi, öğretmenlerin her zaman yaptıklarının dışına çıkmak durumunda kalmaları süreci zorlaştırdı. Yeni araçları tanımak, denemek ve uygulamak için yeterli zamana sahip olmayan öğretmenler güvenli ya da zor yolu seçerek çevrimiçi öğrenme ortamında teknolojiyle öğrenme öğretme fırsatlarını sağladılar.

Bu sürecin ve dönüşümün zorlayıcı doğası, sadece olağandışı pandeminin yaşanmasından ve hızlı olması gerektiğinden kaynaklanmamaktadır. Teknoloji entegrasyonundaki engeller ortadan kalkmak yerine farklı bir boyut da kazanmıştır. Yüz yüze eğitim sürecinde de bu biraz daha yavaş bir şekilde işlese de temelde büyük benzerlikler taşımaktadır. Bu benzerlikler neticede teknolojiyle nitelikli eğitimin sağlanmasında odaklanmaktadır.

Teknoloji entegrasyonunda yaygın görülen engellerin aşılmasında, bu süreç kaderine bırakılmadan öğretmenlere, kurum içindeki görevlendirmelerle destek sağlanması gerektiği açıktır. Pandemi ile uzaktan eğitime acil geçişle teknoloji entegrasyonu engelleri bir anda yok olmamıştır. Yüz yüze ya da uzaktan eğitim sürecinde de olsa neticede teknoloji entegrasyonu bağlamında beklentiler ve engeller benzerlik göstermektedir. Bu engelleri aşmanın ya da süreci kolaylaştırmanın, yüz yüze ve uzaktan eğitimde de etkin bir yolunun aranması önemlidir. Ayrıca Backfisch ve arkadaşlarının (2021) tanımladığı gibi teknoloji entegrasyonu kalitesinin değerlendirilmesi için öğretmen ve öğrenci açısından ayrı ayrı etkilerine bakılması gerekmektedir. Öğretmen açısından ne kadar yenilikçi bir öğrenme ortamı tasarladığının, öğrenme faaliyetlerini ne ölçüde dönüştürdüğün, ya da önceki geleneksel faaliyetlerini öğrencilerin üst düzey düşünme becerilerini geliştirmek üzere ne kadar yeniden tasarladığının ve sınıf pratiklerini ne kadar geliştirdiğinin değerlendirmesi gerekir. Öğrencilerin de öğrenme sürecinde teknoloji ile nasıl etkileşime girdiği de önemli bir ölçüttür.

Yenilikçi öğrenme yaklaşımları ve yöntemlerini, teknoloji entegrasyonu sürecine dahil ederek öğrenme ve öğretim sürecinin niteliği artırılmalıdır. Teknoloji entegrasyonunun karmaşık sürecinde öğretmenlere uygun rehberliğin sağlanmasında, kurumların ihtiyaçların belirlenmesi ve karar alması sürecinde eğitim teknolojileri uzmanlarına ihtiyaç vardır.

Teknoloji Entegrasyonu Kalitesi

Yaygın olarak araştırmalarda kullanılan Teknoloji Pedagoji Alan Bilgisi Modeli (TPACK) bir öğretmenin sınıfta teknolojiyi kullanmak için neyi bilmesi gerektiği ile ilgili bir çerçeve sunar. Bu noktada öğretmenlerin kurs, çalıştay vb. eğitim uygulamalarıyla bu bilgi alanlarını geliştirebilecekleri fırsatlara, daha fazla içeriğe özgü teknoloji entegrasyonu örnekleri ile tanıştırılmaya, öğretmenin dersin içeriğine ve kazanımlarına hâkim olmalarına ihtiyaç duyulduğu ortaya çıkmaktadır. Teknoloji entegrasyonu alanındaki farklı çalışmalar da algı tutum ve motivasyon gibi içsel faktörlere de atıf yapmaktadır. Sonuç olarak teknoloji entegrasyonu sürecinin TPACK'in sunduğundan daha geniş boyutta içsel ve dışsal faktörlere bağlı olduğu açıktır. Yine de pratikte TPACK'te öğretmenlerin, bilgi ve uygulamaları arasında boşluk devam etmekte ve TPACK teknoloji ve kazanım ve ihtiyaçlar çerçevesinde öğretim kalitesini artırmaya yönelik "nasıl" entegrasyonunun sağlanacağı konusunda yeterli rehberlik sağlanmamaktadır.

Öğretmenlerin pratikte uygulamalarına yakından bakıldığında araştırmalar öğretmenlerin yeni bir teknolojiyle, önceki pratikleri çok fazla değiştirmeyecek uygulamalara meylettiklerini görülmektedir. Bulut ortamında dosya paylaşımı yapmak, sunum yapmak, çevrimiçi testler gibi ölçme değerlendirme için teknolojiyi kullanmak, kaliteli teknoloji entegrasyonunu sağladığını göstermekte midir? İhtiyaçlar bu çerçevede olduğu sürece bu yol elbette ki yetersiz olarak nitelendirilmemelidir fakat asıl sorun bu yolun, öğretmenin mevcut uygulamalarının "yerine geçtiği" ve öğrencilerin "pasif" durumda ilişkisi olduğu, sınıf yönetimi ya da yaşanabilecek farklı problemler için belirli riskleri engelleyen "güvenli bir yol" olarak tercih edilmesidir. Bu noktada Kahoot ya da Quizziz gibi birbirine benzeyen araçları öğretmenin; öğrencilerin, geleneksel yönteme göre yeni olmasının etkisi ve sınıf içi etkileşimle motive oldukları için geleneksel testlerin yerine bu araçları tercih ettiğini söyleyebiliriz. Fakat bu, iki farklı aracı kullandıkları için daha iyi ve daha çok teknoloji entegrasyonu yapıldığı anlamını taşımamaktadır. Teknoloji aracının yenilikçi doğasından yararlanılması öğretim kalitesini etkilemez (Backfisch ve diğerleri, 2021). Öğretim kalitesi için öğrencilerin bilişsel aktivasyonunu sağlama, bireysel öğrenme desteğine ve sınıf yönetimi süreçlerine, öğretim sürecini nasıl değiştirdiği, nasıl etkileşime girildiğine bakılmalıdır.

Bilişim Teknolojileri Öğretmenleri

Literatür ve uygulamalar, teknoloji entegrasyonu sürecinin ne kadar kapsamlı ve karmaşık olduğunu ortaya koymaktadır. Bu süreci zorlaştıran kaynak, zaman, teknolojiye erişim, yönetim desteği ve eğitim gibi dışsal faktörleri tahmin etmek zor değildir. Bu dışsal faktörlerin çözümü içsel faktörlere göre görece daha az karmaşık çözümler içermektedir.

Teknolojiyi sınıfta kullanma sürecinde bilgi ve yetenek eksikliği, içsel olarak öğretmenler için engel teşkil edebilmektedir (Dinc, 2019; Prasojo ve diğerleri, 2019). Öğretmenlerin bu eksikliği hissetmesiyle olumsuz tutumlar sergilemelerine de neden olabilmektedir. Sadece belirli dönemlerde eğitimler verilerek ya da farklı örnekler içeren hazır kaynaklar sağlanarak öğretmenlerin bilgi ve yetenek eksikliklerinin giderilmesine belirli bir düzeye kadar destek verilebilir fakat bu tam anlamıyla bir çözüm değildir. Teknoloji entegrasyonu süreci daha uzun bir zaman dilimin kapsar ve öğretmenlerin

bu süreçte yalnız bırakılması da çözümü zorlaştırmaktadır. Çünkü teknoloji entegrasyonu ders, öğretmen ve sınıf özelinde de ele alınmalıdır.

Öğretmenin dersi için uygun aracı keşfetmesi, benzerleri arasından ihtiyaca yönelik seçim yapması bile başlı başına kapsamlı bir süreçtir. Bu noktada da öğretmenlerin yeterli zaman bulamamaları, boşa çıkan çabalarından dolayı yılmaları da mümkün olabilir. Hatta ihtiyaca yönelik olmayan teknoloji kullanımı da sınıfta teknoloji kullanımının faydalı olmadığı düşüncesini yaratabilmekte ve tabii ki yanlış yatırımlara neden olabilmektedir.

Dinc(2019)'in yaptığı araştırmada öğretmenlerin öğretme şekillerini değiştirmek istememelerinden kaynaklanan isteksizliğin ve alışmış oldukları öğretme şekillerini korkmalarından kaynaklanan güven eksikliğinin, teknolojiyi derse dahil edecek kadar rahat hissetmemelerinin neden olduğu teknoloji entegrasyonu engelleri de önemli bulgulardır. Bu noktada öğretmenlere süreç içerisinde rehberlik etmek, dersteki uygulamalara katılmak ve geri bildirimler ve gözlemler doğrultusunda düzenlemeler yaparak teknoloji entegrasyonunu geliştirmek önem kazanmaktadır.

Okulun kurumsal olarak görev dağılımında öğretmenlere bu desteği verecek eğitim teknolojileri uzmanlarına ihtiyaç vardır. Bilgisayar ve Öğretim Teknolojileri Eğitimi (BÖTE) mezunları BTÖ'ler de önemli bir rol potansiyeline sahiptir.

BÖTE bölümlerinin vizyonlarına bakıldığında, üniversitelerin:

"İlköğretim ve ortaöğretim seviyelerinde bilişim teknolojileri ve yazılım öğretmeni yetiştirmenin yanısıra öğrenmeyi sağlamak için kullanılacak süreç ve araçları çözümleyen, tasarlayan, geliştiren, uygulayan ve değerlendiren uzmanları yetiştirmeyi", ("Boğaziçi Üniversitesi", 2022)

"Eğitim kurumlarında kullanılacak bilgisayar ve diğer eğitim teknolojisi ürünlerinin etkin kullanımı için metotlar geliştirmeyi; öğretim yazılımları hazırlamak ya da bunların eğitimsel niteliğini geliştirici elemanlar yetiştirmeyi," ("Adnan Menderes Üniversitesi", 2022)

hedefledikleri görülmektedir. BTÖ'ler teknoloji entegrasyonunda bilgi ve uygulama arasındaki köprüyü kurmada önemli bir role sahiptir. BTÖ'ler devlet okulları ve özel okullarda Bilişim Teknolojileri ve Yazılım derslerine girmekle görevlendirilmektedir. Bu tür teknoloji entegrasyonu çalışmaları yapmak ise adeta kaderine terk edilmiştir. Aslında BTÖ'lerin okullardaki bu dönüşümü sağlamada katalizör etkisi göz ardı edilmemelidir.

Dijital Oyun Tabanlı Öğrenme

Bu araştırmada teknoloji entegrasyonu sürecinin incelenmesinde dijital oyun tabanlı öğrenmeden faydalanılmıştır. Bunun nedeni öğretmenleri alışmış oldukları öğretme şekillerinin dışına çıkmaya teşvik etmesidir. Dijital Oyun Tabanlı Öğrenme (DOTÖ) ortamında, sadece dijital testler ya da sunumlarda olduğu gibi öğrencinin pasif, öğretmenin ise mevcut uygulamalarının yerine geçen teknoloji entegrasyonu çalışmaları

yapılmamakta, öğrencinin tam olarak aktif katılımını ve öğretmenin öğretme sürecini değiştirmeye teşvik eden bir ortam sağlanmaktadır.

DOTÖ, eğitim içeriği ve bilgisayar oyunları arasında yakın bir bağlantı kurar. Eğlence öğrencileri oyun oynamaya teşvik eder fakat öğrenciler derse odaklı kalırlar. Öğrencilerde motivasyon artar (Yang, 2015) ve öğrenme sürecinde daha çok katılırlar (Hamari ve diğerleri, 2016). Karar verme, problem çözme, eleştirel düşünme gibi üst düzey düşünmeyi (Eseryel, Ge, Ifenthaler ve Law, 2011), sosyal duygusal gelişimi (Pareto, Haake, Lindström, Sjödén ve Gulz, 2012) deneyerek aşamalı olarak öğrenmeyi, yüksek otonimiyi, başarı duygusunu ve öğrenci merkezli öğrenmeyi sağlar (Anastasiadis, Lampropoulos ve Siakas, 2018).

DOTÖ'nün proje tabanlı öğrenme, işbirlikli öğrenme gibi farklı öğrenme yaklaşımlarını da birleştirmeyi sağlayan esnek yapısının sağlanmasında önemli bir hazırlık süreci gerekebilir. DOTÖ uygulamaları ile teknoloji entegrasyonunu sağlamada, sadece teknolojiyi tanımak değil sınıf ihtiyaçları ve dinamikleri de göz önünde bulundurulmalı, süreç içerisinde ihtiyaçlara göre yeniden şekillendirilerek yapılandırılmalıdır.

Bu araştırmada Minecraft Eğitim Sürümü (Minecraft:ES) ile DOTÖ uygulaması gerçekleştirilmiştir. Öğretmenlerin önceden Minecraft:ES ile deneyimleri farklılık göstermektedir. Araştırmada öncelikle öğretmenlere hazırlık eğitimi verilmiş, uygulamalar gerçekleştirilmiş, uygulama sonrasında yeniden düzenlemeler de yapılmıştır. Tüm bu aşamaların öncesinde ve her aşama sonrasında öğretmenlerin görüşleri alınmıştır.

ARAŞTIRMANIN AMACI

Bu araştırmada, BTÖ'lerle teknoloji entegrasyonu sürecini yürüten farklı alanlarda farklı deneyim sürelerine ve teknoloji yeterliliklerine sahip öğretmenlerin, BTÖ'lerin teknoloji entegrasyonu sürecine etkisinin nasıl olduğu konusunda görüşlerinin alınması ve gözlem yoluyla da desteklenerek tüm sürecin analiz edilmesi hedeflenmiştir. Bu amaçla şu problem ve alt problemler belirlenmiştir:

1. Disiplinlerarası dijital oyun tabanlı öğrenme uygulamalarının teknoloji entegrasyonunda kullanılmasında Bilişim Teknolojileri Öğretmenleri (BTÖ) ve alan öğretmenlerinin iş birliğinin etkisi nasıldır?
2. Teknoloji entegrasyonundaki zorlukların aşılmasına katkı sağlayacak etmenler nelerdir?
3. BTÖ iş birliği ile gerçekleştirilen teknoloji entegrasyonunun PICRAT Modeli'ine göre değerlendirilmesi nasıldır?

METOD

Bu bölümde araştırma modeli, katılımcılar ve verilerin toplanması ve analizi bilgilerine yer verilmiştir.

Araştırma Modeli

Bu araştırma nitel araştırma çerçevesinde bir durum çalışmasıdır. Bu araştırma kapsamında toplanan veriler, katılımcı öğretmenlerle gerçekleştirilen yarı yapılandırılmış görüşmeler ve uygulama esnasında yapılan gözlemler yoluyla elde edilmiştir. Böylece araştırma sorulara yanıt bulmak için derinlemesine bir bakış elde edilmeye çalışılmıştır.

Katılımcı Grubu

Araştırmadaki katılımcılar, Türkiye'de İzmir ve Aydın'da bulunan iki özel ilköğretim kurumunda görev yapan üçü erkek altısı kadın olmak üzere dokuz öğretmenle gerçekleştirilmiştir. Araştırma verileri sunulurken katılımcıların gizliliğine önem verilerek, branşlarına göre harflerle ve sayılarla M1, M2, … S1, S2 şeklinde kodlanmıştır.

Tablo 1. *Katılımcı Grubu*

Katılımcı Kodu	*Alan*	*Kıdem*	*Seviye*
M1	Matematik	8 yıl	5 ve 6.sınıf
M2	Matematik	5 yıl	6 ve 7. Sınıf
S2	Sosyal Bilgiler	6 yıl	5 ve 6.sınıf
S1	Sosyal Bilgiler	4 yıl	5.sınıf
F2	Fen Bilimleri	16 yıl	6.sınıf
F1	Fen Bilimleri	13 yıl	Ortaokul ve Lise
B1	Bilişim Teknolojileri	11 yıl	İlkokul ve Ortaokul
B3	Bilişim Teknolojileri	1 yıl	Ortaokul ve Lise
B2	Bilişim Teknolojileri	1 yıl	Anaokulu ve İlkokul

Veri Toplama ve Analizi

Araştırmada veri toplama aracı olarak, yarı yapılandırılmış görüşme soruları, gözlem notları ve ayrıca uygulama esnasında yönetim izni dahilinde destekleyici olarak video ve fotoğraflar kullanılmıştır. Katılımcılar ile gerçekleştirilen görüşmeler ortalama bir saat sürmüştür. Tüm görüşmeler katılımcıların bilgisi ve onayı dahilinde ses kayıt cihazı ile kayıt altına alınmıştır. Ses kayıtları transkript edilerek veri setlerine dönüştürülmüştür.

Yarı yapılandırılmış görüşme formları, belirli düzeyde standartlığa ve araştırmanın ana konseptine bağlı kalarak soruları değiştirebilme ya da soru ekleyebilmeyle sağladığı esnekliği nedeniyle, belirli bir konuda derinlemesine bilgi edinmeye yardımcı olması nedeniyle araştırmacılar tarafından sıklıkla kullanılmaktadır (Güler, Halıcıoğlu ve Taşğın, 2015). Araştırma kapsamında hazırlanan açık uçlu sorulardan oluşan yarı yapılandırılmış görüşme ile öğretmen görüşleri alınmıştır.

Araştırmada, amaca yönelik veri çeşitliliğini sağlamak, süreci doğal ortamında gözleyerek süreç hakkında daha fazla fikir sahibi olmak adına gözlem yapılmıştır. Gözlem yönteminde araştırmacının tam katılımcı, katılımcı olarak gözlem, gözlemci olarak

katılım ve tam gözlem olmak üzere dört farklı rolü olabilir (Gold, 1958). Bu araştırmada araştırmacı tam katılma durumuna benzer şekilde, doğal ortamı bozmadan araştırmacının rolünün araştırmaya konu olan kişiler tarafından bilinen şekilde kişilerle güven ve iyi ilişki geliştirilerek gözlem yaptığı katılımcı olarak gözlem ve araştırmacının rolünün kişiler tarafından bilindiği, grupla iletişim kurduğu, grup aktivitelerine katılmadığı gözlemci olarak katılım rollerinde yer almıştır.

- Toplanan veriler nitel araştırmalarda sıklıkla kullanılan içerik analizi tekniğine göre analiz edilmiştir. İçerik analizinin amacı bir fenomenin kavram ve kategoriler ile özetlenmesini ve geniş bir yer tanımlamasını yapmaktır(Güler ve diğerleri, 2015). İçerik analizinde metinlerde ortaya çıkan kelime ve kodların sayılmasından öteye geçilerek araştırmacının bakış açısı ve beklentisi ile desteklenerek gizli kalmış temaların ve modellerin incelenmesi olanağı ortaya çıkmaktadır. Bu araştırmada içerik analizi verisi, öğretmenlerle yapılan görüşmeler ve ses kayıtlarından oluşan transkriptler, görüşme esnasındaki gözlemler, fotoğraflar ve video kayıtlarının tümevarımsal olarak incelenmesi ile analiz edilmiştir.
- Veri tutarlılığının sağlanması adına veri çeşitliliği sağlanmıştır. Ayrıca analiz çeşitliliği için elde edilen veriler içerik analiziyle kodlandıktan sonra gözlemler yoluyla elde edilen bulgularla değerlendirilerek makro analiz gerçekleştirilmiştir.
- Ayrıca uzmanlarla elde edilen taslak temalar, kodlar, kesinleşen temalar ve ilişkilendirilen veriler ayrı ayrı incelenmiştir. Elde edilen veriler doğrultusunda oluşan temalar ve kodlar kapsamında, "görüş birliği" ve "görüş ayrılığı" olan konular tartışılmış ve gerekli düzenlemeler yapılmıştır. Araştırmanın güvenirlik hesaplaması için (Miles ve Huberman, 1994)'ın önerdiği güvenirlik formülü Güvenirlik = Görüş Birliği (Görüş Birliği + Görüş Ayrılığı) kullanılmıştır. Hesaplama sonucunda araştırma güvenirliği %92 olarak hesaplanmıştır. Güvenirlik hesaplarının %80'in üzerinde çıkması araştırma için güvenilir kabul edilmektedir (Miles ve Huberman, 1994). Ayrıca bulgular farklı alan uzmanı öğretmenlere okutulmuş, görüşleri alınmış ve farklı perspektiften değerlendirmeleri sağlanmıştır.

BULGULAR

Teknoloji Entegrasyonu Sürecinde Bilişim Teknolojileri Öğretmenlerinin Rolü

Araştırmada, BTÖ'ler (B1, B2 ve B3) alan öğretmenlerine teknoloji entegrasyonu uygulamaları öncesinde bir hazırlık eğitimi vermiş, ardından uygulama sürecinde BTÖ'ler alan öğretmenleri ile birlikte ders ve kazanım boyutunda çalışmalar yapmışlardır. Seçilen uygulamanın ders kazanım ve ihtiyaçları boyutunda nasıl kullanılacağı, nasıl bir hazırlık yapılacağı ile ilgili öğretmenlere rehberlik etmişlerdir.

Uygulama sürecinde BTÖ'ler, okuldaki bilgisayarlara erişim için bilgisayar sınıflarının hazırlanması ve organizasyonunda destek olmuşlar, uygulama esnasında da başlangıç aşamasında öğretmenlerle birlikte derslere girmişler ve gerekli noktalarda teknik destek sağlamışlardır.

Araştırmanın ana problemi "Disiplinlerarası dijital oyun tabanlı öğrenme uygulamalarının teknoloji entegrasyonunda kullanılmasında Bilişim Teknolojileri Öğretmenleri (BTÖ) ve alan öğretmenlerinin iş birliğinin etkisi nasıldır?" sorusuna yanıt olarak öğretmenlerin görüşleri alınmış ve temalarla kodlanmıştır.

Tablo 2. *BTÖ'lerin Rolüne İlişkin Görüşler*

Temalar	*BTÖ'lerin Rolü*
Katkıları	Kolaylaştırıcı Müfredata uyarlamada destek Kaynak / Eğitim Sağlaması Teşvik edici Materyal desteği
Sınırlılıklar	İş Yükü (Ders program, farklı görevlendirmeler) Zaman sınırlılığı (Ortak çalışma saatleri sınırlılığı) Ders kazanımlarının paralel olmaması

- BTÖ'ler bir teknoloji entegrasyonu sürecinde kolaylaştırıcı rolündedir. Müfredata uyarlamada hangi teknolojinin seçileceği ve hangi sınıflarda hangi derslerde nasıl uygulanacağı konusunda önemli bir rehberlik sağlamaktadır. Okulların mevcut düzeninde, Bilişim Teknolojileri ve Yazılım dersi haricindeki diğer sınıfların doğrudan bir teknolojiye erişimleri olmadığı için, bu derslerde teknoloji araçlarının kullanılması gerektiğinde bilgisayar sınıfının kullanımının planlanmasını BTÖ'ler gerçekleştirmiştir. Teknoloji entegrasyonundaki en temel engellerden biri olan teknolojiye erişim eksikliği de BTÖ'lerin organizasyonu yapmasıyla aşılmıştır. Ayrıca öğretmenlerin neyi nasıl yapacaklarına ilişkin bilgi ve yetenek eksikliği de BTÖ'ler tarafından aşılması sağlanmıştır.

  B1. *"Minecraft kısmını öğretmenlerimiz (BTÖ'ler) biliyor biz orayı öğrenmesek de olur, biz sadece konuyu verelim onlar uygulatırlar" gibi bir düşünce olabiliyor. Çünkü herkes bildiği alana yönlenmeye çalışıyor. Ben matematik konusunu vereyim bilişimciler (BTÖ'ler) uygulatır gibi bir düşünce yapısı hâkim olabiliyor… Sürece hâkim olmayan bir öğretmene sıfırdan bir dünya oluşturup onun üzerine bir şey inşa etmelerini ya da ettirmesini istemek çok daha zor olacaktır …yapamıyorum moduna girerlerse orada bizim rolümüz biraz daha fazla olacaktır.*

  Ben çok yatkın değilim, (teknolojiyi) çok fazla kullanmıyorum (teknolojiyi kullanmak için) zamanımı geçirmiyorum gibi öyle bir korku olabiliyor insanlarda bunu kırmak için de ancak deneyerek bir şeyleri birlikte yaparak aşabiliriz diye düşünüyorum.

  B2*:Bu konuda biz de onları teşvik ederiz olayın içine çekmeye çalışırız. Öğretmenler genellikle teknolojiyle bütünleştirme çalışması yapmaları gerektiğinde BT öğretmenlerinden destek alıyorlar.*

***S1**: İstediğimiz zaman danıştığımızda yardımcı oluyor. Biz öğretmenler müfredatımıza hakimiz, hangilerine yapabiliriz, hangi ünitelerimize dahil edeceğimizle ilgili.. ama BTÖ ile birlikte bir çalışma çıkartabilirdik.*

***M1**: …biz senaryoları tasarlarken BTÖ bize destek verdi. Biz kendi bildiğimiz bilgileri bu senaryolarla entegre edecek çalışmalar yapıyoruz.*

***F1**: Teknoloji entegrasyonu sürecinde BTÖ'leri önemli rolde görüyorum.*

***S2**: Belki ilerleyen zamanda ben bunu tek başıma yapabilirim. Benim de o zamana kadar BTÖ'ye ihtiyacım var.*

***B2:** …Bu konuda biz de onları teşvik ederiz olayın içine çekmeye çalışırız. Öğretmenler genellikle teknolojiyle bütünleştirme çalışması yapmaları gerektiğinde BTÖ'lerden destek alıyorlar.*

- Öğretmenlerin görüşleri doğrultusunda bu uygulamayı yapmaya geçişleri kolay olmadığı görülmektedir. Yeni tanıdıkları ve kapsamlı hazırlık gereksinimi nedeniyle öğretmenler Tablo 3'te yer verilen birtakım kaygılar yaşamaktadır. Okulda teknoloji alt yapısı bulunduğu halde bunu derslerine göre nasıl planlayacakları konusunda endişe duymaktadırlar. Her öğrencinin kendi cihazını getirdiği durumlarda bu sorun yaşanmayabilir fakat her okulda böyle bir fırsatın olmadığı göz önüne alındığında, okuldaki bilgisayar sınıflarının bu tür uygulamalar için programlanması da önemli hale gelmektedir.
- Yapacakları uygulamanın müfredatta ne kadar zaman alacağına ilişkin bir tahmin yürütememekte ve plan yapamamaktadırlar. Çünkü teknolojiyi sınıfa taşıdığınızda, teknik problemler yaşanması ya da öğrencilerin akıcı şekilde görevi yerine getirememesi sonucunda bir çıktı elde edememek ve daha çok zamana ihtiyaç duymak gibi sorunlar ortaya çıkabilme ihtimali vardır. Bu gibi durumların engellenmesi için sınıf yönetimi konusunda ne kadar deneyimli olsalar da o teknolojinin kullanıldığı bir ortamda sınıf yönetimi sağlama konusunda da deneyim gerekmektedir. Bu geçişi sağlamak için BTÖ'lerin derslere destek için girerek, teknik konularda yardımcı olmaları, öğretmene destek olmaları önemlidir. Öğretmen ilk aşamada bu süreci deneyimledikten sonra, bir sonraki uygulama için ne tür önlemler alması ya da ne tür hazırlıklar yapması gerektiği ile ilgili çalışabilir. Ayrıca BTÖ'ler bu tür uygulamalar için ne kadar süre gerektiğine ilişkin deneyimleri sonucunda yıllık planları bu duruma göre hazırlamada destek olabilir.
- Teknolojiyi hazırlık eğitiminde tanısalar da bunu kendi derslerine nasıl entegre edecekleri konusunda kendilerini yeteri görmemektedirler. Hazır teknoloji entegrasyonu örneklerinin paylaşılması öğretmen için bir fikir oluştursa da öğretmenler daha esnek biçimde kendi dersleri ve sınıfları özelinde çalışmalar yapmak istediklerinden dolayı, hazır içerikler yeterli değildir.

Tablo 3. *Teknolojinin Sınıfta Kullanılması Sürecinde Öngörülen Zorluklara Yönelik Görüşler*

Temalar	Örnek İfadeler
Zaman	*M1: "İş yükü de ona göre dengeli şekilde dağıtılırsa bu tür uygulamalara daha verimli daha çok zaman ayırma fırsatımız olur."* *S2: Öğretmeni zorlama şu zaman anlamında zorlayabilir*
İş Yükü	*B1: "BTÖ'lerden destek alıyorlar. Bu da iş yükünü de artırıyor."* *F2: "Program yoğunluğu da bizi birazcık zorluyor açıkçası"* *S2: …emek olarak bunlar öğretmeni zorlar.*
Teknoloji Alt Yapısı	*M2: "Sınıflarda akıllı tahta dışında teknoloji donanımı yok"* *M1: "Sınıflarda teknoloji araç gereç eksikliği kısıtlamaya neden oluyor."* *F2: …kendi laboratuvar uygulamalarımızla geçiriyoruz…*
Yoğun Müfredat	*S1: "Yoğun bir müfredatımız var …Ders saatlerim çok fazla değil. …Ekstra bir ders saati ihtiyacını doğruyor."*
Planlama	*S1: "Öyle bir çalışma yapabilmem için aşağıdaki bilgisayar laboratuvarını kullanabilmem lazım"* *S2: Daha net bir plan yapmam gerekirdi.* *M2: Planlamalarda tabii ki sıkıntı yaratıyor. Çünkü ders programının ona göre ayarlanması, benim dersimin olduğu saatte laboratuvarın uygun olması benim için çok önemli.*
Öz-Yeterlilik	*F1: "Hâkim olmadığın bir şeye hâkim olmadan çok girişmek istemiyorsun. Rezil olma duygusundan mı derste kilitlenirim duygusundan mı neden bilmiyorum ama çok hâkim olmadığımız için korku oluşuyor."* *M1: Pratik yapmam gerekiyor. Daha önce eğitimini vermediğim için… tecrübe etmeden uygulama yapmadan nasıl bir sonuç alacağıma başlarda varamam.*
Müfredata Uyarlama	*S1: "Teknolojinin içerisine nasıl yedirebilirim o kısım biraz zorluyor beni."* *F2: "Bunun derse aktarılması konusu tabii ki daha fazla yardıma ihtiyaç duyardım."* *B1: Öğretmenler genellikle teknolojiyle bütünleştirme çalışması yapmaları gerektiğinde BT öğretmenlerinden destek alıyorlar. Bu da iş yükünü de artırıyor.*

BTÖ'ler, alan öğretmenleriyle birebir çalışmalarla teknoloji entegrasyonunu gerçekleştirmişlerdir. İlk aşamada Minecraft:ES ile dijital oyun tabanlı öğrenme ortamının tasarlanmasında BTÖ'ler rol almıştır. Minecraft:ES dünyalarının kazanımlara ilişkin olarak alan öğretmenlerinin fikirleri doğrultusunda senaryolaştırılarak oluşturulmuştur. Daha sonra ders akışının nasıl olacağı ile ilgili alan öğretmenleriyle planlama yapılarak dersler uygulanmıştır. BTÖ'lerin bu kapsamlı süreçteki rollerine ilişkin öğretmenlerin görüşleri alındığında öğretmenler BTÖ'lerin önemli bir kolaylaştırıcı rolde olduğuna yönelik görüş bildirmişlerdir.

M1: Olmasaydı yapamazdım. Onun için çok teknik bilgi sahibi olmak lazım. Minecraft ile ilgili de bilgi sahibi olmak lazım. Araştırıp uğraşmazdık yönlendirme olmasa. Bildiğimiz işlere yönelirdik. Minecraft'ın bu kadar etkili olduğunu tanıttı bize. Bunun dışında BT öğretmeni dersler verdi. Nasıl programlanır nasıl aynı dünyaya alınır malzeme kullanımı ve matematikte kullanımı. Siz rehberlik ettikten sonra biz bunu kullanmaya başladık. Platformu hazırlamakta rol aldı, sınıfın ve bilgisayar düzenini hazırladı. Daha deneyimli, bizi yönlendirip, teknik bir sorun olduğunda bütün altyapıyı B3 hazırladı. Aktif bir şekilde dersi takip etti. Teknik alt yapı olsun uygun ortamın yaratılması olsun iyi katkı sağladı.

M2: BT Öğretmeni sınıfta olmasaydı ben tek başına yapacak olsaydım bu uygulama olamazdı başarıyla sonlanmazdı. Öğrencilerin her türlü sorularına yanıt verdi. Tek tek ilgilendi. Ben üst düzey hakimiyete sahip olmadığı için BT çok destek olurdu.

F1: O olmasa olmazdı. Ben sınıfımda olurdum o sırada yani. Ben çok bir şey bilmediğim için sana ve çocuklara güvendim o konuda…

S1: Ben konuyu söylediğimde siz de araştırdığınız için bir alt yapı oluşturduğunuz için onun katkısı çok büyük oldu. İlk aşama olarak sizin o yönetme kısmını ben yapamayacağım için dünyayı siz açtınız o teknik bilgiye sahip olmadığım için beraber olmamızın çok faydası oldu. Siz olmasaydınız gerçekleşmeyebilirdi. Uzaktan eğitimde çok imkânı olmazdı. Benim alanım olmadığı için bir yerde tıkandığımda çözüm bulamayabilirim. Örneğin çocukları evden aynı dünyaya dahil edebildiniz, onu benim yapma imkânım olmayabilirdi. Ama öğrendikten sonra uygulama süreci gerçekleştirilebilecek bir çalışma. Sadece teknik anlamda o bilgiye sahip olmak gerekiyor.

S2: Ben BT Öğretmeninin rolünü benim işimi kolaylaştıran rolde görüyorum. Tabii ki ders içeriğimle ilgili bir durum yoktu. Ama benim en azından daha rahat hissetmemi sağladı diyebilirim. 40 dk var geçmesi gerekiyor o kaygım yoktu. Bilmediğim hakim olmadığım bir konuda iş yapıyorum o kaygımı baya indirdi. BTÖ olmasaydı yapabilirdim ama yine öğrenci ile birlikte yapabilirdim.

F2: Bence çok iyi bir ekiptik. Önce sorduğunuz sorudaki gibi planlama aşamasında hangi konuyla ilgili bu konuyu burada nasıl yaparız dediğimde onlar da teknik altyapı ile ilgili detaylar verdiler. Uygulamada da öğrencilerimize rehber olacak şekilde destekliediler. Birlikte çok güzel tamamladık. Öğrenciler nasıl bağlasam diye sorduğunda hemen B1 yanındaydı destek oldular. BTÖ olmasaydı, ben tabii ki zorlanırdım. Ben Minecraft'ı günlük hayatımda oynayan biri değilim. İyi ki vardı. Yoksa nasıl altından kalkabilirdim bilmiyorum. Birden bırakıp normal ders anlatabilirdim. O farklı bir alan hocam, ayrı bir yetenek.

B1: Minecraft'ı bilmek önemli, ayrıntı bilmek önemli. Blok yerleştirilen bir şey inşa edilen bir oyun ama neyi kullanarak neyi inşa edilebileceğini bilmeleri çok önemli ki çocukları bu konuda yönlendirebilirsinler. Bu konuda ben fikir verdim.

Öğretmenin Minecraft bilgisi yetersiz olduğu için genellikle F2 Fen Bilgisi kısmında ben ilgilenirim, Minecraft kısmını BTÖ halleder düşüncesinde olduğunu hissettim. Minecraft konusunda ben yardımcı oldum. Hangi konuyu yapacakları ve nelere dikkat edecekleri konusunda F2 yardımcı oldu.

- Araştırma süreci içerisinde pandeminin başlaması nedeniyle tüm okullar uzaktan eğitime geçmiştir. BTÖ'lere bu uzaktan eğitime geçiş sürecinde daha fazla görev düşmüştür. Uzaktan eğitim alt yapısının kurulması, bu alt yapının öğretmenler tarafından kullanılabilmesi için eğitimi ve desteği, tüm öğretmenlerin ve öğrencilerin sorunsuz şekilde dersleri yürütmelerinin takibi, teknoloji entegrasyonu sürecinin öğretmenlerin uygun saatlerine göre organize edilmesi gibi çözümler üzerinde rol almışlardır. BTÖ'ler bir yandan da Bilişim Teknolojileri ve Yazılım derslerini de yürüttüklerinden uzaktan eğitime geçişte BTÖ'lerin iş yükünün önemli derecede arttığı görülmektedir.

  ***B1**: Uzaktan eğitim sürecinde bize çok iş düştü çünkü her şey sanallaştığı bir ortam oldu. Sanal dünyanın yönetimi de bize aitti. Çok çaba sarf ettik. Derslikleri ayarlamak, dersleri sisteme işlemek... Kontrol etmek gerekiyor, dersler işlendi mi o saatler doğru mu, akışı daha rahat devam ederiz diye düşündük ama zorluk yaşayan öğretmenleri hazırladık. Her hafta farklı zorluklar yaşayabiliyorduk. (Teknoloji Entegrasyonu çalışmaları için) dersleri ayarlayarak da boş saate denk getirmeye çalıştık. F2'nin dersinde yaptık ama S2'de derslerin olmadığı zamana koymaya çalıştık. Toplantılar da olduğu için o saatte (etkinliğin) bitmesi gerekiyordu gibi sorunlar yaşadık.*

- Yüz yüze eğitim sürecinde, BTÖ'ler, sınıflarda destek amaçlı bulunduğu ve derslerden önce bilgisayar laboratuvarındaki alt yapı konusunda önceden hazırlık yaptıkları için, önemli teknik sorunlar yaşanmamıştır. Fakat sanal sınıflarda, hazırlıksız biçimde pandemiye geçildiğinden birçok öğrencinin cihazları ve internet alt yapıları yeterli değildir. Standart getirilmeyen bu durumlarda, teknolojiyi yeni öğrenmiş ve uygulama yapmak isteyen öğretmenlerin yalnız bırakılması da teknoloji entegrasyonu sürecini zorlaştırabilir. Bu engellerin aşılmasında ve bu durumlardan doğan sorunların çözümünde de BTÖ'ler teknik destek sağlamıştır.

Teknoloji Entegrasyonu Çalışmalarının PICRAT Modeli'ne Göre Değerlendirilmesi

Bu araştırmada BTÖ'ler alan öğretmenleri ile 10 farklı teknoloji entegrasyonu çalışması yapmıştır. Öğretmenler birden fazla uygulama yaptıklarından öğretmen kodunun yanında kaçıncı uygulamada gerçekleştirdikleri uygulamaların olduğuna parantez içerisinde yer verilmiştir (Örnek olarak S1 öğretmeninin ikinci uygulaması S1(2) şeklinde yazılmaktadır):

M1(1): Çarpanlar ve Katlar
M1(2): Pi Etkinliği
S1(1): Üretim Dağıtım Tüketim
S2(1): Yeryüzü Şekilleri
S2(2): Kültür ve Miras
F1(1): Bitki ve Hayvan Hücreleri
F1(2): Mevsimlerin Oluşumu
F2(1): Güneş Sistemi
F2(2): Vücudumuzdaki Sistemler
F3(3): Elektriğin İletimi

Kimmons ve diğerleri (2020), sınıfta teknolojinin kullanımını öğrenci ve öğretmen açısından üç seviyede açıklayan PICRAT Modeli için geliştirdiği PICRAT Matrisi (Tablo 4) teknoloji entegrasyonu kalitesini değerlendirmeyi ve geliştirmeyi amaçlamaktadır. PICRAT'in boyutlarının nasıl değerlendirileceğine ilişkin akış şemaları değerlendirilerek öğretmenlerle yapılan uygulamalar matriste yerleştirilmiştir.

Tablo 4. *Teknoloji Entegrasyonu Uygulamalarının PICRAT Modeli'ne Göre Değerlendirilmesi*

ÖĞRENCİLERİN TEKNOLOJİYLE İLİŞKİSİ	**C Creative (Yaratıcı)**		S2(1), F2(1), F2(2)	M1(1), M1(2), F1(1), F1(2) S1, S2(2), F2(3)
	I Interactive (Etkileşimli)			
	P Passive (Pasif)			
		R Replaces (Yerini Alır)	**A Amplifies (Genişletir)**	**T Transforms (Dönüştürür)**
		KULLANILAN TEKNOLOJİ, ÖĞRETMENİN GELENEKSEL ÖĞRETİMİNİ NASIL ETKİLER?		

M1(1), M1(2), F1(1), F1(2), S1, S2(2) ve F2(3) uygulamalarında öğrenciler hem bireysel olarak hem de işbirliği ile bir gerçek yaşam problemini çözmek için kavramları kullanarak özgün dijital yapılar oluşturmuşlardır. F2(3), S1, S2(2), F1(2) uygulamalarında öğrencilerin uzaktan eğitim ortamında bir arada olma fırsatı bulamadıkları bir dönemde üç boyutlu sanal dünyada bir araya gelmeleri ve birlikte ürün oluşturmaları da bu teknoloji olmadan aynı etkinin oluşturulamayacağını gösterdiğinden öğretmenin öğretimini dönüştürmekte olduğu görülmektedir. Bu yüzden bu çalışmalar matriste CT (Yaratıcılık ve Dönüştürür) boyutunda yer almaktadır.

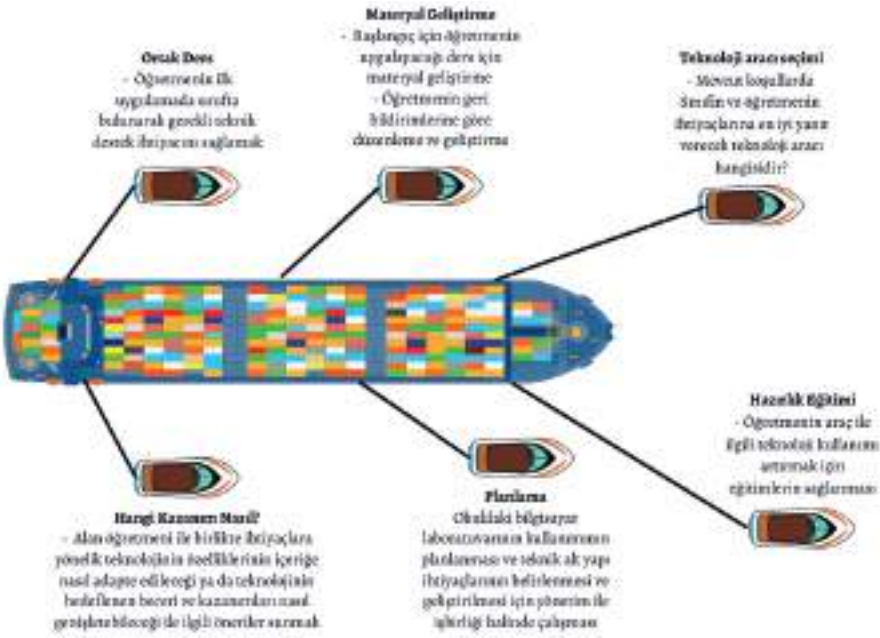
S2(1), F1(1), F1(2) uygulamalarında ise öğrenciler arkadaşlarıyla iş birliği yaparak kavramlara ilişkin yapılar oluşturmuşlardır. Fakat öğrencilerin etkileşimine bakıldığında özgün yapılar oluşturarak öğrenmelerini ve içerik anlayışlarını geliştirdikleri gözlemlendiğinden; öğretmenin öğretimi açısından bakıldığında daha düşük ya da makul bir araçla (çizim, maket vb.) ile gerçekleşebileceğinden dolayı AC (Genişletme ve Yaratıcılık) seviyesinde yer almaktadır.

Kılavuz Botları Benzetimi

Bu araştırmada teknoloji entegrasyonu sürecinin gerçekleştirilmesinde en önemli rol BTÖ'lerin kolaylaştırıcı rolü olduğu görülmektedir. Bir alan öğretmeninin dersine uygun teknolojiyi seçmesinden bunu dersinde uygulamaya başlama sürecini bir geminin denize açılmasına benzetebiliriz. BTÖ'ler bu gemilerin sağlıklı şekilde limandan ayrılmasına ve güvenli sulara geçene kadar yardımcı olan kılavuz botları gibidir. Böylece öğretmenler sonraki süreçte enginlere açılabilirler.

BTÖ'lerin teknoloji entegrasyonundaki rolünü açıklamak için Şekil 4.1'de Kılavuz Botları Benzetimi sunulmuştur.

BTÖ'lerin alan öğretmenlerine yaptığı kolaylaştırma çalışmaları, öğretmenlerin sonraki süreçlerde daha bağımsız hale gelerek, teknoloji entegrasyonu konusunda güven kazanmalarını sağlamak olduğu vurgulanmalıdır. Öğretmenlerin her zaman kendilerini geliştirmeye, yaşam boyu öğrenmeye açık ve istekli olmaları önemlidir.



Şekil 4.1 *Kılavuz Botları Benzetimi*

BTÖ'lerin de bu rolde etkili olabilmeleri için, diğer alanların kazanımlarına hâkim olmaları da önemlidir. Böylece öğretmenlerle birlikte çalışırken ihtiyaçları daha geniş bir kapsamda görebilme fırsatı elde edebilirler.

SONUÇ, TARTIŞMA VE ÖNERİLER

Bu araştırmada teknoloji entegrasyonu sürecinde dijital oyun tabanlı öğrenme uygulamalarının kullanılmasında BTÖ'lerin rolü incelenmiştir. Araştırma iki yıl boyunca hem yüz yüze hem uzaktan eğitim sürecinde alan öğretmenleri ve BTÖ'ler ile görüşmeler ve gözlemler yapılmıştır.

Araştırmada hem yüz yüze hem de pandemi ile birlikte uzaktan eğitimde teknoloji entegrasyonu sürecinin incelenme fırsatı elde edilmiştir. Uzaktan eğitime acil geçişte teknoloji araçlarına hızlı şekilde benimseme ve sınıfa taşıma zorunluluğunun artış göstermiş olduğu kabul edilebilir. Yine de teknoloji entegrasyonu sürecinde kolaylaştırıcı ve niteliği artırıcı etkenlerin aranması önemini korumaktadır. Bu bir bakımdan öğrenci, öğretmen ve kurumların zaman, emek ve para gibi kaynaklarının doğru yönetilmesi için de önemlidir. Teknoloji entegrasyonu hangi yöntemle olursa olsun karmaşık ve zorlu bir süreçtir. Teknoloji entegrasyonunda kaliteden çok niceliğe odaklanarak, organizasyonel yapıdaki eksikleri gidermeden aynı sonuçları beklemek doğru değildir. Uzaktan eğitime geçişle, öğretmenlerin daha önce deneyimlemedikleri sanal sınıf ortamında, önceki pratiklerinin yerine geçecek teknoloji uygulamalarıyla, hızlı, risksiz ve göz doldurucu, fakat öğrenme ve öğretme sürecine çok az katkı sağlayacak teknoloji entegrasyonu çalışmaları yapmaları, bizim eğitim öğretim açısından bir sonraki adıma geçtiğimizi göstermez. Bu teknolojinin sınıfa taşınmasından önceki durumumuzla aynı noktada olduğumuzu gösterir. Sonuç olarak bu çalışmada BTÖ'lerin rollerine ilişkin önerilerin, her durumda sürdürülebilir olduğu düşünülebilir. Uzaktan eğitim ile teknoloji entegrasyonundaki engeller bir anda ortadan kalmasa da BTÖ işbirliği ile birçok sorunun üstesinden gelinmiştir. Özellikle acil uzaktan eğitime geçişte kısıtlı zamanda, kaygı verici, olumsuz koşullar altında teknoloji entegrasyonu gerçekleştirilebilmiştir.

Araştırmanın sonuçlarına göre BTÖ'lerin okullarda öğretmenlere eğitim sağlanmasında, teknolojinin sınıfa taşınmasında, öğretmenler arasında yaygınlaştırılmasında ve sınıfta nitelikli teknoloji entegrasyonu çalışmaları yapılmasında önemli rolleri olduğu söylenebilir. BTÖ'ler öğretmenler için kolaylaştırıcı rolündedir. BTÖ'lerin hem teknoloji araçlarına hakim olmaları, hangi derslerde nasıl kullanılacağı konusunda yeterlilikleri, organizasyon sürecindeki katkıları teknoloji entegrasyonu çalışmalarının artmasında ve sürdürülebilir olmasında önemli katkılar sağlamaktadır (Özkan ve İnceoğlu, 2021).

Teknoloji entegrasyonunda yaygın olarak görülen teknik destek, içerik desteği, planlama, müfredatın kapsamı ve yoğunluğuna uygun uyarlama, teknoloji yöntem karmaşası ve olumsuz tutumlar gibi sorunların (Arslan ve Şendurur, 2017) çözümünde BTÖ'ler önemli bir rol üstlenmektedir. Teknoloji entegrasyonunun karmaşık ve kapsamlı sürecinde öğretmenlerin yalnız bırakılmaması da sürecin başarıyla yürütülmesine yardımcı olmuştur. Alan öğretmenlerinin öğretme şekillerini değiştirme ve teknolojiyi derse dahil edecek kadar rahat hissetmemeleri (Dinc, 2019) konusunda BTÖ'lerle işbirliği yapmalarıyla daha güvenli hissetmeleri sağlanmıştır.

Öğretmenlerin genel olarak teknolojiyi sınıfa taşıdıklarında, önceki sınıf pratiklerinin yerine geçecek şekilde kullanmaya meyilli oldukları (Çiftçi, Taşkaya ve Alemdar, 2013; Kimmons ve diğerleri, 2020; Şahin, Taşkaya, Meydan ve Şahin, 2012) ve işbirliği ve pedagojik destek eksiğinin teknoloji entegrasyonunda önemli bir engel olduğu bilinmektedir (Fu, 2013).

Bu araştırmada öğretmenlerin BTÖ'lerin katkılarına ilişkin Bölüm 4.1'deki görüşler doğrultusunda BTÖ'ler olmasaydı bu uygulamaları hiç yapamayacakları ya da her zaman yaptıkları ders uygulamasına geri dönecekleri fakat BTÖ ile işbirliği sonucunda bu tür uygulamalara devam etmek istediklerini bildirmeleri göz önüne alındığında, yapılan teknoloji entegrasyonu çalışmalarında BTÖ'nün işbirliği ve pedagojik destek eksikliği engelini aşmaya yardımcı olduğu söylenebilir. Öğretmenlerle yapılan uygulamaların PICRAT Modeli'ne göre değerlendirilmesi sonucunda öğretmenlerin geleneksel öğretimlerini dönüştürdükleri ve genişlettikleri göz önüne alındığında BTÖ'lerin teknoloji entegrasyonu kalitesini artırmaya yönelik de katkıları olduğu söylenebilir.

Araştırmada öğretmenlerin görüşlerinde BTÖ'lerle çalışma yapmak için zaman bulmada sıkıntılar yaşanması, yönetim tarafından bunların önceden programlanmaması ve asıl görev tanımlarında olmaması sınırlılık yaratabilmektedir. Bu yüzden okullarda teknoloji entegrasyonu çalışmalarının verimli şekilde yürütülmesi için BTÖ'lerin istihdamında ve iş yüklerinde düzenlemelerin yapılması önerilmektedir. Okullarda BTÖ olarak Bilişim Teknolojileri ve Yazılım derslerine girecek öğretmenler dışında, BÖTE mezunu olarak Eğitim Teknolojileri Uzmanları'nın istihdam edilmesi faydalı olabilir. Eğitim Teknolojileri Uzmanları, üniversitelerin BÖTE vizyon ve misyonlarında açıkladıkları gibi "süreç ve araçları çözümlemek, tasarlamak, geliştirmek, uygulamak ve değerlendirmek; bilgisayar ve diğer eğitim teknolojisi ürünlerinin etkin kullanımı için metotlar geliştirerek; öğretim yazılımları hazırlamak ya da bunların eğitimsel niteliğini geliştirmek üzere görevlendirilebilirler ("Adnan Menderes Üniversitesi", 2022; "Boğaziçi Üniversitesi", 2022; "Orta Doğu Teknik Üniversitesi", 2022).

BTÖ'lerin ya da Eğitim Teknolojileri Uzmanları'nın öğretmenlerle olan ilişkileri de teknoloji entegrasyonu sürecinin doğru yönetilmesi için önemlidir. Bu yüzden BÖTE öğrencilerine, koçluk eğitimleri verilmesi, kurum içerisinde alan öğretmenlerini motive etme ve hedeflerine ulaştırma sürecinde destek sağlayabilir.

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Çevrimiçi (Online) Ölçme ve Değerlendirmede Bireysel Farklılıklar

Gülgün BULUT[1], Murat AKYILDIZ[2]

Özet

İnsan doğası yapısı gereği komplike bir sistemdir. Geçmişten günümüze birçok alan bilimsel anlamda bu karmaşık yapıyı çözümleyebilmek adına çeşitli yöntemlere başvurmaktadır. Son zamanlarda bu yöntemlerin süreçlerine bireysel farklılıkların da dahil edilmesi konusu sıklıkla gündeme gelmektedir. Her bireyin özel bir yapıya sahip olmasından dolayı insan öznesini tanımlamanın ve anlamanın yolu bireysel farklılıkları dikkate almaktan ve bu çeşitliliğin zenginliğinden faydalanmaktan geçmektedir. Bugün tıp biliminde bile bir hastalığın tedavisi için her bireye kendi özelinde farklı testler uygulanarak bireylere aynı hastalık için farklı tedavi yöntemleri uygulanmaktadır. Günümüz eğitim sistemleri de bu anlamda evrilerek gerek öğretim aşamasında gerekse ölçme ve değerlendirme aşamasında bireysel farklılıkların dikkate alınması gereği konusu üzerinde önemle durmaktadır. Son dönemlerde tüm dünyayı sarsan Covid-19 pandemisi ile birlikte mikro öğrenme olanaklarının artması bireysel öğrenmeleri değiştirerek her bireye ihtiyacı yönünde öğrenme imkânı sunmaktadır. Örneğin; birey istatistiksel bir analiz için bu işlemi gerçekleştireceği programı seçebileceği gibi ilgili programı da bütünüyle değil ihtiyacı kadar öğrenmeyi tercih edebilmektedir. Bu durumda bireyin öğrenmediği ya da öğrenmeye ihtiyaç duymadığı/tercih etmediği becerileri ölçmeye çabalamak anlamsız olacağı için ölçme ve değerlendirme süreçlerinde de bireysel farklılıkların gözetilmesi hususu ön plana çıkmaktadır. Özellikle geniş kitlelere çoktan seçmeli test tekniği ile uygulanan sınavlarda katılımcıların bireysel farklılıklarına yönelik tasarlanmış ölçme ve değerlendirme sistemleri son zamanlarda sıklıkla gündeme gelen konular arasında yer almaktadır. Bu sebeple sürecin ölçme ve değerlendirme boyutu bireysel farklılıklar özelinde araştırmanın temel sorunsalı olarak ele alınmıştır. Bu kapsamda çalışmanın amacı çevrimiçi (online) ölçme ve değerlendirmede bireysel farklılıkları dikkate alarak zamandan ve mekandan bağımsız birey bazlı ölçüm yapabilen test sunum yöntemlerinin incelenmesidir.

Anahtar Kelimeler: *Ölçme ve Değerlendirme, Bireysel Farklılıklar, Çevrimiçi (Online) Çok Aşamalı Testler, Güvenlik*

GİRİŞ

Bireysel farklılıklar terimi; insan değişkenliğine katkıda bulunan önemli nörobiyolojik ve bilişsel dönüşümleri temsil ederek her insanı benzersiz kılan fiziksel, davranışsal, bilişsel, sosyal ve duygusal özellikleri ifade etmektedir (Alexander, 2019). Bireysel farklılığı konu alan kuramlar her bir insanı benzersiz kabul etmekte ve bireyleri ben-

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zersiz kılan özelliklere odaklanmaktadır (Ashton, 2013; Chamorro-Premuzic, 2015). Bireysel farklılıklar, insan benzerliklerinin ve farklılıklarının sistematik olarak araştırılması için kullanılan bir terim olmasının yanı sıra eğitim psikolojisi ve eğitimsel değerlendirmede de bir köşe taşı konumundadır (Jonassen & Grabowski, 1993).

Bireyleri anlamak, eğitimciler için bir karşılaştırma ve değerlendirme materyali haline gelmekte ve her bireyin hem fiziksel hem de fiziksel olmayan farklılıkları kalıtım, çevre, bağımsızlık, ilgi veya yetenekler gibi çeşitli faktörler tarafından motive edilmektedir (Mariya & Neviyarni, 2021). Bu durum tarihsel süreçte ele alındığında bireysel farklılıkların belirsiz sayıda bilişsel ve bilişsel olmayan özellik için insan tipikliği ve atipikliğinin sistematik olarak incelenmesinin gerekliliğini gündeme getirmektedir (Ackerman, 1988; Guilford, 1956). Öğrenme süreci üzerinde büyük etkiye sahip olduğu gösterilmiş olan öğrenme stillerinin birey bazlı farklı olabilmesi, bilişsel kuramın bilgi işleme süreçlerinin birey bazlı farklılıklara odaklanılmasını öneren bulguları öğrenme sürecinde öğrenme materyalinin, öğrenme ortamının ve öğrenme sürecinin bireye özgü olarak düzenlenmesinin gerekliliğini kuvvetle vurgulamaya başlamıştır.

Günümüz eğitim sistemleri de yukarıda belirtilen gerekçelerle evrilerek gerek öğretim aşamasında gerekse ölçme ve değerlendirme aşamasında bireysel farklılıkların dikkate alınması gereği konusu üzerinde önemle durmaktadır. Bu çalışmada bireysel farklılıkların ölçme ve değerlendirme boyutuna odaklanılarak bireyin zihninde gizil (örtük) durumda bulunan bilgi miktarını gerçeğe en yakın doğruluk düzeyinde ölçebilmeyi hedefleyen modern madde ve test sunum yöntemleri ele alınmaya çalışılmıştır. Her bir bireyin zihninde farklı bir yapıda ve miktarda konumlanmış olan bilgiyi ölçebilmenin yolu performansa dayalı ölçümler aracılığıyla bireysel farklılıkları gözetebilen sınav sistemlerinden geçmektedir.

Son dönemlerde tüm dünyayı sarsan Covid-19 pandemisi ile birlikte mikro öğrenme olanaklarının artması bireysel öğrenmeleri değiştirerek her bireye ihtiyacı yönünde öğrenme imkânı sunmaktadır. Örneğin; birey istatistiksel bir analiz için bu işlemi gerçekleştireceği programı seçebileceği gibi ilgili programı da bütünüyle değil ihtiyacı kadar öğrenmeyi tercih edebilmektedir. Bu durumda bireyin öğrenmediği ya da öğrenmeye ihtiyaç duymadığı/tercih etmediği becerileri ölçmeye çabalamak anlamsız olacağı için ölçme ve değerlendirme süreçlerinde de bireysel farklılıkların gözetilmesi hususu ön plana çıkmaktadır. Özellikle geniş kitlelere çoktan seçmeli test tekniği ile uygulanan sınavlarda katılımcıların bireysel farklılıklarına yönelik tasarlanmış ölçme ve değerlendirme sistemleri son zamanlarda sıklıkla gündeme gelen konular arasında yer almaktadır. Bu sebeple sürecin ölçme ve değerlendirme boyutu bireysel farklılıklar özelinde araştırmanın temel sorunsalı olarak ele alınmıştır. Çevrimiçi (online) ölçme ve değerlendirmede bireysel farklılıkları dikkate alarak zamandan ve mekandan bağımsız birey bazlı ölçüm yapabilen test sunum yöntemlerinin incelenmesi çalışmanın ana amacı olarak belirlenmiştir. Çalışma kapsamında bireye uyarlanmış testlerin özellikleri, avantaj ve dezavantajları ile diğer test sunum yöntemlerinden farklılaşan yönleri ifade edilmeye çalışılmıştır.

BİREYSEL FARKLILIKLAR

Bireysel Farklılık nedir?

Bireysel farklılık; en genel tanımıyla bireyin ilgisini, isteklerini, gereksinimlerini farklılaştırarak ve çeşitlendirerek yaşantısına yön veren (Ashton, 2013) kalıtımsal, fiziksel ve bilişsel özellikler sonucu her bir bireyin tek (unic) olarak nitelendirilmesini sağlayan bir oluşumdur (Chamorro-Premuzic, 2015; Crozier, 2001; Estéves ve Emler, 2009; Kosnik vd., 2005; Kuzgun vd., 2004). Bu oluşum bireyleri yaşamlarının her alanında birbirlerinden farklı kılmaktadır. Dolayısıyla bu farklılık bireylerin eğitim yaşamları içinde söz konusudur. Eğitimin başlangıcında ve öğrenme sırasında herhangi bir konuda, herhangi bir yaştaki ve herhangi bir kültürdeki bireyler; çeşitli entelektüel ve psikomotor yetenek ve becerilerde hem genel hem de özel ön bilgilerde, kişisel düşünce tarzlarında, ilgi ve güdülerde birbirinden farklıdırlar (Snow, 1986). Bu farklılıklar öğrenenlerin öğrenme ilerlemesindeki farklılıklarla doğrudan ilişkili görünmektedir.

Eğitim sürecindeki öğrenenler arasındaki bireysel farklılıklar gerek eğitim kurumları gerekse eğitimciler için yaygın ve derin bir sorun teşkil etmektedir. Bu nedenle son zamanlarda tıp biliminden eğitim bilimlerine kadar insanı çözümlemeye çalışan bilim dalları her bireyi farklı ele almakta ve değerlendirmektedir. Çünkü her birey arasındaki fark özeldir ve eğitimcilerin ya da karar alıcıların öğretimin her kademesinde bu farklılıkları anlayabilmeleri ve bunlara karşı önlem alabilmeleri gerekmektedir (Williams ve diğerleri, 2008). Ayrıca öğrenmeyi desteklemek için materyaller geliştirirken öncelikle öğrenenlerin öğrenme stillerinin dikkate alınması büyük önem arz etmektedir (Rayner 2007). "Öğrenme Stili" kavramının bilgiyi algılama, bilgiyi zihne işleme ve yerleştirme süreçlerindeki "Bireysel Farklılık"lar olarak tanımlanması konunun ehemmiyetini net bir biçimde ortaya koymaktadır (Abdelhadi ve Altalafha, 2018; Küpesiz ve Güpınar, 2022). Yüzyıllar boyunca eğitim teorisyenleri ve uygulayıcıları bireysel farklılıklara dikkat çekmiş ve hatta bazıları öğretimi bireysel farklılıklara uyarlamak için planlar geliştirmiştir (Snow, 1986). Bireylerin kavram ve faktörler arasındaki farklı kavrayışları kendileri ve çevrelerindekilerle aralarındaki bireysel farklılıkların önemini ifade etmektedir (Mariya & Neviyarni, 2021). Dolayısıyla ölçüm yöntemlerini her bireyi kendi özelinde değerlendirebilmeye imkân tanıyan araçlarla donatmaya çabalamalıdır. Örneğin; tıp biliminde aynı hastalık türü için her bir bireye kendi özelinde farklı testler uygulanarak farklı tedavi yöntemleri belirlenmektedir. Benzer şekilde eğitim bilimleri alanında da bireyler zihinsel gelişim özellikleri bakımından benzer kabul edilirken öğrenme biçimlerinin birbirinden farklılık gösterdiği kabul edilmektedir (Chamorro-Premuzic, 2015; Crozier, 2001). Bu nedenle günümüzde eğitim sistemleri büyük oranda her bir bireyin birbirinden farklı olduğunu göz önünde bulundurularak bir öğretim yaşantısı planlamaktadır. Bu sayede öğrenenin yaşam koşulları (yaşadığı coğrafya, iş, aile, engel durumu vs.) eğitim kaynaklarına ulaşımını sınırlamamakta (Kosnik vd., 2005; Rekkedal, 2004) ve bireysel ihtiyaçlarını karşılayabilmektedir.

Uzaktan Eğitimde Bireysel Farklılıklar

Uzaktan eğitim; hem akademide yaygın olarak kullanılan bir terim olan uzaktan eğitimi hem de endüstride yaygın olarak kullanılan bir terim olan uzaktan eğitimi kapsayan geniş bir terimdir (Harris & Gibson, 2006). Birey çeşitliliğin en gelişmiş versiyonunu bünyesinde barındırması dolayısıyla uzaktan eğitim sistemlerinde bireysel farklılıkları dikkate alarak bu hizmeti vermenin önemi her geçen gün çok daha dikkate değer boyutlara taşınmaktadır. Çünkü çevrimiçi eğitimde; bireylerin iş, aile ve eğitimin yönetilebilir bir şekilde birleştirilerek sunulduğu esnek bir eğitim sistemine ihtiyaçları bulunmaktadır (Rekkedal, 2004). Mevcut yaşamlarındaki birtakım sorumluluklarından vazgeçmek istemeyen bireyler öğrenme zamanlarını ve şekillerini özgürce planlayabildikleri esnek öğretim yöntemlerini ve platformlarını tercih etmektedirler.

Bireylerin farklı şekillerde davranma eğilimlerinin sınıflandırılması, onlara verilecek hizmetin yönünü de belirlediğinden Chamorro-Premuzic (2015), bireysel farklılıkları hedefler ve uygulamalar olarak geniş bir açıdan değerlendirerek bireyler arası farklılıkları sınıflandırmanın önemine vurgu yapmaktadır. Kullanıcıların yaş, cinsiyet, eğitim durumu, deneyim, öğrenme stili gibi bireysel farklılıkları e-öğrenme araçlarının benimsemesinde önemli bir faktör konumundadır (Tarhini vd., 2014). Benzer şekilde bireysel farklılıkların gözetilmesi anlamında öğretim yöntemlerindeki bu esneklikler aynı gelişmişlik seviyesinde ölçme ve değerlendirme süreçlerine de dahil edildiğinde sürecin işlerliği açısından çok daha anlamlı bir seviyeye ulaşılmasında önemli bir katkı sağlamaktadır (Aktaş, 2008). Öğrenenlere kendilerine uygun etkinlikleri seçme fırsatı sunulması ya da mali anlamdaki farklılıklarının yapı içinde dikkate alınması gerek birey gerek kurum açısından olumlu sonuçlar doğururken; öğrenenin kendi performansına göre ölçüm yapabilen bir ölçme yöntemi de benzer sonuçlar doğurma noktasında önemli bir adım konumundadır. Özellikle açık ve uzaktan öğrenme yöntemi ile öğretim hizmeti veren ve geniş kitlelere merkezi sınavlar gerçekleştirmek durumunda olan yapılar için bireysel farklılıkları gözetebilen bir ölçüm sistemi sürecin çıktılarını net bir biçimde görebilmenin anahtarı konumundadır.

Ölçme ve Değerlendirmede Bireysel Farklılıklar

Bireysel farklılıklar, standartlaştırılmış çoktan seçmeli sorulardan oluşan performans testleri veya öz rapor envanterleri gibi psikometrik araçlar aracılığıyla ölçülmektedir (Chamorro-Premuzic, 2015). Bu ölçümlere ilişkin puanlar, gözlemlenebilir davranışlarla ilişkilidir ve çok çeşitli ortamlarda (örneğin; okul, iş, spor, günlük yaşam gibi) bireyler arasındaki farklılıkları ve benzerlikleri tahmin etmektedir. Bu farklılıklar objektif olarak değerlendirilip gerçek hayat göstergeleri veya davranışsal sonuçlarla ilgili olabildiği ölçüde, bireylerin neden ve nasıl farklı olduklarını anlamamıza yardımcı olmaktadır. Örneğin; bireylerin öğrenme hızları, öğrenme stilleri, öğrendikleri konu ile ilgili deneyimleri, hangi psikolojik yönlerinin daha ağır bastığı gibi durumların tespiti ile bireyler arası farklılıklar ortaya konulmaktadır. Bireysel farklılıkların sürece dahil edildiği kapsayıcı bir yaklaşım toplumda katılımı artırarak bireysel çeşitliliğin zenginliğinden faydalanma fırsatı sunacak ve dinamizm sağlayacaktır.

Öğretim sürecinin ölçme ve değerlendirme boyutu öğretimin diğer aşamalarında gerçekleştirilen işlemlerin başarı ve eksikliklerinin tespitinde tüm paydaşlara önemli veriler temin edebilen olmazsa olmaz bir süreç adımıdır. Bu sebeple çalışma sınırlılıkları kapsamında öğretim sürecinin ölçme ve değerlendirme boyutuna odaklanılmaktadır. Bilindiği üzere ölçme ve değerlendirme süreci bireyin zihninde gizil durumda bulunan bilgi miktarını gerçeğe en yakın doğruluk düzeyinde ölçebilmeyi amaçlamakta ve çabalamaktadır (Betz ve Turner, 2011; Bock, 1997; Wang, Chen ve Jiang, 2020). Bireyin zihninde gizil (örtük) durumda bulunan bilgi miktarı diğer öğrenen özelliklerinde olduğu gibi bireyden bireye farklılık göstermekte olduğundan bu amaca ulaşabilmenin yolu da performansa yönelik ölçümler yaparak bireysel farklılıkları dikkate almaktan geçmektedir.

Eğitim sürecinde ölçme ve değerlendirme adımının eğitimin kendisi kadar önemli olduğu vurgulanmaktadır (Aktaş, 2008). Öğrenme programları ile ölçme ve değerlendirme sisteminin yöntemsel anlamda birbiri ile aynı gelişmişlik hızında olması sürecin işlerliği açısından önemli bir husustur. Uygun değerlendirme yöntemleri ile geliştirilmiş uzun vadeli derin, hatırlatıcı ve yansıtıcı öğrenme, anlamı ve anlayışı teşvik edebilmektedir (Gibbs ve Simpson 2005). Bu nedenle yüz yüze veya uzaktan eğitim fark etmeksizin formal eğitimin gerçekleştiği tüm platformlarda ölçme ve değerlendirme önemle üzerinde durulması gereken bir süreç adımıdır.

ÖLÇME VE DEĞERLENDİRMEDE ÇEVRİMİÇİ (ONLİNE) TEST SUNUM YÖNTEMLERİ

Ölçme ve değerlendirme alanında en yaygın kullanılan puanlama yöntemi olan KTK (Klasik Test Kuramı) en eski ölçüm teorisidir (Gulliksen, 1950). Bugün test ve ölçüm uygulayıcıları arasında güçlü bir etkiye sahip olmasına rağmen gerçek puandan çok hataya odaklanması (Crocker & Algina, 2008; Nunnally & Berstein, 1994) ve tüm bireyler için standart hatayı ve güvenilirliği aynı kabul etmesi (Reise, Ainsworth & Haviland, 2005) bu kuramın önemli bir sınırlılığı ve zayıf kaldığı yönü olarak eleştiri altındadır (Arnold, 1996; Magno, 2009). Bu durum covid-19 pandemisi döneminde günümüz eğitim sisteminin tüm kademelerinde geniş kitlelere merkezi sınavların çevrimiçi (online) yapmak zorunda kalınmasıyla daha sık gündeme gelmeye başlamış durumdadır.

Geleneksel olarak bireysel sınava girenlerin yeterliliği, doğru cevaplanan madde sayısı cinsinden rapor edilmektedir. Bu şekilde doğru cevap sayısına göre tespit edilmiş sınav puanına sahip öğrencilerin farklı yanıt kalıplarına (yani farklı maddelerde doğru yanıtlara) sahip olabilmeleri ve bu nedenle test tarafından ölçülen aynı yeterlik düzeyine sahip olmama durumları ölçümün kalitesi ve niteliği hakkında soru işareti oluşturarak alternatif yöntemlere duyulan ihtiyacı gündeme getirmektedir. Diğer bir ifadeyle test maddelerinin kalitesi ile ilgili raporlar genellikle madde güçlük indeksleri (madde üzerindeki doğru cevapların oranı) ve madde ayırt ediciliği indeksleri ile sınırlı kalmaktadır. Ancak bu tür indekslerle ilgili önemli bir sorun bu değerlerin test edilenlerin/sınava girenlerin grubuna bağlı olması ve bu nedenle test öğelerinin ölçüm kalitesini yeterince yansıtamamasıdır. (Adedoyin ve Mokobi, 2013). KTK'nın bu kısıtlılıklarına alternatif olarak yapısında KTK'dan farklı bir matematiksel bir temel barındıran MTK

(Madde Tepki Kuramı) diğer adıyla IRT (Item Response Theory) puanlama yöntemi geliştirilmiştir. MTK/IRT başarı testleri gibi gizil değişkenler barındıran ölçümlerin kalitesini değerlendirmek için kullanılan istatistiksel bir yaklaşımdır (An ve Yung, 2014; Magis, Yan & Davier, 2017; Nunnally & Berstein, 1994). Madde Tepki Kuramı (MTK); 1PL (Rash Model), 2PL, 3PL ve 4PL modelleri (An & Yung, 2014; Embretson & Reise, 2000; Hambelton, 1994; Nunnally & Berstein, 1994) ile madde *ayırt ediciliği=a*, *madde güçlüğü=b* ve şans başarısı=c (sorunun şansla doğru cevaplanma yüzdesi) gibi parametrelerin ölçümüne olanak tanımaktadır (Adedoyin & Mokobi, 2013; Hambleton, & Linden, 1997; Hambleton, Swaminathan & Rogers, 1991). MTK'nın önemli avantajlarından birisi, madde havuzunda yer alan maddelerin bireylerin yeteneklerine uygun olarak düzenlenebilmesidir. Bir başka ifadeyle MTK'ya dayalı madde sunma (test) uygulamalarında madde havuzundaki tüm sorular tüm bireylere aynı sıra ile verilmek zorunda değildir. Düşük yetenekli bireyler için o yetenek düzeyinde daha iyi ayırtedici sorular verilerek ilgili yetenek düzeyindeki ayrımın daha çok bilgi içerecek biçimde yapılması sağlanabilir. Böylece bireylerin çözebilme ihtimali bulunmayan veya doğru yanıtlayabileceği kesin olan sorularla karşılaşmamaları sağlanabilir. Böylece hem test esnasında vakit kaybetmeleri önlenir hem de öğrenmedikleri kesin bulunan öğrenme hedefleri gereksiz olarak yoklanarak madde havuzundaki soruların yayılması önlenmiş olur. Her bireyin kendi öğrenmişlik düzeyine ve kapsamına uygun madde sunabilmesi bakımından MTK'ya dayalı test uygulamaları bireysel farklılıkları dikkate alabilmek bakımından yukarıda sayıldığı gibi önemli avantajlar barındırmaktadır.

Bu kapsamda ele alındığında yukarıda bahsedilen puanlama yöntemi ile CAT (Computerized Adaptive Tests) ve MST (Multistage Testing) olmak üzere iki farklı test sunum yapısı kullanılabilmektedir. Bu yapılardan CAT madde bazlı ölçümler gerçekleştirirken MST modül bazlı ölçümler gerçekleştirmektedir. Aşağıda her iki test sunum yapısı alt başlıklarla ifade edilmeye çalışılmıştır:

CAT (Computerized Adaptive Tests) / Bilgisayar Uyarlamalı Test

CAT (Computerized Adaptive Tests) en sık kullanılan ve bilinen bilgisayar uyarlamalı test sunum yöntemidir. CAT puanlama yöntemi olarak MTK (Madde Tepki Kuramı) diğer adıyla IRT (Item Response Theory) yöntemini kullanmaktadır. CAT yönteminde bireylerin yetenekleri madde *ayırt ediciliği (a)*, *madde güçlüğü (b)* ve şans başarısı (c) parametreleri aracılığıyla hesaplanmakta her bir soru kendi içerisinde her bir birey için kendi özelinde değerlendirilerek puanlanmaktadır (Adedoyin & Mokobi, 2013; Hambleton, & Linden, 1997; Hambleton, Swaminathan & Rogers, 1991).

CAT test sunum yönteminin işleyişi şu şekildedir (Tian, Miao, Zhu, ve Gong, 2007): Testi alan bireyin belirli bir yeteneğe sahip olduğu varsayılarak o yetenek düzeyine uygun zorluk ve ayırtedicilik seviyesinde bir madde sorulmaktadır. Teste giren kişi maddeyi doğru yanıtlarsa yetenek tahmini yükseltilirken yanlış yanıtlaması durumunda yetenek tahmini düşürülmektedir. Gözden geçirilmiş yetenek tahminini hedefleyen başka bir madde sorulmakta ve süreç ana hatları ile bu döngü çerçevesinde tekrar etmektedir. Madde Tepki Kuramı aracılığıyla istatistiksel olarak yürütülen CAT test süreci sınava girenleri performanslarına göre uygun zorluk seviyesindeki test öğeleriyle

hedefte tutmakta ve bu sayede sınava girenlere bireysel geri bildirimler vererek (Čisar, Radosav, Markoski, Pinter ve Čisar, 2010) ölçümler yapmaktadır.

MST (Multistage Testing)

MST (Multistage testing), CAT test sunum yöntemine alternatif olarak geliştirilmiş çok aşamalı bir test sunum yöntemidir. Süreçte uygulandıkça ortaya çıkan test yapımı ve güvenlik sorunları CAT'in faydalarının yeniden düşünmesine yol açmıştır (Keng, 2008). Bu durum söz konusu eksiklikleri göz önünde bulunduran ve modern bir test sunum yöntemi olan MST (Multistage Testing) çok aşamalı test sunum yöntemini gündeme getirmiştir (Hambleton & Xing, 2006; Jodoin, Zenisky & Hambleton, 2006). MST yöntemi 2011 yılında "Graduate Record Examination (GRE)" ve "Educational Testing Service (ETS)" sınavlarında kullanılmasının ardından popülerlik kazanarak (Yan, Davier & Lewis, 2014) araştırmacı ve merkezi sınav gerçekleştiren yapılardaki karar alıcıların dikkatlerini üzerine toplamaya başlamıştır.

MST (Multistage Testing) test sunum yönteminde test montajı MTK/IRT modellerinden IRT 3 PL model kullanılarak MST-R (Multistage Testing by Routing) ve MST-S (Multistage Testing by Shaping) olmak üzere iki farklı şekilde gerçekleştirilmektedir. MST-R (Multistage Testing by Routing) yönteminde her aşamanın modülü önceden monte edilerek katılımcının performansına göre hazır yapı içerisinden sunulmaktadır (Han & Guo, 2013; Luecht & Nungester, 1998; Yan, Davier & Lewis, 2014). MST-S (Multistage Testing by Shaping) yönteminde ise test modüllerinin montajı anlık olarak katılımcının performansına göre şekillendirilmektedir (Han, 2013; Yan, Davier & Lewis, 2014, s. 411-420). MST'nin CAT yönteminden farkı madde bazlı değil modül bazlı test montaj yönteminin kullanılmasıdır (Yan, Davier & Lewis 2014). Bu durum ise MST'yi CAT yöntemine oranla daha az maliyetle güvenli olarak uygulanmasına imkân tanımaktadır.

SONUÇ

Dijital çağın ve dijital teknolojilerin hızla yaygınlaşmasının gereği olarak öğrenme biçimleri farklılaşmakla birlikte öğrenen sayısı artmakta ve çeşitlenmektedir. Bu durumun beraberinde getirdiği çeşitlilik öğrenme dinamiklerini değiştirdiğinden açık ve uzaktan öğrenmede bireysel farklılıkların gözetilmesi konusu bir zorunluluk haline gelmiş durumdadır. Bu sebeple öğretimin her aşamasında bireysel farklılıkların farkında olarak süreç adımları belirlemek bu hizmeti yerine getiren yapıların görev ve sorumlulukları arasında yer almaktadır.

Snow (1986) bilgi durumunu; bilişsel yetenekler, başarı motivasyonu, ilgi alanları ve yaratıcılık olmak üzere öğrenme yeteneğindeki bireysel farklılıkların dört kategorisinde incelemekte ve eğitimi; bireysel farklılıklara duyarlı uyarlamaların eğitim fırsatlarında hem eşitlik hem de optimal çeşitlilik sağlamaya yardımcı olacağı bir yetenek geliştirme programı olarak görmektedir. Ilgaz (2018) tarafından gerçekleştirilen çalışmada bireysel farklılıklar bağlamında etkisine en fazla bakılan değişkenin akademik başarı değişkeni olduğu ifade edilirken; Gezen ve Efendioğlu (2021) çalışmalarında öğrenenlerin beklenen kazanımları edinebilmesi için bireysel farklılıkların dikkate alınması ve etkili

bir ölçme değerlendirme sistemi kurulmasının önemine vurgu yapmaktadır. Bu bulgular göstermektedir ki; öğretim sürecinin ölçme ve değerlendirme aşaması Snow'un (1986) bahsettiği bilgi durumunu gerçeğe en yakın doğrulukta ölçmeyi hedeflediğinden öğretim sürecinin bu aşamasında bireysel farklılıkların göz önünde bulundurulması ölçüm niteliği ve kalitesi açısından büyük önem arz etmektedir.

Öğrenme çıktılarının ölçümü bireysel farklılıkları barındıran ölçme araçları ile gerçekleştirildiğinde bu durumun gerçeğe yakın ve güvenilir sonuçlar ele edilmesine katkısı dikkate değer bir husustur. Eğitim sürecinde ölçme ve değerlendirme adımı en az eğitimin kendisi kadar önemli olduğundan (Aktaş, 2008) öğrenme programları ile ölçme ve değerlendirme sürecinin yöntemsel anlamda birbiri ile aynı gelişmişlik hızında olması sürecin işlerliğine önemli bir katkı sağlamaktadır. Bu nedenlerle çalışmada bireysel farklıklar ölçme ve değerlendirme bağlamında ele alınmaya çalışılmıştır.

Geniş kitlelere uygulanan merkezi sınavların güvenirliği yüksek bir biçimde çevrimiçi (online) olarak gerçekleştirilmesi durumu Covid 19 pandemisi ile birlikte sıklıkla gündeme gelen konular arasında yer almaktadır. Çünkü çevrimiçi platformlarda gerçekleştirilen sınavlar özellikle güvenlik açısından kırılma noktasına ulaşmış durumdadır. Bu duruma çözüm niteliği taşıyan test sunum yöntemleri (CAT ve MST) ise araştırma sınırlılıkları kapsamında incelenmeye çalışılmıştır. Bahse konu test sunum yöntemlerinin soru sunma yapısı tamamen bireyin performansına yöneliktir. Her birey kendi yeteneği doğrultusunda gösterdiği performansa göre soru tipi ile karşılaşmakta ve bir sonraki aşamada karşısına çıkacak sorular da yine önceki aşamalarda göstermiş olduğu performansa göre belirlenmektedir. Bireye uyarlanmış testlerin bu yapısı çoktan seçmeli test sunum tekniği ile gerçekleştirilen sınavlarda aynı yetenek düzeyindeki katılımcıya aynı zorlukta farklı sorular sorulabilmesine olanak tanımaktadır. Bu durum günümüzde kağıt kalem testleri olarak bilinen geleneksel yöntemlerin en temel problemi olan kopya adını verdiğimiz güvenlik problemini de büyük oranda çözüme kavuşturmaktadır. Bu sistemlerden CAT soruları bireye madde bazlı olarak yöneltirken MST modül bazlı olarak yöneltmektedir. Bu durumda MST test sunum yöntemini güvenlik, maliyet ve kültürel anlamda bir adım önde olmasına olanak tanımaktadır.

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Açık ve Uzaktan Öğrenmede Çevrimiçi Öğrenci Toplulukları

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Özet

Günümüzde bilgi ve iletişim teknolojilerinin beraberinde getirdiği internet temelli gelişmeler, açık ve uzaktan öğrenenlere farklı kanallar aracılığıyla çeşitli öğrenme ortamlarının sunulmasına imkân tanımıştır. Bu ortamlardan biri de çevrimiçi öğrenci topluluklarıdır. Öğrenci toplulukları, belirli ortak ilgi alanlarına sahip öğrenenlerin internet vasıtasıyla diğer öğrenenlerle, öğretenlerle ve alanla alakalı çeşitli uzmanlarla etkileşime geçebildikleri, düşüncelerini aktarabildikleri ve tüm bunları zaman ve mekân kısıtı olmadan gerçekleştirebildikleri grupları temsil etmektedir. Öte yandan, uzaktan öğrenme ortamlarında bu topluluklardaki öğrenenlerin dijital ayak izleri takip edilebilmekte ve çok çeşitli verilerin depolanması mümkün hale gelmektedir. Öğrenme analitikleri olarak adlandırılan öğrenenlerin bu dijital ayak izleri, eğitimsel veri madenciliği stratejileri vasıtasıyla öğrenme sürecinin derinlemesine bir biçimde incelenerek etkili ve verimli eğitimsel kararların alınmasını sağlamaktadır. Bu nicel çalışmada, öğrenenlere açık ve uzaktan öğrenme fırsatı sunan Anadolu Üniversitesi Açıköğretim Sistemi Anadolum eKampüs platformunda yer alan ve yine platform üzerinden erişilebilen çevrimiçi öğrenci topluluklarının incelenmesi amaçlanmıştır. Bu amaç doğrultusunda, Anadolum eKampüs platformunda yer alan sekiz toplulukta bulunan öğrenenlerin çeşitli analitik verileri açısından profilleri incelenmiştir. Bu bağlamda, hangi toplulukta ne tür demografik özelliklere sahip öğrenenlerin yer aldığı, öğrenenlerin hangi demografik özelliklerinin birbirleriyle benzerlik ve farklılık taşıdığı ile topluluklar arasında nasıl bir demografik örüntünün olduğu irdelenmiştir. Son olarak, çalışmada bulgulara ilişkin tartışmalar ve ileri araştırmalara ilişkin öneriler sunulmuştur.

Anahtar Kelimeler: *Açık ve Uzaktan Öğrenme, Açıköğretim Sistemi, Çevrimiçi Öğrenci Toplulukları, Öğrenme Ortamları, Öğrenme Analitikleri.*

GİRİŞ

Bilgi ve iletişim teknolojilerinin (BİT) sunduğu imkânlar dâhilinde açık ve uzaktan öğrenme ortamlarında öğrenme süreci hem kolaylaştırılmakta hem de desteklenmektedir. Bu sayede öğrenme süreci etkili, verimli ve etkileşimli bir şekilde gerçekleşmektedir. Öğrenenler ise kendilerine uzaktan çevrimiçi öğrenme ortamları üzerinden sunulan metinsel, görsel, işitsel ya da görsel-işitsel öğrenme malzemeleriyle öğrenme deneyimini zenginleştirmektedir. Ancak, bu ortamlarda öğrenen ve öğretenin fiziksel olarak birbirlerinden ayrılığı ilk bakışta olumsuz bir durum gibi değerlendirilebilse de bu durum, öğrenme deneyimini zaman ve mekân kısıtından çıkararak öğrenene bir özerklik kazandırmakta ve öğrenme süreciyle alakalı öğrenene pek çok seçenek sunmaktadır. Öyle ki, öğrenenler bir amaç belirleme ya da ders çalışma zamanını yö-

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netme gibi birçok alanda etkin bir rol alarak kendi öğrenme süreçlerini biçimlendirebilmektedir (Saltürk ve Güngör, 2020, s. 4208). Bununla birlikte, açık ve uzaktan öğrenme ortamlarında ders etkinlikleri geleneksel yüz yüze öğrenmeye kıyasla zaman ve mekân kısıtlılığını aşarak öğrenenlerin öğrenen-öğrenen ve öğrenen-öğreten gibi farklı paydaşlarla etkileşimini mümkün ve etkin kılmaktadır. Ayrıca, açık ve uzaktan öğrenmenin yüz yüze öğrenme ortamlarıyla kıyaslandığında görece düşük maliyetli oluşu, öğretenlere zaman ve mekân esnekliği kazandırması ve öğrenenlere esnek bir öğrenme deneyimi sunması, birçok kurum ve kuruluş tarafından bu öğrenme yönteminin benimsenmesini hızlandırmaktadır (Yıldız, 2020, s. 181).

Açık ve uzaktan öğrenmede çevrimiçi ortamlar aracılığıyla düzenlenen eğitimsel etkinliklerin "etkileşim" temelli olması vurgulanırken öğrenme-öğretme sürecinin öğrenen odaklı olması gerektiğinin de altı çizilmektedir (Aydın, 2002, s. 4). Diğer taraftan, çevrimiçi öğrenmenin beraberinde getirdiği önemli kısıtlılıklardan biri olarak kabul edilen yalnızlık duygusunun/izolasyon hissinin önüne geçilmesi ve öğrenenlerin öğretenlerle, diğer öğrenenlerle ve içeriklerle daha çok etkileşime girmesinin önemine de atıf yapılmaktadır. Bu bağlamda, uzaktan eğitimde gerek öğrenen odaklı öğrenme-öğretme sürecinin gerçekleşmesinde gerekse izolasyon hissi eğiliminin ortadan kaldırılmasında çevrimiçi öğrenci toplulukları ön plana çıkmaktadır. Çevrimiçi öğrenci toplulukları, belirli ortak ilgi alanlarına sahip öğrenenlerin internet vasıtasıyla diğer öğrenenlerle, öğretenlerle ve alanla alakalı çeşitli yetkin ya da uzman kişilerle etkileşime geçebildikleri, düşüncelerini aktarabildikleri ve bunları zaman ve mekân olmadan gerçekleştirebildikleri grupları temsil etmektedir.

Bu çalışmada, öğrenenlere açık ve uzaktan öğrenme alanında öncü bir role sahip olan Anadolu Üniversitesi Açıköğretim Sistemi'nde yer alan çevrimiçi öğrenci topluluklarının incelenmesi hedeflenmiştir. Bu bağlamında, öğrenci topluluklarında yer alan öğrenenlerin çeşitli analitik verileri açısından profillerinin betimsel olarak incelenmesi ve kısmen de olsa profillerinin ortaya konulması amaçlanmıştır. Böylelikle, Açıköğretim Sistemi'nin en önemli paydaşlarından biri olarak öğrenenlerin çevrimiçi öğrenci toplulukları açısından yakından incelenerek Açıköğretim Sistemi kapsamında gerçekleştirilen araştırma-geliştirme (Ar-Ge) faaliyetlerine öğrenen profilleri açısından bir katkı sunulmaya çalışılmıştır.

KAVRAMSAL ÇERÇEVE

Güncel araştırmalar, öğrenenlerin öğrenme sürecinde geleneksel anlamda pasif olarak değerlendirilen katılımcı rollerinin yerine öğrenme sürecine etkin bir şekilde katılan ve kendi gereksinimlerine göre süreci yapılandırabilen aktif öğrenen rolüne dönüşmesi gerektiğinin altını çizmektedir (Tang ve Lam, 2014; Özen ve Karaca, 2021; Saltürk ve Güngör, 2022; Wu vd., 2022). Bununla birlikte, öğrenme ortamlarında öğrenenlerin kendi ilgi ve motivasyonlarıyla uyumlu, içerikteki kazanımlara uygun, etkili ve öğrenenlere aktif bir rol kazandıran öğrenme deneyiminin sağlanmasının önemine de dikkat çekilmektedir. Söz konusu değişime ve gereksinimlere uygun olarak uzaktan eğitimde çevrimiçi öğrenme ortamları aracılığıyla bu deneyimin öğrenenlere sunulabileceği değerlendirilmektedir (Çelen ve Seferoğlu, 2020, s. 81-82).

Çevrimiçi öğrenme ortamlarının etkileşim temelli yapısı, öğrenenlerin bu ortamlara katılımını sağlayan en önemli unsurlardan biri olarak görülmektedir. Zira, öğrenenler öğ-

renme ortamlarında öğrenme malzemeleri ve öğretenlerle etkileşime geçebilmelerinin yanı sıra diğer öğrenenlerle de etkileşime geçip ortak amaçlar çerçevesinde etkinlikler gerçekleştirebilmektedir (Blayone vd., 2017, s. 1-2). Bu noktada, çevrimiçi öğrenme ortamları bağlamında topluluk kavramının ele alınması gerekmektedir. İlk olarak birbiriyle benzer ya da aynı ilgi alanına sahip bireylerin meydana getirdiği grup anlamıyla tanımlanan topluluk, bilgi ve iletişim teknolojilerinin ilerlemesiyle birlikte ortak çıkarları olan bir grup bireyin bilgi paylaşımı ve karşılaşılan problemleri tartışabilmek için bir araya toplanması anlamıyla kullanılmıştır. Çevrimiçi öğrenme bağlamında ise topluluk, ortak ilgi alanına sahip öğrenenlerin ortak hedefler doğrultusunda hareket ederek deneyimlerini paylaştıkları web tabanlı grupları temsil etmektedir (Yıldız, 2020, s. 181).

Yüz yüze veya bağımsız öğrenme topluluklarına kıyasla çevrimiçi öğrenme toplulukları bazı farklılıklara sahiptir. Öyle ki, bu topluluklarda öğrenenler hem öğrenen hem de öğreten rolünde olabilmektedir. Bir diğer ifadeyle, öğrenenler diğer öğrenenlerle birlikte birbirlerinin öğrenmelerini destekleyebilmektedir (Wu vd., 2022, s. 3-4). Nitekim çevrimiçi öğrenci topluluklarının belirli amaçlar çerçevesinde birtakım gereksinimlerin giderilmesi amacıyla oluşturulduğu göz önünde bulundurulduğunda öğrenenlerin hem öğrenen hem de öğreten rolüyle birbirlerine bağlandıkları ifade edilebilir.

Çevrimiçi öğrenci toplulukları, açık ve uzaktan öğrenme ortamlarında öğrenenlerin sosyal katılım göstererek öğrenme süreçlerini diğer öğrenenlerle zenginleştirdikleri grupları da ifade etmektedir. Eğitim araştırmalarında bu toplulukların informal öğrenmede önemli bir role sahip olduğu değerlendirilmektedir (Tang ve Lam, 2014). Topluluklara katılım gösteren öğrenenler, herhangi bir fiziksel mekâna ya da zamana bağımlı olmadıklarından ötürü öğrenme informal bir şekilde gerçekleşmekte ve ortak ilgi alanına sahip öğrenenlerin bir araya gelmeleri ve paylaşımlarda bulunmaları mümkün olmaktadır. Nitekim, çevrimiçi öğrenme topluluklarının daha çok bir düşüncenin ya da görevin tanımlanmasına göre var olduğu bilinirken ortak bir amaç çerçevesinde bir araya gelindiğinde ve bir ihtiyaç ortaya çıktığında topluluğun oluştuğu değerlendirilmektedir (Tang ve Lam, 2014, s. 79-80). Diğer taraftan, bu toplulukların yalnızca bilgi paylaşımıyla ilişkili olmadığı, bunun yanı sıra toplumsal ve sosyal ihtiyaçların giderilmesi hususunda da elzem olduğu düşünülmektedir (Özkanal vd., 2022, s. 472). Ancak, öğrenenlerin çevrimiçi öğrenme ortamlarına katılımları, yalnızca bireysel değil aynı zamanda toplumsal düzeyde de olabilmektedir. Söz konusu katılım neticesinde, öğrenenlerin kendilerini izole hissetmek yerine orada bir topluluğun parçasıymış gibi hissetmeleri sağlanmaktadır. Bu bağlamda, çevrimiçi öğrenme ortamlarında öğrenenlerin topluluk hissinin çok önemli bir husus olduğunun da altı çizilmektedir (Yıldız, 2020, s. 181).

Çevrimiçi öğrenme ortamlarında öğrenenlerin ayak izlerinden yola çıkarak kullanılan öğrenme analitikleri bu ortamların incelenmesi ve geliştirilmesi adına önemli bir fırsat sağlamaktadır. Kavramsal olarak incelendiğinde öğrenme analitikleri *"öğrenmeyi ve öğrenmenin gerçekleştiği ortamların anlaşılması, bu ortamların en iyi şekilde kullanılması amacıyla öğrenenlerin oluşturduğu verilerin, ölçümü, toplanması, analiz edilmesi ve raporlanması"* olarak değerlendirilmektedir (Long ve Siemens, 2011, s. 34). Ancak, bu değerlendirmenin *"uygun eylemleri işe koşabilmek maksadıyla öğrenen davranışlarının gözlenmesi ve anlaşılması"* biçiminde genişletildiği de görülmektedir (Brown, 2011, s. 1). Dolayısıyla öğrenme analitiklerini, *"uzaktan eğitim teknolojileri bağlamında öğrenenlerin davranışları ile akademik ilerlemelerini değerlendirmek, gelecekteki per-*

formanslarını tahmin etmek ve potansiyel sorunları belirleyebilmek amacıyla öğrenenler tarafından oluşturulan ve yine onlar adına toplanan çok çeşitli verinin yorumlanması" şeklinde değerlendirmek mümkündür (Johnson vd., 2011, s. 28).

Öğrenme analitikleri çevrimiçi öğrenci toplulukları, yönetim sistemleri ve sosyal platformlardan alınan eğitimsel bilgiler temelinde gerçek zamanlı öğrenme süreçlerine yönelik verilere işaret etmektedir. Bu bakımdan öğrenme analitikleri a) öğrenenlerin bireysel özellikleri (önceki bilgileri, akademik performansları vb.), b) öğrenme ortamındaki faaliyetler (izleme ve indirme etkinliği vb.), c) müfredat karşılaştırmaları (öğrenme çıktıları, tarihsel ders bilgileri vb.) ve d) diğer öğrenenlerle ve eğitmenlerle etkileşimler (sosyal ağ etkinliği vb.) ile ilgili bilgileri kullanmaktadır. Hacimce büyük, statik ve dinamik biçimde olan bu veriden, gerçek zamanlı modelleme, öğrenme süreçlerinin tahmini ve optimizasyonu ile öğrenme ortamlarıyla ve eğitimle ilgili kararlar alınırken faydalanılmaktadır (Ifenthaler ve Schumacher, 2016, s. 924).

Yükseköğretimde öğretim süreçlerinin yanı sıra öğrenenlerin; bilimsel, kültürel, sosyal, mesleki ve çeşitli ilgi alanlarında etkinliklerde bulunabilmeleri amacıyla öğrenci toplulukları oluşturulmaktadır. Buna benzer olarak, Anadolu Üniversitesi Açıköğretim Sistemi'nde de çevrimiçi öğrenci toplulukları kurulmuştur. Topluluklarda, üniversitede görevli bir öğretim elemanının yürütücülüğünde topluluk özelinde çeşitli çevrimiçi etkinlikler düzenlenmektedir. Söz konusu etkinlikler yapılmadan önce ilgili etkinlikle ilgili duyurular yapılarak katılımın mümkün olduğunca yüksek olması sağlanmaktadır. Toplulukları yürüten öğretim elemanları, belirli aralıklarla alanlarında yetkin ya da uzman kişileri davet ederek yaklaşık 1-2 saat arasında süren çevrimiçi etkinlikler düzenlemektedir. Bu kapsamda öğrenenlerle alanında yetkin ya da uzman kişiler çevrimiçi ortamda bir araya gelmektedir. Söz konusu bu kişilere hem toplulukları yürüten öğretim elemanları hem de öğrenciler aktif bir biçimde soru yöneltebilme ve onlardan cevap alabilme olanağına sahiptir. Diğer taraftan, toplulukta yer alan öğrenenler, ilgili topluluğun sayfasında bulunan tartışma platformları vasıtasıyla planlanan bir etkinlikle ilgili etkinlik gerçekleşmeden önce diğer öğrenenlerle etkileşime geçme imkânına sahiptir. Son olarak, pandemi döneminde de toplulukları yürüten öğretim elemanları belirli zamanlarda çeşitli etkinlikler düzenleyerek Açıköğretim Sistemi'ne kayıtlı öğrenenleri alanında yetkin ya da uzman kişilerle bir araya getirmiştir (Özkanal vd., 2022, s. 473-474).

YÖNTEM

Bu çalışmanın amaçları doğrultusunda, nicel araştırma yöntemi ve betimsel araştırma modeli kullanılmıştır. Betimsel model, bir popülasyondaki ya da popülasyondan alınan alt örneklemlerdeki birimlerin oldukları gibi incelenerek betimlenmesini temsil etmektedir. Bu modeli kullanan araştırmacılar herhangi bir değişkeni manipüle etmeden sadece mevcut durumu olduğu gibi tanımlamaktadır (Siedlecki, 2020, s. 8). Bu bağlamda, Anadolu Üniversitesi Açıköğretim Sistemi'nde 2022 yılının mayıs ayı itibarıyla çevrimiçi öğrenci topluluklarında kayıtlı öğrenenlerin hem demografik hem de öğrene malzemesi bazında analitik verileri incelenmiştir. Böylelikle, hangi toplulukta ne tür demografik özelliklere sahip öğrenenlerin yer aldığı, öğrenenlerin hangi demografik özelliklerinin diğer topluluklardaki öğrenenlerle benzerlik ve farklılık taşıdığı ile toplulukların öğrenme malzemesi kullanım sıklıklarında farklılıkların olup olmadığı hususları incelenmeye çalışılmıştır.

Amaç ve Önem

Çalışmanın amacı, Anadolu Üniversitesi Açıköğretim Sistemi'ndeki çevrimiçi öğrenci topluluklarına kayıtlı öğrenenlerin öğrenme analitikleri açısından demografik özellikleri arasındaki benzerlikleri ile farklılıkları ortaya koymaktır. Çalışma, Açıköğretim Sistemi kapsamında öğrenci toplulukları özelinde öğrenen analitiklerini incelemesi ve topluluklar özelinde öğrenenlerin demografik örüntüleri ile öğrenme malzemesi kullanım sıklıklarını mercek altına alması açısından önem taşımaktadır. Nitekim, çalışmada elde edilen bulgular ışığında, Açıköğretim Sistemi çevrimiçi öğrenci topluluklarında bulunan ve çevrimiçi öğrenmede hedef kitle konumunda olan öğrenenlerin nasıl bir örüntüye sahip oldukları ortaya konulmaya çalışılmıştır. Bu amaçla, çalışmada aşağıdaki araştırma sorularına yanıtlar aranmıştır:

- Topluluk türü ile öğrenenlerin demografik özellikleri arasında istatistiksel olarak anlamlı bir bağ var mıdır?
- Topluluk türü açısından öğrenenlerin öğrenme malzemelerini kullanım sıklıkları anlamlı bir biçimde farklılaşmakta mıdır?

Evren ve Örneklem

Bu çalışmada Anadolu Üniversitesi Açıköğretim Sistemi'ndeki çevrimiçi öğrenci topluluklarına kayıtlı öğrenenler incelendiği için çalışma evrenini söz konusu öğrenenlerin tamamı temsil etmektedir. Açıköğretim Sistemi Anadolum eKampüs platformu üzerinden erişilebilen çevrimiçi öğrenci topluluklarında; fotoğraf, sinema, kitap, tarih, müzik, bilişim, sosyoloji ve tasarım topluluğu olmak üzere sekiz topluluk bulunmaktadır. Çalışmada öğrenen analitiklerinin tamamına ulaşılsa da bu verinin çok büyük olmasından dolayı olasılıklı örnekleme yöntemlerinden sistematik örnekleme yapılarak çalışma verisi küçültülmüştür. Bu bağlamda, ilk adımda öğrenci topluluklarına kayıt yaptırmış ve demografik bilgileri eksiksiz olan öğrenenlerin tamamı seçilmiştir. İkinci adımda ise sistematik örnekleme aracılığıyla her topluluktaki öğrenenlerden en az yüzde biri örnekleme eklenecek şekilde veri çekme işlemi yapılmıştır. Tablo 1'de Mayıs 2022 tarihi itibarıyla Açıköğretim Sistemi çevrimiçi öğrenci topluluklarındaki öğrenen sayıları ve örnekleme dâhil edilen sayılar paylaşılmıştır.

Tablo 1. *Topluluklardaki Öğrenen Sayıları*

Topluluk	*Evren (N)*	*%1*	*Örneklem (n)*
Kitap Topluluğu	147.640	1.476,4	2.104
Fotoğraf Topluluğu	104.551	1.045,51	1.184
Sinema Topluluğu	99.730	997,3	1.057
Bilişim Topluluğu	89.822	898,22	993
Tarih Topluluğu	80.514	805,14	898
Müzik Topluluğu	66.616	666,16	832
Sosyoloji Topluluğu	42.363	423,63	677
Tasarım Topluluğu	10.279	102,79	230
Toplam	641.515	6.415,15	7.975

Veri Toplama Yöntemi ve Aracı

Çalışma verisi, gerekli yönetsel ve etik izinler alındıktan sonra Anadolu Üniversitesi Açıköğretim Sistemi'nin öğrenme yönetim sistemi (ÖYS) üzerinden elde edilmiştir. İlgili veri, iki basamaktan oluşmaktadır. Birinci basamakta, Açıköğretim Sistemi öğrenci topluluklarına kayıt yaptıran ve demografik bilgileri eksiksiz olan öğrenenlere ait; cinsiyet, yaş, kayıt türü, kayıt yılı, kayıtlı olunan program türü, 2021-2022 Öğretim Yılı Bahar Döneminde alınan ders sayısı ve ilgili dönemdeki genel not ortalaması yer almaktadır. İkinci basamakta ise söz konusu öğrenenlerin 2021-2022 Öğretim Yılı Bahar Dönemine ait öğrenme malzemesi kullanım sıklıkları bulunmaktadır.

Veri Analizi ve Kullanılan Testler

Araştırma verisinin analizinde Microsoft Excel ve IBM SPSS 25 programları kullanılmıştır. Öğrenenlerin kayıt yaptırdıkları topluluklar ile demografik bilgilerini ilişkilendirebilmek maksadıyla Ki-Kare Bağımsızlık Testi kullanılırken, topluluklar açısından öğrenme malzemesi kullanım sıklığını inceleyebilmek amacıyla tek yönlü varyans analizi (ANOVA) kullanılmıştır.

BULGULAR

Bu başlık altında gerçekleştirilen analizlere ilişkin bulgular tablolar halinde sunularak yorumlanmıştır.

Topluluk Türü Özelinde Öğrenenlerin Demografik Özelliklerinin Karşılaştırılması

Topluluk türü özelinde öğrenenlerin cinsiyetlerine göre dağılımı Tablo 1'de paylaşılmıştır.

Tablo 2. *Topluluk türü özelinde öğrenenlerin cinsiyetlerine göre dağılımı*

Topluluk Türü	Cinsiyet				Toplam		x^2	df	*p*
	Erkek		Kadın						
	n	%	*n*	%	*n*	%			
Bilişim	604	60,8	389	39,2	993	100,0			
Fotoğraf	465	39,3	719	60,7	1184	100,0			
Kitap	680	32,3	1424	67,7	2104	100,0			
Müzik	368	44,2	464	55,8	832	100,0			
Sinema	524	49,6	533	50,4	1057	100,0	282,8	7	***
Sosyoloji	274	40,5	403	59,5	677	100,0			
Tarih	468	52,1	430	47,9	898	100,0			
Tasarım	95	41,3	135	58,7	230	100,0			
Toplam	3478	43,6	4497	56,4	7915	100,0			

***$p<0,001$.

Tablo 1 incelendiğinde, topluluk türü ile cinsiyet değişkeni arasında anlamlı bir bağ olduğu ifade edilebilir (x^2 = 282,8; df = 7; p<0,001). Söz konusu bağ yakından incelendiğinde erkek öğrenenlerin ağırlıklı olarak bilişim (%60,8) ve tarih (%52,1) topluluklarında yer aldıkları görülürken kadın öğrenenlerin çoğunlukla fotoğraf (%60,7), kitap (%67,7), müzik (%55,8), sinema (%50,4), sosyoloji (%59,5) ve tasarım (%58,7) topluluklarına katıldıkları görülmektedir. Topluluk türü özelinde öğrenenlerin yaşlarına göre dağılımı Tablo 2'de yer almaktadır.

Tablo 3. *Topluluk türü özelinde öğrenenlerin yaşlarına göre dağılımı*

Topluluk Türü	Yaş								Toplam		x^2	df	p
	20-29 yaş		30-39 yaş		40-49 yaş		50 yaş ve üstü						
	n	%	*n*	%	*n*	%	*n*	%	*n*	%			
Bilişim	371	37,3	325	32,7	220	22,2	77	7,8	993	100,0	148,3	21	***
Fotoğraf	518	43,8	345	29,1	213	18,0	108	9,1	1184	100,0			
Kitap	813	38,6	739	35,1	370	17,6	182	8,7	2104	100,0			
Müzik	375	45,1	258	31,0	124	14,9	75	9,0	832	100,0			
Sinema	461	43,6	339	32,1	184	17,4	73	6,9	1057	100,0			
Sosyoloji	173	25,6	226	33,4	184	27,1	94	13,9	677	100,0			
Tarih	364	40,5	252	28,1	170	18,9	112	12,5	898	100,0			
Tasarım	84	36,5	72	31,3	58	25,2	16	7,0	230	100,0			
Toplam	3159	39,6	2556	32,1	1523	19,1	737	9,2	7915	100,0			

***p<0,001.

Tablo 2'de görüleceği üzere topluluk türü ile yaş değişkeni arasında anlamlı bir bağ söz konusudur (x^2 = 148,3; df = 21; p<0,001). Bu bağ yakından incelendiğinde, bütün yaş gruplarının çoğunlukla kitap topluluğuna kayıt yaptırdıkları göze çarpmaktadır. Diğer taraftan, 20-29 yaş arasındaki öğrenenlerin sosyoloji topluluğu dışındaki bütün topluluklarda ağırlıklı olarak yer aldıkları dikkat çekmektedir. 30-39 yaş arasındaki öğrenenlerin sosyoloji topluluğunda daha çok bulundukları görülmektedir (%33,4). Ayrıca bu yaş grubundaki öğrenenler kitap topluluğunda da ikinci çoğunluğu oluşturmaktadır (%35,1). Bununla birlikte, 40-49 yaş arasındaki öğrenenler (n = 370) ile 50 yaş ve üstündeki öğrenenler de (n = 182) çoğunluklu olarak kitap topluluğunda yer almaktadır. Topluluk türü özelinde öğrenenlerin kayıt türüne göre dağılımı Tablo 3'te verilmiştir.

Tablo 4. *Topluluk türü özelinde öğrenenlerin kayıt türüne göre dağılımı*

Topluluk Türü	Kayıt Türü								Toplam		x^2	df	*p*
	İkinci Üniversite		ÖSYM		Dikey Geçiş		Diğer						
	n	%	*n*	%	*n*	%	*n*	%	*n*	%			
Bilişim	510	51,4	278	28,0	148	14,9	57	5,7	993	100,0	48,35	21	**
Fotoğraf	557	47,0	404	34,1	456	13,2	67	5,7	1184	100,0			
Kitap	1041	49,5	721	34,2	218	10,4	124	5,9	2104	100,0			
Müzik	440	52,9	254	30,5	90	10,8	48	5,8	832	100,0			
Sinema	580	54,9	300	28,3	117	11,1	60	5,7	1057	100,0			
Sosyo-loji	348	51,4	231	34,1	60	8,9	38	5,6	677	100,0			
Tarih	440	49,0	309	34,4	95	10,6	54	6,0	898	100,0			
Tasarım	110	47,8	74	32,2	32	13,9	14	6,1	230	100,0			
Toplam	4026	50,5	2571	32,2	916	11,5	462	5,8	7915	100,0			

$^{**}p<0,01$.

Tablo 3'te topluluk türü ile kayıt türü değişkeni arasında anlamlı bir bağ olduğu görülmektedir ($x^2 = 48,35$; df = 21; $p<0,01$). İlgili bağ yakından incelendiğinde, ikinci üniversite kapsamında kayıt yaptıran öğrenenlerin bütün topluluklarda çoğunlukta olduğu dikkat çekmektedir. Diğer taraftan, ikinci üniversite ($n = 1041$), ÖSYM ($n = 721$) ve diğer ($n = 124$) kayıt türündeki öğrenenler en fazla kitap topluluğunda yer almaktadır. Dikey geçiş kayıt türündeki öğrenenler ise çoğunlukta fotoğraf topluluğunda yer almaktadır ($n = 456$). Topluluk türü özelinde öğrenenlerin kayıt yılına göre dağılımı Tablo 4'te paylaşılmıştır.

Tablo 5. *Topluluk türü özelinde öğrenenlerin kayıt yılına göre dağılımı*

Topluluk Türü	Kayıt Yılı								Toplam		x^2	df	*p*
	2018-2019		2016-2017		2014-2015		2013 ve öncesi						
	n	%	*n*	%	*n*	%	*n*	%	*n*	%			
Bilişim	486	48,9	182	18,3	91	9,2	234	23,6	993	100,0	83,01	21	***
Fotoğraf	563	47,6	511	17,8	140	11,8	270	22,8	1184	100,0			
Kitap	1006	47,9	369	17,5	240	11,4	489	23,2	2104	100,0			
Müzik	489	58,8	117	14,1	66	7,9	160	19,2	832	100,0			
Sinema	564	53,4	184	17,4	103	9,7	206	19,5	1057	100,0			
Sosyoloji	290	42,8	123	18,2	81	12,0	183	27,0	677	100,0			
Tarih	476	53,0	158	17,6	82	9,1	182	20,3	898	100,0			
Tasarım	85	37,0	43	18,6	36	15,7	66	28,7	230	100,0			
Toplam	3959	49,6	1387	17,4	839	10,5	1790	22,5	7915	100,0			

$^{***}p<0,001$.

Tablo 4 incelendiğinde topluluk türü ile kayıt yılı değişkeni arasında anlamlı bir bağ olması dikkat çekmektedir (x^2 = 83,01; df = 21; p<0,001). Söz konusu bağ yakından incelendiğinde, 2018-2019 yılları arasında Açıköğretim Sistemi'nde herhangi bir programa kayıt yaptıran öğrenenlerin bütün topluluklarda ağırlıklı olarak bulundukları ifade edilebilir. Öte yandan, 2018-2019 (n = 1006), 2014-2015 (n = 240) ile 2013 ve öncesi (n = 489) yıllarda kayıt yaptıran öğrenenlerin en fazla kitap topluluğunda yer aldıkları söylenebilir. 2016-2017 yıllarında kayıt yaptıran öğrenenlerin ise çoğunlukla fotoğraf topluluğunda bulundukları görülmektedir (n = 511). Topluluk türü özelinde öğrenenlerin kayıtlı olduğu program türüne göre dağılımı Tablo 5'te paylaşılmıştır.

Tablo 6. *Topluluk türü özelinde öğrenenlerin kayıtlı olduğu program türüne göre dağılımı*

Topluluk Türü	Program Türü				Toplam		x^2	df	p
	Önlisans		Lisans						
	n	%	*n*	%	*n*	%			
Bilişim	631	63,5	362	36,5	993	100,0	133,4	7	***
Fotoğraf	790	66,7	394	33,3	1184	100,0			
Kitap	1158	55,0	946	45,0	2104	100,0			
Müzik	508	61,1	324	38,9	832	100,0			
Sinema	641	60,6	416	39,4	1057	100,0			
Sosyoloji	298	44,0	379	56,0	677	100,0			
Tarih	498	55,5	400	44,5	898	100,0			
Tasarım	162	70,4	68	29,6	230	100,0			
Toplam	4686	58,8	3289	41,2	7915	100,0			

***p<0,001.

Tablo 5'te topluluk türü ile program türü değişkeni arasında anlamlı bir bağ olduğu görülmektedir (x^2 = 133,4; df = 21; p<0,001). Bu bağ yakından incelendiğinde, Açıköğretim Sistemi'nde bir önlisans programına kayıtlı olan öğrenenlerin ağırlıklı olarak bilişim (%63,5), fotoğraf (%66,7), kitap (%55,0), müzik (%61,1), sinema (%60,6), tarih (%55,5) ve tasarım (%70,4) topluluklarında yer aldıkları dikkat çekerken bir lisans programına kayıtlı olan öğrenenlerin çoğunlukla sosyoloji topluluğunda bulundukları göze çarpmaktadır (%56,0). Topluluk türü özelinde öğrenenlerin 2021-2022 Öğretim Yılı Bahar Döneminde aldıkları ders sayılarının dağılımı Tablo 6'da yer almaktadır.

Tablo 7. *Topluluk türü özelinde öğrenenlerin aldıkları ders sayılarının dağılımı*

Topluluk Türü	Alınan Ders Sayısı						Toplam		x^2	df	*p*
	1-3		4-6		7 ve üstünde						
	n	%	*n*	%	*n*	%	*n*	%			
Bilişim	279	28,1	371	37,4	343	34,5	993	100,0			
Fotoğraf	356	30,0	415	35,1	413	34,9	1184	100,0			
Kitap	522	24,9	729	34,6	853	40,5	2104	100,0			
Müzik	234	28,1	295	35,5	303	36,4	832	100,0			
Sinema	280	26,5	371	35,1	406	38,4	1057	100,0	37,99	14	**
Sosyoloji	144	21,3	232	34,3	301	44,4	677	100,0			
Tarih	240	26,7	303	33,7	355	39,6	898	100,0			
Tasarım	55	23,9	79	34,4	96	41,7	230	100,0			
Toplam	2110	26,5	2795	35,0	3070	38,5	7915	100,0			

$^{**}p<0,01$.

Tablo 6'da topluluk türü ile alınan ders sayısı değişkeni arasında anlamlı bir bağ olduğu dikkat çekmektedir ($x^2 = 37,99$; df = 14; $p<0,01$). Söz konusu bağ yakından incelendiğinde, Açıköğretim Sistemi'nde 2021-2022 Öğretim Yılı Bahar Döneminde 4-6 arasında ders alan öğrenenlerin bilişim (%37,4) ve fotoğraf (%37,4) topluluklarında çoğunlukla yer aldıkları görülmektedir. 7 ve üstünde ders alan öğrenenlerin kitap (%40,5), müzik (%36,4), sinema (%38,4), sosyoloji (%44,4), tarih (%39,6) ve tasarım (%41,7) topluluklarında bulundukları göze çarpmaktadır. 1-3 arasında ders alan öğrenenler ise çoğunlukla kitap topluluğuna kayıt yaptırmış durumdadır (%24,9). Topluluk türü özelinde öğrenenlerin genel not ortalamalarına göre dağılımı Tablo 7'de verilmiştir.

Tablo 8. *Topluluk türü özelinde öğrenenlerin genel not ortalamalarına göre dağılımı*

Topluluk Türü	Genel Not Ortalaması								Toplam		x^2	df	*p*
	1.49 ve altı		1.50-1.99 arası		2.00-2.49 arası		2.50 ve üstü						
	n	%	*n*	%	*n*	%	*n*	%	*n*	%			
Bilişim	266	26,8	268	27,0	287	28,0	181	18,2	993	100,0			
Fotoğraf	312	26,4	326	27,5	349	29,5	197	16,6	1184	100,0			
Kitap	575	27,3	568	27,0	582	27,7	379	18,0	2104	100,0			
Müzik	201	24,2	234	28,1	224	26,9	173	20,8	832	100,0			
Sinema	274	25,9	286	27,1	283	26,8	214	20,2	1057	100,0	36,44	21	*
Sosyoloji	180	26,6	170	25,1	203	30,0	124	18,3	677	100,0			
Tarih	190	21,2	241	26,8	261	29,1	206	22,9	898	100,0			
Tasarım	67	29,2	70	30,4	63	27,4	30	13,0	230	100,0			
Toplam	2065	25,9	2163	27,1	2243	28,1	1504	18,9	7915	100,0			

$^{*}p<0,05$.

Tablo 7'de topluluk türü ile genel not ortalaması değişkeni arasında anlamlı bir bağ olduğu söylenebilir (x^2 = 36,44; df = 21; p<0,05). Bu bağ yakından incelendiğinde, 2021-2022 Öğretim Yılı Bahar Döneminin sonunda genel not ortalaması 2.00-2.49 arasında olan öğrenenler çoğunlukla bilişim (%28,0), fotoğraf (%29,5), kitap (%27,7), sosyoloji (%30,0) ve tarih (%29,1) topluluklarında yer almaktadır. Genel not ortalaması 1.50-1.99 arasında olan öğrenenler daha çok müzik (%28,0), sinema (%27,0) ve tasarım (%30,4) topluluklarında bulunmaktadır. Genel ortalaması 1.49 ve altı olan öğrenenler ile 2.50 ve üstü olan öğrenenler ağırlıklı olarak kitap topluluğuna kayıtlıdır.

Topluluk Türü Özelinde Öğrenenlerin Öğrenme Malzemesi Kullanım Sıklıklarının İncelenmesi

Toplulukların kullandığı öğrenme malzemeleri Tablo 8'de yer almaktadır. 2021-2022 Öğretim Yılı Bahar Döneminde topluluk türü özelinde öğrenenlerin kullandığı öğrenme malzemesi sıklıklarını incelemek amacıyla tek yönlü varyans analizi (ANOVA) gerçekleştirilmiştir.

Tablo 9. *Araştırmada Kullanılan Öğrenme Malzemeleri*

No	Malzeme	No	Malzeme
1	Canlı Ders (Canlı Ders Esnasında Katılım)	10	Kitap (PDF)
2	Canlı Ders Kayıtları	11	Kitap Ünite
3	Çıkmış Sınav Soruları	12	Makine Seslendirmesi
4	Daisy Sesli Kitap	13	Mikroanimasyon
5	Kitap (ePUB)	14	Özet Seslendirme
6	Etkileşimli İçerik	15	Özet Video
7	Etkileşimli Video	16	Sesli Kitap (MP3)
8	Konu Anlatım Videosu	17	Sorularla Öğrenelim
9	Infografik	18	Yakın Plan Videoları

Yapılan analizde eşit varyanslar için ANOVA istatistiğinin anlamlılığına ve eşit olmayan varyanslar için Brown-Forsythe istatistiğinin anlamlılığına bakılmıştır. Analiz sonucunda topluluk türü açısından yalnızca canlı ders kayıtları, çıkmış sınav soruları, kitap (PDF), özet video ve sorularla öğrenelim malzemelerine yönelik kullanım sıklığının anlamlı bir biçimde farklılaştığı sonucuna ulaşılmıştır. Elde edilen bu farklılıklar ve söz konusu farklılıkların hangi gruplar arasında olduğuna ilişkin işlem sonrası yapılan Tamhane testi sonuçlarına Tablo 9'da yer verilmiştir.

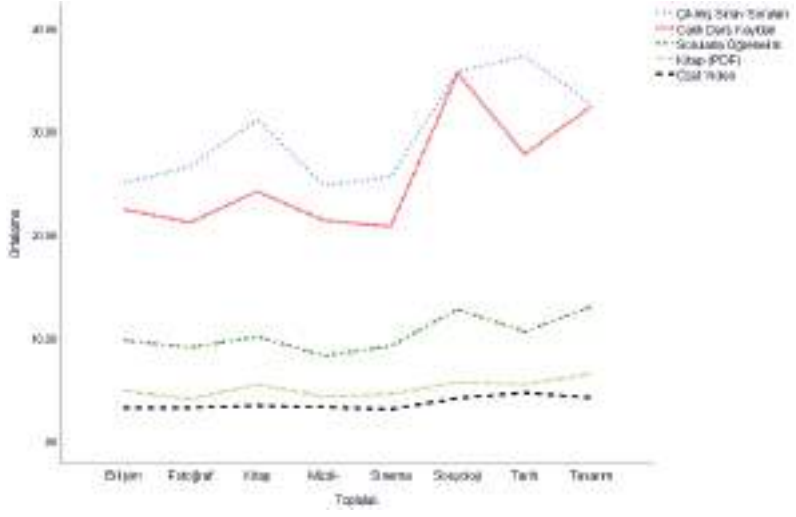
Tablo 10. Topluluk Türü Özelinde Öğrenenlerin Öğrenme Malzemesi Kullanım Sıklıklarının İncelenmesi

Öğrenme Malzemesi	Topluluk	*n*	*x*	$\underline{x}$	*F*	*p*	İS Tamhane
Canlı Ders Kayıtları	1. Bilişim	993	22,42	48,51	7,37	***	1-6 2-6 3-6 4-6 5-6
	2. Fotoğraf	1184	21,15	49,45			
	3. Kitap	2104	24,16	52,14			
	4. Müzik	832	21,35	47,46			
	5. Sinema	1057	20,77	46,62			
	6. Sosyoloji	677	35,62	66,60			
	7. Tarih	898	27,74	57,59			
	8. Tasarım	230	32,40	55,99			
Çıkmış Sınav Soruları	1. Bilişim	993	24,99	48,06	7,17	***	1-6 1-7 2-6 2-7 3-4 4-6 4-7 5-6
	2. Fotoğraf	1184	26,60	54,63			
	3. Kitap	2104	31,12	55,39			
	4. Müzik	832	24,76	43,46			
	5. Sinema	1057	25,57	44,73			
	6. Sosyoloji	677	35,75	61,67			
	7. Tarih	898	37,32	68,59			
	8. Tasarım	230	32,59	60,79			
Kitap (PDF)	1. Bilişim	993	4,84	12,59	3,17	**	2-3
	2. Fotoğraf	1184	4,03	8,85			
	3. Kitap	2104	5,44	12,41			
	4. Müzik	832	4,27	10,95			
	5. Sinema	1057	4,54	9,56			
	6. Sosyoloji	677	5,67	12,20			
	7. Tarih	898	5,45	12,76			
	8. Tasarım	230	6,51	15,32			
Özet Video	1. Bilişim	993	3,18	8,64	2,91	**	5-7
	2. Fotoğraf	1184	3,19	9,81			
	3. Kitap	2104	3,40	9,83			
	4. Müzik	832	3,25	9,12			
	5. Sinema	1057	3,06	8,82			
	6. Sosyoloji	677	4,12	11,64			
	7. Tarih	898	4,64	12,25			
	8. Tasarım	230	4,17	9,09			

Sorularla Öğrenelim	1. Bilişim	993	9,73	23,88	3,45	**	2-6 4-6 5-6
	2. Fotoğraf	1184	9,04	18,32			
	3. Kitap	2104	10,08	22,07			
	4. Müzik	832	8,24	16,96			
	5. Sinema	1057	9,17	21,41			
	6. Sosyoloji	677	12,77	23,57			
	7. Tarih	898	10,53	22,85			
	8. Tasarım	230	13,04	27,30			

***p<0,001; **p<0,01; *p<0,05; İS = İşlem Sonrası.

Tablo 9'da topluluklar açısından öğrenme malzeme kullanım sıklığının incelenmesi neticesinde canlı ders kayıtları (F = 7,37; p<0,001), çıkmış sınav soruları (F = 7,17; p<0,001), kitap (PDF) (F = 3,17; p<0,01), özet video (F = 2,91; p<0,01) ve sorularla öğrenelim (F = 3,45; p<0,01) malzemelerinin anlamlı bir biçimde farklılaştığı görülmüştür. Farklılığa ilişkin incelemede canlı ders kayıtlarının tasarım topluluğu dışında diğer topluluklara kıyasla sosyoloji topluluğu tarafından en fazla kullanıldığı dikkat çekmektedir. Bununla birlikte, çıkmış sınav sorularının tasarım topluluğu dışında diğer topluluklara kıyasla en fazla tarih ve sosyoloji toplulukları tarafından kullanıldığı göze çarpmaktadır. Kitap (PDF) malzemesinde ise yalnızca iki topluluk arasında bir farklılık olduğu bulunmuştur. Bu farklılık kapsamında fotoğraf topluluğuna kıyasla kitap topluluğu kitap (PDF) malzemesini daha sık kullanmaktadır. Benzer şekilde, özet video malzemesinde de yalnızca sinema ve tarih toplulukları arasında bir farklılık tespit edilmiştir. Sinema topluluğuna kıyasla tarih topluluğu özet videoları daha sık tercih etmektedir. Son olarak, sorularla öğrenelim malzemesinde fotoğraf, müzik, sinema ve sosyoloji toplulukları arasında bir farklılık olduğu belirlenmiştir. Söz konusu topluluklara kıyasla, sosyoloji topluluğu sorularla öğrenelim malzemesini daha sık kullanmaktadır. Şekil 1'de bu farklılıklara ilişkin görsel paylaşılmıştır.



Şekil 1. *Öğrenme Malzemesi Kullanım Sıklığının Karşılaştırılması*

SONUÇ, TARTIŞMA VE ÖNERİLER

Bu çalışmada Anadolu Üniversitesi Açıköğretim Sistemi'nde yer alan çevrimiçi öğrenci topluluklarına 2022 yılının mayıs ayı itibarıyla kayıtlı öğrenenlerin topluluk bazında hem demografik özellikleri hem de öğrenme malzemesi kullanım sıklıklarını olmak üzere öğrenen analitikleri incelenmiştir. Bu amaçla topluluklarda yer alan öğrenenlerin demografik özelliklerinin bir kıyaslaması yapılarak benzerlik ve farklılıklar ele alınmıştır. Bununla birlikte, yine topluluklar özelinde öğrenenlerin öğrenme malzemelerini kullanım sıklıkları irdelenmiştir. Böylelikle Açıköğretim Sistemi'nin önemli paydaşlarından biri olan öğrenenlerin çevrimiçi öğrenci topluluklarında nasıl bir örüntüye sahip oldukları tespit edilmeye çalışılmıştır.

Yapılan analizler neticesinde öğrenenlerin kaydoldukları topluluklar ile cinsiyetleri arasında bir bağ olduğu belirlenmiştir. Şöyle ki, bilişim ve tarih topluluklarında erkek öğrenenlerin daha çok bulunduğu görülürken fotoğraf, kitap, müzik, sinema, sosyoloji ve tasarım topluluklarında kadın öğrenenlerin daha fazla olduğu tespit edilmiştir. Bu durum erkek öğrenenlerin bilişim ve tarih alanına ilgi duyduklarına işaret ederken kadın öğrenenlerin fotoğraf, kitap, müzik, sinema, sosyoloji ve tasarım alanlarına daha çok ilgi gösterdiklerini belirtir niteliktedir. Diğer taraftan, yaşça daha genç öğrenenlerin sosyoloji topluluğu dışındaki bütün topluluklarda ağırlıklı olarak yer aldıkları belirlenirken sosyoloji topluluğunda ağırlıklı olarak yaşça nispeten büyük öğrenenlerin bulunduğu dikkat çekmiştir. Ayrıca yaşça daha büyük öğrenenlerin kitap topluluğunda daha çok olduğu da görülmüştür. Söz konusu durum, yapılacak etkinliklerde yaş etmeninin göz önünde bulundurularak etkinlik tasarımının yapılmasını elzem kılmaktadır. Örneğin, genç öğrenenlerin (18-29) daha fazla olduğu topluluklarda gençleri ilgilendiren güncel konularda yine gençleri anlayabilen iletişim modellerinin kullanılması tavsiye edilmektedir. Yaşça daha büyük öğrenenlerin olduğu topluluklarda ise bu öğrenenlerin ilgisini çekebilecek etkinliklerin yapılması ve gerekli iletişim modellerinin kullanılması önerilmektedir.

Öte yandan, öğrenenlerin kaydoldukları topluluklar ile kayıt türleri arasında bir bağ tespit edilmiştir. İkinci üniversite kapsamında kayıt yaptıran öğrenenler, bütün topluluklarda aktif çoğunluğu temsil etmektedir. Kitap topluluğunda ikinci üniversite, ÖSYM ve diğer (dikey geçiş, lisans tamamlama, ek yerleştirme vb.) kayıt türlerine sahip öğrenenler sayıca çoğunluktadır. Ayrıca, kitap topluluğunun bu öğrenenler tarafından en çok tercih edilen topluluk olduğu görülmektedir. Bunun yanı sıra, dikey geçiş kayıt türüne sahip öğrenenler daha çok fotoğraf topluluğunda bulunmaktadır. Dolayısıyla dikey geçişle gelen öğrenenlerin fotoğraf alanına yönelik bir ilgilerinin olduğu ifade edilebilir. Benzer biçimde, topluluklar ile öğrenenlerin kayıt yaptırma yılları arasında da bir bağ bulunmuştur. Nispeten yakın zamanda kayıt yaptıran öğrenenlerin bütün topluluklarda ağırlıklı olarak yer aldıkları dikkat çekmektedir. Bu durum ise yakın tarihlerde kayıt yaptıran öğrenenlerin topluluklara yönelik yoğun bir ilgisinin olduğunu göstermektedir. Bununla birlikte, daha eski tarihlerde kayıt yaptıran öğrenenlerin de kitap topluluğunda ağırlıklı olduğu belirlenmiştir. Söz konusu hususla ilgili yeni kayıt yaptıran öğrenenlere, öğrenci topluluklarıyla ilgili bilgiler ve duyurular, onların görebileceği bir biçimde yapılıp topluluklarda düzenlenen etkinliklerle alakalı sistem üzerinden güncel bilgiler ve yönergeler sunulması tavsiye edilmektedir.

Topluluklar ile öğrenenlerin kayıtlı olduğu program türü arasında bir bağ olduğu belirlenmiştir. Açıköğretim Sistemi'nde herhangi bir önlisans programına kayıtlı öğrenenler sosyoloji topluluğu hariç bütün topluluklarda aktif çoğunluğu oluşturmaktadır. Lisans programına kayıtlı öğrenenler ise sosyoloji topluluğunda ağırlıklı olarak yer almaktadır. Bu bağlamda, topluluklar özelinde tasarlanacak etkinliklerde program türlerinin göz önünde bulundurularak müfredatlarında yer alan hususlarla ilgili etkinliklerin de yapılması gerektiği değerlendirilmektedir. Örneğin, tasarım topluluğunda ilgili alanı yakından ilgilendiren önlisans programlarındaki ders kitabı içeriklerinde yer alan bilgilerin, yine ilgili alandaki uzman ya da yetkin kişilerce, düzenlenecek etkinliklerde öğrenenlere sunulması ya da çeşitli deneyimler aracılığıyla aktarılması önerilmektedir. Diğer taraftan, topluluklar ile öğrenenlerin aldıkları ders sayıları arasında da bir bağ tespit edilmiştir. Bu bağ, 2021-2022 Öğretim Yılı Bahar Döneminde daha az sayıda ders alan öğrenenlerin bilişim ve fotoğraf topluluklarına daha çok ilgi gösterdiklerini ortaya koyarken daha fazla sayıda ders alan öğrenenlerin kitap, müzik, sinema, sosyoloji, tarih ve tasarım topluluklarında bulunduğuna işaret etmiştir. Bununla birlikte, ilgili akademik dönemde not ortalaması 2.00-2.49 arasında olan öğrenenlerin bilişim, fotoğraf, kitap, sosyoloji ve tarih topluluklarında aktif çoğunluğu temsil ettiği dikkat çekerken not ortalaması nispeten düşük olan öğrenenlerin müzik, sinema ve tasarım topluluklarında çoğunluğu oluşturduğu görülmüştür. Söz konusu bulguların, yapılacak ileri araştırmalarla yakından incelenmesi tavsiye edilmektedir. Özellikle, düşük genel not ortalamasına sahip öğrenenlerin neden bu topluluklara daha çok kayıt yaptırdıkları anlaşıldığında ilgili topluluklarda öz-düzenleme becerisi ya da öğrenmeye ilişkin motivasyonun yükseltilmesi gibi konularda etkinlikler yapılarak Açıköğretim Sistemi'ndeki öğrenenlerin aidiyet duyguları artırılabilir (Uçar, 2020, s. 41). Ayrıca, bazı öğrenenlerin yaşadığı akademik erteleme ya da öğrenimi yarıda bırakma davranışlarıyla ilişkilendirilecek etkinlik tasarımları aracılığıyla öğrenenlerin Açıköğretim Sistemi'nde tutulması ve programlarına devam etmeleri sağlanabilecektir.

Son olarak, öğrenenlerin kaydoldukları topluluklar açısından öğrenme malzemelerinin kullanım sıklığının incelenmesi neticesinde; canlı ders kayıtları, çıkmış sınav soruları, kitap (PDF), özet videolar ve sorularla öğrenelim malzemelerinin kullanım sıklıklarında bir farklılık oluştuğu görülmüştür. Çıkmış sınav sorularının en çok tarih ve sosyoloji toplulukları tarafından kullanıldığı dikkat çekerken, kitabın (PDF) kitap topluluğu, özet videoların tarih topluğu, sorularla öğrenelim malzemesinin ise sosyoloji topluluğu tarafından daha sık kullanıldığı belirlenmiştir. Bu durumun ilgili topluluklardaki öğrenenlerin ders çalışma planları ve öğrenme malzemesi tercihleriyle alakalı olduğu değerlendirilmektedir. Nitekim topluluklar özelinde belirli farklılıklar olsa da öğrenenlerin bireysel ihtiyaçlarına göre öğrenme malzemelerini tercih ettikleri bilinmektedir (Yıldırım, 2022, s. 401). Bununla birlikte, söz konusu öğrenme malzemeleri dışında diğer öğrenme malzemelerini kullanmaları için de öğrenenler topluluk etkinlikleri esnasında bilgilendirilebilir. Öte yandan, literatürde yapılan çalışmalarda, öğrenme yönetim sistemine (ÖYS) öğrenen erişim sıklığı arttığında öğrenen başarısının da önemli ölçüde yükseldiği ortaya koyulmuştur (Saykili vd., 2019, s. 153). Öğrenenlerin, Açıköğretim Sistemi Anadolum eKampüs platformu üzerinden bu malzemelere erişebildikleri göz önünde bulundurulduğunda öğrenme malzemelerini daha çok kullanan öğrenenlerin daha başarılı olabilecekleri sonucuna varılabilir. Sonuç olarak, ders çalışmak için etkili bir zaman yönetimine sahip öğrenenlerin öğrenme malzemelerini daha fazla kullanabileceği ve başarılarının da bu bağlamda artabileceği düşünülmektedir.

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Öz-Düzenlemeli Öğrenmeyi İçeren Sistematik Analiz Çalışmalarına Yönelik Bir Derleme

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ÖZET

Bu çalışmada Açık ve Uzaktan Öğrenme bağlamında özellikle Kitlesel Açık Çevrimiçi Kurslar başta olmak üzere öz-düzenlemeli öğrenme üzerine yapılan sistematik incelemeler ele alınarak derleme yapılmıştır. Açık ve uzaktan öğrenme bağlamında öz-düzenlemeli öğrenme ile ilgili son gelişmeleri ve eğilimleri ortaya çıkarmak amacıyla 2019-2022 yılları arasında yayımlanan ve araştırmacılar tarafından belirlenen dahil etme kriterlerine uyan toplamda 12 sistematik analiz çalışması incelenmiştir. Araştırma kapsamında EbscoHost, ERIC, Google Scholar, ResearchGate, ScienceDirect, Scopus, Springer, Wiley ve Web of Science veri tabanlarından yararlanılmıştır. Kitchenham (2004) tarafından geliştirilen Üç Aşamalı İnceleme protokolü kullanılarak incelenen sistematik analizlerin bulgularının genelinde öz-düzenlemeli öğrenmenin KAÇD bağlamında öğrenmeyi olumlu yönde etkileyen bir faktör olduğu, incelemelerde çoğunlukla Zimmerman ve Pintrich'in öz-düzenleme modellerinin kullanıldığı ve öz-düzenlemeli öğrenme üzerinde olumlu etkisinin olduğu belirlenen çok sayıda öz-düzenlemeli öğrenme destek müdahale programlarını ele alan çalışmaların var olduğu belirtilmiştir. Açık ve Uzaktan Öğrenmeye dair çalışmaların sınırlı sayıda olduğu tespit edildiğinden dolayı öz-düzenlemeli öğrenme alanları, stratejileri ve yaklaşımlarına yönelik özellikle öğrenme analitiklerinden yola çıkarak insan faktörünü göz önünde bulunduran uygulamalar, araçlar ve yöntemler geliştirilmesi önerilmektedir.

Anahtar Kelimeler: *Öz-Düzenlemeli Öğrenme, Açık ve Uzaktan Öğrenme, Kitlesel Açık Çevrim İçi Dersler, Öz-Düzenlemeli Öğrenme Stratejileri.*

GİRİŞ

İnsanların öğrenebilme özelliği, onların nasıl öğrendiğine dair soruları ve araştırmaları da beraberinde getirmiştir. İnsanların nasıl öğrendiklerini açıklayan yaklaşımlardan biri de öz düzenlemeli öğrenme yaklaşımıdır (Eryılmaz ve Mammadov, 2017, s. 80). Kauffman (2004, s. 139) öz-düzenlemeli öğrenmeyi, öğrenenin karmaşık öğrenme etkinliklerini yönetmeye ve kontrol etmeye çalışması olarak tanımlamış ve akademik olarak başarılı olan öğrenenlerin öz-düzenleme becerilerine sahip olduğunu belirtmiştir. Son yıllarda, e-öğrenme teknolojilerinin hızlı büyümesine bağlı olarak

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öğrenme modellerinde de değişiklikler yaşandığı söylenebilir. Açık ve uzaktan öğrenme ortamları için de öz-düzenlemeli öğrenme ve öz-düzenlemeli öğrenme stratejileri kavramları ile araçları öne çıkmaktadır. Özellikle bu araçların, öğrenenlerin kendi öğrenme süreçlerini izleyebilmeleri açısından geliştirilmesinin büyük önem taşıdığı düşünülebilir.

Bu araştırmada, Açık ve Uzaktan Öğrenme bağlamında öz-düzenlemeli öğrenme kavramıyla ilgili, geçmiş dönemde yapılmış olan sistematik analiz çalışmaları incelenmiştir. Bu çalışmanın amacı, sistematik analizlerin ortaya koyduğu temel noktaları açığa çıkarmaktır. Alan yazında, bu konuyu kapsayan sistematik analizleri, bir bütün olarak ele alan çalışmaların yetersiz olduğu tespit edilmiştir. Bu durumun ise açık ve uzaktan öğrenmede öz-düzenleme kavramını geniş çaplı olarak anlamada bir sınırlılık oluşturacağı düşünülmektedir. Bu bağlamda, aşağıda belirtilen araştırma sorularına yanıt aranmıştır.

1. Sistematik analizler hangi yıllarda yayınlanmıştır?
2. Sistematik analizlerde kullanılan anahtar kavramlar nelerdir?
3. Sistematik analizlerin yayınlandığı veri tabanları nelerdir?
4. Sistematik analizlerde hangi analiz yöntemleri kullanılmıştır?
4. Sistematik analizlerin dahil etme ve hariç tutma kriterleri nelerdir?
6. Sistematik analizlerde yer alan bulgular nelerdir?
7. Sistematik analizlerin sınırlılıkları ve önerileri nelerdir?
8. Sistematik analizlerde kullanılan ortak kaynaklar, yazarlar ve bu kaynakların alıntılanma sayıları nelerdir?

Öz-Düzenlemeli Öğrenme

Geleneksel eğitimde olduğu gibi öğrenme özerkliği kavramı Açık ve Uzaktan Öğrenme bağlamında da gündeme gelmeye başlamıştır. Öğrenenin kendi zamanına göre içinde bulunduğu çevre şartlarına göre öğrenmesini teşvik eden öğrenme özerkliği teknolojik gelişmelere bağlı olarak kendine özgü kavramları da beraberinde getirmiştir. Bunlardan birisi uluslararası alan yazında "self-regulated learning" olarak kullanılan ve bu çalışmada da "öz-düzenlemeli öğrenme" olarak kullanılacak olan kavramdır.

Alan yazına bakıldığı zaman *öz-düzenlemeli öğrenme* için yaygın olarak kullanılan tanımlar Zimmerman (2000) ve Pintrich (2000) tarafından yapılmıştır. Zimmerman (2000) ve Pintrich (2000) tanımlamalarını yaparken genellikle öz-düzenlemeli öğrenme modelleri geliştirmişlerdir. Zimmerman (2000, s. 13), öz-düzenlemeli öğrenmeyi "bireysel hedeflere ulaşmak için uyarlanan ve belirli bir döngü içinde ardışık olarak planlanan eylemler, duygular ve bireysel düşüncelerle şekillendirilen bir süreç" olarak tanımlamaktadır. Pintrich (2000, s. 453) ise öz-düzenlemeli öğrenmeyi "öğrenenlerin öğrenme hedeflerini belirledikleri ve sonra ortamın bağlamsal özelliklerinden yola çıkarak bilişlerini, motivasyonlarını ve davranışlarını izledikleri yapılandırmacı bir süreç" olarak tanımlamaktadır. Öz-düzenlemeli öğrenme kısa bir şekilde "bir kişinin kendi öğrenmesini kontrol etme ve anlama becerisi" olarak tanımlanmıştır (Min ve Nasir, 2020).

Açık ve Uzaktan Öğretim bağlamında öz-düzenlemeli öğrenme ile ilgili yapılan çalışmalara geçmeden önce alanda yaygın olarak kullanılan iki modeli aşağıdaki gibi ele alabiliriz (Min ve Nasir, 2020). Min ve Nasir (2020) KAÇD ortamlarında öz-düzenlemeli öğrenmeye odaklandıkları sistematik incelemede Zimmerman ve Pintrich modelleri arasındaki temel farklara dikkat çekmektedir. Min ve Nasir (2000), Zimmerman modelinin öğrenmenin üç aşaması olarak *ileriyi görme, uygulama* ve *öz-değerlendirme* aşamalarına yoğunlaştığını, fakat Pintrich modelinin üstbilişsel stratejiler, bilişsel stratejiler ve kaynak yönetimine yoğunlaştığını belirtmişlerdir. Lee ve diğerlerine (2019) göre Pintrich modeli, Zimmerman tarafından geliştirilen modelin üzerine geliştirilmiştir. Pintrich modeline göre öz-düzenlemeli öğrenme, *ileriyi görme, planlama* ve *uygulama; izleme, kontrol* ve *tepki; yansıtma* aşamalarından oluşmaktadır.

Alan yazında Pintrich modeline dayandırılarak öz-düzenlemeli öğrenme alanları *motivasyon/yakınlık, biliş, davranış* ve *bağlam* olarak belirtilmektedir (Lee ve diğerleri, 2019). Lee ve diğerlerine (2019) göre bu alanlara özgü olarak öz-düzenlemeli öğrenme er sırasıyla şöyledir:

- Motivasyon Düzenleme Stratejileri: İçsel hedef belirleme, dışsal hedefe uyum sağlama, kontrol yetisi, endişe
- Bilişsel ve Üstbilişsel Düzenleme Stratejileri: Prova yapma, özen gösterme, örgütleme, eleştirel düşünme, izleme, düzenleme, planlama, hedef belirleme ve görev analizi
- Davranışsal ve Bağlamsal Düzenleme Stratejileri: Zaman, çalışma ortamı, çaba düzenlemesi, akran öğrenmesi ve yardım isteme

Açık ve Uzaktan Öğretim bağlamında öz-düzenlemeli öğrenme üzerine yapılan çalışmalar için alan yazına baktığımız zaman çoğunlukla KAÇD gibi çevrim içi öğrenme ortamlarındaki uygulamalara yönelik çalışmaların yapıldığı görülmektedir. KAÇD ortamlarında öz-düzenlemeli öğrenme stratejilerinin ve öğrenme analitiklerinin kullanımına yönelik çalışmalar yapılmıştır. Öğrenme stratejilerinin temel alındığı araştırmalarda stratejilerin frekans aralıkları ortaya çıkarılırken öğrenme analitikleri ile ilgili araştırmalar daha çok öğrenenlerin verilerinin analizine yoğunlaşan çalışmalardır.

Öz-düzenlemeli öğrenme stratejilerinin ele alındığı çalışmalardan örnek olarak Erwin ve diğerleri (2019) tarafından yapılan çalışma gösterilebilir. Erwin ve diğerleri (2019) Zimmerman (2013) tarafından tanımlanan öz-düzenlemeli öğrenme stratejilerinin öğrenenlerin KAÇD ortamlarındaki derslerini tamamlamaları üzerindeki etkisini incelemişlerdir. *Hedef belirleme, görev değeri, öz-yeterlilik, zaman yönetimi* gibi stratejiler arasından en yaygın kullanılan görev değeri stratejisi olarak ortaya çıkarılmıştır. Ayrıca Broadbent ve Poon (2015) tarafından incelenen farklı araştırmalarda *hedef belirleme, stratejik planlama, zaman yönetimi* ve *çaba düzenleme* gibi öz düzenleme stratejileri kullanmanın çevrimiçi öğrenme ortamlarında başarıyı olumlu yönde etkilediği gösterilmektedir. Genel olarak öz-düzenlemeli öğrenme stratejilerinin kullanımının öğrenenlerin akademik performansının geliştirdiğine yönelik çalışmalar da alan yazında yer almaktadır (Garcia ve diğerleri, 2018; Lee ve diğerleri, 2019; Roth ve diğerleri, 2016; Wong ve diğerleri, 2019).

Öğrenme analitikleri ile ilgili olarak yukarıda da belirtildiği gibi öğrenenlerin verilerinin analiz edildiği ve veri madenciliği tekniklerinin kullanıldığı çalışmalar bulunmaktadır. Cerezo ve diğerleri (2019) tarafından yapılan ve üniversite öğrencilerinin yer aldığı bir çalışmada KAÇD ortamlarında öğreten kişinin yönergelerinden çok kendi öz-düzenlemeli öğrenme stratejilerini kullandıkları ortaya çıkarılmıştır. Araştırmanın önerileri arasında öğrenenlerin KAÇD ortamındaki giriş, çıkış ve etkin olarak kalınan zaman verilerinin dikkate alınması gerektiği vurgulanmıştır. Aynı doğrultuda öğrenenlerin ders ortamında geçirdikleri süreden yola çıkarak geliştirilen model madenciliği algoritması kullanılarak yapılan çalışmalarda öz-düzenlemeli öğrenme stratejilerine yönelik kendilerine yazılı ya da görsel olarak bilgilendirme yapılan öğrenenlerin bu stratejileri daha yaygın kullandıkları ortaya çıkarılmıştır (Won ve diğerleri, 2019). Won ve diğerleri (2019) aynı çalışmadan öz-düzenlemeli öğrenenlerin dersin içeriklerinden daha fazla yararlandıklarını da ortaya çıkarmışlardır.

Öğrenen verilerinden yola çıkarak çevrim içi ortamlarda öz-düzenlemeli öğrenmeyi teşvik edecek müdahale modellerinin geliştirilmesi konusunda öncelikle geleneksel öğretim alanlarına göre Açık ve Uzaktan öğrenme bağlamında özgün bir müdahale aracının eksikliği alan yazında vurgulanmaktadır (Araka ve diğerleri, 2020). Ayrıca kaynağını öğrenenlerin verilerinden alan öğrenme analitiklerini dikkate alarak geliştirilen müdahale araçları için bu bölümde bahsedilen öz-düzenlemeli öğrenme stratejilerinin de dikkate alınması gerekmektedir. Bu çalışma ele alınan sistematik incelemelerde öğrenme analitikleri ve öz-düzenlemeli öğrenme stratejilerinin ne kadar ilişkilendirilmesi gerektiğine de ışık tutacaktır.

YÖNTEM

Bu bölümde, çalışmanın araştırma deseni, veri toplama aşaması, dahil etme ve hariç tutma kriterleri ile veri analizine ilişkin bilgiler yer almaktadır.

Araştırma Deseni

Öz-düzenlemeli öğrenme üzerine yapılan sistematik analizlerin derlemesini içeren bu çalışmada, araştırmanın amacı ve alanyazın göz önünde bulundurularak nitel araştırma yaklaşımı tercih edilmiştir. Nitel araştırmalar, ele alınan olgunun daha iyi anlaşılması ve çözümlenmesi esasına dayalıdır. Bu bağlamda belirli bir olguya ilişkin ayrıntılı betimleme yapmak amacıyla durum çalışması kullanılmaktadır (Şimşek, 2012, s.93). Bu araştırmada ise durum çalışması kapsamında sistematik analiz çalışması yapılmıştır. Sistematik analiz "belirli bir araştırma sorusu, konu alanı veya bir olgu ile ilgili bütün erişilebilir araştırmaları tanımlamak, değerlendirmek ve yorumlamak" şeklinde açıklanabilir (Kitchenham, 2004, s.3). Yapılan bu sistematik analiz çalışmasında Kitchenam'ın üç aşamalı sistematik inceleme protokolü esas alınmıştır. Buna göre; planlama, incelemeyi yürütme ve rapor etme aşamaları bu araştırma kapsamında yürütülmüştür.

Verilerin Toplanması

Bu çalışmada, Açık ve Uzaktan Öğrenme alanında öz düzenlemeli öğrenme temasını içeren ve 2019-2022 yılları arasında EbscoHost, ERIC, Google Scholar, ResearchGate,

ScienceDirect, Scopus, Springer, Wiley ve Web of Science veri tabanlarında yayınlanan sistematik analiz çalışmaları incelenmiştir. Arama için belirlenen anahtar kelimeler "self-regulated learning" OR "self regulated learning" AND "distance education", "self-regulated learning" OR "self regulated learning" AND "open and distance education", "self-regulated learning" OR "self regulated learning" AND "MOOC", "self-regulated learning" OR "self regulated learning" AND "Online Education", "öz düzenlemeli öğrenme" ve "Açık ve Uzaktan Eğitim"dir. Bahsedilen veri tabanlarında bu anahtar kelimelerle arama yapılmıştır. Araştırma kapsamında Anadolu Üniversitesi kütüphane veri tabanında yer alan ve tam metnine erişilen Türkçe ve İngilizce dilindeki makaleler incelenmiştir. İlk etapta 18 makaleye erişilmiştir. Bu makaleler araştırmacılar tarafından belirlenen dahil etme ve hariç tutma kriterleri göz önünde bulundurularak ayrıntılı olarak tekrar incelenmiş ve bu araştırma kapsamında toplamda 12 sistematik analiz çalışmasının yer aldığına karar verilmiştir. Belirlenen makalelerin isimleri ise Tablo 1'de gösterilmektedir.

Tablo 1. *Sistematik Analiz Çalışmalarının Yer Aldığı Makaleler*

Makale No	Makale Adı
1	Supporting Self-Regulated Learning in Online Learning Environments and MOOCs: A Systematic Review
2	Systematic literature review on self-regulated learning in massive open online course
3	Supporting Self-Regulated Learning in Computer-Based Learning Environments: Systematic Review of Effects of Scaffolding in the Domain of Science Education
4	Self-Regulated Learning in A Massive Open Online Course: A Review of Literature
5	Self-Regulated Learning in Massive Online Open Courses: A State-of-the-Art Review
6	Self-regulated learning in MOOCs: Lessons learned from a literature review
7	Supporting Self-Regulated Learning in Distance Learning Contexts at Higher Education Level: Systematic Literature Review
8	An Approach to Co-Design and Self-Regulated Learning in Technological Environments. Systematic Review
9	A Systematic Review of Empirical Studies on Learning Analytics Dashboards: A Self-Regulated Learning Perspective
10	Research trends in measurement and intervention tools for self-regulated learning for e-learning environments—systematic review (2008–2018)
11	The relationship between mobile learning and self-regulated learning: A systematic review
12	Öğrenme Analitikleri ve Öz-Düzenlemeli Öğrenme Üzerine Araştırma Eğilimlerinin İncelenmesi: Sistematik Bir İnceleme

Dahil Etme ve Hariç Tutma Kriterleri

Bu çalışma kapsamında bulunan makaleler belirlenirken Tablo 2'de yer alan dahil etme ve hariç tutma kriterleri göz önünde bulundurulmuştur.

Tablo 2. *Dahil Etme ve Hariç Tutma Kriterleri*

Dahil Etme Kriterleri	Hariç Tutma Kriterleri
"Self regulated learning", "open education", "distance education", "open and distance education", "MOOC" anahtar kelimelerini içeren sistematik analiz çalışması olması	Çalışma kapsamında belirlenen anahtar kelimelerin bulunmaması
Makalelerin indeksli dergilerde yer alması	Çalışmaların sistematik analiz olmaması
Türkçe ya da İngilizce dilinde olması	Makalelerin Türkçe ya da İngilizce dışında yer alan bir dili içermesi
Anadolu Üniversitesi tarafından sunulan hizmetlerde (kütüphane) tam metnine erişilen makaleler olması	Makalelerin Anadolu Üniversitesi imkanları dışında bulunan veya ücretli veri tabanlarında yer alması

Verilerin Analizi

Bu çalışmanın literatür taraması yapılırken Kitchenham (2004) tarafından geliştirilen 3 aşamalı sistematik analiz yöntemi adımları izlenmiştir. Yapılan literatür taramasında izlenen adımlar şu şekildedir. Öncelikle ilk aşama olan *planlama* kapsamında çalışmanın araştırma soruları belirlenmiştir. Öz-düzenlemeli öğrenme üzerine yapılan sistematik analizlerin genel eğilimlerini ortaya koymak amacıyla makalelerin yayınlandığı yıllar, anahtar kavramlar ve veri tabanları kriter olarak seçilmiştir. Bunun dışında, incelenen makalelerin yöntemleri, dahil etme ve hariç tutma koşulları, bulguları, sınırlılıkları, önerileri ve kullanılan ortak kaynaklar ile alıntılanma sayıları da araştırma sorularına eklenmiştir.

İkinci aşama ise *incelemeyi yürütme* adımıdır. Bu aşamada literatür taramasının yapılacağı kaynaklar belirlenmiştir. Bu kapsamda Anadolu Üniversitesi'nin imkanları doğrultusunda sunulan hizmetlerle erişilmiş olan ve "öz-düzenlemeli öğrenme" ile "açık ve uzaktan öğrenme" anahtar kavramlarını İngilizce veya Türkçe ele alan çalışmalar araştırılmıştır. Araştırmacılar tarafından belirlenen dahil etme ve hariç tutma kriterleri de göz önünde bulundurularak taranan literatür, ilgili veri tabanlarında araştırılmıştır. İlk aşamada 18 makaleye erişim sağlanmıştır. Makalelerin özetleri ve anahtar kelimeleri tüm araştırmacılar tarafından incelenmiştir. Bunun sonucunda dahil etme kriterlerine uymayan 6 makale elenmiş ve toplamda 12 makale incelemeye dahil edilmiştir. Çalışmaya dahil edilen makalelerin seçiminden sonra, belirlenen kriterleri içeren ilgili literatürün analizi yapılmıştır. Analiz çalışmasında seçilen makaleler, öncelikle tüm araştırmacılar tarafından okunmuştur. Sonrasında belirlenen temalara göre manuel olarak kodlanmış ve tüm araştırmacıların erişimine açık bir Google e-Tablo üzerinden paylaşılmıştır. Geçerlik ve güvenirliği artırmak için de yapılan bu kodlama çalışmasında, araştırmacılar arasındaki tutarlılığa bakılmıştır. Bu tutarlılığı sağlamak için çapraz okumalar yapılarak, literatür tekrar gözden geçirilmiştir. Kodlamalarda yer alan farklılıklar tartışılarak bir uzlaşmaya varılmıştır. Çalışmada sunulan bulgular ise,

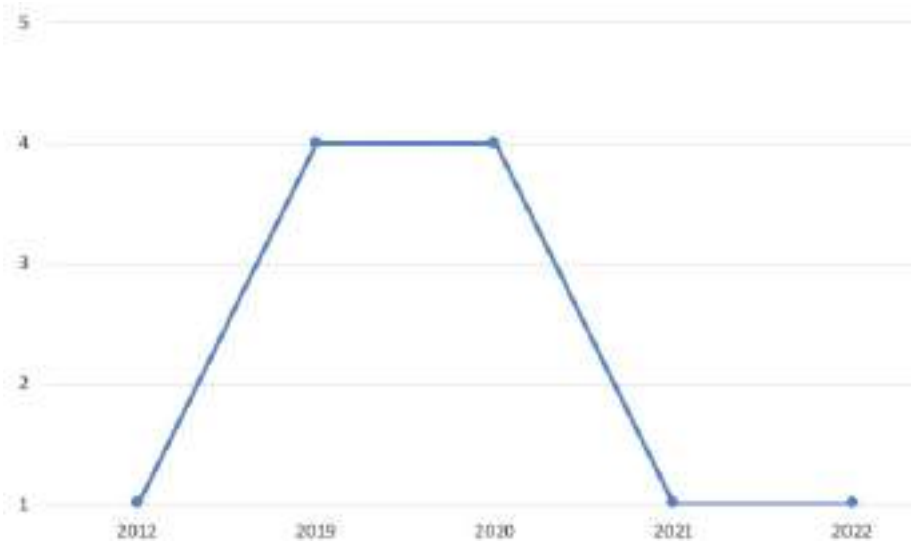
araştırmacıların uzlaşma sağladığı kodlamalar sonucunda elde edilmiştir. Elde edilen bulgular frekans tabloları ile gösterilerek, son aşama olan *raporlama* kısmı yapılmış ve yorumlanmıştır.

BULGULAR

Bu bölümde, ele alınan sistematik incelemelerin yıllara göre dağılımı, anahtar kavramları, veri tabanları, yöntemleri, dahil etme ve hariç tutma kriterleri, elde edilen bulguları, sınırlılıkları ve önerileri incelenerek elde edilen bulgulara yer verilmiştir.

Yıllara Göre Dağılım

Araştırmada yer alan 12 sistematik incelemenin yıllara göre dağılımı Şekil 3.1'de verilmiştir.

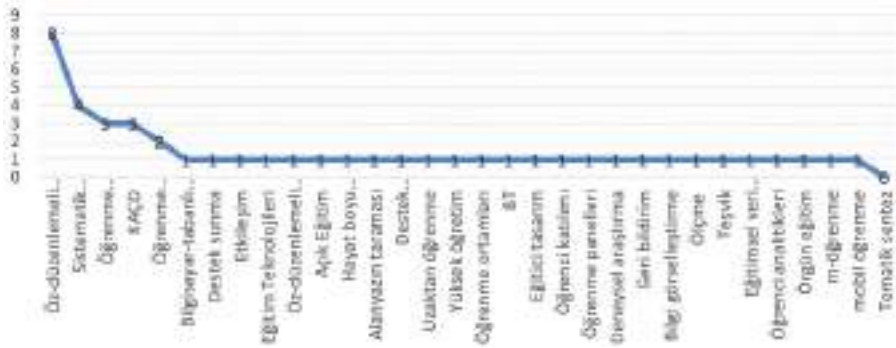


Şekil 1. *Yıllara Göre Dağılım*

Şekil 3.1'de de gösterildiği gibi sistematik incelemeler en fazla 2019 ve 2020 yıllarında yayınlanmış ve daha sonra yıllara göre azalma eğilimi göstermiştir. Sistematik derleme sayılarının 2012 den 2021 e kadar artış göstermesi özellikle 2019-2020 yıllarında daha fazla yayın olması açık ve uzaktan öğrenme bağlamında öz-düzenlemeli öğrenmenin araştırmacıların daha çok dikkatini çektiğini söyleyebiliriz. Bu çalışmaların 2021'den itibaren azalma eğiliminde olması pandemi koşullarıyla açıklanabilir. Öte yandan yine pandemi sebebiyle açık ve uzaktan öğrenmeye yönelik rağbetin artış gösterdiği 2020 yılından itibaren yapılan çalışmaların sistematik incelemesinin de yapılması gerekmektedir.

Anahtar Kavramlar

Bu araştırmaya dahil edilen 12 makaleden 2 tanesinde anahtar kavramlara yer verilmemiştir. 10 makalede kullanılan anahtar kavramlar Şekil 3.2'de verilmiştir.



Şekil 2. *Anahtar Kavramlar*

Şekil 3.2'de görüldüğü gibi öz düzenlemeli öğrenme ile ilgili çok farklı değişkenler bir araya getirilmiş olup, az sayıda çalışmanın da odak noktaya değindiği anlaşılmaktadır. Öz-düzenlemeli öğrenme, öğrenme yönetim sistemi ve KAÇD anahtar kavramlarının daha sık görülmesinin sebebi öz-düzenlemeli öğrenme stratejilerine yönelik sistematik incelemelerin ÖYS ve KAÇD ortamları üzerinde yoğunlaştığını göstermektedir. Diğer anahtar kavramların aynı sıklıkta görülmesi de sistematik incelemelerin farklı alanlarda yapıldığını ve henüz herhangi bir disiplin üzerinde yoğunlaşılmadığını göstermektedir. Ayrıca anahtar kavramların daha çok yükseköğretim, teknoloji ve pedogoji üzerine oluşturulduğu görülmektedir.

Sistematik incelemelerde en sık kullanılan anahtar kavramlar Şekil 3.3'te gösterildiği gibi sırasıyla şöyledir:

- Öz-düzenlemeli öğrenme
- Sistematik inceleme
- Öğrenme yönetim sistemi
- Öğrenme analitikleri



Şekil 3. *Kelime Bulutu*

Şekil 3.3'te yer alan kelime bulutuna göre de öz düzenlemeli öğrenmede etkileşim, geri bildirim, destek müdaheleleri, destek sunma ve KAÇD öne çıkan kavramlar olarak görülmektedir. Bunun temel sebebi öz-düzenlemeli öğrenme için destek kavramının önemli olmasıdır. Her bir öğrenenin farklı düzeyde öz-düzenleme becerisine sahip olduğu göz önüne alındığında bazı öğrenenlerin daha yüksek bazı öğrenenler için daha düşük düzeyde öz-düzenleme becerisi olabilir.

Veri Tabanları

Araştırma kapsamında incelenen makalelere erişimin sağlandığı veri tabanları Tablo 3'te verilmiştir.

Tablo 3. *İncelenen Makaleler ve Erişilen Veritabanları*

Makale Adı	Erişilen Veritabanı
Supporting Self-Regulated Learning in Online Learning Environments and MOOCs: A Systematic Review	Web of Science
Systematic literature review on self-regulated learning in massive open online course	Web of Science
Supporting Self-Regulated Learning in Computer-Based Learning Environments: Systematic Review of Effects of Scaffolding in the Domain of Science Education	ResearchGate
Self-Regulated Learning in A Massive Open Online Course: A Review of Literature	ResearchGate
Self-Regulated Learning in Massive Online Open Courses: A State-of-the-Art Review	ResearchGate
Self-regulated learning in MOOCs: Lessons learned from a literature review	ERIC
Supporting Self-Regulated Learning in Distance Learning Contexts at Higher Education Level: Systematic Literature Review	Web of Science
An Approach to Co-Design and Self-Regulated Learning in Technological Environments. Systematic Review	ERIC
A Systematic Review of Empirical Studies on Learning Analytics Dashboards: A Self-Regulated Learning Perspective	ResearchGate
Research trends in measurement and intervention tools for self-regulated learning for e-learning environments—systematic review (2008–2018)	ERIC
The relationship between mobile learning and self-regulated learning: A systematic review	ResearchGate
Öğrenme Analitikleri ve Öz-Düzenlemeli Öğrenme Üzerine Araştırma Eğilimlerinin İncelenmesi: Sistematik Bir İnceleme	ResearchGate

Tablo 3.te yer alan makalelerin erişildiği veri tabanları incelendiğinde, öz-düzenlemeli öğrenme üzerine yapılan sistematik analiz çalışmalarının yer aldığı makalelere en fazla erişimin ResearchGate veri tabanı olduğu görülmektedir. Bunun dışında Web of Science ve ERIC veri tabanlarından da yararlanıldığı anlaşılmaktadır.

Yöntem

Bu bölümde arama kriterlerine göre seçilmiş sistematik incelemelerde kullanılan analiz yöntemleri ve sistematik incelemelerde yer alan makaleler için dahil edilme ve hariç

tutulma koşulları hakkında bilgi verilmektedir. İlk olarak 12 makalede kullanılan sistematik inceleme yöntemleri Tablo 4'te gösterilmektedir.

Tablo 4. *Sistematik Analiz Yöntemleri*

Makale Numarası	İnceleme Yöntemi
1	Çalışmada Beş Adım Yöntemi (Khan,Kunz ve Antes, 2003) kullanılmıştır. İlgili yöntem şu adımlardan oluşmaktadır: 1. İnceleme sorusunu şekillendirme 2. İlgili araştırmaları tanımlama 3. Tanımlanmış araştırmaların kalitesini değerlendirme 4. Bulguları özetleme 5. Bulguları yorumlama
2	Mevcut çalışmada Yedi Basamak yöntemi (Petticrew ve Roberts, 2008) kullanılmıştır. Bu yöntem: 1. Araştırma sorularını ya da hipotezlerini değerlendirme 2. Çalışma türlerinin belirleme 3. Kapsamlı bir alanyazın araştırması düzenleme 4. Alanyazın araştırması sonuçlarını değerlendirme 5. Dahil edilen çalışmaları değerlendirme 6. Çalışmalar arasındaki benzerlikleri toplama 7. Çalışmalar arasındaki farklılıkları bulma Mevcut sistematik incelemede ayrıca kar topu yöntemi (Greenhalgh & Peacock, 2005) de kullanılmıştır.
3	Mevcut çalışmada Petticrew ve Roberts (2005) tarafından geliştirilen sistematik inceleme yöntemi kullanılmıştır. Çalışmadaki sistematik inceleme yöntemi şu aşamalardan oluşmaktadır: 1. Araştırma kapsamı için özel kriterler oluşturma Örneğin; 2000li yıllara yönelik çalışmalarla sınırlandırma İngilizce olarak yayınlanmış çalışmalar
4	Mevcut çalışmada Yedi Basamak yöntemi (Petticrew ve Roberts, 2008) kullanılmıştır. Bu yöntem: 1. Araştırma sorularını ya da hipotezlerini değerlendirme 2. Çalışma türlerinin belirleme 3. Kapsamlı bir alanyazın araştırması düzenleme 4. Alanyazın araştırması sonuçlarını değerlendirme 5. Dahil edilen çalışmaları değerlendirme 6. Çalışmalar arasındaki benzerlikleri toplama 7. Çalışmalar arasındaki farklılıkları bulma
5	Kitchenham (2004) ve Mathias ve diğerleri (2001) tarafından geliştirilen adımlar ve yönergeler kullanılmıştır. Bu yönergeler 4 başlık altında toplanmıştır. 1. İncelemeyi Planlama -İncelemeyi yönlendirecek araştırma sorularını tanımlama -Analizin ön kategorilerini tanımlama 2. Araştırma -Alan yazın araştırmasının kaynaklarını belirleme -Alan yazın için dahil etme kriterlerini belirleme -Alan yazın için hariç tutma kriterlerini belirleme -Araştırma için anahtar kelimeleri belirleme -Araştırma ve nihai alan yazını seçme 3. Alan yazın analizi -Seçili alan yazını okuma 4. Sonuçları raporlama

6	Kitchenham (2004) tarafından geliştirilen 3 aşamalı inceleme yöntemi kullanılmıştır. Bu aşamalar: -Planlama -Yürütme -Raporlama
7	PRISMA yöntemi (Moher ve diğerleri, 2009) kullanılmıştır. PRISMA kontrol listesindeki yönergeler 4 başlık altında toplanarak takip edilen adımlar şöyledir: -Makaleleri tanımlama -Makaleleri değerlendirme -Uygunluk kontrolü yapma -Tam metin analizi yapma
8	PRISMA yöntemi (Urrutia ve Bonfill, 2010) kullanılmıştır. PRISMA kontrol listesindeki yönergeler 4 başlık altında toplanarak takip edilen adımlar şöyledir: -Makaleleri konumlandırma -Makaleleri seçme ve uygunluk -Seçilen makalelerin analizi -Dahil edilen makalelerin analizi
9	Kitchenham ve Charters (2007) tarafından geliştirilen 3 Adım yöntemi kullanılmıştır. Bu yöntem şu adımlardan ibarettir: -Anahtar kelime araştırması yapma -Makaleleri değerlendirme -Seçilen makaleleri inceleme
10	Çalışmada Beş Adım Yöntemi (Khan,Kunz ve Antes, 2003) kullanılmıştır. İlgili yöntem şu adımlardan oluşmaktadır: 1. İnceleme sorusunu şekillendirme 2. İlgili araştırmaları tanımlama 3. Tanımlanmış araştırmaların kalitesini değerlendirme 4. Bulguları özetleme 5. Bulguları yorumlama
11	Çalışmada Moher ve diğerleri (2015) tarafından geliştirilen PRISMA-P 2015 protokolü kullanılmıştır. Bu protokole göre sistematik inceleme şu aşamalardan oluşmaktadır: -İlgili araştırmayı seçme ve tanımlama -İlgili araştırma verilerinin analiz ve sentezini yapma
12	Çalışma sistematik incelemelere özgü belirli bir yöntem kullanmamıştır. Kriterler belirlendikten sonra seçilen makalelerin ortak eğilimleri saptanmaya çalışılmıştır.

Tablo 4'e göre bu çalışmada yer alan makalelerde en çok kullanılan analiz yönteminin PRISMA ile Petticrew ve Roberts tarafından oluşturulan 7 Basamak yöntemi olduğu ortaya çıkmaktadır. Bunlar dışında Kitchenham ve Khan,Kunz ve Antes'in Beş Adım yöntemi de sistematik analiz çalışmalarında kullanılmıştır.

Dahil Etme ve Hariç Tutma Koşulları

Tablo 5'te bu çalışma kapsamına giren 12 sistematik analizde yer alan makalelerin seçimi sürecinde dikkat edilen dahil etme ve hariç tutma koşulları hakkında bilgi verilmektedir.

Tablo 5. *Dahil Etme ve Hariç Tutma Koşulları*

Makale Numarası	Dahil Etme Koşulları	Hariç Tutma Koşulları	Kapsadığı Yıllar	Araştırma Sayısı
1	1. Deneysel çalışmalar içeren ve akran incelemesi yapılmış İngilizce dilinde yayımlanmış çalışmalar 2. Öz-düzenlemeli öğrenme aşamaları, öz-düzenlemeli öğrenme stratejileri ve Zimmerman tarafından geliştirilen model çerçevesinde öz-düzenlemeli öğrenme davranışlarını içeren çalışmalar 3. Çevrim içi öğrenme ortamlarında öz-düzenlemeli öğrenmeye yönelik yaklaşımları açık bir şekilde ele alan çalışmalar 4. Öz-düzenlemeli öğrenmeye yönelik sunulan yaklaşımlar deneysel ya da yarı-deneysel çalışmalarda test edilebilmeli, bu çalışmalarda katılımcılar, yöntemler, örneklem vb açıkça gösterilmeli, en önemlisi kontrol grupları da bulunmalıdır. 5. Deneysel çalışmalarda ele alınan yaklaşımların öz-düzenlemeli öğrenme üzerindeki etkileri açıkça raporlanmış olmalıdır	1.Yüksek lisans, doktora tezleri, konferans bildirileri hariç tutulmuştur. 2. Direkt olarak öz düzenlemeli öğrenmeye yoğunlaşmayan çalışmalar hariç tutulmuştur 3. Deneysel ve yarı-deneysel olmayan çalışmalar da hariç tutulmuştur. 4. Kontrol grubu bulunmayan çalışmalar da hariç tutulmuştur.	2006-2016	35
2	1. Kitlesel Açık Çevrim İçi Derslerin öğrenme ortamlarında öz-düzenlemeli öğrenmeyi inceleyen deneysel araştırmalar 2. Kitlesel Açık Çevrim içi Kursların öğrenme ortamlarında kısmi olarak öz-düzenlemeli öğrenmeyi inceleyen araştırmalar 3. Teorik bir çerçeve olarak öz-düzenlemeli öğrenmeyi kullanan deneysel araştırmalar 4. Öz-düzenlemeli öğrenme teorisine dayanan öz-düzenlemeli öğrenme alt bileşenleri temsil eden öz-düzenlemeli öğrenme yayınlarının bileşenlerini uygulayan deneysel çalışmalar 5. Sonuçları sunan makaleler 6. Yukarıda bahsedilen kriterleri sağlayan metinler	1. KAÇD ortamları dışındaki öğrenme ortamlarında öz-düzenlemeli öğrenmeyi inceleyen deneysel araştırmalar 2. Benzer öz-düzenlemeli öğrenme bileşenlerini sunan ama farklı teorilere dayandırılan makaleler 3. Sadece özeti bulunan makaleler 4. Araştırma sonuçlarını sunmayan makaleler 5. Benzer çalışmaları tekrar eden araştırmalar	2014-2017	21

3	1. Fen bilimleri alanında yapılan çalışmalar 2. Tüm eğitim kademelerinde yapılan çalışmalar 3. Bilgisayar tabanlı öğrenme ortamlarında yapılan çalışmalar 4. Bilgisayar tabanlı desteklerin bağımlı değişken olarak ele alındığı çalışmalar 5. Nicel ve karma yöntemleri kullanan araştırmalar 6. Öz-düzenlemeli öğrenme süreçleri ve öğrenme performansını etkileyen destek yöntemlerinin ele alındığı çalışmalar	1. Matematik alanında yapılmış çalışmalar 2. Fen alanı dışındaki alanlarda yapılmış çalışmalar (okur yazarlık ve bilişim) 3. Fen bilimleri alanındaki disiplinlere yoğunlaşan eğitimlerle ilgili çalışmalar (hemşirelik, bilgisayar mühendisliği gibi) 4. Oyun, sanal gerçeklik ve mobil teknolojilerle ilgili bilgisayar tabanlı eğitim ortamında yapılan çalışmalar 5. Öz-düzenlemeli öğrenme becerileri kazanmanın bağımlı değişken olduğu çalışmalar 6. İnsan kaynaklı destek sistemlerini ele alan çalışmalar 7. Nitel ve kavramsal çalışmalar 8. Öğrenme performansı ve öz-düzenlemeli öğrenme sürecine odaklanmayan destek sistemleriyle ilgili araçları konu alan çalışmalar	2000-2011	28
4	İçerme koşulları detaylı olarak verilmemiştir ama sadece İngilizce olarak yazılan ve hakemli dergilerde yayımlanan makaleler dahil edilmiştir. Arama terimlerine göre ulaşılan makalelerden özetlerine göre ilgili olanlar dahil edilmiştir.	İngilizce olarak yazılmayan ve hakemli dergilerde yayımlanmayan makaleler hariç tutulmuştur. Arama kelimeleri ve özet okumalarına göre de ilgili olmayan makaleler hariç tutulmuştur.	2015-2020	10
5	MOOClardaki öz düzenlemeli öğrenmeyi destekleyen araçlar veya modellere yönelik çalışmalar	Kitlesel Açık Çevrim içi Dersler kavramını direkt olarak ele almayan çalışmalar ve Kitlesel Açık Çevrim içi Kurslar bağlamında öz-düzenlemeli öğrenmeye odaklanmayan çalışmalar	2010-2020	66
6	ACM, ERIC, IEEE Xplore, Oxford Academic Journals, ScienceDirect, Scopus, Springer Link, and Semantic Scholar veritabanlarından, SRL'nin (en az) bir MOOC ta çalışıldığı makaleler dahil edilmiştir.	Harmanlanmış öğrenme ortamları ve belirli öğrenenlere kapatılmış çevrim içi derslerle ilgili çalışmalar hariç tutulmuştur.	2014-2017	42

7	1. SRL'ye belirgin bir bağlantı kuran ve SRL'nin bilişsel, üst bilişsel, duygu ve motivasyon olan alanlarından en az birine odaklanan çalışmalar , 2. Ampirik olan ve SRL üzerine yapılan müdahalelerin etkililiğini ölçen çalışmalar, 3. Uzaktan öğrenmeye (tüm dijital medya türlerini kapsayan çalışmalar, 4. Yükseköğretimde öğrenim gören öğrencilerle yürütülen çalışmalar dahil edilmiştir.	Hariç tutma koşulları ayrıca belirtilmemiştir.	2010-2020	38
8	1. Teknoloji kullanımını içeren çalışmalar 2. Öğrenme süreçlerinde ortak tasarım etkinliklerini içeren çalışmalar 3. Öğretimde öz-düzenleme süreçlerini ele alan çalışmalar 4. Özellikle öğrenme-öğretme süreçlerinde eğitim alanına odaklanan çalışmalar 5. Aşağıdaki veri tabanlarında yer alan çalışmalar -Ebsco Host -Web of Science -Scopus -ERIC -Dialnet	1. 2014-2019 döneminden farklı yıllarda yayınlanan çalışmalar 2. "Ortak tasarım" ve" öz düzenleme" ile ilgili olmayan temaların yer aldığı çalışmalar; 3. Teknoloji kullanımını dahil etmeyen çalışmalar 4. Öz- düzenleme teriminin, öğretim dışındaki alanlarda kullanıldığı çalışmalar 5. Eğitim dışındaki alanlara ait makaleler olması; 6. Yayın türünün derleme, meta-analiz ve doktora tezleri olması	2014-2019	21
9	1. Belirli veri tabanlarında yayınlanmış çalışmalar: -ACM Digital Library -IEEE -SpringerLink -Science Direct -Wiley -Google Scholar 2. Başlıklarında, anahtar kavramlar arasında ve özetinde "Öğrenme paneli""öğrenme analitikleri" yer alan çalışmalar 3. Ampirik raporlar sağlayan çalışmalar 4. İngilizce olarak yayınlanmış çalışmalar 5. En az 3 sayfadan oluşan çalışmalar	1.Konferans bildirisi olarak yayınlanmış çalışmalar 2. Derleme şeklinde yayınlanmış çalışmalar	2010-2017	29

10	1. SRL'nin ölçülmesini veya teşvik edilmesini ele alan makaleler 2. Gerçek SRL ölçümü veya geliştirilmiş promosyon aracıyla orijinal çalışmayı tanımlayan makaleler 3. SRL ölçüm veya terfi aracının yüksek öğrenim kurumlarında yapılan deneylerle doğrulandığı makaleler	Hariç tutma koşulları ayrıca belirtilmemiştir.	2008-2018	30
11	1. Özgün araştırmalar içeren çalışmalar 2. İngilizce yayınlanan hakemli dergilerde yer alan makaleler 3. M-öğrenme ve öz-düzenlemeli öğrenmeyi ele alan çalışmalar 4. Örgün eğitim ortamlarında yapılan çalışmalar	1. Bildiri yayınlayan dergilerde yer alan makaleler 2. Sistematik incelemeler 3. Öğrenme ile ilgili olmayan makaleler 4. Mobil teknolojileri içermeyen makaleler 5. Mobil olmayan oyun araçlarıyla ilgili makaleler	2007-2019	38
12	1.Web of Science veri tabanında yer alan ve "Öğrenme analitikleri" ve "Öz-düzenlemeli öğrenme" anahtar kelimeleri ile yapılan aramalar sonucu erişilen makaleler 2. İngilizce yayınlanan makaleler 3. Tam metnine erişilen makaleler	1. 2. İngilizce yayınlanmayan makaleler 3. Tam metnine erişilemeyen makaleler	2014-2021	72

Tablo 5 incelendiğinde, makalelerde farklı dahil etme ve hariç tutma koşulları belirtilmekle birlikte direkt olarak öz-düzenlemeli öğrenmeye yoğunlaşan ve genellikle yayınların İngilizce dilinde olması, belirli veri tabanlarında yer alması, tam metin erişiminin sağlanması gibi kriterler ortak dahil etme kriterleri olarak görülmektedir. Hariç tutma kriterlerine baktığımızda genellikle öz- düzenleme teriminin, öğretim dışındaki alanlarda kullanıldığı ya da kitlesel çevrim içi dersler kavramının direkt ele alınmadığı çalışmaların ve sistematik incelemelerin hariç tutulduğu görülmektedir.

Bu çalışmada ele alınan sistematik incelemeler 2000-2021 arasındaki yılları kapsamaktadır. Elde edilen bulgulara göre sistematik incelemelerin, 2014 yılı itibariyle daha fazla çalışılmaya başladığı görülmektedir. En çok araştırma sayısının ise 2014-2021 yılları arasında yer alan 72 çalışma olduğu görülmektedir.

Bulgular

Aşağıda yer alan Tablo 6'da, bu çalışma kapsamında incelenen sistematik analizlerin bulgularına yer verilmiştir.

Tablo 6. *Sistematik Analizlerin Bulguları*

Makale	Bulgular
1	Öz-düzenlemeli öğrenmeye yönelik yaklaşımların test edildiği bu sistematik incelemede; iletileri kullanmanın öğrenenlerin planlama, hedef belirleme, değerlendirme, üst biliş, özdenetim ve yansıtma becerileri üzerinde etkili olduğu vurgulanmıştır. Geri bildirimlerin öğrenenlerin öğrenme sürecinde geliştirebilecekleri yalnız kalma hissinin önüne geçebileceği, bir topluluğa ait olma hissini geliştirebileceği ve yansıtıcı öğrenmeyi desteklediği ortaya çıkarılmıştır. Entegre edilmiş destek sistemlerinin öğrenme performansını zenginleştirdiği ve geliştirdiği bulunmuştur. Ayrıca insan faktörlerinin önemli bir etkiye sahip olduğu ve bu bağlamda her öğrenenin farklı destek sistemlerinden farklı şekilde yararlanabileceği bulunmuştur.
2	Bu çalışmada, kitlesel açık çevrim içi kurslarda (KAÇK) öz-düzenlemeli öğrenme üzerine yapılan çalışmaların 2014-2016 yılları arasında artış gösterdiği belirtilmektedir. İçerik analizi bulguları, öz-düzenlemeli öğrenmenin KAÇK bağlamında öğrenmeyi olumlu yönde etkileyen bir faktör olduğunu göstermiştir. Özellikle öz-yeterlik, etkinlik değerlendirme ve hedef belirleme gibi motivasyon düzenleme stratejileri tanımlanmıştır. Davranışsal ve bağlam düzenleme stratejilerinden de yardım isteme, zaman yönetimi ve dikkat düzenleme öne çıkmaktadır. Son olarak üstbilişsel stratejilerden hedef belirleme stratejisinin KAÇK bağlamında yaygın olarak kullanılan bir öz-düzenleme stratejisi olduğu belirtilmiştir.
3	Bu çalışmanın sonuçları, çerçeve ya da çatı oluşturma süreçleri üzerine yapılan birçok çalışmanın öz-düzenlemeli öğrenmenin bilişsel süreçlerine odaklandığını ancak çok azının bilişsel olmayan alanları merkeze aldığını göstermektedir. Bilişsel alanda, özellikle kontrol aşamasındaki süreçlerde iletilerin en etkili yapı olduğu görülmektedir. Ayrıca çerçeve oluşturma tasarımları, öğrenen özellikleri ya da çeşitli ödev özelliklerinin önemli etkilerinin olduğu bulunduğu halde çalışmaların bunlara az önem verdikleri sonucuna varılmıştır.
4	Bu çalışmada kitlesel çevrim içi kurslar bağlamında öz-düzenlemeli öğrenme üzerine yapılan mevcut çalışmalarda çoğunlukla Zimmerman ve Pintrich'in öz-düzenleme modellerinin kullanıldığı belirtilmiştir. Bulgular, öz-yeterlik, katılımcıların alt yapısı (örneğin; mesleki alan ve program türü) ve öz-düzenleme iletilerinin KAÇK'da öz-düzenlemeli öğrenme kullanımını etkileyebildiğini göstermektedir. Öğrenme performansını artırmak için öz-düzenlemeli öğrenme süreçlerinden hedef belirleme ve planlama çoğunlukla desteklenmiştir. Ayrıca öz-motivasyon ve hedef belirleme, öğrenenlere öz-düzenlemeli öğrenme konusunda yardımcı olduğu için KAÇK platformunda önemli görülmektedir. Son olarak öz-düzenleme becerisine sahip öğrenenlerin programda kalma ve programı bitirme ihtimali oldukça yüksektir.

5	Bu çalışmanın bulguları, yüksek devamsızlık oranlarının görüldüğü kitlesel çevrim içi kurslarda öz-düzenlemeli öğrenmenin yeni ortaya çıkan bir çalışma alanı olduğunu göstermektedir. Öz-düzenlemeli öğrenme modellerine yönelik alanı en çok temsil eden yazar Zimmerman olarak belirlenmiştir. Öğrenenlerin öz-düzenlemeli öğrenme kapsamında kullandıkları yaygın stratejiler olarak hedef belirleme, öz-değerlendirme, zaman yönetimi, etkinlik stratejileri, stratejik planlama, öz yeterlilik, öğrenme ortamı yapılandırma, kişisel tatmin, öz-denetim, çaba düzenlemesi, ilgi geliştirme, eleştirel düşünme, bireysel öğretim ve motivasyon göze çarpmaktadır. KAÇK'da öz-düzenlemeli öğrenme üzerine yapılan araştırmalar çoğunlukla eğitim alanında ve yükseköğretim seviyesinde olmakla birlikte platform olarak Coursera, Edx, Open Edx ve Moodle, ve veri toplama araçları olarak da öz-raporlama araçlarından OSLQ ve MSLQ araçları öne çıkmaktadır. Öz-düzenlemeli öğrenmeye destek amacıyla geliştirilen yazılım araçları arasında eLDa ve Prosolo öne çıkmaktadır.
6	Bu çalışmada ele alınan araştırmalar en az bir KAÇK ile olan gerçek deneyimleri içermektedir. KAÇK'da öz-düzenlemeli öğrenme üzerine yapılan araştırmaların ortak özellikleri; genellikle keşif amaçlı ve tek bir KAÇK bağlamında olmaları ve hangi öz-düzenlemeli öğrenme modelinin temel alındığını belirtilmemeleridir. Sonuçlara göre öz-düzenleme becerisi yüksek olan öğrenenler KAÇK'a informal öğrenme fırsatı olarak yaklaşmaktadır ve genellikle bilgi geliştirme temelinde belirli hedefler belirlemeyi ve kendi öğrenmelerini ödevler aracılığıyla kontrol etmeyi tercih etmektedirler. Çalışmalarda küçük örneklem grubundan veri toplayanlar nitel, daha büyük örneklem kullananlar nicel yöntem tercih etmiştir. Birkaç çalışma Zimmerman ve Pintrich modellerini temel alırken araştırmacılar kullanılan modeli net bir şekilde belirtmemiştir. Öz-düzenleme düzeyini ölçmek için MSLQ, LASSI, OSLQ, SRL mesleki araçları kullanılmıştır. KAÇK'da müdahale programlarına ilişkin sonuçlara bakıldığında farklı türdeki müdahalelerin etkililiğini analiz eden çalışmaların çoğunlukta olduğu görülmektedir. Bazıları müdahale türlerinin akran yardımını, diğerleriyle kıyası tavsiye ettiğini ve bazı SRL stratejilerini önerdiğini ya da araştırdığını belirtmiştir. Özellikle zaman yönetimini hedefleyen müdahaleler, öğrencilerin öğrenmesini geliştirme konusunda daha etkili görünmektedir.
7	Bu çalışmanın sonuçları öz-düzenlemeli öğrenme üzerinde olumlu etkisinin olduğu belirlenen çok sayıda öz-düzenlemeli öğrenme destek müdahale programlarının var olduğunu göstermektedir. Ancak incelenen müdahalelerin öz-düzenlemeli öğrenme alanlarına göre dağılımı dengeli değildir. Üst-bilişsel düzenleme ve öğrenmenin performans hazırlık aşaması en çok araştırılan alanlar olurken duygu düzenleme, öz-düzenleme döngüsünün hazırlık ve değerlendirme aşamaları en az araştırılan alanlardır. Öğrenenlere daha kapsamlı destek sağlamak amacıyla çeşitli müdahale programlarının kombinasyonu ve belirli özelliklerin faydalı olduğu sonucuna varılmıştır. Son olarak birçok durumda duygu düzenleme motivasyon düzenleme ile ilgilidir ve benzer müdahaleler bu ikisini desteklemektedir.

8	Teknolojiyle güçlendirilmiş öğrenme ortamlarında öz-düzenleme ve eğitsel ortak tasarım modellerinin paylaştığı unsurları belirlemeyi amaçlayan bu çalışmada planlama, motivasyon, kavrama, görev yönetimi, işbirliği ve başarı derecesi gibi unsurların ortak tasarım öğrenme süreçleri ve öz-düzenleme modellerinin ortak bileşenleri olduğu belirtilmiştir. Ayrıca ortak tasarım ve öz düzenleme süreçlerini desteklemek için kullanılan teknolojilerin kurumsal platformlar, 3B sanal ortamlar veya MOOC'lar olduğu belirtilirken bu uygulamaların iletişim, planlama ve organizasyon, görev yürütme ve yansıtma süreçlerine dayalı işlevleri yerine getirdiği görülmüştür.
9	Winnie ve Hadwin tarafından önerilen öz-düzenlemeli öğrenmenin en bilinen modeline dayalı öğrenme analitikleri panelleri üzerine yapılan ampirik çalışmaları inceleyen bu araştırmanın bulguları şöyledir: i) mevcut öğrenme analitikleri panoları nadiren öğrenme teorisine dayanmaktadır; ii) üst-bilişsel beceriyi desteklemek amacı için önerilemez; iii) etkili öğrenme taktik ve stratejileri ile ilgili herhangi bir bilgi önermez; iv) değerlendirmenin nasıl yapıldığı ve raporlandığı konusunda önemli sınırlılıklara sahiptir.
10	Son zamanlardaki yenilikleri ve eğilimleri belirlemeyi amaçlayan bu çalışmanın bulgularında e-öğrenme ortamlarında öz-düzenlemeli öğrenmeyi ölçmek için sınıf ortamında destek sağlamak amacıyla tasarlanmış geleneksel metotların kullanıldığı belirtilmektedir. Ayrıca bulgularda öğrenenlerde öz-düzenlemeli öğrenme stratejilerini ölçmek ve teşvik etmek için öğrenme analitikleri ve eğitsel veri madenciliği tekniklerini kullanan çok az çalışma olduğu ve öğrenme yönetim sistemlerinde öz-düzenlemeli öğrenmeyi ölçmek ve desteklemek üzere kullanılan araçlar konusundaki mevcut eksiklerden bahsedilmektedir. Son olarak öz-düzenlemeli öğrenmeyle ilgili müdahale programlarının öz-düzenlemeli öğrenmenin gelişimi ve teşvikinde önemli olduğu belirtilmiştir.
11	Mobil öğrenme ve öz-düzenlemeli öğrenme arasındaki ilişkinin incelendiği bu çalışmada bu konu üzerine yapılan araştırmaların ve bu araştırmalarda kullanılan araçların son yıllarda arttığı belirtilmektedir. Ayrıca çalışmaların dörtte üçü mobil öğrenmenin öz-düzenlemeli öğrenmeyi, öz-düzenlemeli öğrenmenin mobil öğrenmeyi ya da her ikisinin diğer öğrenme faktörlerini (sağlık, müfredat geliştirme gibi) geliştirdiği sonucuna varmıştır. Bunun yanı sıra mobil öğrenme ve öz-düzenlemeli öğrenme arasındaki ilişkinin dinamik ve kompleks olduğu bulgular arasında yer almaktadır. Bunların dışında birçok çalışmanın kesitsel, ya nicel ya da karma yöntemler kullandığı, dil edinimi, çoklu disiplinler ya da fen bilimlerinde, üniversite ya da ilk ve orta okul öğrencilerini içerdiği ve harmanlanmış öğrenme ortamlarında olduğu belirtilmiştir. Ayrıca bu çalışmaların kuzey yarımkürede yürütüldüğü, verinin 13 haftanın üstünde bir süreçte toplandığı ve akıllı telefon kullanımının dahil edildiği diğer bulgular arasındadır.

12	Öğrenme analitikleri ve öz-düzenlemeli öğrenme üzerine araştırma eğilimlerinin incelenmesini kapsayan bu çalışmada öğrenme analitiklerinin, ters çevrilmiş sınıflarda öz-düzenlemeli öğrenmeyi teşvik etmede etkili olduğu belirtilmiştir. Ayrıca araştırma konusuyla ilgili makalelerin son yıllarda artış gösterdiği ve en fazla deneysel yöntemlerin tercih edildiği sonucuna ulaşılmıştır. Öğrenme alanlarına bakıldığında ise çeşitli alanlara rastlanmış ancak matematik ve mühendislik alanında yapılan çalışmaların sayısı ilk sıralarda yer almaktadır. Avustralya, ABD ve Avrupa ülkelerinin öne çıktığı araştırmada çevrimiçi öğrenme alanlarının gelişmesinde ülkelerin gelişmişlik düzeyinin ve coğrafi şartlarının etkili olduğu düşünülmektedir. Makalelerde yazarların daha çok öğrenci başarılarına ve öğrenme süreçlerine yönelik sonuçlara ulaştığı söylenebilir. Katılımcı olarak başta lisans düzeyi olmak üzere büyük oranda öğrenciler tercih edilmiştir.

Sınırlılık ve Öneriler

Tablo 7'de bu araştırmanın içerdiği sistematik analizlerin sınırlılıkları ve belirttikleri önerilere yer verilmiştir.

Tablo 7. *Sistematik Analizlerde Yer Alan Sınırlılıklar ve Öneriler*

Makale	Sınırlılıklar	Öneriler
1	Sadece 2006-2016 yılları arasında yayınlanmış makalelerle sınırlı kalınmıştır. Ayrıca Google Scholar, ERIC, Scopus ve Web of Science olmak üzere 4 veri tabanındaki çalışmalar dahil edilmiştir.	Sistematik incelemede sunulan öneriler şu şekildedir; -Gelecekteki çalışmalarda insan faktörüne daha fazla yoğunlaşılması gerektiği -İletileri kullanırken öz-düzenlemeli öğrenme alanları ve aşamalarının arasındaki bağlantının daha fazla dikkate alınması gerektiği -Geri bildirimlerin etkililiği için internet destekli sosyal ağların yeterliliklerini de içeren çalışmaların yapılması gerektiği -Destek sistemlerinin her öğrenen için farklı destek türlerini sağlayabileceği ve en önemlisi destek sistemlerinin nasıl kullanılacağına dair öğrenenlere eğitim ya da bilgi verilmesi gerektiği -Öğrenme analitiklerinin daha fazla incelenmesi gerektiği vurgulanmıştır.

2	Sadece 2008-2016 yılları arasında yayınlanmış makalelerle sınırlı kalınmıştır. Ayrıca Google Scholar, ERIC, Scopus ve Web of Science olmak üzere 4 veri tabanındaki çalışmalar dahil edilmiştir. Veri tabanları olarak sadece Education Source, Education Full text, CINAHL, MEDLINE, ERIC, PsycINFO, PsycARTICLES, Web of Science, ve Google Scholar kullanılmıştır.	KAÇD öğrenme ortamlarında öz-düzenlemeli öğrenme stratejilerinin kullanımını teşvik eden tasarım önerileri sunulmuştur. 1-Öğrenenlerin öz-düzenlemeli öğrenme ve çoklu kaynaktan öğrenmelerini desteklemek için etkinlikler tasarlanmalı 2- Katılımcıların KAÇD ortamında nasıl öğreneceklerine dair üstbilişleri desteklenmelidir. 3- Motivasyonu ve öz-düzenleme stratejilerinin kullanımı düşük olan öğrenenler için etkinlikler yeniden tasarlanmalıdır 4- Zaman yönetimini desteklemek için KAÇD üzerinde her etkinlik için ne kadar zaman ayrılması gerektiği gibi bilgilendirmeler yer almalıdır 5. KAÇD ortamında öz-düzenlemeli öğrenmeyi teşvik edecek öğrenme analitiklerinin tasarımına yönelik 10 boyutttan oluşan öneriler çerçevesine yer verilmiştir.
3	Veri tabanları olarak sadece Web of Science, ERIC, Science Direct, ve Scirus kullanılmıştır.	1. Bilgisayar tabanlı öğrenme ortamlarında öz-düzenlemeli öğrenmeyi teşvik etmek için kullanılan destek etkinliklerinin, yöntemlerinin tasarlanması için desteğin kendisinin tasarımı, öğrenen özellikleri, etkinlik özellikleri birbirinden bağımsız olarak ele alınmamalıdır
4	2015-2020 yılları arasında yayınlanmış çalışmalara erişilmiştir. Veri tabanları olarak Science Direct, Elsevier, ResearchGate, Journal of e-Skills ve Life Long Learning, Scientific Research Publishing, ve International Review of Research in Open and Distributed Learning ve Google Scholar kullanılmıştır.	1. Öğrenenlerin öz-yeterlilik algıları, öğrenme geçmişleri ve öz-düzenlemeli öğrenme iletilerinin KAÇD ortamında öz-düzenlemeli öğrenme üzerinde kayda değer etkiler bıraktığından dolayı öz-düzenlemeli öğrenme stratejilerinin kullanılmasına yönelik KAÇD tasarımları yapılması gerektiği vurgulanmıştır. Bunun için de öğrenme analitiklerinin tasarımına önem verilmiştir.
5	2010-2020 yılları arasında yayınlanmış ve Scopus, Web of Science ve Google Scholar veri tabanlarındaki makaleler dahil edilmiştir.	Öz-düzenlemeli öğrenmenin desteklenmesi için Kitlesel Açık Çevrim içi Kursların evrensel ölçekte tasarlanması ve böylelikle çeşitli insanların ihtiyaçları ve ilgilerine karşılık bulabilmesi kolaylaşmaktadır.

6	2014-2017 yılları arasında yayınlanmış çalışmalarla sınırlandırılmıştır. Araştırma için sadece ACM, ERIC (Education Resources Information Center), IEEE Xplore, Oxford Academic Journals, ScienceDirect, Scopus, Springer Link, ve Semantic Scholar gibi veri tabanları kullanılmıştır. Çalışmaların çoğu bir KAÇK ele almıştır ve sonuçlar üzerinden genelleme yapmak bir problem oluşturur bu yüzden farklı KAÇKlar ve konulardan elde edilen sonuçları karşılaştıran çalışmalara ihtiyaç vardır.	1. Farklı uzunluk ve farklı platformlardaki KAÇDleri kıyaslayan ve bunların SRL üzerindeki etkisini araştıran çalışmalara yer verilmelidir. 2. Öğrenenleri tüm öğrenme sürecinde destekleyen ve sadece SRL alanlarına özel olmayan dış araçların arasında bir kıyas öğrenenin performansının artıp artmadığını gözlemlemek açısından faydalı olabilir. 3. Öğrenenlerin bilgisini analiz etmek için çeşitli modeller (Zimmerman ya da Pintrich'in modelleri gibi)kullanmak ve sonuçları karşılaştırmak ilginç olabilir. 4. KAÇDlerde SRL yi incelemek için kullanılan ölçme araçları online ortama özel adapte edilme ihtiyacı vardır. 5. Anket kullanacak olan gelecekteki çalışmaların ölçme araçlarını ilgili öğrenme ortamına uyarlaması önemlidir.
7	Sadece 2010 -2020 yılları arasında ve Web of Science ve EBSCO veri tabanlarında yayınlanmış makaleler dahil edilmiştir. Bu araştırma yükseköğretim seviyesinde ve uzaktan öğrenme bağlamını ele aldığı için genç öğrenenler ya da yüz yüze eğitim gibi ortamlara uygun değildir. Bu yüzden alanlarda daha fazla araştırmaya ihtiyaç vardır.	Belirli müdahalelerin farklı uzaktan öğrenme ortamlarında nasıl işlev gördüğüyle ilgili yapılacak çalışmalar daha derinlemesine bir anlayış sağlayacaktır.
8	İncelemede sadece 2014-2019 yıllarında yayınlanmış ve Ebsco Host, Web of Science, Scopus, ERIC, Dialnet veri tabanlarında yer almış makaleler ele alınmıştır.	Öz-düzenlemeli öğrenme modelleri ile ortak tasarım öğrenme süreçlerinin ortak noktalarından yola çıkarak teknoloji destekli öğrenme ortamlarında ilk adımın bireyselleştirilmiş öğrenme yol haritalarının oluşturulmasına dair yönergelerin gerekliliği önerilmiştir.

9	Sadece 2010-2017 yıllarında ve ACM Digital Library, IEEE, SpringerLink, Science Direct, Wiley, Google Scholar veri tabanlarında yayınlanmış makaleler dahil edilmiştir.	Kullanıcı merkezli öğrenme analitik sistemlerini araştırırken ve geliştirirken 4 boyuta dikkat edilmesi gerektiği önerilmiştir. Bu boyutlar teori, tasarım, geri bildirim ve değerlendirme olarak belirtilmiştir. Bu dört boyut dikkate alınarak Kullanıcı Merkezi Öğrenme Analitik Sistemleri modelinin geliştirilebileceği belirtilmiştir. Bu 4 temel boyut dikkate alınarak kullanıcı merkezli tasarım yaklaşımlarıyla birlikte kullanıcı merkezli analitik sistemleri öz-düzenlemeli öğrenme için olumlu sonuçlar ortaya çıkarabilir.
10	Sadece 2008-2018 yılları arasında ve ERIC, PsycINFO, PsycARTICLES, Google Scholar, ACM, Research Gate ve IEEE Xplore digital library veri tabanlarında yayınlanan çalışmalar dahil edilmiştir.	1. Öz-düzenlemeli öğrenme stratejilerini çevrim içi ortamlarda ölçmek ve teşvik etmek zor olsa da, eğitimsel veri madenciliği teknikleri kullanılarak bazıları ölçülebilir ve teşvik edilebilir. 2. Bu teknikler öğrencilerine çevrim içi veya harmanlanmış ortamlarda eğitim hizmeti sağlayan yüksek öğretim kurumlarında ya da enstitüler tarafından kullanılan popüler öğrenme yönetim sistemleri gibi e-öğrenme ortamlarında uygulanabilir. 3. Eğitimsel veri madenciliği araçları kapasiteleri itibarıyla öğrenenlerin gerçek zamanlı izlerini takip edebilirler, görselleştirilmiş geri bildirim sunabilirler. Dolayısıyla sürekli değerlendirme yapılabilir. 4. Öğrenenlere destek öğrenme panelleri aracılığıyla verilebilir. Kısacası öğrenme analitikleri ile eğitimsel veri madenciliği araçlarının kullanımıyla öz-düzenlemeli öğrenme stratejilerinin gelişimine katkı sağlanabileceği önerilmiştir.
11	Sadece 2007-2019 yılları arasında ve ACM, Google Scholar, ScienceDirect, Springer, Taylor & Francis Online, ve Web of Science Core Collection veri tabanlarında yayınlanan çalışmalar dahil edilmiştir.	Çalışmada bulunan öneriler genellikle anahtar kavramların operasyonel tanımlarının her çalışma özelinde ayrıca yapılması gerektiği ve çalışmaların ilköğretim ve lisans seviyesinin yanında diğer seviyelerde ve hayat boyu öğrenme alanlarında da yoğunlaşması gerektiğine odaklanmaktadır.
12	Sadece 2014-2021 yılları arasında ve Web of Science veri tabanında yayınlanan çalışmalar dahil edilmiştir.	Daha geniş ölçekli çalışmaların yapılması önerilmektedir. Araştırmalarda katılımcıların veri gizliliği endişelerine ve yasal haklarına duyarlı etik boyutların da ele alınması gerektiği önerilmektedir. Öğrenme analitikleriyle ilgili olarak nitel araştırmalara da yer verilmesi gerektiği önerilmektedir.

Kullanılan Ortak Kaynaklar ve Yazarlar Listesi

Tablo 8'de bu çalışmada yer alan sistematik analizlerde kullanılan ortak kaynaklara ilişkin bilgiler yer almaktadır.

Tablo 8. *Sistematik Analizlerde Kullanılan Ortak Kaynaklar ve Yazarlar*

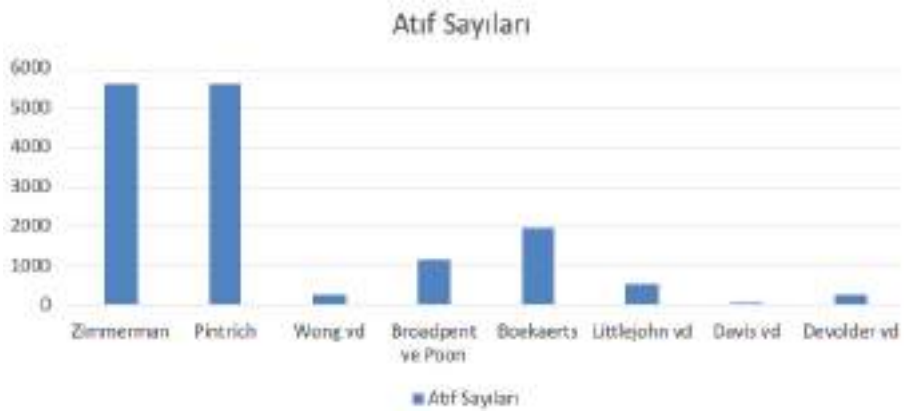
Makale Numarası	Kaynaklar
1-2-6	Hood, N., Littlejohn, A., & Milligan, C. (2015). Context counts: How learners' contexts influence learning in a MOOC. Computers & Education, 91, 83–91. Alıntılanma sayısı: 251
1-3-7	Kauffman, D. F., Zhao, R., & Yang, Y.-S. (2011). Effects of online note taking formats and self-monitoring prompts on learning from online text: Using technology to enhance self-regulated learning. Contemporary Educational Psychology, 36(4), 313–322. Alıntılanma sayısı: 131
1-4-6-10	Kizilcec, R. F., Pérez-Sanagustín, M., & Maldonado, J. J. (2016). Recommending self-regulated learning strategies does not improve performance in a MOOC. In Proceedings of the Third (2016) ACM Conference on Learning@ Scale, 101–104. Alıntılanma sayısı: 141
1-2-5-9-10-12	Kizilcec, R. F., Pérez-Sanagustín, M., & Maldonado, J. J. (2017). Self-regulated learning strategies predict learner behavior and goal attainment in Massive Open Online Courses. Computers & Education, 104, 18–33. Alıntılanma sayısı: 653
4-6-10	Lee, D., Watson, S. L., & Watson, W. R. (2019). Systematic literature review on self-regulated learning in Massive Open Online Courses. Australasian Journal of Educational Technology, 35(1). 28-41. Alıntılanma sayısı: 111
2-5-6-8	Littlejohn, A., & Milligan, C. (2015). Designing MOOCs for professional learners: Tools and patterns to encourage self-regulated learning. ELearning Papers, 42, 38–45. Alıntılanma sayısı: 43
1-2-6-10	Littlejohn, A., Hood, N., Milligan, C., & Mustain, P. (2016) Learning in MOOCs: Motivations and self-regulated learning in MOOCs. The Internet and Higher Education, 29, 40–48. Alıntılanma sayısı: 552
1-2-5-7-8	Boekaerts, M. (1997). Self-regulated learning: A new concept embraced by researchers, policy makers, educators, teachers, and students. Learning and Instruction, 7(2), 161–186. doi:10.1016/S0959-4752(96)00015-1 Alıntılanma sayısı: 1984
1-2-6-7-10-11	Broadbent, J., & Poon, W. L. (2015). Self-regulated learning strategies & academic achievement in online higher education learning environments: A systematic review. The Internet and Higher Education, 27, 1–13. doi:10.1016/j.iheduc.2015.04.007 Alıntılanma sayısı: 1175
2-4-5-10	Davis, D., Chen, G., van der Zee, T., Hauff, C., & Houben, G. J. (2016). Retrieval practice and study planning in MOOCs: Exploring classroom-based self-regulated learning strategies at scale. LNCS, 9891, 57–71. https://doi.org/10.1007/978-3- 319-45153-4_5. Alıntılanma sayısı: 55

2-5-6	Davis, D., Chen, G., Jivet, I., Hauff, C., & Houben, G. J. (2016). Encouraging metacognition and self-regulation in MOOCs through increased learner feedback. In CEUR Workshop Proceedings (Vol. 1596, pp. 17–22). https://doi.org/10.1067/mtc. 2002.120730. Alıntılanma sayısı: 59
2-6-10-11	Barnard, L., Lan, W., To, Y., Paton, V., & Lai, S.-L. (2009). Measuring self-regulation in online and blended learning environments. Internet and Higher Education, 12(1), 1–6. https://doi.org/10.1016/j.iheduc.2008.10.005. Alıntılanma sayısı: 683
3-6-7-10	Devolder, A., van Braak, J., & Tondeur, J. (2012). Supporting self-regulated learning in computer-based learning environments: Systematic review of effects of scaffolding in the domain of science education. Journal of Computer Assisted Learning, 28(6), 557–573. https://doi.org/10.1111/j.1365-2729.2011.00476.x. Alıntılanma sayısı: 254
2-6-10	Dawson, S., Joksimović, S., Kovanović, V., Gašević, D., & Siemens, G. (2015). Recognising learner autonomy: Lessons and reflections from a joint x/c MOOC. In HERDSA Conference (pp. 1–13). https://doi.org/10.1007/s11270-007-9477-y. Alıntılanma sayısı: 40
2-4-7	Artino, A. R. (2007). Self-regulated learning in online education: A review of the empirical literature. International Journal of Instructional Technology and Distance Learning, 4(6), 3–18. Retrieved from http://itdl.org/Journal/Jun_07/article01.htm Alıntılanma sayısı: 92
1-3	Azevedo, R. (2005). Using hypermedia as a metacognitive tool for enhancing student learning? The role of self-regulated learning. Educational Psychologist, 40(4), 199–209. doi:10.1207/s15326985ep4004_2 Alıntılanma sayısı: 873
1-3	Azevedo, R., & Hadwin, A. F. (2005). Scaffolding self-regulated learning and metacognition–Implications for the design of computer-based scaffolds. Instructional Science, 33(5–6), 367–379. doi:10.1007/ s11251-005-1272-9 Alıntılanma sayısı: 725
2-6	Gasevic, D., Kovanovic, V., Joksimovic, S., & Siemens, G. (2014). Where is research on massive open online courses headed? A data analysis of the MOOC Research Initiative. The International Review of Research in Open and Distributed Learning, 15(5), 134–176. Retrieved from http://www.irrodl.org/index.php/irrodl/article/view/1954/3099 Alıntılanma sayısı: 429
6-10	Onah, D. F. O., & Sinclair, J. E. (2017). Assessing self-regulation of learning dimensions in a stand-alone MOOC platform. International Journal of Engineering Pedagogy (IJEP), 7(2), 4. https://doi.org/10.3991/ijep.v7i2.6511. Alıntılanma sayısı: 43
7-11-6	Panadero, E. (2017). A review of self-regulated learning: Six models and four directions for research. Frontiers in Psychology, 28(8), 422. https://doi.org/10.3389/fpsyg.2017.00422 Alıntılanma sayısı: 1157
8-11	Panadero, E., & Alonso-Tapia, J. (2014). Cómo autorregulan nuestros alumnos? Revisión del Journal of New Approaches in Educational Research, 10(2) | 2021 | https://doi.org/10.7821/naer.2021.7.646 248 Alıntılanma sayısı: 226
2-4	Park, T. J., Cha, H. J., & Lee, G. Y. (2016). A study on design guidelines of learning analytics to facilitate self-regulated learning in MOOCs. Educational Technology International, 17(1), 117-150. Retrieved from http://kset.or.kr/eti_ojs/index.php/instruction/article/view/61 Alıntılanma sayısı: 14

2-6-11	Pintrich, P. R. (1999). The role of motivation in promoting and sustaining self-regulated learning. International journal of educational research, 31(6), 459-470 Alıntılanma sayısı: 2852
2-6-11	Pintrich, P. R. (2000). The role of goal orientation in self-regulated learning. In M, Boekaerts, P. R. Pintrich, & M. Zeidner (Eds.), Handbook of self-regulation (pp. 451-502). Elsevier. https://doi.org/10.1016/B978-012109890-2/50043-3 Alıntılanma sayısı: 6880
7-11	Pintrich, P. R., & De Groot, E. V. (1990). Motivational and self-regulated learning components of classroom academic performance. Journal of Educational Psychology, 82(1), 33-40. https://doi.org/10.1037/0022-0663.82.1.33 Australasian Journal of Educational Technology, 2020, 36(4). Alıntılanma sayısı: 196
1-2	Pintrich, P. R., Smith, D. A. F., Garcia, T., & McKeachie, W. J. (1991). A manual for the use of the Motivated Strategies for Learning Questionnaire (MSLQ). Ann Arbor: National Center for Research to Improve Postsecondary Teaching and Learning, The University of Michigan. Alıntılanma sayısı: 5609
1-4-6-	Puustinen, M., & Pulkkinen, L. (2001). Models of self-regulated learning: a review. Scandinavian Journal of Educational Research, 45(3), 269-286. Alıntılanma sayısı: 746
6-10	Saks, K., & Leijen, Ä. (2014). Distinguishing self-directed and self-regulated learning and measuring them in the E-learning context. In International Conference on Education & Educational Psychology 2013 (ICEEPSY 2013) (Vol. 112, pp. 190–198). Science Direct). https://doi.org/10.1016/j.sbspro.2014.01.1155. 10 Alıntılanma sayısı: 275
1-3	Stahl E. & Bromme R. (2009) Not everybody needs help to seek help: surprising effects of metacognitive instructions to foster help-seeking in an online-learning environment. Computers & Education 53, 1020–1028. 3 Alıntılanma sayısı: 52
7-12	Tabuenca, B., Kalz, M., Drachsler, H., & Specht, M. (2015). Time Will Tell: The role of mobile learning analytics in self-regulated learning Bernardo. Computers & Education, 89, 53- 74.https://doi.org/10.1016/j.compedu.2015.08.004 Alıntılanma sayısı: 239
2-10	Terras, M. M., & Ramsay, J. (2015). Massive open online courses (MOOCs): Insights and challenges from a psychological perspective. British Journal of Educational Technology, 46(3), 472–487. http://dx.doi.org/10.1111/bjet.12274 Alıntılanma sayısı: 214
1-6	Veletsianos, G., & Shepherdson, P. (2016). A systematic analysis and synthesis of the empirical MOOC literature published in 2013–2015. The International Review of Research in Open and Distributed Learning, 17(2), 198-221. Alıntılanma sayısı: 416
7-12	Viberg, O., Khalil, M., and Baars, M. (2020). Self-regulated learning and learning analytics in online learning environments: A review of empirical research. Proc. Tenth Internat. Conf. Learn. Analy. Knowl. 2020, 524–533. doi: 10.1145/ 3375462.3375483 Alıntılanma sayısı: 57
1-7	Wäschle, K., Lachner, A., Stucke, B., Rey, S., Frömmel, C., & Nückles, M. (2014). Effects of visual feedback on medical students' procrastination within web-based planning and reflection protocols. Computers in Human Behavior, 41, 120–136. doi:10.1016/j. chb.2014.09.022 Alıntılanma sayısı: 34

1-2	Winters, F. I., Greene, J. A., & Costich, C. M. (2008). Self-regulation of learning within computer-based learning environments: A critical analysis. Educational Psychology Review, 20(4), 429–444. doi:10.1007/ s10648-008-9080-9 Alıntılanma sayısı: 495
4-5-7-9-10-11	Wong, J., Baars, M., Davis, D., Zee, T. V. D., Houben, G., & Paas, F. (2019). Supporting Self-Regulated Learning in Online Learning Environments and MOOCs: A Systematic Review. International Journal of Human-Computer Interaction, 35(4-5), 356-373, https://doi.org/10.1080/10447318.2018.1543084 Alıntılanma sayısı: 275
7-8	Zhao, H. (2016). Factors Influencing Self-Regulation in E-learning 2.0: Confirmatory Factor Model. Can. J. Learn. Technol. 42, 1–21. doi: 10.21432/T2C33K Alıntılanma sayısı: 18
1-3-8	Zimmerman, B. J. (1989). A social cognitive view of self-regulated aca- demic learning. Journal of Educational Psychology, 81(3), 329. doi:10.1037/0022-0663.81.3.329 Alıntılanma sayısı: 5605
1-5-7-10-11	Zimmerman, B. J. (1990). Self-regulated learning and academic achieve- ment: An overview. Educational Psychologist, 25(1), 3–17. doi:10.1207/s15326985ep2501_2 Alıntılanma sayısı: 5605
2-5-7-8	Zimmerman, B. J. (2000a). Attaining self-regulation: A social cognitive perspective. In M. Boekaerts, P. Pintrich, & M. Zeidner (Eds.), Handbook of self-regulation (pp. 13–39). San Diego, CA: Academic Press. Alıntılanma sayısı: 9054
2-11	Zimmerman, B. J. (2000b). Self-efficacy: An essential motive to learn. Contemporary Educational Psychology, 25(1), 82–91. http://dx.doi.org/10.1006/ceps.1999.1016 Alıntılanma sayısı: 6239
4-11	Zimmerman, B. J. (2013). From cognitive modeling to self-regulation: A social cognitive career path. Educational Psychologist, 48(3), 135- 147. https://doi.org/10.1080/00461520.2013.794676 Alıntılanma sayısı: 9054
4-11	Zimmerman, B. J., & Moylan, A. R. (2009). Self-regulation: Where metacognition and motivation intersect. In D. J. Hacker, J. Dunlosky & A. C. Graesser (Eds.), Handbook of Metacognition in Education. New York: Routledge. Retrieved from https://psycnet.apa.org/record/2010-06038-016 Alıntılanma Sayısı: 720

Bu çalışma kapsamında araştırılan ve Tablo 8'de yer alan "kullanılan ortak kaynaklar ve yazarlar" tablosuna göre en fazla alıntılanma sayısının yazarlar Zimmerman, B.J. , Pintrich, P. R. ve Boekaerts, M.'ye ait olduğu görülmektedir. En çok atıf alan eserler incelendiğinde ise Zimmerman'ın *From cognitive modeling to self-regulation: A social cognitive career path* ve *Attaining self-regulation: A social cognitive perspective; Pintrich'in The role of goal orientation in self-regulated learning* ve *Boekaerts'ın Self-regulated learning: A new concept embraced by researchers, policy makers, educators, teachers, and students* olduğu görülmektedir. Bu araştırma kapsamında ortak kullanım sıklığına göre incelenen ilk sekiz kaynak Şekil 3.4'te atıf sayılarına göre gösterilmektedir.



Şekil 4. *Ortak Kaynakların Atıflanma Verileri*

SONUÇ VE TARTIŞMA

Bu çalışmada açık ve uzaktan öğrenme bağlamında öz-düzenlemeli öğrenme üzerine yapılan sistematik analizlerin derlenmesi amaçlanmıştır. Elde edilen verileri ile sistematik analizlerin eğilimleri belirlenmiştir. Bulgulardan yola çıkarak çalışmaların sayısında 2012'den 2019'a kadar bir artış görülmekle birlikte 2019-2020 yıllarında daha fazla sayıda çalışma yapıldığı tespit edilmiştir. Bu bulgu 2014-2016 yılları arasında bu konu üzerine yapılan çalışmalarda artış olduğunu belirten Lee ve diğerlerinin (2019, s. 31) çalışmasıyla benzerlik göstermektedir. Anahtar kavram bulgularına bakıldığında en sık kullanılan anahtar kavramlar; öz-düzenlemeli öğrenme, sistematik inceleme, öğrenme yönetim sistemi, KAÇD ve öğrenme analitikleridir.

Bu çalışmada yer alan makalelerde kullanılan analiz yöntemleri incelendiğinde, öne çıkan yöntemlerin PRISMA ve Petticrew ve Roberts'ın 7 Basamak yöntemi olduğu görülmektedir. Araştırmalarda kullanılan diğer yöntemler ise Kitchenham ve beş adım yöntemi olduğu tespit edilmiştir. Araştırmaya konu olan sistematik incelemelerde ele alınan makalelerin 2000-2021 yıllarını içerdiği görülmektedir. Elde edilen bulgulara göre makalelerin içerdiği sistematik incelemeler, 2014 yılı ve sonrasında artış göstermektedir. En çok araştırmayı inceleyen makale 2014-2021 yıllarını kapsadığı ve ele aldığı sistematik inceleme sayısının da 72 olduğu görülmektedir.

İncelenen sistematik analizlerde en çok karşılaşılan ve benzerlik gösteren sonuçlar şu şekilde özetlenebilir. Sistematik incelemelerin genelinde öz-düzenlemeli öğrenmenin KAÇD bağlamında öğrenmeyi olumlu yönde etkileyen bir faktör olduğu belirtilmiştir. Sistematik incelemelerde çoğunlukla Zimmerman ve Pintrich'in öz-düzenleme modellerinin kullanıldığı araştırmaların varlığından söz edilse de hangi öz-düzenlemeli öğrenme modelinin temel alındığını belirtmeyen çalışmalar da bulunmaktadır. Üstbilişsel stratejilerden hedef belirleme stratejisi KAÇD bağlamında yaygın olarak kullanılan bir öz-düzenleme stratejisi olarak karşımıza çıkmaktadır. Ayrıca öz-motivasyon ve hedef belirleme, öğrenenlere öz-düzenlemeli öğrenme konusunda yardımcı olduğu için KAÇD platformunda önemli görülmektedir. Bunların dışında öz-değerlendirme ve za-

man yönetimi, öğrenenlerin öz-düzenlemeli öğrenme kapsamında kullandıkları yaygın stratejiler olarak görülmüştür. Son olarak öz-düzenleme becerisine sahip öğrenenlerin programda (KAÇD) kalma ve programı bitirme ihtimali oldukça yüksektir.

Diğer taraftan incelenen sistematik çalışmalarda öz-düzenlemeli öğrenme üzerinde olumlu etkisinin olduğu belirlenen çok sayıda öz-düzenlemeli öğrenme destek müdahale programlarını ele alan çalışmalardan bahsedilmektedir. Bu programların incelendiği çalışmalara dair bulgularda programlardaki iletilerin etkililiği öne çıkmaktadır. İletilerin öğrenenlerin planlama, hedef belirleme, değerlendirme, üst biliş, özdenetim ve yansıtma üzerinde etkili olduğu belirtilmiştir. Bilişsel alanda, özellikle kontrol aşamasındaki süreçlerde iletilerin en etkili yapı olduğu görülmektedir. Özellikle zaman yönetimini hedefleyen müdahaleler, öğrencilerin öğrenmesini geliştirme konusunda daha etkili görünmektedir. Öğrenenlere daha kapsamlı destek sağlamak amacıyla çeşitli müdahale programlarının kombinasyonu ve belirli özelliklerin faydalı olduğu sonucu da bulgular arasında yer almaktadır.

Sistematik incelemeler arasında öğrenme analitikleri ile öz-düzenlemeli öğrenme arasındaki ilişkinin incelendiği çalışmaların bulgularına göre ise öğrenme analitiklerinin, ters çevrilmiş sınıflarda öz-düzenlemeli öğrenmeyi teşvik etmede etkili olduğu belirtilmektedir. Ancak öz-düzenlemeli öğrenme stratejilerini ölçmek ve teşvik etmek için öğrenme analitikleri ve eğitsel veri madenciliği tekniklerini kullanan çok az çalışma olduğu ve öğrenme yönetim sistemlerinde öz-düzenlemeli öğrenmeyi ölçmek ve desteklemek üzere kullanılan araçlar konusundaki mevcut eksiklerden bahsedilmektedir.

ÖNERİLER

Bu çalışma kapsamındaki sistematik analizlerin önerileri incelendiğinde birçok çalışmanın öğrenme analitikleri üzerine önerilerde bulunduğu ortaya çıkmıştır. Buna göre; KAÇD ortamında öz-düzenlemeli öğrenmeyi teşvik edecek öğrenme analitiklerinin tasarımına önem verilmesi, öğrenme analitikleriyle ilgili olarak nitel araştırmalara da yer verilmesi gerektiği ve öğrenme analitiklerinin tasarımına yönelik bazı öneriler ön plana çıkmaktadır. Sistematik incelemelerde de vurgulandığı gibi öğrenme analitiklerinin insan unsurunu dikkate alarak olabildiğince çeşitlilik içerdiği çalışmalara da ihtiyaç duyulmaktadır. Bunun dışında öz-düzenlemeli öğrenmeyi teşvik etmek için kullanılan destek etkinliklerinin, yöntemlerinin tasarlanması için desteğin kendisinin tasarımı, öğrenen özellikleri, etkinlik özelliklerinin birbirinden bağımsız olarak ele alınmaması gerektiği ve destek sistemlerinin her öğrenen için farklı destek türlerini sağlayabileceği ve en önemlisi destek sistemlerinin nasıl kullanılacağına dair öğrenenlere eğitim ya da bilgi verilmesi gerektiği bir diğer öne çıkan öneridir. Ayrıca öğrenenlerin öz-yeterlilik algıları, öğrenme geçmişleri ve öz-düzenlemeli öğrenme iletilerinin KAÇD ortamında öz-düzenlemeli öğrenme üzerinde kayda değer etkiler bıraktığından dolayı öz-düzenlemeli öğrenme stratejilerinin kullanılmasına yönelik KAÇD tasarımları yapılması gerektiği ve iletileri kullanırken öz-düzenlemeli öğrenme alanları ve aşamalarının arasındaki bağlantının daha fazla dikkate alınması gerektiği vurgulanmıştır. Örneğin; hedef belirleme stratejisinin motivasyon üzerindeki etkisini inceleyen araştırmalar geliştirilebilir. Öğrenme analitikleri tasarlarken de öz-düzenlemeli öğrenme stratejileri ve aşamalarıyla doğrudan ilişkisinin incelenmesi de gerekmektedir

Açık ve Uzaktan öğrenme bağlamında öz-düzenlemeli öğrenmeyi ele alan çalışmaların çoğunluklu KAÇD ortamlarına yoğunlaştığı ortaya çıkmıştır, dolayısıyla teknoloji destekli diğer eş zamanlı ve/veya eş zamansız ortamlara yönelik çalışmaların geliştirilmesi de gerekmektedir. Dijital bölünmenin öz-düzenlemeli öğrenme üzerindeki olası etkisinin de ortaya çıkarılması için ayrıca yaş, meslek, cinsiyet, sosyo-ekonomik durum ve eğitim geçmişi gibi demografik unsurların da öz-düzenlemeli öğrenme stratejileri üzerindeki etkilerine dair uzun süreli çalışmalara da ihtiyaç duyulmaktadır.

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Yapay Zekânın Eğitimde Kullanımı: Yapay Zekâ 21. Yüzyıl Becerilerini Geliştirmek Yerine Öldürüyor Mu?

Ali İhsan İBİLEME[1]

Özet

Eğitim sistemleri ideal ve ideal olduğu kadar ütopik bir yaklaşımla bireyleri hayata ve geleceğe hazırlamak için çaba gösterirken her bireyi eğitim sürecinin merkezine almakta ve her bireyin parmak izinin eşsiz ve tek olması gibi bireyselleştirilmiş öğrenme fırsatları sunmaktadır. Bireylere hızla değişen dijital toplumda ve iş dünyasında başarı için gerekli olduğu düşünülen beceriler, yetenekler ve öğrenme eğilimleri öğrenme sürecinde kazandırılmaya çalışmaktadır. 21 yy. becerilerinin kazandırılmasında bilgi ve iletişim teknolojilerinden fazlası ile yararlanılmaktadır. Eğitimde yapay zekâ uygulamaları kurumsal hizmetler, öğrenen destek sistemleri ve öğretim faaliyetlerinde kullanılmaktadır. Bu uygulamalar mahremiyet, etik ve öğrenen verilerine erişim konularında büyük endişeler oluşturmaktadır.

Yapay Zekâ (YZ) uygulamaları, insan davranışı her zaman rasyonel olmadığı veya tamamen kendi çıkarını gözetmediği için gerçekte ne olacağına dair kesin sayısal veya veriye dayalı açıklamalar veremez. Ancak belli bir sonuca götüren dinamikler hakkında iç görü sağlayabilir. Bu yüzden eğitim sisteminin YZ uygulamaları üzerine kurulması yerine sistemleri iyileştirmek için kullanılması daha uygundur. YZ hiçbir şekilde öğretmenin rolünü üstlenmeyecektir, çünkü nasıl çalıştığı ve ne yaptığı insan zekasından çok farklıdır. YZ insanların kapasitelerini arttırmayı sağlayacak teknolojik bir uzuvdur. YZ'yı biz yarattık ve bir insan gibi düşünemeyeceği sadece belli davranışlarımızı taklit edebileceği düşünülmektedir. Bunun içinde ölçme ve değerlendirme vb. süreçlerde kullanılması sorunlar oluşturabilir.

Anahtar Kelimeler: *Açık ve Uzaktan Öğrenme, Yapay Zekâ, 21 Yy. Becerileri.*

GİRİŞ

Yapay Zekâ (YZ) teknolojisi birçok yeniliği getirmesine karşın bu teknolojinin adaptasyonunda doğru soruları sorup eğitim alanında uygulanmasına yönelik geleceğini de belirleyecektir. *Yapay zekâ teknolojisi ile eğitim ortamında bireyselleştirilmiş öğrenme ortamları sunarken, 21 yy. becerileri kapsamında bireylerin kazanması gereken eleştirel düşünme, problem çözme, yaratıcılık, bilgiye erişim ve analiz, iş birliği, merak ve hayal gücü becerilerin gelişmesini acaba engelliyor muyuz?* sorusuna cevap vermelidir. Ekonominin küreselleşmesi ve uluslararasılaşması, bilgi ve iletişim teknolojilerinin (BİT) hızlı gelişimi ile yaşama, çalışma ve öğrenme şeklimiz de süregelen bir devinim içerisinde değişmektedir (Voogt & Roblin, 2010). Eğitim kurumları, günümüzde sorun olarak nitelemediğimiz sorunları çözmek ve geleceğe daha iyi hazırlanabilmek

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için, öğrencileri henüz var olmayan işleri öğrenmeye ve bunun yanı sıra geleceği şekillendirme potansiyeline sahip teknolojileri kullanmaya hazırlamaktadır (OECD, 2008). Öğrencilerin bu değişime ayak uydurabilmesi için eğitim sistemlerinin geliştirilmesi ve dönüştürülmesi gerekmektedir. Eğitim sisteminde öğrencilerin bu değişime ayak uydurabilmesi için kazandırılması gereken yetenek, beceri ve öğrenme eğilimleri farklı kurum ve kuruluşlar tarafından 21 yy. becerileri olarak tanımlanmaktadır.

Günümüzde eğitim kurumlarında bu becerilerin kazandırılmasında BİT'den yoğun bir şekilde yararlanılmaktadır. Özellikle Açık ve Uzaktan Öğrenme (AUÖ) alanında BİT'teki gelişmelere bağlı olarak yapay zekâ ve öğrenme analitikleri gibi teknolojiler ile öğrencilere kişiselleştirilmiş öğrenme ortamları sunulmaktadır. Bununla beraber bu öğrenme ortamlarında kullanılan teknolojiler ile öğrenene kazandırılmak istenen beceriler arasında çelişkiler bulunmaktadır. Yukarıdaki düşünceler ışığında bu çalışmanın amacı eğitim alanında kullanılan yapay zekâ (YZ) tabanlı uygulamaların 21 yy. becerilerinin geliştirilmesini katkısını eleştirel pedagoji çerçevesinde incelemektir.

ALANYAZIN

Eğitim Sistemi: Bireysellikten Kitleselliğe, Özgürleşen Bireylerden Özgürleşen İş Gücüne

Eğitim sistemleri ideal ve ideal olduğu kadar ütopik bir yaklaşımla bireyleri hayata ve geleceğe hazırlamak için çaba gösterirken her bireyi eğitim sürecinin merkezine almakta ve her bireyin parmak izinin eşsiz ve tek olması gibi bireyselleştirilmiş öğrenme fırsatları sunmaktadır. Bununla beraber eğitime ve bilgiye erişim noktasında ortaya çıkan yoğun talep, hızla artan nüfus, sosyo-ekonomik sebeplerden dolayı bireylerin eğitim alarak daha iyi ve insana yakışır bir gelecek kurma hayalleri eğitim sistemlerinin üzerinde yükü arttırmaktadır. Ortaya çıkan bu durum ideal ve ütopik senaryoların gerçeğe dönüşmesini engellemekte, Fordist yaklaşımı benimseyen ve kitlesel eğitim veren kurumlar her geçen gün artmaktadır. Bu durum ise YZ gibi teknolojilerle eğitim sürecini bireyselleştirmeye ve eğitim sistemlerinin sınırlılıklarını ortadan kaldırmaya çalışmaktadır.

Bunun yanı sıra küresel bilgi ekonomisinde uluslar ayakta kalmak ve rekabet gücünü korumak için eğitim sistemlerini bir araç olarak kullanarak belirli beceri ve yeterlilikleri kazandırmaya çalışmaktadır. Bu noktada bu beceri ve yeterliliklerin bireyleri eğitim yoluyla özgürleştirmek mi yoksa rekabetçi bilgi ekonomisinde ihtiyaç duyulan iş gücünü kazanmak mı sorusu açık uçlu cevabı olan bir soru olarak ortaya çıkmaktadır.

Bu noktada eğitimin YZ teknolojileriyle bireyselleştirilmesi ve 21. yüzyıl becerileriyle kurgulanan bir eğitim sistemini eleştirel olarak değerlendirmek proaktif bir eylem olarak değerlendirilmektedir.

21. yy. Öğrenme Becerileri

21 yy. öğrenme becerileri; bireylerin hızla değişen dijital toplumda ve iş dünyasında başarı için gerekli olduğu düşünülen beceriler, yetenekler ve öğrenme eğilimlerini kapsamaktadır. Bu beceriler ile bireylerin bilişsel olmayan becerilerinin okullarda geliştirilerek iş yeri ve topluma hazırlanması planlanmaktadır.

Tony Wanger'in öğrencilerin hayatta kalmak için gelecekte sahip olması gereken becerileri yedi alt başlık altında toplamaktadır (University of Bath, 2009).

- Eleştirel düşünme ve problem çözme
- Uyumluluk ve öğrenme becerilerinin yüksek olması
- Karşı ağlar arasında iş birliği sağlama ve etkili liderlik
- İnisiyatif alabilme ve girişimcilik
- Etkili sözlü ve yazılı iletişim
- Bilgiye erişim ve analiz
- Merak ve hayal gücü

21 yy. becerileri Partnership for 21st century skills (P21), EnGauge, Assessment and Teaching of 21st Century Skills (ATCS), National Educational Technology Standards (NETS), Technological Literacy Framework for the 2012 National Assessment of Educational Progress (NAEP) gibi kurumlar tarafından farklı çerçevelerde ve başlıklarda ele alınmaktadır (Voogt & Roblin, 2010). Her bir model arasında ufak farklılıklar bulunmaktadır. Bu çalışma kapsamında P21 tarafından kabul edilen çerçeve kapsamında inceleme yapılmıştır. P21 tarafından geliştirilen çerçeve Grafik 1'de gösterilmektedir.



Grafik 1 *21 yy. Öğrenmesi için P21 Çerçevesi*

Grafik 1'de öğrencilerin 21 yüzyılda elde etmesi gereken beceriler dört ana başlık altında gruplandırılmıştır. Her ana başlık altında alt kavramlar yer almaktadır. Bu kavramlar Grafik 2'de gösterilmektedir.

Ana Konular ve 21yy. Temaları	Yaşam ve Kariyer Becerileri	Öğrenme ve Yenilik Becerileri	Bilgi, Medya ve Teknoloji Becerileri
Ana Dil, Dünya Dilleri (İngilizce), Sanat, Geometri, Tarih, Matematik, Bilim Devlet ve Yurttaşlık Bilgi Küresel Farkındalık Sağlık Okuryazarlığı Çevre Okuryazarlığı Ekonomil ve Finans Okuryazarlığı	Esneklik ve Uyarlanabilirlik, Kendi Kendini Yönetme, Sosyal ve Kültürlerarası Beceriler, Üretkenlik ve Hesap Verebilirlik, Liderlik ve Sorumluluk	Yaratıcılık ve Yenilikçilik Eleştirel Düşünme ve Problem Çözme İletişim ve İş Birliği	Bilgi Okuryazarlığı Medya Okuryazarlığı Bilgi ve İletişim Teknolojileri Okuryazarlığı

Grafik 2. *21 yy. öğrenme becerilerinin alt kavramları*

21 yy. becerileri bireylerin kendini tanıyarak ve keşfederek daha üst düzey bilişsel yeteneklerin kazandırılmasını amaçlamaktadır. 21. yüzyıl becerilerinin savunucuları, öğrencilerin iş birliği yapmasına, özgün problemler üzerinde çalışmasına ve toplulukla ilişki kurmasına olanak tanıyan öğrenci merkezli yöntemleri (örneğin, probleme dayalı öğrenme ve proje temelli öğrenme) tercih eder (Rotherham & Willingham, 2010, p:19). Bu becerilerin kazandırılması için eğitim sisteminin bir parçası olan öğretim yöntem ve teknikleri, öğrenme ortamları, ders programı ve içerikleri ve değerlendirme sisteminin değişmesi gerekmektedir.

Farklı yaklaşımlar olmasına rağmen 21 yy. becerilerinin var olan ders programlarına entegre edilmesini önerilmektedir (Voogt & Roblin, 2010, s:28). 21 yy. öğrenme becerilerinin ölçülmesi ve değerlendirilmesinde şimdiye kadar kullanılan geleneksel çoktan seçmeli, kısa ve uzun cevap testler vb. yöntemler yaratıcılık, ekip, çalışması, iş birliği, liderlik ve zaman yönetimi vb. becerilerin ölçülmesi için yeterli olmayacağı belirtilmektedir (Kyllonen, 2012). Bu becerilerin ölçülmesinde öz değerlendirme, performans testleri, durumsal yargı testleri ve biodata verilerin kullanılması gerekmektedir.

Andrew ve Daniel (2010) 21 yy. 'da öğrencilerin ihtiyaç duyduğu bu becerilerin yeni olmadığı ancak günümüz rekabet ortamında daha büyük önem arz ettiğini belirtmektedir. Örneğin geçmişten günümüze kadar geçen süreçte yeni araçların geliştirilmesi, yerleşik hayata geçilmesi, deniz ve karaların keşfedilmesi, tarımın ilerlemesi gibi gelişmeler insanların problem çözme, eleştirel düşünme ve iş birliği gibi becerilerine dayanmaktadır (Rotherham & Willingham, 2010, p:1).

Yapay Zekâ

Zekanın tanımını yapmak ne kadar kolay ve aynı zamanda bir o kadar da zor ise yapay zekanın tanımını yapmakta bir o kadar güçtür. Bilişim bilimlerinde yapay zekâ, bir bilgisayar, robot veya benzeri makine tarafından sergilenen insan benzeri davranışı ifade eder (IBM Cloud Education, 2020). Aynı zamanda YZ terimi yaygın olarak, bir bilgisayarın veya makinenin insan zihninin yeteneklerini taklit etme, örneklerden ve

deneyimlerden öğrenme, nesneleri tanıma, dili anlama ve bunlara yanıt verme, karar verme, problem çözme ve bunları birleştirme yeteneğini ifade eder (IBM Cloud Education, 2020). YZ terimi son yıllarda popüler olmasına rağmen ilk olarak 1956 yılında bilgisayar bilimcisi John McCarthy tarafından 1956'da Dartmouth College'da düzenlenen bir atölyede icat edilmiştir (Kaplan & Haenlein, 2019, s:19).

1950'li yıllarda Alan Turing tarafından geliştirilen "Tureng Testi", 1997 yılında IBM tarafından geliştirilen Deep Blue, 2015 yılında Google tarafından geliştirilen AlphaGo yapay zekanın önemli uygulamalarıdır. YZ, geçmişte ve günümüzde insan davranışlarını taklit eden yöntemler geliştirmeye yönelik kullanılmaktadır. Ancak gelecekte öğrenebilen ve insan zekasından bağımsız çalışabilecek makinelere doğru yönelimler bulunmaktadır (Vikipedia, 2021). Bazı kurumlar ve kişiler tarafından gelecekte YZ insanların yerini alabileceği düşünülürken bazıları tarafından şüphe ile yaklaşılmaya devam etmektedir. YZ hem insan zekasından çok daha az hem de çok daha fazladır. Örneğin insanların sahip olduğu tat, koku, doku veya hisler dijitalleştirilerek otomatik olarak ölçülemez. Aynı zamanda YZ uygulamaları büyük veri sayesinde verilerin toplanıp hızlı şekilde analiz edilmesi ve hesaplamalar anlamında insana göre daha iyidir.

Yapay zekâ, Analitik (Analytical), İnsandan esinlenmiş (Human Inspired) ve İnsanlaştırılmış (Humanized) olmak üzere üç türde gruplandırılmıştır. Kaplan&Haenlein tarafından hazırlanan bu türlere ait özelliklerin Türkçe çevirisi Grafik 3'te gösterilmektedir.

	Uzman Sistemler	Analitik	İnsandan Esinlenmiş	İnsanlaştırılmış	İnsanlar
Bilişsel Zekâ	-	+	+	+	+
Duygusal Zekâ	-	-	+	+	+
Sosyal Zekâ	-	-	-	+	+
Sanatsal Zekâ	-	-	-	-	+
		Denetimli, Denetimsiz ve Pekiştirmeli Öğrenme			

Grafik 3. *Yapay Zekâ Türleri*

Günümüzde farklı sektörlerde kullanılan sesli asistanlar, otonom sürüş sistemleri, görüntü ve ses tanıma sistemleri ve kişiselleştirilmiş reklamlar vb. çoğu uygulama analitik yapay zekâ kapsamına girmektedir. Geçmişteki verileri kullanarak kullanıcılara bilgi düzeyinde veri akışı sağlamaktadır. Bilgi ve iletişim teknolojilerindeki gelişmelere bağlı olarak YZ'ye eğitim, iş dünyası ve devletlerin ilgisi ve buna bağlı olarak YZ'nin bu alanlara etkisi giderek artmaktadır.

Eğitim Alanında Yapay Zekâ Uygulamaları

Topluma ve iş dünyasına hazır bireyler yetiştirebilmek için eğitim sistemi güncel teknolojik altyapı ve uygulamalardan yararlanmaktadır. Büyük veri, makine öğrenmesi, derin öğrenme ve yapay zekâ, öğrenme analitikleri gibi iş dünyasında kullanılan teknolojiler eğitimde de kullanılmaktadır. Geçmişte herhangi bir anlam ifade etmeyen

veriler son yıllarda bu teknolojiler ile anlamlı bir bütün oluşturacak şekilde toplanıp analiz edilmeye başlanmıştır. Toplanan veriler bu teknolojiler kullanılarak kurumsal, öğrenen destek hizmetleri ve öğretim faaliyetleri olmak üzere üç aşamada kullanılmaktadır (Zeide, 2019).

Kurumsal Hizmetler	Öğrenen Destek Sistemleri	Öğretim Faaliyetleri
Pazarlama Program ve Müfredat Planlama Kaynak Yönetimi Kalite Süreçleri	Rehberlik Hizmetleri Kariyer Hizmetleri Erken Uyarı Sistemi Chatbot Profil Oluşturma	Bireyselleştirilmiş Öğrenme Ortamları Sanal Öğretim Asistanları Ölçme ve Değerlendirme

Grafik 4. *Eğitimde yapay zekâ kullanım alanları*

Horizon Report (2021)' de yapay zekaya dayalı uygulamaların eğitim alanında kullanımının tartışma konusu olmaya devam ettiği belirtilmektedir. Bu uygulamalar ile mahremiyet, etik ve öğrenen verilerine erişim konularında büyük endişeler bulunmaktadır. (EDUCAUSE, 2021).

YÖNTEM

Bu çalışmada araştırma yöntemi olarak geleneksel alanyazın taraması kullanılmıştır. Geleneksel alanyazın taramasında ilgili alanyazında dağıtık bir şekilde yer alan bilgi bir bütün olarak ele alınıp, tartışılan konular arasında bir bağ kurulur veya bir senteze ulaşılır (Baumeister & Leary, 1997). Bu çalışmada ilk olarak eğitim sistemin bahsedilmiş ve 21 yy. alt başlıkları ve becerileri tanımlanmıştır. Devamında Yapay Zekâ ve Eğitimde Yapay Zekâ Uygulamalarından bahsedilmiştir. Bulgular kısmında ise 21 yy. becerileri ile YZ'nın eğitimde kullanımının üstünlük ve sınırlılıkları ele alınmıştır.

AMAÇ

Bu çalışmanın amacı eğitimde YZ uygulamalarının kullanımın 21.yy. öğrenme becerileri kapsamında incelenmesidir. Çalışma kapsamında ölçme ve değerlendirme, ders müfredatı ve öğretim, mesleki gelişim ve öğrenme ortamları kapsamında YZ uygulamaları eleştirel bir bakış açısı ile incelenmiştir.

BULGULAR

Ölçme ve Değerlendirme

Eğitim sisteminde kurumların, programların, öğreten ve öğrenenlerin değerlendirilmesinde ölçme ve değerlendirme önemlidir (Altan & Seferoğlu, 2010, p:862). İyi bir ölçme ve değerlendirme sistemi öz değerlendirme, akran değerlendirmesi, zaman kısıtlı ve sınava dayalı bireysel değerlendirmeyi içermesi gerekmektedir (Braiki, Harous, Zaki, & Alnajjar, 2020).

Buna rağmen ölçme ve değerlendirme eğitimin son adımı olarak görülmekte ve gerekli özen gösterilmemektedir (Baran, 2020, p:29). Ölçme ve değerlendirme sonucu kurumlar, programların ve öğretenlerin eğitim etkinliklerini daha verimli hale getirebilmektedir. Öğrenenler ise yapılan geri bildirimler ile öğrenme eksikliklerini belirleyebilmektedir. Eğitimde öğrenenlerin değerlendirilmesi, süreci biçimlendirme (formative) ve düzey belirleme (summative) olmak üzere iki farklı şekilde uygulanmaktadır. Biçimlendirme amaçlı değerlendirme; öğrenme etkinlikleri sürerken çalışma materyallerinde verilen değerlendirme dışı etkinlikleri ve geribildirimleri, öğrencilerin gelişimlerini izlemelerine olanak sağlayan öz-değerlendirme testlerini, ödevlerden, akranlardan ya da öğreticilerden alınan geribildirimleri, öğretici ya da diğer öğrencilerle olan etkileşimi ve öğrencileri sınavlara hazırlayan testleri içermektedir. Düzey belirleme amaçlı değerlendirme, öğrenme etkinlikleri sonucunda gözetimli dönem sonu sınavlarını, başarı notuna etki eden ödevleri ya da performans sınavlarını içerir.

Öğrenme analitikleri, makine öğrenmesi ve derin öğrenme vb. alanındaki uygulamalar ile eğitimde hem süreci değerlendirme hem de düzey belirlemek için YZ uygulamaları kullanılmaktadır.

Yapay Zekâ uygulamaları ölçme ve değerlendirme sürecinde aşağıdaki aşamalarda kullanılmaktadır.

- Kimlik doğrulama
- Anlık geri bildirim sunulması,
- Akademik başarının ve ders bırakacak öğrenenlerin belirlenmesi,
- Kısa cevaplı soruların değerlendirilmesi
- Ödev/Proje/Açık Uçlu soru uygulamaların değerlendirilmesi
- Öğrenme sürecindeki aktivitelerin izlenmesi

Kimlik Doğrulama

AUÖ ortamlarında uygulanan sınavlarda, öğrenciler uzaktan etkileşimde bulunur ve çalışmalarını sunarlar ve bu nedenle bilgi güvenliği ve güven oluşturmak hayati önem taşır (T. Ramu, 2013). Bilgi güvenliğindeki temel adım, bireyin iddia edilen kimliğinin doğrulanma sürecidir. Kimlik doğrulamasında, temel olarak kullanıcı adı ve parola ile doğrulama işlemi yapılmaktadır. BİT'teki gelişmelere bağlı olarak parmak izi, retina tarama, yüz tanıma, klavye tuş vuruş dinamikleri, konuşma biçimi tanıma biyometrik yöntemler kullanılmaktadır (Özen & Gülseçen, 2015i p:106). Bu doğrulama işlemleri YZ uygulamaları ile sisteme daha önceden yüklenmiş biyometrik veriler ile veri doğrulaması yapılabilmektedir. Genellikle öğrenenlerin sisteme giriş aşamasında ve sisteme bağlı olduğu süreçte biyometrik veriler kullanılmaktadır.

Çevrim içi sınav ortamlarında güvenli internet tarayıcıları, ekran görüntüsünün alınması veya kaydedilmesi, ortamın dinlenmesi ve yüz hareketlerinin izlenmesi, denetim günlüğü, veri şifreleme gibi uygulamalar ile ölçme sürecinin daha güvenilir olması için çalışmalar yapılmaktadır (Dharmadhikari, 2021). Bununla birlikte, biyometrik doğrulama ilgili bazı endişeler bulunmaktadır (Ahmed, Mohamed, & Noma, 2018, p:32). YZ tarafından öğrenen ait verilerin toplanması, düzenlenmesi ve analiz edilme-

si sürecinde kullanılan algoritmalar sonucunda yanlış kararların verilmesi sıkıntılara sebep olmaktadır. Ayrıca öğrenenlere ait biyometrik verilerin kendi bildirimleri ve rızaları olmadan veya zorunlu olarak kullanılmasının bu bilgilerin gizliliği ve güvenliği açısından sorun yaratabileceği etik olarak uygun bulunmamaktadır (Şenocak, 2020, p:69). Dünyada ve ülkemizde Kovid19 pandemi sürecinde Acil Uzaktan Eğitim kapsamında uygulanan çevrim içi sınav sistemlerinde öğrenenlerin ölçme ve değerlendirme sürecinde kimliklerinin doğrulaması için farklı uygulamalar yapılmış ve gündeme gelmiştir.

Ödev/Proje ve Açık Uçlu Soru Uygulamalarının Değerlendirilmesi

YZ uygulamaları ödev ve proje değerlendirme sürecinde öğrenenlerin çalışmalarının okunması ve değerlendirilemesi sürecinde zaman ve maliyet açısından büyük tasarruf sağlamaktadır (Braiki, Harous, Zaki, & Alnajjar, 2020). Yoğun emek gerektiren işaretleme faaliyetlerini azaltmada, puanlama kriterlerinin tutarlı bir şekilde uygulanmasını sağlamada ve puanlamanın objektifliğini sağlamada birçok güce sahiptir. Bu uygulamalar ile öğrenenin kelime dağarcığı, kullandığı kelime sayısı ve dil bilgisi değerlendirilebilir. Ayrıca semantik analiz, duygu analizi ve metin özetleme gibi doğal dil işleme yöntemleri kullanılarak ödevlerin objektif bir şekilde değerlendirilebilmektedir. Bu durum öğrenenlerin daha hızlı bir şekilde geri bildirim almasını ve öğretenlerin daha üst düzey soruları cevaplamak için zamanlarının ayırabilmesini sağlamaktadır.

Her ne kadar derin öğrenme ve doğal dil işleme alanında büyük gelişmeler yaşansa da sistemin bir ödevi hak ettiğinden daha düşük veya daha yüksek bir puan verme potansiyeli yüksektir (Hussein, Hassan, & Nassef, 2019, p:16). Fikirlerin ve önermelerin yaratıcılığını değerlendirme konusunda insanın sahip olduğu beceriden yoksundur. Ayrıca YZ'nin farklı millet ve kültürlerden öğrenenlerin açık uçlu cevaplarını değerlendirme aşamasında belirli ön yargılara sahip olduğu belirtilmiştir (Chawla, 2019).

Anlık Geri Bildirim Sunulması

YZ temelli ölçme ve değerlendirme, öğrenenin nasıl öğrendiği, ihtiyaç duydukları destek ve öğrenme hedeflerine yönelik ilerlemeleri hakkında öğretmenlere, öğrencilere ve ebeveynlere sürekli geri bildirim sağlar (Luckin, 2017). Öğrenenlerin iş birliği ve süreklilik gibi becerilerinin yanı sıra güven ve motivasyon gibi özelliklerini değerlendirmek için de kullanılabilir. Luckin öğrenenlerin bilgi ve birikimlerinin 90 dakikalık sürelerde yapılan sınavlar ile değerlendirilemeyeceğini vurgulamaktadır. YZ destekli sistemler ile, öğrenenin bir okul dönemi, bir yıl, birkaç yıl veya daha fazla süre içerisindeki tüm etkinliklerinin değerlendirilmesi sağlanabilmektedir. Ayrıca YZ öğrenmenin kara kutusu olarak görülen öğrenenlerin nasıl öğrendiğine dair bilgilerin toplanması sağlamak için güçlü bir araç olarak görülmektedir.

Akademik Başarının ve Okul Bırakacak Öğrenenlerin Belirlenmesi

Avrupa Komisyonu tarafından 2017 yılında sunulan rapora göre okulu bırakma, ekonomik büyüme ve istihdamın önünde bir engeldir (European Commission, 2017). Okulu bırakmak akademik başarısızlığının en yaygın biçimidir. Akademik başarı, öğrencileri, öğretmenleri, aileleri, kurumsal karar vericileri ve küresel düzeyde kal-

kınma ve refahla ilgilenen herkesi ilgilendiren küresel bir sorundur (Cruz-Jesus, ve diğerleri, 2020, p:1). Geçmişte akademik başarısızlığın sebeplerinin belirlenmesine yönelik araştırmalarda geleneksel istatistik yöntemleri kullanılmıştır. Günümüzde ise akademik başarı ve okul bırakma oranlarının belirlenmesinde YZ uygulamalarının geleneksel yöntemlere göre daha başarılı olduğu tespit edilmiştir (Cruz-Jesus, ve diğerleri, 2020, p:9). Akademik başarı üzerinde öğrencilerin, ailelerin ve öğretmenlerin özelliklerinin etkisi bulunmaktadır. Günümüzde bu özelliklere ait büyük veriler toplanıp YZ uygulamaları ile analiz edilebilmektedir. Bu sayede kurumlar ve öğretmenler tarafından öğrencilerin akademik başarısını arttırmak ve okulu bırakma oranını düşürmek için çalışmalar yapılabilir. Ancak bütün Öğrencilerin, ailelerin ve öğretmenlerin bütün verilerinin toplanması etik açıdan sorun oluşturmaktadır. Her ne kadar YZ, akademik başarı veya okulu bırakmanın tespit edilmesinde bir üstünlük sağlasa da kötü niyetli olarak kullanılabilir. Geçmiş veriler analiz edilerek başarısız ve okulu bırakma oranı yüksek olan öğrencilerin kurumlar tarafından okula kabul edilmeyebilir veya ekonomik sebeplerden dolayı daha çok tercih edilebilir. Bunun yanı sıra YZ uygulamaları, aile ve öğrencilerin kişisel verilerine odaklanmadan ülkelerin eğitim politikaları, sosyal imkanlar teknolojik altyapı, öğretmen eğitimi vb. alanları ait veriler toplanarak akademik başarı veya okulu bırakma üzerindeki etkilerin belirlenmesinde fayda sağlayacaktır.

Öğrenme Sürecindeki Aktivitelerin İzlenmesi

Öğrenme analitiği (ÖA), öğrenmeyi ve bunun gerçekleştiği ortamları anlamak ve optimize etmek amacıyla öğrenciler ve bağlamları hakkındaki verilerin ölçülmesi, toplanması, analizi ve raporlanmasıdır (Learning Analytics Knowledge(LAK), 2011). ÖA öğrencilere kişiselleştirilmiş ve zamanında geri bildirimler ile kaliteli öğrenme ve öğretme sunarak yaşam boyu öğrenme becerileri ve stratejileri kapsamında iş birliği, eleştirel düşünme, iletişim ve yaratıcılık gibi 21 yy. önemli becerilerin gelişimini desteklemeyi hedeflemektedir. Günümüzde ÖA, öğrencilerin akademik başarısının tahmini, bir dersten başarısız olma veya ders bırakma riski taşıyan öğrencilerin belirlenmesinde yaygın olarak kullanılmaktadır. Bunun içinde öğrenme yönetim sistemlerinde yer alan dijital ayak izlerinden (günlük dosyası ve tıklama akışı vb.) yararlanmaktadır. Bu ayak izlerinden elde edilen veriler YZ uygulamaları ile analiz edilmektedir. Bunun sonucunda öğrencilere kişiselleştirilmiş öğrenme ortamları ve anlık geri bildirimler sunulabilmektedir.

Kısa Cevaplı Soruların Değerlendirilmesi

Kısa cevaplı sorular (KCS), birkaç kelimeden bir paragraf yazıya kadar farklı şekillerde yapılandırılabilen gerçeklere dayalı, yorumlayıcı çeşitli yanıtlar gerektiren bir soru tipidir. KCS, öğrencilerin tanımlama, açıklama, akıl yürütme, oluşturma, analiz etme, sentezleme ve değerlendirme gibi üst düzey becerilerinin ölçülmesi ve yazma becerisinin ortaya çıkmasına katkı sağlamaktadır. Buna rağmen değerlendirme ve geri bildirim süresinin uzunluğu, cevap anahtarı standartlarının iyi oluşturulmaması, iyi yazma becerisinin öne çıkması ve büyük kitlelerde yönetiminin zor olması gibi sınırlılıkları bulunmaktadır (Galhardi & Brancher, 2018). Bu sınırlılıkların bazıları YZ uygulamaları ile giderilebilir. YZ uygulamalarına cevap anahtarına ait alternatif cevaplar

girilerek makine öğrenmesi sağlanabilir. Bu sayede öğrencilerin cevapları objektif bir şekilde kısa süre içerisinde değerlendirilebilir. Cevabı birkaç kelimeden oluşan kısa cevaplı sorular için YZ kullanılması daha uygundur. Bir paragraftan oluşan cevapların değerlendirilmesinde uzun cevaplı soruların değerlendirilmesinde yaşanan benzer problem oluşabilmektedir.

SONUÇ VE ÖNERİLER

Eğitim sisteminde öğrenenlerin hangi içeriklerden daha iyi öğrendiği, hangi araçların daha çok kullanıldığı, hangi derslerin programa katkı sağlayıp sağlamadığı veya öğrenenin programı bırakıp bırakmayacağı YZ ile izlenebilir. Ancak bu uygulamalar sistemleri iyileştirmek için kullanılması daha uygundur. Özellikle kitlesel çevrimiçi ders sistemlerinde öğrencinin bırakma oranının değişmesinde sağlayacağını düşüncesi ortaya çıkmaktadır. YZ biz yarattık ve bir insan gibi düşünemeyeceğini sadece belli davranışlarımızı taklit edebileceğine görülmektedir. Bunun içinde ölçme ve değerlendirme vb. süreçlerde kullanılması sorunlar oluşturabilecektir.

Luckin'e göre YZ'nin gelecekte değerlendirme sisteminde kullanılabilmesi için sosyal, teknik ve politik olarak çalışmaların yapılması gerekmektedir. Sosyal olarak, YZ değerlendirmesinin gelişebileceği ve fayda sağlayabileceği etik çerçeve geliştirilmelidir. Bunun içinde bilim adamları ve politika yapıcılarla birlikte çalışmak üzere öğretmenler, öğrenciler, ebeveynler ve diğer eğitim paydaşlarının sürece dahil edilmesi gerekmektedir. Teknik olarak, yeni nesil yapay zekâ destekli sınavsız değerlendirme sistemlerini geliştirmek için akademik ve ticari kuruluşlar arasında uluslararası işbirlikleri kurulması gerekmektedir. Ve son siyasi olarak, liderlerin bütçe kısıtlamalarını daraltarak çok ihtiyaç duyulan eğitimsel dönüşümü ilerletmek için yapay zekanın getirebileceği olasılıkları tanımasına ihtiyacımız var.

Bilgisayarlar basit mantıkta "1" ve "0" mantığında çalışan teknolojilerdir. YZ uygulamaları her ne kadar makine öğrenmesi ile güçlendirilmeye çalışılsa da temelinde bu yapı bulunmaktadır. Bu yüzden YZ uygulamaları, insan davranışı her zaman rasyonel olmadığı veya tamamen kendi çıkarını gözetmediği için gerçekte ne olacağına dair kesin sayısal veya veriye dayalı açıklamalar veremez (Blake & Carroll, 2016). Ancak belli bir sonuca götüren dinamikler hakkında iç görü sağlayabilir.

Şu ana kadar hiçbir teknolojinin eğitimde insanın yerini tamamen almamış olmasına rağmen, günümüzde YZ uygulamalarının mevcut eğitim uygulamalarında daha kabul edilebilirdir. Büyük ölçekli YZ destekli sistemleri oluşturmak maliyet açısından ucuz değildir. Ayrıca bu sistemlerin yönetilmesi büyük önem arz etmektedir. Her kurum tarafından farklı YZ alt yapılarının ve sistemlerinin kurulması yerine ulusal anlamda sistemlerin kurulması maliyet ve yönetim açısından daha avantajlı olduğu düşünülmektedir. YZ hiçbir şekilde öğretmenin rolünü üstlenmeyecektir, çünkü nasıl çalıştığı ve ne yaptığı insan zekasından çok farklıdır (Cope, Kalantzi, & Searsmith, 2020). YZ insanların kapasitelerini arttırmayı sağlayacak teknolojik bir uzuvdur (McLuhan, 1964).

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Öğretmen Adaylarının Pandemi Olgusuyla İlgili Görüşleri

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Özet

11 Mart 2020'de ülkemizde pandemi ilan edilmesiyle birlikte bu süreç herkesi etkisi altına almıştır. Bu çalışmanın amacı farklı branşlardan öğretmen adaylarının "pandemi" olgusuyla ilgili görüşlerini belirlemektir. Bu çalışma nitel esaslı bir durum çalışmasıdır. Bu çalışmada ele alınan durum öğretmen adaylarının "Pandemi" olgusuyla ilgili görüşleridir. Bu çalışma 2021-2022 akademik yılı bahar yarıyılında farklı branşlardan 15 öğretmen adayı ile gerçekleştirildi. Öğretmen adaylarına çalışmanın doğası ile ilgili bilgi verildi ve çalışma katılmaya gönüllü öğretmen adaylarıyla gerçekleştirildi. Öğretmen adaylarının "pandemi" olgusuyla ilgili görüşlerini belirlemek için veri toplama aracı olarak araştırmacılar tarafından açık uçlu sorular hazırlandı. Açık uçlu sorulardan oluşan form Word formatında hazırlanarak öğrencilere online olarak ulaştırıldı ve cevap kağıtları online olarak toplandı. Öğrencilerin cevap kağıtlarına yazdıkları cevaplar bu çalışmanın veri kaynağını oluşturdu. Verilerin analizinde betimsel içerik analizi tekniği kullanıldı. Açık uçlu soruların analizinde öğrencilerin cevaplarından ilişkili ve benzer anlam yapılanmaları taşıyan cevaplara odaklanılarak kategoriler belirlendi. Analizler sonucunda öğretmen adaylarının görüşleri ile ilgili beş kategori belirlendi. Bu kategoriler; "1-Öğretmen adaylarının pandemiyle birlikte değiştiğini düşündüğü şeyler, 2-Öğretmen adaylarının pandemi sürecinde insanlarla ilgili farkettikleri özellikler, 3-Öğretmen adaylarının pandemi sürecinde en çok özledikleri şeyler, 4- Öğretmen adaylarının pandemi sürecinde mahrum kaldıklarını düşündükleri şeyler, 5-Pandemi sürecinin öğretmen adaylarına iyi gelen yönleri ve onlara kazandırdığı şeyler" şeklindedir. Bu çalışmada öğretmen adaylarının pandemi olgusuyla ilgili görüşleri, öğretmen adaylarının ifadelerinden doğrudan alıntılar yapılarak detaylı bir biçimde betimlenmeye çalışıldı. Bu çalışma, öğretmen eğitimcilerine, karar vericilere öğretmen adaylarının pandemi olgusuyla ilgili görüşleri hakkında bilgi sunacak olması bakımından önemlidir.

Anahtar Kelimeler: *Pandemi, Öğretmen Yetiştirme, Öğretmen Adayı*

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GİRİŞ

Pandemi olgusu insanoğlu için yeni bir olgu değildir. İnsanoğlu tarihsel süreç içinde bundan önce de pandemilere maruz kalmıştır. Koronavirüsten ilk ölüm 9 Ocak 2020'de Wuhan'da meydana geldi. Tam anlamıyla bir salgın haline gelen Korona (Covid-19) ilk ölümün gerçekleşmesinden üç ay sonra dünya çapında binlerce ölüme neden olmuştur. Dünya Sağlık Örgütü, yeni tip korona virüsün artık salgın boyutunu aşarak 'pandemi' seviyesine geldiğini ise 11 Mart 2020'de duyurmuştur (UNESCO, 2020). Pandemi nedeniyle tüm dünyada ve ülkemizde yaygın olarak yüz yüze eğitime ara verilmesi zorunluluğu nedeniyle, uzaktan eğitim uygulamaları küresel çapta acil bir çözüm olarak gündeme gelmiştir (UNESCO, 2020). Ülkemizde vaka sayısının artması ve pandeminin uzun süreceğinin anlaşılması üzerine YÖK (2020a) 18 Mart 2020 tarihinde aldığı kararla örgün önlisans, lisans ve lisansüstü programlarındaki teorik derslerin uzaktan eğitimle yürütülmesinde üniversitelere yetki devri yaptı. Bu yetki devri sonrasında Türkiye'deki üniversiteler örgün programlardaki teorik dersleri çeşitli uzaktan eğitim yöntemleriyle yürütmeye başladılar (Karadağ ve Yücel, 2020). YÖK 26 Mart 2020 tarihinden itibaren bahar döneminde eğitim-öğretimin sadece uzaktan eğitim, açık öğretim ve dijital öğretim imkânları ile sürdürülmesine karar verdi (YÖK, 2020b)

Pandemi tüm dünyada sosyal ve ekonomik hayatı etkilemeye halen devam etmektedir ve ülkeler yoğun bir biçimde bu sürecin olumsuz etkilerinden kurtulmanın yollarını aramaktadır. Alan yazını incelediğimizde, Duban ve Şen'in (2020) de vurguladığı gibi, olgunun doğası gereği Covid-19 ve Corona virüs ile ilgili çalışmaların yoğun bir biçimde temel bilimler ve tıp alanında olduğu gözlenmektedir. Pandemi olgusuyla ilgili eğitim bilimleri ve öğretmen yetiştirme alanında henüz yok denecek kadar az çalışmaya (Duban ve Şen, 2020; Arı ve Kanat, 2020 gibi) rastlanmaktadır. Oysa ülkelerin eğitim sistemleri, pandemi sürecinden sistemin en çok etkilenen unsurlarından biriydi. Pandemi sürecinin tüm paydaşlara etkilerinin belirlenip, etkin ve verimli çözümler üretilebilmesi için tüm bilim dallarında araştırmaların yapılması gerekmektedir. Etkileri devam eden pandeminin eğitime yansımalarının da çok farklı boyutlarda (psikolojik, sosyolojik, teknolojik, metodolojik vb.) olacağı kaçınılmaz bir gerçektir (Duban ve Şen, 2020). Bu gerekçelerle geleceğin öğretmenleri olan öğretmen adaylarının pandemi olgusuyla ilgili görüşlerinin belirlenmesi önemli görülmüş ve bu çalışmada farklı branşlardan öğretmen adaylarının Pandemi olgusuyla ilgili görüşlerinin belirlenmesine odaklanılmıştır.

METHOD

Bu çalışma nitel esaslı bir durum çalışmasıdır. Bu çalışmada ele alınan durum öğretmen adaylarının "Pandemi" olgusuyla ilgili görüşleridir.

Çalışmanın Amacı

Bu çalışmanın amacı farklı branşlardan öğretmen adaylarının "pandemi" olgusuyla ilgili görüşlerini belirlemektir. Bu çalışmada bu genel amaca ulaşmak için öğretmen adaylarının pandemi olgusuyla ilgili görüşleri hangi kategorilerde yoğunlaşmaktadır? sorusuna cevap arandı.

Katılımcılar

Bu çalışma 2021-2022 akademik yılı bahar yarıyılında farklı branşlardan onu kız, beşi erkek 15 öğretmen adayı ile gerçekleştirildi. Öğretmen adaylarına çalışmanın doğası ile ilgili bilgi verildi ve çalışma katılmaya gönüllü öğretmen adaylarıyla gerçekleştirildi.

Veri Toplama

Öğretmen adaylarının "pandemi" olgusuyla ilgili görüşlerini belirlemek için veri toplama aracı olarak araştırmacılar tarafından sekiz açık uçlu soru hazırlandı. Açık uçlu sorulardan oluşan form Word formatında hazırlanarak öğrencilere online olarak ulaştırıldı ve cevap kağıtları online olarak toplandı. Öğrencilerin cevap kağıtlarına yazdıkları cevaplar bu çalışmanın veri kaynağını oluşturdu.

Veri Analizi

Verilerin analizinde betimsel içerik analizi tekniği kullanıldı. Açık uçlu soruların analizinde öğrencilerin cevaplarından ilişkili ve benzer anlam yapılanmaları taşıyan, anlamlı cevaplara odaklanılarak kategoriler belirlendi.

BULGULAR

Bu çalışmada analizler sonucunda öğretmen adaylarının pandemi olgusuyla ilgili görüşlerine dayalı olarak beş kategori belirlendi ve aşağıda öğretmen adaylarının ifadelerinden doğrudan alıntılar yoluyla bu kategoriler ile ilgili detaylı betimlemeler sunuldu.

Tablo 1. *Öğretmen Adaylarının Pandemi Olgusuyla İlgili Görüşlerine Dayalı Kategoriler*

Kategoriler	***Kodlar***
1-Öğretmen adaylarının pandemiyle birlikte değiştiğini düşündüğü şeyler	kişisel temizlik alışkanlıkları, uyku düzeni, beslenme, günlük yaşam düzeni, sosyal ilişkiler, insan ilişkileri, ev buluşmaları, akrabalık ilişkileri, insanların psikolojisi, arkadaşlık ilişkileri, eğitim, teknoloji, alışverişler, hastane düzeni, ekonomi, aşı çalışmaları.
2-Öğretmen adaylarının pandemi sürecinde insanlarla ilgili fark ettikleri özellikler	insanların mutsuz, teknoloji bağımlısı, yargılayıcı, bencil, duyarsız, kurnaz, fırsatçı olduklarını, ölümden çok korktuklarını, insanların birbirine ihtiyacı olduğunu, insanların hastalık konusunda tedirgin olduklarını, tedbirli olduklarını, sosyal iletişime ihtiyaç duyduklarını, sevdiklerine daha çok değer vermeye başladıklarını, insanların birbirinden bağımsız olduklarını, insanlarda kişisel gelişime yönelik bilincin arttığını farkettim.
3-Öğretmen adaylarının pandemi sürecinde en çok özledikleri şeyler	aileyle dışarıda vakit geçirmek, arkadaşlarla vakit geçirmek, insanlarla yüz yüze iletişim kurmak, arkadaşlarıma sarılmak, misafirlikler, sevdiklerime sarılmak, sevdiklerimle bir arada bulunmak, dışarıda maskesiz dolaşmak, üniversiteye gidip yüz yüze derslere katılmak, laboratuvarda deney yapmak, bisiklete binmek, sinemaya, konsere gitmek, kafeye gitmek.
4-Öğretmen adaylarının pandemi sürecinde mahrum kaldıklarını düşündükleri şeyler	özgürlükten, normalde yaptığım her aktiviteden, yüz yüze eğitimden, arkadaşlarımla vakit geçirmekten, grup çalışmalarından, okuldan, yaşama dair her şeyden, özgürce nefes almaktan, sosyal yaşantıdan, aile büyükleriyle vakit geçirmekten, üniversite hayatından, sosyal ortamlardan, dışarıya çıkmaktan, gezmekten, eğlenceden, kaliteli eğitimden.
5-Pandemi sürecinin öğretmen adaylarına iyi gelen yönleri ve onlara kazandırdığı şeyler	bolca kitap okuma, film izleme imkanı sunması online oyun oynama, dinlenme fırsatı sunması, yeni hobiler edinmemi sağladı, zaman kazandırdı, tek başıma vakit geçirebilmeyi öğrendim, kendime ve aileme daha çok zaman ayırabildim, zihnimi rahatlattı, evde bolca vakit geçirme imkanı sundu, ev işlerinde kendimi geliştirdim, derslerle ilgilenmek için daha fazla zamanım oldu, düzenli ders çalışma alışkanlığı kazandım, sabrı öğretti, sağlığın ve ailenin önemini öğretti, evde kültürel ve akademik faaliyetler yapma, gündemi takip etme, zamanın önemini öğretti.

Öğretmen Adaylarının Pandemiyle Birlikte Değiştiğini Düşündüğü Şeyler

"*Pandemiyle birlikte eğitimin, teknolojinin, alışverişlerin ve hastane düzenlerinin artık eskisi gibi olmayacağını düşünüyorum, çünkü yüz yüze eğitimin zahmetleri olabiliyor dolayısıyla uzaktan eğitim daha avantajlı teknoloji bunu geliştirmek adına alt yapısını güçlendirdi ve hastaneler hijyene daha çok önem gösterdi. Online alışverişlerde de artış olmakta ve bunun değişeceğini düşünmüyorum bunun yüzünden kolaylık olduğu kadar üşengeçlik arttı. Pandemiyle birlikte yeni bir teknoloji çağına girdik ve bunun değişeceğini düşünmüyorum.*" (Türkçe öğretmeni adayı, Kız)

"*Pandemiyle birlikte aşı çalışmalarının artık eskisi gibi olmayacağını düşünüyorum, çünkü bu tarz virüslerin ne kadar öldürücü olduğunu ve hayatımızı nasıl etkileyebileceğini gördük*" (Biyoloji öğretmeni adayı, Kız)

"*Pandemiden önce ellerimi hep çok sık yıkardım ancak dezenfektan ve kolonyayı pek de sık kullanmazdım şimdi ise, çantamızdan kolonya dezenfektan ayrılmaz oldu. Ellerimi daha da sık yıkamaya başladım. Ve daha dikkatli hale geldik pandemi yüzünden*" (Kimya öğretmeni adayı, Kız)

"*Pandemiden önce, insanların gündelik yaşamının bu kadar kolay ve hızlı bir şekilde değişebileceğinin bilincinde olmayarak kendimi acil durumlar için sağlama almak gibi bir kaygım yoktu. Dolayısıyla pandemiden önce acil durumlar için alınacak fiziksel ve ekonomik önlemler konusunda ihmalkârlık yapardım, şimdi ise, hayati öneme sahip malzemeler ve zor şartlarda kullanabileceğim ekonomik imkânlar hususunda birikim yapıyorum. Pandemiyle birlikte insanların birbirleriyle çeşitli kültürlere göre değişen ama özünde toplumun birlik ve beraberliğini sağlayan bayramların, şölenlerin hatta insanların birbiriyle tokalaşmasının, sarılmasının artık eskisi gibi olmayacağını düşünüyorum, çünkü insanlar arasına iki yılı aşkın bir süredir mesafe kuralları girdi. İnsanlar artık birbiriyle tokalaşmayı, sarılmayı yadırgayacak seviyede bir davranış değişikliğine gitti*" (Türkçe öğretmeni adayı, Erkek)

Öğretmen Adaylarının Pandemi Sürecinde İnsanlarla İlgili Fark Ettikleri Özellikler

"*Pandemiyle birlikte insanların daha birbirinden bağımsız ve birbirine daha az muhtaç olduğunu farkettim, şöyle ki insanlar kendi evlerine, kendi içlerine kapanıp yalnız kaldıkça bireysel ilgi alanlarını keşfettiler. Birçok insan sosyal hayatın acelesinden, hızından dolayı kendine vakit ayırmayı es geçiyorken şimdilerde kişisel gelişime yönelik bilincin arttığını söyleyebiliriz.*" (Türkçe öğretmeni adayı, Erkek)

"*Pandemiyle birlikte insanların pandemi öncesine göre daha mutsuz bir yaşam sürdürdüklerini fark ettim. Sosyal izolasyon ve eski aktivitelerden uzak kalmamız nedeniyle sosyal medya ve teknoloji bağımlısı bireyler haline geldik. Bu bağımlılıklar sosyal ihtiyaçlarımızı tam olarak karşılamamıza engel oldu psikolojimizi olumsuz olarak etkiledi dolayısıyla pandemi bizleri pandemi öncesine göre mutsuz bireylere dönüştürdü.*" (Fen bilgisi öğretmeni adayı, Kız)

Öğretmen Adaylarının Pandemi Sürecinde En Çok Özledikleri Şeyler

"*Üniversiteye gidip ders işlemeyi, laboratuvarda deneyler yapmayı ve yakın arkadaşlarımla vakit geçirmeyi özledim.*" (Kimya öğretmeni adayı, Kız)

"*Sevdiğim insanlarla hiç böyle sıkıntılar yokmuş gibi rahatça oturmayı, muhabbet etmeyi özledim. Sevdiklerimle pandemi, iklim krizi, dünyadaki savaşlar vb. sıkıntılı konular yerine keyifli ve olumlu şeylerden bahsetmeyi özledim.*" (Türkçe öğretmeni adayı, Erkek)

"*Pandemi sürecinde en çok özlediklerim arasında sevdiklerime sarılmak, bir arada bulunup sohbet etmek, birlikte vakit geçirmek sinemaya, konsere, sahile ve kafeye gitmek yer alıyor. Pandemi öncesinde hayatımı çok monoton olarak görürdüm. Pandemi sürecinde ise o monotonluğu bile özlediğimi fark ettim.*" (Fen bilgisi öğretmeni adayı, Kız)

Öğretmen Adaylarının Pandemi Sürecinde Mahrum Kaldıklarını Düşündükleri Şeyler

"*Pandemi nedeniyle uzaktan eğitime geçildi. Uzaktan eğitimde derslerde anlayamadığımız yerleri yüz yüze sorabilme fırsatımız olmadı. Uzaktan eğitime geçilmesi nedeniyle arkadaşlarımızla yaptığımız grup çalışmalarında azalma oldu. Yaptığımız grup çalışmaları sayesinde birbirimizle bilgi paylaşımları yapardık, anlamadığımız yerleri birbirimize sorardık. Uzaktan eğitimde iletişim sıkıntıları oluştu. Yüz yüze eğitimde üniversitedeki arkadaşlarımızla ders sonrasında bir araya gelerek sohbet edip çay içerdik. Buda motivasyonumuzu arttırıp sınav kaygımızı azaltmamıza yardımcı olurdu. Pandemi tüm bunlardan bizi mahrum bıraktı*" (Fen bilgisi öğretmeni adayı, Kız)

"*Okuldan mahrum kaldım. Arkadaşlarımdan, tatilden ve yaşamaya dair olan şeylerden, hatta özgürce nefes almaktan mahrum kaldım.*(Edebiyat öğretmeni adayı, Kız)

Pandemi Sürecinin Öğretmen Adaylarına İyi Gelen Yönleri ve Onlara Kazandırdığı Şeyler

"*Bol bol kitap okumak ve akademik çalışmalara hız verebilmek için fırsat oldu. Sağlığın önemini, aile büyüklerinin çocuğunun eşinin yanında oluşuna şükredebilmeyi. Sabrı öğretti.*" (Biyoloji öğretmeni adayı, Kız)

"*Pandemi sürecinde en keyifli bulduğum zamanlar kitap okuduğum zamanlardı. Pandemi sürecinde kitap okuma alışkanlığı kazandım ve bu süreçte pek çok kitap okudum ve film izledim. Evim ve okul arasındaki mesafenin uzak olması nedeniyle okula giderken ve okuldan eve dönerken otobüste oldukça fazla zaman kaybı yaşıyordum. Pandemi nedeniyle uzaktan eğitime geçildi. Böylelikle evde zaman kaybı yaşamadan verimli olarak ders çalışabildim. Pandemi sürecinde karantina döneminde kitap okumak için pek çok zamanım oldu.*" (Fen bilgisi öğretmeni adayı, Kız)

"*Pandemi ile gelen uzaktan eğitim sürecinde derslerimle ilgilenmek için daha fazla zamanım oldu ve evde kaldığım bu süre zarfında kendime ve aileme daha fazla vakit ayırdığımı söyleyebilirim. Bireysel çalışma yönteminin önem kazandığı bu süreçte kendimi geliştirdiğimi düşünüyorum. Ders saatlerinin kısa ve teknik aksaklıkların olması derslerin verimini düşürmekteydi bu olumsuz durumu en aza indirmek için de daha düzenli bir çalışma alışkanlığı kazandım.*" (Kimya öğretmeni adayı, Kız)

TARTIŞMA VE YORUM

Bu araştırmada "Öğretmen adaylarının pandemiyle birlikte değiştiğini düşündüğü şeyler" kategorisinde yer alan "günlük yaşam düzeni, sosyal ilişkiler, insan ilişkileri, ev buluşmaları, akrabalık ilişkileri, insanların psikolojisi, arkadaşlık ilişkileri, eğitim, teknoloji, alışverişler, hastane düzeni, ekonomi" şeklinde belirlenen bulgular Arı ve

Kanat'ın (2020) sosyal bilgiler ve fen bilgisi öğretmeni adaylarının Koronavirüs ile ilgili görüşlerini belirledikleri çalışmanın bulgularıyla uyumluluk göstermektedir. Bu kategorideki kodlardan biri olan pandeminin insanların psikolojisini değiştirdiğine yönelik bulguyu destekleyen öğretmen adayının ifadesinden bir alıntı aşağıda sunulmaktadır: "*Pandemiden önce arkadaşlarımla düzenli olarak görüşürdüm birlikte çeşitli sosyal aktiviteler yapardık. Pandemi döneminde evde kalmaya alıştım sosyal aktivitelerden ve arkadaşlarımdan uzak kaldım. Şimdi ise eskisi kadar arkadaşlarımla görüşemiyorum, sosyal aktivitelerde bulunamıyorum evde kalmayı tercih ediyorum. Pandemiyle birlikte ruhsal ve bedensel sağlığımızın pandemi öncesine kıyasla daha kötü olduğunu düşünüyorum. Çünkü pandemi bizleri evde kalmaya zorladı. Evde kalarak sevdiklerimizden uzak kaldık ve hareketsiz bir yaşam sürdük. Günlük alışkanlıklarımızda değişiklikler oldu ve tüm bu yaşananlar bizi sağlıksız bireylere dönüştürdü. Eski ruhsal sağlığımıza ve alışkanlıklarımıza dönemin zaman alacağını düşünüyorum*" (Fen bilgisi öğretmeni adayı, Kız)

Bu bulgu pandeminin insan psikolojisi üzerine etkilerinin araştırıldığı çalışmaların (Demir vd., 2020) bulgularıyla uyumluluk göstermektedir.

Bu çalışmada "Öğretmen adaylarının pandemi sürecinde insanlarla ilgili fark ettikleri özellikler" kategorisinde "bencil, duyarsız, kurnaz, fırsatçı olduklarını, ölümden çok korktuklarını, insanların hastalık konusunda tedirgin olduklarını fark ettim"şeklinde belirlenen bulgular yine Arı ve Kanat'ın (2020) öğretmen adaylarının Covid-19 salgınında ülke insanlarının tutumu ile ilgili bulgularından "olumsuz yaklaşım" kategorisinde ortaya koydukları bulgularla uyumluluk göstermektedir. Bu çalışmada "Öğretmen adaylarının pandemi sürecinde en çok özledikleri şeyler ve öğretmen adaylarının pandemi sürecinde mahrum kaldıklarını düşündükleri şeyler" kategorilerinde başat olarak yer alan "üniversiteye gidip yüz yüze derslere katılmak, laboratuvarda deney yapmayı özledim. Yüz yüze eğitimden, grup çalışmalarından, okuldan, üniversite hayatından, kaliteli eğitimden mahrum kaldığımı düşünüyorum" kodları ve bu bulguları destekler nitelikteki aşağıda sunulan öğretmen adayı ifadesinden bir alıntı, öğretmen adaylarının pandemi sürecinde aldıkları uzaktan eğitimi etkin, verimli ve yeterli bulmadıkları şeklinde yorumlanabilir. "*Pandemide lisans eğitimimin üç dönemini geçirdim. Bu süreçte oldukça verimsiz, adeta eğitim sürecinin boşa gittiği bir üç dönem oldu. Kaliteli eğitimden mahrum kaldığımı düşünüyorum. Keşke o günlerin bir telafisi olsa...*" (Türkçe öğretmeni adayı, Erkek)

Bu çalışmada, "Pandemi sürecinin öğretmen adaylarına iyi gelen yönleri ve onlara kazandırdığı şeyler" kategorisinde yer alan ve "bolca kitap okuma, film izleme imkanı sunması online oyun oynama, dinlenme fırsatı sunması, yeni hobiler edinmemi sağladı, zaman kazandırdı, tek başıma vakit geçirebilmeyi öğrendim, kendime ve aileme daha çok zaman ayırabildim, zihnimi rahatlattı, evde bolca vakit geçirme imkanı sundu, ev işlerinde kendimi geliştirdim, derslerle ilgilenmek için daha fazla zamanım oldu, düzenli ders çalışma alışkanlığı kazandım, sabrı öğretti, sağlığın ve ailenin önemini öğretti, evde kültürel ve akademik faaliyetler yapma, gündemi takip etme, zamanın önemini öğretti" kodlarıyla ortaya konulan bulgular öğretmen adaylarında kişisel gelişim, bilinç kazanma ve değer algısının gelişimi (Arı ve Kanat, 2020) anlamında göstergeler sunması bakımından sürdürülebilir olması halinde olumludur diyebiliriz.

Araştırmacılara, bu konuda daha detaylı bulgulara ulaşılabilmesi için farklı branşlardan öğretmen adaylarıyla fenomenoloji desenli çalışmalar yapmaları önerilebilir.

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YouTube'un Öğrenme Ortamı Olarak Kullanılmasına İlişkin Öğrenci Görüşleri

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Özet

Bu çalışmada, uzaktan eğitim programına kayıtlı öğrencilerin YouTube'un bir öğrenme ortamı olarak kullanılmasına ilişkin görüşlerinin belirlenmesi amaçlanmıştır. Çalışmada nitel araştırma desenlerinden olgubilim modeli kullanılmıştır. Çalışmanın katılımcılarını, Isparta Uygulamalı Bilimler Üniversitesi, Uzaktan Eğitim Meslek Yüksekokulunda kayıtlı öğrenciler oluşturmaktadır. Çalışmada veri toplama aracı olarak çevrimiçi soru formu kullanılmıştır. Bu soru formu 2 kısımdan oluşmaktadır. İlk kısımda öğrencilerden demografik bilgiler ve YouTube kullanımları ile ilgili bilgiler istenmiştir. İkinci kısımda ise öğrencilerin izledikleri eğitim videoları ile ilgili edindikleri deneyimleri doğrultusunda YouTube'un öğrenme ortamı olarak kullanılmasına ilişkin görüşlerinin alınması amacıyla açık uçlu sorular bulunmaktadır. Veri toplama aracı, Google Form üzerinden çevrimiçi olarak paylaşılmıştır. Veriler 2021-2022 eğitim öğretim yılı bahar döneminde toplanmıştır. Çalışmaya toplam 117 öğrenci katılım göstermiştir. Toplanan verilerin analizinde betimsel analiz yöntemi kullanılmıştır. Betimsel analiz yöntemi ile elde edilen temalar ve kategoriler tablolaştırılarak frekans ve yüzde değerleri şeklinde sunulmuştur. Analiz sonucunda, öğrenciler YouTube'da hem teorik hem de pratik açıdan bilgi ve beceriler elde ettiklerini, gündelik hayatta karşılaştıkları problemlere ilişkin çözümler bulabildiklerini, YouTube'un mesleki, fiziksel, sosyal, sanatsal ve kültürel gelişimlerine katkı sunduğunu sıklıkla dile getirmişlerdir. Öğrencilerin YouTube hakkındaki olumsuz deneyimleri ise; izlenen videoların görüntü kalitesinin düşüklüğü, video izleme esnasında çıkan reklamlar, içerik üreticisinin konuyu anlatırken bağlamdan uzaklaşması, konu anlatım video sürelerinin uzun tutulması, video başlıklarının içerik ile uyumsuz olması, düz anlatımlar, özensiz çekim ortamları, eğitim videosu ile ilgili sorularına dönüt alamamak şeklinde olmuştur. Çalışmanın sonuçları incelendiğinde öğrencilerin genel anlamda YouTube'da edindikleri deneyimlerden memnun kaldıkları söylenebilir.

Anahtar Kelimeler: *YouTube, uzaktan eğitim, öğrenme ortamı, eğitsel video, öğrenci görüşleri*

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GİRİŞ

YouTube, 2005'te kurulan, kullanıcılara video paylaşma ve paylaşılan videoları izleme imkanı sağlayan ve dünyada en çok ziyaret edilen sosyal medya platformlarından biridir. YouTube platformunda eğlence, spor, tarih, bilim gibi çeşitli alanlarda videolar bulunmakta ve bu videoların sayısı gün geçtikçe artmaktadır. Dolayısıyla barındırdığı videolar sayesinde YouTube'un, faydalı öğrenme içeriklerinin bulunabileceği değerli bir bilgi kaynağı haline geldiği söylenebilir. YouTube, çok sayıda eğitim videosuna ücretsiz erişim imkânı sağladığı için hayat boyu öğrenme çerçevesinde önemli bir informal öğrenme ortamı olarak düşünülebilir (Buzzetto-More, 2014). Her kesimden bireye yönelik olarak ilgi duydukları bir alanda zamandan ve mekandan bağımsız olarak kullanabilecekleri görsel ve işitsel bir materyal sunması, kendi öğrenme hızında ilerleyebilmesi ve diğer kullanıcılarla etkileşim kurabilmesi açısından uygun bir öğrenme ortamı haline gelmektedir (Maziriri, Gapa ve Chuchu, 2020; Abu-Taieh vd., 2022). Ancak herkesin video yükleyebilmesi nedeniyle eğitim içerikli videoların güvenirliği ve kişiye uygun olması noktasında bazı zorluklarla da karşılaşmak mümkündür (Hasamnis ve Patil, 2019). Ayrıca birçok eğitim kurumu, kendi öğretim materyallerini destekleyici veya tamamlayıcı olarak YouTube aracılığı ile öğrenenlerle paylaşmaktadır (Abu-Taieh vd., 2022).

Alanyazında YouTube'un bir öğrenme aracı olarak incelendiği çalışmalar mevcuttur. Khalid ve Muhammad (2012) ve Sari ve Margana, (2019), çalışmalarında öğrencilerin İngilizce dersinde YouTube kullanımı konusunda olumlu tutum sergilediklerini ve Youtube'u öğrenme aracı olarak etkili bir şekilde kullandıklarını belirtmişlerdir. Dupuis, Coutu ve Laneuville (2013) önerdikleri çevrimiçi videoları gönüllü olarak izleyen öğrencilerinin, izlemeyenlere oranla daha yüksek başarı gösterdiklerini ifade etmişlerdir. Alwehaibi (2015), YouTube teknolojisini İngilizce dil eğitimiyle bütünleştirmenin, öğrencilerin öğrenmeleri üzerinde olumlu etkileye sahip olduğu sonucuna ulaşmıştır. Moghavvemi vd. (2018), öğrencilerin YouTube'u kullanma motivasyonlarından bazılarının eğlence, bilgi arama ve akademik öğrenme olduğunu ifade etmişlerdir. Ayrıca çalışmalarında videoların öğrenmek istedikleri konuyla alakalı olması durumunda, YouTube'u öğrenme deneyimini geliştirebilecek etkili bir araç olarak gördükleri sonucuna ulaşmışlardır. Mady ve Baadel (2020), üniversite öğrencileri ile yaptığı çalışmada, öğrencilerin YouTube'u akademik çalışmaları için bir öğrenme aracı olarak kullandıklarını ve genel anlamda bilgilerini zenginleştirdikleri sonucuna varmıştır. Ayrıca, YouTube videolarının akademik ortamlarda kullanımı ile öğrencilerin genel performansı arasında pozitif bir ilişki bulmuştur. YouTube, videoların geleneksel sınıf ortamında kullanılmasının öğrenci memnuniyeti üzerinde olumlu bir etkisi olduğunu gösteren çalışmalar da mevcuttur (Orús vd. 2016; Torres-Ramírez vd., 2014; Tugrul, 2012).

Yapılan çalışmaların daha çok bir öğrenme aracı olarak YouTube videolarının formal ortamlarda destekleyici/tamamlayıcı olarak kullanımının etkililiğine odaklandığı görülmektedir. YouTube'un informal öğrenme için bir kaynak olarak nasıl kullanıldığına ilişkin çalışmalar sınırlıdır. Bu çalışmada, uzaktan eğitim programına kayıtlı öğrencilerin YouTube'un informal bir öğrenme ortamı olarak kullanılmasına ilişkin görüşlerinin belirlenmesi amaçlanmıştır.

YÖNTEM

Araştırmanın Deseni

Bu çalışmada öğrencilerin YouTube'un öğrenme platformu olarak kullanılmasına ilişkin görüşlerini belirlemek amacıyla nitel araştırma yöntemlerinden olgubilim ile desenlenmiştir. Olgubilim, farkında olunan ancak derinlemesine bilgi sahibi olunmayan olgulara odaklanmayı sağlayan bir araştırma desenidir (Yıldırım ve Şimşek, 2011).

Çalışmanın Katılımcıları

Çalışmanın katılımcılarını, Isparta Uygulamalı Bilimler Üniversitesi, Uzaktan Eğitim Meslek Yüksekokulunda kayıtlı öğrenciler oluşturmaktadır. Veriler 2021-2022 eğitim öğretim yılı bahar döneminde toplanmıştır. Çalışmaya toplam 117 öğrenci katılım göstermiştir. Katılımcılara ilişkin demografik bilgiler Tablo 1'de verilmiştir.

Tablo 1. *Katılımcıların demografik özellikleri*

Demografik Özellikler		f	%
Cinsiyet	Kadın	90	76,92
	Erkek	27	23,08
	Toplam	117	100,00
Yaş	18-22 yaş	84	71,79
	23 yaş ve üzeri	33	28,21
	Toplam	117	100,00
Medeni Durumu	Bekâr	104	88,89
	Evli	13	11,11
	Toplam	117	100,00
Çalışma Durumu	Çalışıyorum	46	39,32
	Çalışmıyorum	71	60,68
	Toplam	117	100,00

Veri Toplama Araçları ve Verilerin Toplanması

Çalışmada veri toplama aracı olarak çevrimiçi soru formu kullanılmıştır. Bu soru formu 2 kısımdan oluşmaktadır. İlk kısımda öğrencilerden demografik bilgiler ve YouTube kullanımları ile ilgili bilgiler istenmiştir. İkinci kısımda ise öğrencilerin deneyimleri doğrultusunda YouTube'un öğrenme ortamı olarak kullanılmasına ilişkin görüşlerinin alınması amacıyla 5 adet açık uçlu soru bulunmaktadır. Soru formunun hazırlanmasında Cihangir ve Çoklar (2021)'ın çalışmasından yararlanılmıştır. Veri toplama aracı, Google Form üzerinden çevrimiçi olarak katılımcılarla paylaşılmıştır.

Verilerin Analizi

Toplanan verilerin analizinde betimsel analiz yöntemi kullanılmıştır. Betimsel analiz yöntemi ile elde edilen temalar ve kategoriler tablolaştırılarak frekans ve yüzde değerleri şeklinde sunulmuştur.

Araştırmanın güvenirliği için, veriler her bir araştırmacı tarafından ayrı ayrı kodlanmıştır. Kodlamalar tamamlandıktan sonra araştırmacılar arasındaki uyuşmazlıklar giderilmiştir. Miles ve Huberman (1994) tarafından geliştirilen (Güvenirlik = Görüş Birliği / (Görüş Birliği + Görüş Ayrılığı) formüle göre güvenirlik yüzdesi %87 olarak bulunmuştur. Bu değer, yapılan kodlamaların güvenilir olduğunu göstermektedir.

BULGULAR

Çalışmada öğrencilerin YouTube'un öğrenme ortamı olarak kullanılmasına ilişkin görüşleri, sorulan her soru için ayrı ayrı incelenerek analiz edilmiştir. Öğrencilerin açık uçlu olarak sorulan ilk iki soruya verdikleri cevaplar kategori-tema olarak, diğer sorular ise yalnızca kategori olarak tablolaştırılmıştır. 117 öğrencinin katılım gösterdiği bu çalışmadaki sorulara verilen cevaplar ilgili tabloda birden fazla kategoriye veya temaya dâhil edildiği için bazı tablolardaki toplam sayı araştırmaya katılan öğrenci sayısından fazla çıkmıştır.

Öğrencilerin Youtube Kullanımlarına İlişkin Genel Bulgular

Tablo 2'de öğrencilerin Youtube kullanımlarına ilişkin bulgular yer almaktadır.

Tablo 2. *Öğrencilerin Youtube Kullanımlarına İlişkin Genel Bulgular*

YouTube Kullanımı		f	%
YouTube Aboneliğiniz var mı?	Var	78	66,67
	Yok	39	33,33
	Toplam	117	100,00
YouTube'u EĞİTSEL olarak kullanma sıklığınız nedir?	Nadiren	8	6,84
	Bazen	32	27,35
	Sık sık	59	50,43
	Her zaman	18	15,38
	Toplam	117	100,00
YouTube'u GENEL olarak kullanma sıklığınız nedir?	Nadiren	5	4,27
	Bazen	27	23,08
	Sık sık	52	44,44
	Her zaman	33	28,21
	Toplam	117	100,00

Tablo 2 incelendiğinde öğrencilerin %66,67'sinin YouTube aboneliğinin bulunduğu, %50,43'ünün YouTube'u eğitsel bağlamda "sık sık" ve genel olarak ise %44,44'ünün yine "sık sık" kullandığı görülmüştür.

Öğrencilerin YouTube haricinde eğitsel video içeriklerine ulaşmak için kullandıkları diğer çevrimiçi platformlara ilişkin bilgiler Tablo 3'te verilmiştir.

Tablo 3. Diğer Platformlar

Platformlar	f	%
Sosyal Medya (Instagram, Twitter, Pinterest vb.)	29	24,79
MOOC (BTK Akademi, Udemy, Khan Academy vb.)	10	8,55
Video Platformları (Dailymotion vb.)	5	4,27
Diğer	26	22,22
Başka bir platform kullanmıyorum	47	40,17
Toplam	117	100,00

Öğrencilerin %40,17'sinin Youtube dışında başka bir platform kullanmadığı görülmüştür. Öğrencilerin %24,79'u YouTube dışında Instagram, Twitter, Pinterest gibi Sosyal Medya platformlarını, %8,55'i çeşitli MOOC platformlarını, %4,27'si ise farklı video platformlarını kullandıklarını dile getirmişlerdir. Diğer kategorisinde ise eğitim blogları, eğitim gördükleri kuruma ait öğrenme yönetimi sistemi içerisinde bulunan ders videoları, arama motorları aracılığı ile ulaştıkları eğitim videoları ve bazı eğitmenlerin web siteleri yer almaktadır. Başka bir platform kullanmıyorum şeklinde ifade eden öğrenciler, YouTube platformunu eğitim için yeterli görmektedirler.

Youtube'da Eğitsel İçerikli Kanallar ile Eğitsel İçerikli Olmayan Kanallar Arasındaki Farklılıklara İlişkin Bulgular

Çalışmada öğrencilerin eğitim içerikli kanalların eğitim içerikli olmayan kanallar arasındaki farklara ilişkin verdiği toplam 134 görüş İçerik, Anlatım ve Ortam olmak üzere 3 kategori altında toplanmıştır. Tablo 4'te bu kategoriler ve kategorilere ait temalar verilmiştir.

Tablo 4. Youtube'da Eğitsel İçerikli Kanallar ile Eğitsel İçerikli Olmayan Kanallar Arasındaki Farklılıklara İlişkin Bulgular

Kategori	Tema	f	%
İçerik (%50,75)	Yararlı içerik	37	54,41
	Güvenilir ve doğru içerik	14	20,59
	Video süresi	9	13,24
	Yapılandırılmış içerik	8	11,76
	Toplam	68	100
Anlatım (%32,84)	Ciddi anlatım	19	43,18
	Eğlenceli anlatım - Dikkat çekici anlatım	14	31,82
	Basit ve anlaşılır anlatım	11	25,00
	Toplam	44	100
Ortam (%16,41)	Görünürlük - erişilebilirlik	14	63,64
	Denetleme	5	22,73
	Reklamsız	2	9,09
	Alt yazı desteği	1	4,55
	Toplam	22	100

Öğrencilerin eğitim içerikli kanalların eğitim içerikli olmayan kanallar arasındaki farklara ilişkin görüşleri %50,75 ile İçerik kategorisinde toplanmıştır. İçerik kategorisi, öğrencilerin YouTube platformunda yer alan eğitim videolarının içeriği ile ilgili olarak video içeriğinin yararlı, güvenilir ve doğru olması, uzunluğu ve bir plan ve program çerçevesinde sunulması ile ilgili görüşlerini kapsamaktadır. Öğrenci görüşlerinin %32,84'ü anlatım kategorisinde yer almaktadır. Anlatım kategorisi, video içerik üreticisinin veya videoda yer alan eğitmenin eğitim içeriğini daha ciddi sunmasını, izleyicilerin sıkılmaması ve dikkati toplayabilmesi için daha eğlenceli hale getirmesini ve herkesin anlayabileceği yalın bir şekilde sunmasını kapsamaktadır. Ortam kategorisi ise %16,41 ile öğrencilerin YouTube platformu ile ilgili görüşlerini içermektedir. Eğitim videolarının daha fazla ana sayfaya düşmesi, konularına göre ayrı bir kategori altında gruplandırılması, videoların herkesin erişimine açık olması nedeniyle doğruluğu kanıtlanan bilgilerin yer alması ve videoda yer alan konuşmaların uygunluğu açısından denetlenmesini kapsamaktadır. Bu kategoriler altında yer alan temalara ait bazı öğrenci görüşleri değiştirilmeden aşağıda verilmiştir.

> *"Eğitsel kanalların daha ciddi bir anlatıma sahip olması gerekir. Eğitsel kanallar daha çok bilgiye dayalı insanların dinleyip işlerine yarayabilecek şekilde olmalı." (Ö5, Tema1: Ciddi anlatım, Tema2: Yararlı içerik)*

> *"Eğitsel içerikli kanallar somut, gerçekçi ve anlaşılır bilgiler içermelidir." (Ö55, Tema: Güvenilir ve doğru içerik)*

> *"Eğitsel içerikler kısa tutulmalı dikkatin dağılmaması açısından ve reklamlar olmamalı bence eğlence vs. kanallarda ise uzun tutulabilir." (Ö30, Tema1: Video süresi, Tema2: Reklamsız)*

> *"Eğitsel içerikli kanalların iletilmek istenilen bilgiyi kısa sürede dikkati dağıtmadan vermesi gereklidir." (Ö113, Tema: Video süresi)*

> *"İçerik, konu, kişiler, kanal, tema, üslup, giyim gibi farklar olmalıdır çünkü eğitim kanalları biraz resmi olmalıdır." (Ö49, Tema: Ciddi anlatım)*

> *"Eğitim kanalının daha ciddi yeri geldikçe ufak tefek esprilerin yapılması, en büyük ayrım ise eğitim kanallarının akılda kalıcı, kısa ve öz anlatım yapması." (Ö72, Tema1: Basit ve anlaşılır anlatım, Tema2: Eğlenceli anlatım)*

> *"Çocukları ve gençlerimizi teşvik etmek adına eğitim içerikli videolar diğerlerine oranla daha fazla akışa düşmeli" (Ö8, Tema: Görünürlük - erişilebilirlik)*

> *"Bana göre ilk aşamada yüklenen videolar YouTube tarafından kontrol edilmelidir. Çünkü eğitim amaçlı açıyoruz karşımıza alakasız saçma bir şey çıkıyor." (Ö14, Tema: Denetleme ve Sansür)*

Eğitsel İçerikli Bir Videonun Yarıda Bırakılmasına Neden Olan Etkenlerle İlgili Bulgular

Çalışmada öğrencilerin eğitim içerikli videoları sonuna kadar izlemelerini sağlayan veya yarıda bırakmalarına neden olan etkenlere ilişkin verdiği toplam 186 görüş Anlatıcı, İçerik, İzleyici ve Ortam olmak üzere 4 kategori altında toplanmıştır. Tablo 5'te bu kategorilere ait temalar verilmiştir.

Tablo 5. *Eğitsel İçerikli Bir Videonun Yarıda Bırakılmasına Neden Olan Etkenlerle İlgili Bulgular*

Kategori	Tema	f	%
Anlatıcı (%44.09)	Anlatım yöntemi	56	68,29
	Diksiyon	14	17,07
	Beden dili	7	8,54
	Bilgi yetersizliği	3	3,66
	Duygusal durum	2	2,44
	Toplam	82	100
İçerik (%37,63)	İlgi çekici olmayan içerik	20	28,57
	Beklentiyi karşılamaması	18	25,71
	Uzun içerik	15	21,43
	Kapsam dışı içerik	13	18,57
	Video özellikleri	4	5,71
	Toplam	70	100
İzleyici (%16,13)	Kişisel nedenler	15	50,00
	Dış etkenler	15	50,00
	Toplam	30	100
Ortam (%2,15)	Reklam olması	4	100,00
	Toplam	4	100

Tablo 5 incelendiğinde en fazla görüşe sahip olan kategorinin %44,09 ile Anlatıcı kategorisi olduğu görülmektedir. Anlatıcı kategorisi, video içerik üreticisinin veya videoda yer alan eğitmenin eğitim içeriğinin izleyicilere aktarılmasını ifade eden, etkili ve güzel bir sunum için gerekli olduğu düşünülen diksiyon kullanımını, anlatıcının uygun beden dili kullanmasını, anlatıcının anlattığı konu hakkındaki donanımını ve sunum esnasındaki ruh halini içeren öğrenci ifadelerini kapsamaktadır. Bu temayı %37,63 ile İçerik kategorisi izlemektedir. İçerik kategorisinde, öğrenciler açısından merak uyandırmayan içerikler, öğrencilerin gereksinim duydukları bilgileri içermemesi, videonun uzun sürmesi, içerikte anlatılması beklenen konunun dışına çıkılması ve videonun ses ve görüntü kalitesi, başlığı ve açıklama kısmı ile ilgili öğrenci görüşlerini kapsamaktadır. Öğrenci görüşlerinin %16,13'ü İzleyici kategorisinde yer almaktadır. İzleyici kategorisi, eğitim videoları ile ilgisi olmayan, öğrencilerin kendi kişisel ve çevresel durumları ile ilgili görüşlerini içermektedir. %2,15 ile en az görüş bildirilen Ortam kategorisinde ise sadece tek bir tema olup YouTube'da videolar esnasında çıkan reklamlarla ilgili görüşleri yer içermektedir. Bu kategoriler altında yer alan temalara ait bazı öğrenci görüşleri değiştirilmeden aşağıda verilmiştir.

> *"Bir ders videosunu izlerken izlemiş olduğumuz kanala hocalara da bağlı olabileceğini düşünüyorum. Bir hocayı 1 saat aralıksız izleriz, anlatımı çok iyidir, sıkılmadan dinleyebiliriz. Ama başka bir hocayı en fazla 10 dk dinleriz. Bu da bizim videoları yarıda bırakmamıza neden olur" (Ö5, Tema: Anlatım yönetimi)*

"Ses tonu ayrıca dikkat etiğim kişisel bir seçiciliktir. Dürüst olmak gerekirse fazla ince sesler veya fazla kalın sesler odağımı bozmaktadır." (Ö22, Tema: Diksiyon)

"Yavaş konuşma şekli, bir şeyi anlatırken sürekli tekrarlamak, kolay anlatım biçimlerinden yararlanmamak" (Ö43, Tema1: Anlatım yöntemi, Tema2: Diksiyon)

"Kesinlikle güler yüz tıpkı insan ilişkileri gibi. Bir video izlerken izlediğim kişinin surat ifadesi beni çok etkiler. Güler yüzle ve eğlenceli samimi bir şekilde konuşulması videoyu bazen tekrar bile izlettirebilir, diksiyon bozuk cümleler toparlanamıyor ve mutsuz bir surat beni o videodan tamamen soğutur videoyu yarıda bırakmama sebep olabilir." (Ö2, Tema1: Beden dili, Tema2: Diksiyon)

"Eğitsel içerikli bir videoyu izlerken konuyu anlatan video sahibinin dili ve anlatış biçimi de etkiliyor. Yavaş veya hızlı konuşması, konuşurken akıcı olmaması ya da bilgi yetersizliği, konuyu anlatırken çok fazla konu dışında başka konulara girmesi gibi genellikle videonun akıcı olmaması gibi etkenlerdir." (Ö35, Tema1: Diksiyon, Tema2: Bilgi yetersizliği, Tema3: Kapsam dışı içerik)

"Merak ettirici olan her videoyu izler daha sonra onu hayatımda uygulamaya çalışırım. Merak içermeyen kendini tekrar eden kelimeleri kullanan videoları erken kapatabilirim." (Ö101, Tema: İlgi çekici olmayan içerik)

"Sonuna kadar izlememi sağlayan etken açtığım videonun bilgi açısından ilgimi çekmesi ve bana yarar sağlayabilecek bilgiler içermesidir. Sonuna kadar izlemeyi bırakmamı sağlayan etken ise aniden dışarıya çıkmam gerekmesi, video içeriğinin ilgimi çekmemesi, verdiği bilginin işime yaramayacağını düşünmem ve temel ihtiyaçları gidermemdir (yemek yemek gibi)." (Ö21, Tema1: Dış etkenler, Tema2: Beklentiyi karşılamaması, Tema3: İlgi çekici olmayan içerik)

"Sadece tek bir konunun 20 dakikada anlatılması kişiyi sıkıyor, videonun dakikasını bile görmek insanı boğuyor. Ya da eğitimcinin anlatış stilini beğenmediğim takdirde videoları yarıda kesiyorum." (Ö72, Tema1: Uzun içerik, Tema2: Anlatım yöntemi)

"Videoya koyduğu başlık dikkat çekici olmalı. Videolarda yazılar ve resimler görebileceğim büyüklükte ve canlı olduğunda daha bir keyifli izliyorum. Genel olarak beğenmediğim yerler kötü ses efektleri, cansız yazılar, bozuk yükleme kalitesi ve anlatımı güçlendirmek için yardımcı görsellerden yararlanmayan videolardır." (Ö20, Tema: Video özellikleri)

"Sıkılıyorsam, o anda kendimi yorgun hissediyorsam videoyu yarıda bırakırım. Motivasyonum yerindeyse hepsini bitirmeye çalışırım" (Ö6, Tema: Kişisel nedenler)

"Gereksiz uzatılması ya da araya reklam girerek videoyu bölmesi" (Ö105, Tema1: Reklam olması, Tema2: Uzun içerik)

Eğitsel İçerik İzlerken Youtube Üzerinde Karşılaşılan Sorunlara İlişkin Bulgular

Çalışmada öğrencilerin eğitsel içerikleri izlerken Youtube platformu üzerinde yaşadığı sorunlara ilişkin oluşturulan kategoriler Tablo 6'da verilmiştir.

Tablo 6. *Eğitsel İçerik İzlerken Youtube Üzerinde Karşılaşılan Sorunlara İlişkin Bulgular*

Kategori	f	%
Reklam çıkması	66	53,66
İnternet bağlantısı	10	8,13
İçeriklerin denetlenmemesi	8	6,50
Ses ve görüntü kalitesinin iyi olmaması	5	4,07
Etkileşim eksikliği	4	3,25
Sorun yaşamayan	30	24,39
Toplam	123	100

Öğrencilerin %53,66'sı eğitim videoları esnasında çıkan reklamlar nedeniyle Youtube platformu üzerinde sorun yaşadığını ifade etmişlerdir. Öğrencilerin %8,13'ü kendi internetlerinden kaynaklanan bağlantı problemleri yaşadıklarını, %6,50'si video başlıklarının eğitim içerikleri ile uyumsuz olduğunu, %4,07 izlenen videoların ses ve görüntü kalitesinin düşük olduğunu ve %3,25'i ise eğitim videosu ile ilgili sorularına dönüt alamadıkları gibi sorunlar yaşadıklarını belirtmişlerdir. Öğrencilerin %24,39'u YouTube platformunda herhangi bir sorun yaşamadığını belirtmiştir.

> *"İnternetin gidip gelmesi, videoyu izlerken reklamların girmesi, videonun ses ve görüntü kalitesinin düşük olması, eğitim adıyla açılan ama içeriğinin eğitimle bağlantısı olmayan videolar." (Ö88, Tema1: İnternet bağlantısı, Tema2: Reklam çıkması, Tema3: Görüntü kalitesinin iyi olmaması, Tema4: İçeriklerin denetlenmemesi)*

> *"Aklıma takılan bir soruyu anlık eğitmene soramamak." (Ö101, Tema: Etkileşim eksikliği)*

Youtube'da İdeal Bir Eğitsel Video İçeriği İçin İçerik Üreticilerinin Dikkat Etmesi Gereken Niteliklere İlişkin Bulgular

Çalışmada öğrencilerin ideal bir eğitsel video içeriği için içerik üreticilerinin dikkat etmesi gereken niteliklere ilişkin oluşturulan kategoriler Tablo 7'de verilmiştir.

Tablo 7. *Youtube'da İdeal Bir Eğitsel Video İçeriği İçin İçerik Üreticilerinin Dikkat Etmesi Gereken Niteliklere İlişkin Bulgular*

Kategori	f	%
Kısa ve öz anlatım	35	17,24
Doğru bilgiler vermesi	22	10,84
Ortamın düzenlenmesi	17	8,37
Özgün olması	17	8,37
Açık ve anlaşılır anlatım	16	7,88
Hitap ettiği kitleye uygunluk	16	7,88
Konuyu örneklendirmesi	15	7,39
Özenli dil kullanması	12	5,91
Samimi olması	12	5,91
Zengin materyal kullanması	11	5,42
Düzenli içerik paylaşması	9	4,43

Planlı anlatım	7	3,45
Diksiyonunun iyi olması	6	2,96
Video başlık ve açıklamalarının düzenlenmesi	4	1,97
İzleyicilerle etkileşim içinde olması	2	0,99
Konuya hakim olması	2	0,99
Toplam	203	100

Tablo 7 incelendiğinde öğrencilerin eğitsel video içeriği için içerik üreticilerden beklentilerinin çeşitlilik gösterdiği görülmektedir. En çok öne çıkan kategoriler; eğitim konusunun özünün verilmesi ve kısa tutulması ile ilgili görüşleri içeren Kısa ve öz anlatım (%17,24), verilen bilgilerin doğru olması gerekliliği ile ilgili görüşleri içeren Doğru bilgiler vermesi (%10,84), video çekilen ortamın çevresel düzenlemeleri, kaliteli teknik ekipman ile çekim yapılması ile ilgili görüşleri içeren Ortamın düzenlenmesi (%8,37) ve özgün anlatım ve içeriğe sahip olması ile ilgili görüşleri içeren Özgün olması (%8,37) şeklinde sıralanabilir.

> *"Bence dikkat edilmesi gereken hususlar anlatımın anlaşılır, kısa, öz olmasıdır. Tekrarlardan kaçınılmalıdır. İçerik ilgi çekici olmalıdır. Ekipmanları doğru kullanmalıdır. Video süresine dikkat etmelidir. Video başlıklarını hem ilgi çekici hem de anahtar kelimelerle de arama motoruna uyumlu hale getirilmelidir. Çekilen videolar hakkında açıklama yapılmalıdır." (Ö98, Tema1: Kısa ve öz anlatım, Tema2: Ortamın düzenlenmesi, Tema3: Video başlık ve açıklamalarının düzenlenmesi)*

> *"Dikkat çekici konu belirlenmesi, tüm kesime hitap edebilmesi, gerçekçi bilgilere yer verilebilmesi, kısa ve öz konu seçmesini videonun etkileyici olmasını beklerim…" (Ö103, Tema1: Hitap ettiği kitleye uygunluk, Tema2: Doğru bilgiler vermesi, Tema3: Kısa ve öz anlatım)*

> *"Hitap ettiği kitleye kendini ve konuları anlaşılır tane tane aktarması, hayattan örneklerle videoyu devam ettirmesi, üslubuna ve konuşma tarzına dikkat etmeli argo kelimeler kullanmamalı ve bence şahsi düşüncem videolarda aynı kıyafetten kaçınmalı" (Ö78, Tema1: Açık ve anlaşılır anlatım, Tema2: Konuyu örneklendirmesi, Tema3: Özenli dil kullanması, Tema4: Ortamın düzenlenmesi, Tema5: Hitap ettiği kitleye uygunluk)*

> *"Senaryonun eğitsel tasarımın detaylı şekilde içeriğe adapte edildiğine emin olması, seslendirme, görüntü kalitesi, sürenin uzun tutulmaması, akıcı ve anlaşılır olması, içeriğin ön görülen eğitsel hedeflerine uygun olarak nasıl bir kurguda sunulması gerektiğini belirleme, beklentilerim ise; seslendirme ve görüntü kalitesi, sürenin uzun tutulmaması, video hangi yaş grubuna hitap ediyorsa verilen mesajlarında o yaş grubuna hitap edilmesi ve üslubun ona uygun kullanılması. Diksiyonu düzgün olması." (Ö76, Tema1: Ortamın düzenlenmesi, Tema2: Planlı anlatım, Tema3: Kısa ve öz anlatım, Tema4: Hitap ettiği kitleye uygunluk, Tema5: Diksiyonunun iyi olması)*

> *"Belirli aralıklarla video çekmeli, mesajlara gün içerisinde dönmeli. Verdiği bilgiler doğru olmalı. Kendi net olmayan yorumlarını katarak insanları yanlış bilgiye sürüklememeli." (Ö10, Tema1: Düzenli içerik paylaşması, Tema2: Doğru bilgiler vermesi, Tema3: İzleyicilerle etkileşim içinde olması)*

"Vurgulara yer verilmeli, konu anlatılırken kullanılan materyallerde çeşitlilik olabilir. Işığın kullanımına dikkat edilmesi gerekir, dağınık bir ortam olmamalı her şey düzen içerisinde olmalı." (Ö3, Tema1: Diksiyonunun iyi olması, Tema2: Zengin materyal kullanması, Tema3: Ortamın düzenlenmesi)

YouTube'un Eğitim Amacıyla Kullanılmasına İlişkin Bulgular

Çalışmada öğrencilerin eğitim amacıyla kullanılması konusundaki görüşlerine ilişkin oluşturulan kategoriler Tablo 8'de verilmiştir.

Tablo 8. *YouTube'un Eğitim Amacıyla Kullanılmasına İlişkin Bulgular*

Kategori	f	%
Erişilebilirlik	37	25,34
Memnuniyet	31	21,23
Akademik ve Mesleki Gelişim	29	19,86
İçerik çeşitliliği	22	15,07
Esneklik	16	10,96
Olumsuz	5	3,42
Sesli ve görüntülü içerik	5	3,42
Etkileşim	1	0,68
Toplam	146	100

Tablo 8'deki verilen öne çıkan bazı kategoriler incelendiğinde öğrenciler, ücretsiz sunulan YouTube eğitim videolarının fırsat eşitliği sağlaması nedeniyle %25,34 ile erişilebilirliğe vurgu yapmışlardır. Öğrencilerin %21,23'ü Youtube'u eğitim amacıyla kullanmaktan memnuniyet duyduklarını ifade etmişlerdir. Öğrencilerin %19,86'sı ise YouTube eğitim videolarının akademik ve mesleki gelişimlerine katkı sunduğunu belirtmişlerdir. Öğrencilerin %3.42'si ise YouTube eğitim videolarında yer alan bilgilerin doğru olmaması gibi sebeplerle olumsuz görüş bildirmişlerdir.

> *"İnsanlar için verimli bir uygulama. Okullarda ve diğer eğitim kurumlarında eğitim almak isteyen kişiler gidebilirken evde olan ya da hasta olan, engeli olan kişiler de bu eğitim kanalları sayesinde bilgi sahibi oluyor." (Ö3, Tema: Erişilebilirlik)*

> *"Bir sosyal medya platformunun beni hem eğlendirmesi hem düşündürmesi hem bilgi vermesi beni mutlu ediyor. Öğrendiğim şeye dilediğim yorumu yapabiliyorum, verim aldığım bir videoyu beğenip görüşlerimi bildirebiliyorum bu yüzden son derece keyifli buluyorum." (Ö2, Tema1: Memnuniyet, Tema2: Etkileşim)*

> *"Faydalı bilgileri güzel bir şekilde aktarmayı iyi başaran platform. Bu sayede her insan için faydalı bir platform oluyor. Eğitim amaçlı videoların sayısı gittikçe artıyor ve içerik bakımından da daha da zenginleşiyor bu nedenle daha iyi bir platform oluyor. (Ö87, Tema1: Akademik ve Mesleki Gelişim, Tema2: İçerik çeşitliliği)*

> *"Bir konunun nasıl yapılacağını hem görsel hem de işitsel olarak görebilmeniz gayet güzel bir durum. Aynı zamanda bir defa izlemeyle anlayamadığımız ya da kaçırdı-*

ğımız yerleri geri alarak veya durdurarak izlemek bizler için önemli noktalar. Bazen arkadaşlarımıza da yönlendirilebilir olması zaman kazanmak açısından çok çok güzel." (Ö57, Tema1: Sesli ve görüntülü içerik, Tema2: Memnuniyet)

"Herkesin ulaşabileceği kendini geliştirebileceği bir alan. Yararlı olduğu kadar yarar sağlamayan yanlış bilgiler içeren videolar da var tabi. Onun içinde iyi bir kanal seçmemiz gerekiyor." (Ö104, Tema: Olumsuz)

TARTIŞMA VE SONUÇ

Eğitimciler, öğrencilerinin daha iyi öğrenme deneyimlerine sahip olmalarını sağlamak adına çeşitli ortamlar kullanırlar. Teknoloji kullanımının öğretme-öğrenme sürecine olumlu etkisi olması nedeniyle eğitimciler, öğrencileri teşvik etmek için Youtube videolarını kullanabilirler (Fitri, 2022). Aynı zamanda öğrenciler de kişisel ve akademik gelişimlerine katkı sağlaması amacıyla bu tür ortamlarda vakit geçirirler. Bu ortamlardan birisi olan ve yaygın kullanım ağına sahip olan YouTube ile öğrenenler örgün eğitim sistemlerinden bağımsız olarak istedikleri bilgiyi istedikleri anlatıcıdan dinleme şansına sahiptirler. Bu noktadan hareketle bu çalışmada uzaktan eğitim sistemine kayıtlı öğrencilerin YouTube'u bir öğrenme ortamı olarak kullanmalarına ilişkin değerlendirme yapmaları amaçlanmıştır.

Çalışmanın sonuçları incelendiğinde çalışmaya katılan öğrencilerin yarıdan fazlasının YouTube platformuna abone olduğu ve sıklıkla YouTube'u hem eğitsel hem de genel amaçlar için kullandıkları görülmüştür. Öğrenciler, YouTube dışında Instagram, Twitter, Pinterest gibi sosyal medya ortamlarından, MOOC'lardan veya diğer platformlardan eğitim videoları izlediklerini belirtmişlerdir.

Öğrencilerin eğitsel içeriği olan videolar ile eğitsel içeriğe sahip olmayan eğlence, söyleşi gibi kanallar arasındaki farklılıklara ilişkin ifadeleri üç farklı açıdan incelenmiştir. Öğrenciler, en belirgin farkın içerik sunumundan kaynaklandığını belirtmişlerdir. İçeriğin yararlı, güvenilir olması, uygun video süresine sahip olması ve içeriğin yapılandırılmış olması öğrenciler açısından belirleyici faktörlerdir. İçeriğin denetlenebilir ve güvenilir olması noktasında sağlık gibi hayati öneme sahip olan YouTube eğitim video içeriklerinin doğru bilgiler sunmadığını ve bu tür içeriklerin denetlenmeden yayınlamasının sakıncalı olduğunu ifade eden çalışmalar mevcuttur (Songur ve Çıtırık, 2022; Tosun ve Tosun, 2022). Öğrencilerin farklılık göstermesini bekledikleri ikinci unsur anlatımdır. İçeriği sunan eğitimcinin takındığı tavır, dikkat ve ilgi çekici anlatımı ile kullandığı dil bu noktada öğrenciler için önem arzetmektedir. Üçüncü unsur ise ortamdır. Ortamdaki videolara erişebilme, denetlenebilir içeriklerin olması, reklamsız içerik ve alt yazı desteği gibi konular bu unsur içerisinde değinilmiş konulardır. Bu çalışmanın sonuçları, Cihangir ve Çoklar (2021) tarafından yapılan çalışmada çıkan sonuçlarla büyük oranda örtüşmektedir.

Öğrencilerin izledikleri eğitim videolarını yarıda bırakma nedenleri incelendiğinde dört farklı unsurdan bahsedilmiştir. Bunlar öncelik sırasına göre ilki anlatım yöntemi, diksiyon gibi durumları içeren anlatıcı özellikleri; ilgi çekici olup olmaması veya kapsam dışı içeriklerin sunulmasına göre içeriğin sunumu; izleyiciye ait etmenler ve ortama ilişkin görüşlerdir.

Öğrencilerin YouTube'a ilişkin yaşadıkları sorunlar incelendiğinde en büyük problemin video başlangıçlarında veya aralarında konudan bağımsız araya giren ve izlenmek zorunda bırakılan reklamların olduğu görülmüştür. YouTube platformundaki video başlangıcında ve sırasında çıkan reklamlar hakkında olumsuz düşünceler içeren çalışmalar bulunmaktadır (Cihangir ve Çoklar, 2021; Okulmuş ve Topuz, 2022).

Öğrenciler, YouTube içerik üreticilerinin en çok dikkat etmeleri gereken konuların başında kısa ve öz anlatımın olduğunu ifade etmişlerdir. Bunun yanı sıra kanalın doğru bilgiler vermesi, eğitim verdikleri ortamın düzenlenmesi, özgün olması, dikkatli bir dil kullanımı ile hitap ettikleri kitleye uygun bir içerik sunmasına dikkat çekmişlerdir. Eğitim amacıyla YouTube kullanımına ilişkin sonuçlarda ise genel görüşlerin olumlu olduğu görülmüştür. Yaygın bir kullanıma sahip olan YouTube'un herkes tarafından kolay erişilebilir ve ücretsiz bir ortam olması, akademik, mesleki ve kişisel gelişim için fırsatlar sunması, çok çeşitli içeriğe istedikleri zaman ve mekânda ulaşılabilmesi gibi nedenlerle öğrenciler bu ortamın gelişimlerine büyük katkılar sağladığını ifade etmişlerdir. Okulmuş ve Topuz (2022) video ortamlarının kullanılabilirliklerine ilişkin yaptıkları çalışmalarında, bu çalışmaya benzer şekilde YouTube'un kolay kullanımına, içerik açısından zenginliğine ve hızlı bir platform olduğu sonucuna ulaşmışlardır. Genel olarak çalışmanın sonuçları incelendiğinde öğrenciler, YouTube'u hem teorik hem de pratik açıdan bilgi ve beceri elde edebilecekleri, gündelik hayatta karşılaştıkları problemlere ilişkin çözümler bulabilecekleri, mesleki, fiziksel, sosyal, sanatsal ve kültürel gelişimlerine katkı sunabilecek bir öğrenme ortamı olarak değerlendirmektedirler.

Bu çalışmanın sonuçları informal öğrenme ortamı olarak YouTube'un önemli bir role sahip olduğunu göstermektedir. Bundan sonra yapılacak olan çalışmalar, belirli bir eğitim kanalının her kesimden birey tarafından incelenmesi, ideal eğitim video sürelerinin belirlenmesi, farklı eğitim seviyelerindeki öğrencilerin ve eğitmenlerin eğitsel içerikli videolar ile ilgili görüşlerinin incelenmesi üzerine odaklanabilir.

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Güzel Sanatlar Lisesinde Covıd-19 Sürecinde Uzaktan Sanat Eğitimi

Bahar BİLİCİ ÖZTÜRK[1]

Özet

Bu bildiride, 2020-2021 yılının 2. Döneminde Denizli Güzel Sanatlar Lisesinde 11. sınıf resim bölümü öğrencileriyle yapılmış olan çevrimiçi eğitim ile ilgili araştırma ve bulguların paylaşılması ve tartışılması amaçlanmıştır. Okullarda örgün eğitim yerini, Covid-19 salgın hastalığı nedeniyle sağlık önlemlerinin alınmasıyla daha önce hiç denenmemiş yeni bir yöntem olan uzaktan çevrimiçi öğretime bırakmıştır. Bu beklenmedik değişim, tüm dünyada örgün eğitim kurumlarında olduğu gibi, ülkemizde de özellikle uygulamalı derslerde olumsuz bir etki yaratmıştır. Öyle ki zihinlerdeki alışılagelmiş göster yaptır ya da yaparak yaşayarak öğren yöntemi alt üst olmuş tüm öğrenci ve öğretmenleri büyük bir kaos ortamına sürüklemiştir. Durumu kabullenmek, yeniye uyum sağlamak ve içinde bulunulan konum ve şartlara göre problem çözebilmek, sorgulayabilmek ve ortaya ürün koyabilmek zorlaşmış, kaygılar sebebiyle eğitim öğretim ayağına uyumlanma zaman almış, var olan eğitim sistemi yerine içinde risk içeren ve ilk kez deneyimlenecek bir sürece hazırlıksız girilmiştir. Bu süreçte atölyede malzemeye dokunarak, onu koklayarak, görerek ve süreci önceki öğrenmelerinde olduğu gibi aşamalar halinde yürüten öğrenmeye hazır öğrenci profili ortadan kalkmıştır. Yerine, kendi problemini kendi çözen, kendi öğrenme yöntemini keşfeden ya da kendi materyallerini kendi hazırlayıp tekniği kendi başına deneyimleyen öğrencilerin ortaya çıktıkları görülmüştür. 14 hafta sürdürülen uzaktan sanat eğitimi yine farklı bir sanat temelli yöntem olan A/r/tografi ve ders öğretmeni ile öğrencileri arasında tamamlanmıştır. Bu çalışma ile amaçlanan uzaktan eğitim sürecinde ders öğretmeninin ve öğrencilerinin karşılaştıkları problemleri çözme becerilerini ortaya koymanın yanı sıra sanatsal yaratımlarının arkasındaki yaşanan sözlü ve yazılı notlar ile oluşturdukları yaşam ve sanat günlüklerinin bir değerlendirmesinin yapılmasıdır.[1]

Anahtar Kelimeler: *Görsel sanatlar eğitimi, uzaktan eğitim, Covid-19, A/r/tografi, Sanat temelli eğitim araştırması*

GİRİŞ

Bir bireyin edindiği görsel kültürü estetik bilinç ile birleştirip kendini geliştirebilmesi ancak sanat eğitimi ile mümkündür. Sanat eğitiminin amaçlarından bireyin, kendini sanat eğitimi aracılığıyla ifade edip tecrübe ve kazanımlarını sanatsal yollarla paylaşmaları yanı sıra bireysel ve kültürel farkındalığın ve farklılıkların korunması gibi pek çok eğit-

1 Bu makalede kullanılan örnekler ve bilgiler 2022 yılında Gazi Üniversitesi Eğitim Bilimleri Enstitüsü Resim-İş Eğitimi Bilim Dalında "Güzel Sanatlar Lisesi Resim Atölye Dersi Öğrencilerinin Yaratıcılık ve Uygulama Becerilerinin Geliştirilmesinde A/r/tografi Yönteminin Rolü" isimli kabul edilen doktora tezinden alınmıştır. * Dr. Millî Eğitim Bakanlığı, baharbilici@gmail.com ORCI ID: 0000-0002-9657-1240

sel alt amaçların da eğitim politikalarınca hedeflendiği görülmektedir (T.C. Millî Eğitim Bakanlığı. "Görsel Sanatlar Dersi Öğretim Programı-İlkokul ve Ortaokul 1, 2, 3, 4, 5, 6, 7 ve 8. Sınıflar", 2018). Sanat eğitimi örgün eğitimin öncesinde daha ilk çocukluk evresinde karalama ile başlayan, yaşın ilerlemesi ile bu tecrübesine yeni materyalleri ve boya gereçlerini tanıma isteği ile ivme kazanan, anaokulunda oyuna dönük, ilköğretimde ise sistemli şekilde öğrenmeye teşvik eden bir dizi yaratıcı öğrenmeyi destekler. Öğrencilerin özgür irade ve yeteneklerinin gelişimi doğrultusunda isterlerse bu sanat eğitimi daha da profesyonel ve akademik olmak üzere kuramsal ve uygulama temelli bir sanat eğitimi programı ile işleyen güzel sanatlar liselerinde de sürdürülebilir. Güzel sanatlar liseleri 1980'den bu yana Türkiye'nin 81 ilinde, sanatsever ve yetenekli gençlere sanat eğitimi verme sorumluluğunu başarı ile üstlenmiştir. Güzel sanatlar liseleri ilk olarak Anadolu Güzel Sanatlar Liseleri ismiyle ilk kez 1982-1983 yılları arasında İstanbul'da; 1990-1991 eğitim öğretim döneminde ise başta Ankara olmak üzere İzmir, Bursa, Eskişehir gibi pek çok şehirde örgün eğitim vermeye başlamıştır (Alp ve Erkan, 2010). Güzel sanatlar liseleri halen sanata ilgili ve sanat üzerine kariyer yapmak isteyen öğrenciler için onların yaratıcılıklarını ve yetenek gelişimlerini profesyonel olarak atölye ortamında destekleyebilmesi yönünden yükseköğretim kurumlarına hazırlayıcı bir ön lisans eğitimi veren okullar olarak önemli eğitim kurumları arasında görülmektedir. Güzel sanatlar liselerinin diğer örgün eğitim kurumlarından farkı, öğrencilere vermek istedikleri temel hedef kazanımları, sanatsal öngörü ve tecrübeyi çeşitli sanat yöntem ve biçimlerine uygun olarak düzenlenmiş atölye ve dersliklerde yine kuramsal ve uygulama çerçevesinde sistemli olarak uygulamasıdır. Güzel sanatlar liselerinde alanında uzman sanat eğitimciler tarafından yoğunlaştırılmış ders ve uygulamalar ile öğrenciler öğrenme süreçlerini sınıf içinde yüz yüze gerçekleştirirler. Sınıf içinde öğretmen rehberliğinde yürütülen dersler neticesinde öğrencinin ortaya koyduğu ürün kendine has özgünlük ve yaratıcılık içinde farklılıklar göstermesine karşın temelde istenen hedef davranış ya da istenen ölçüte yakın bir öğrenme sağlanması bakımından genel geçer bir dizgi içerir. Öğrenciler sanatsal tecrübe ve öğrenmeleri esnasında öğretmeni ve milli eğitim tabanlı ders kitapları ve programlarını rehber edindikleri için öğrenme süreci ve varılan sonuç risk ve sürpriz içermeyen kontrollü ve sistemli öğrenmelerden oluşmaktadır. Bu nokta da öğrenciler sınırlı zaman, sınırlı koşul ve sınırlı teknik içinde öğretmen ve öğrenci açısından daha güvenli olduğu düşünülen bir öğrenme içinde yüksek öğrenime hazırlanmaya devam edilir. Ancak 2020 -2021 eğitim öğretim yıllarına denk gelen olağanüstü Covid-19 salgın süreci, engellenemez bir dizi değişiklik ve yenilik ile bugüne değin biline gelmiş kontrollü eğitim sistemini bir çırpıda yok etmiştir.

Covid-19 Salgın Sürecinde Örgün Eğitimdeki Değişiklikler

Covid-19 Salgınının yayılması sonucunda pek çok ülke okullarını kapatma kararı almış uzaktan öğrenme araçlarını kullanarak eğitim öğretimi aksatmamışlardır. Uzaktan eğitim, yüz yüze eğitimin aksine zaman ve mekân ayırt etmemesi, öğrenci ve öğretmenin bilgisayar, tablet, telefon, TV vb. her türlü uzaktan erişim kanalını kullanarak interaktif ortamda görüntülü, sesli olarak derslere katılabilmesi, telafi dersleri için de kayıtlara istenildiğinde ulaşılabildiği bir teknolojik eğitim sistemi olması bakımından zamanla dikkat çekici hale gelmiştir. Yüz yüze öğrenmenin okul ortamında öğretmen ve önceden planlanmış tek tip monoton bir çalışma programına göre yürütülmesi giderek cazibesini yitirmiş (TEDMEM, 2020), uzaktan eğitim uzun süreli öğrenme ve eğitim kayıplarının ortadan kaldırabilmesi bakımından avantajlı bir eğitim yöntemi olduğu zaman içinde

kabul edilmiştir. (Emin ve Altunel, 2021). Ülkemizde salgına bağlı eğitim öğretim çalışmaları, 16 Mart 2020'de tarihinde başlatılan bir haftalık eğitim öğretim kesintisi ardından 23 Mart 2020 itibariyle de uzaktan eğitim kararı ile kesintisiz olarak tüm yurtta eğitim öğretim devam edilmiştir. Çevrimiçi eğitime uyum sağlamaya çalışan görev başındaki öğretmenler öğrencileri ile bu yeni eğitim öğretim yöntemini sürdürebilmek için sıkı bir öğrenme ve teknolojik deneyime maruz kalmışlardır. Yüz yüze eğitim öğretim sisteminde çokça ihtiyaç duymadıkları teknolojik araç, gereç ve kaynakların ulaşımını ve pratiğini hızlı bir şekilde edinmeleri sürecinde kişisel sağlık ve motivasyon durumlarını bir kenara bırakıp tüm değişiklik ve belirsizlikleri göze alıp öğrencilerin moral ve başarı durumlarını önemsemek ve var olan motivasyonu korumak zorunda kaldıkları gözlemlenmiştir. Çevrimiçi eğitim sisteminin zorluklarının yanı sıra internet erişim ağ bağlantılarından kaynaklı teknik sorunlar iletişim problemleri ortaya çıkararak zaman zaman eğitim öğretimin kesintilere uğramasına neden olmuştur.

Covid-19 Salgın Sürecinde Güzel Sanatlar Lisesinde Sanat Eğitimi Süresince Karşılaşılan Sorunlar ve Çözüm Bulma Çabaları

Covid-19 salgını ile tüm eğitim öğretim kurumlarında olduğu gibi Güzel sanatlar liselerinde de eğitim öğretim programlarının yeni duruma uyarlanması gerekmiştir. Öyle ki öngörülemeyen birtakım değişikler sebebiyle hafta hafta yeni yöntem ve uygulamalar ile öğrencilerin ilgi ve motivasyonları arasında gelgitler yaşanmış, öğretmenin de eğitim politikalarından hariç bireysel olarak da çaba sarfetmesine neden olmuştur. Sanat eğitimin genel işleyişi gereği bakarak, yaparak ve yaşayarak öğrenme mantığı yerini sanal mecrada sınırsız görsel ve imkanlar dahilinde erişilen materyaller ile öğrencinin gayretine dayalı bir öğrenme ortamına bırakmıştır. Öğretmen ve öğrencinin birbirinden bağımsız sürece ve yeni uygulamalara olan adaptasyonları sonucunda kimi zaman takibi zor denetlenemez bir zemin yaratılmasına neden olmuştur. Bir yandan salgınla mücadele bir yandan da eğitimin aksatılmaması için gösterilen insan üstü mücadele ve gayret sonucunda başlarda yaşanan malzemeye, öğretmene ve atölyeye erişimin sıkıntıları, evlerde ekran başında yöntemin amaca uygun olarak icra edilip edilmemesine yönelik kaygılar yerini zamanla teknoloji tabanlı çevrimiçi bir eğitimi geniş bir okul dışı öğrenme ile destekleyerek zamandan kazanımı gündeme getirmiştir. Sabol (2021)'a göre sanat ve sanat eğitimi insanı yaşama bağlayan olumlu etkisi ile kişileri daha yaratıcı ve aktif kılması bakımından önemli bir saha olarak görülerek eğitim sistemi içinde diğer derslerle eşit olarak öğrencilerin faydalanması gerekmektedir. Sanatın ruhsal ve fiziksel olarak iyileştirici tesirleri sadece örgün eğitim kurumlarında değil hayatın genel akışı içinde de çokça hissedilmektedir. Sanatın ortak ve birleştirici bir dil olduğu kabul edildiğinde bu zenginliği çağın kullandığı sosyal medya ve görsel iletişim kanalları olan internet vb. diğer kitle iletişim araçları ile paylaşılması kaçınılmazdır. Bu nedenle Covid-19 salgın süresince bireylerin görsel okuryazarlık kazanmalarının sağlanması adına ister yüz yüze olsun ister çevrimiçi olsun sanat eğitiminin kritik bir önem taşıdığı söylenebilir (Sabol, 2021). Daha önce teknolojik iletişim ile tecrübeleri olmayan ya da iletişimi sadece telefon ile gerçekleştiren öğrencilerin yeni eğitim öğretim durumuna uyumlanmalarının zaman almasına karşın, sonrasında araştırmacı öğretmenin sanat temelli bir yöntem olan A/r/tografi tabanlı uygulamalar kullanması ile sorunların üstesinden geldiklerini, zaman ve mekân sınırlarını ortadan kaldıran uzaktan eğitim yönteminin aracılığıyla pek çok bilgiye ve kaynağa daha hızlı ulaşabildiklerini belirttikleri görülmüştür.

YÖNTEM

Sanat Temelli Bir Yöntem; A/r/tografi

A/r/tografi, 2000'li yıllarda ilk olarak Kanadalı bir grup akademisyen tarafından alışılagelmiş yöntem ve uygulamaları reddeden, araştırmalar sonucunda öğrencilerin bilişsel gelişimini ve yaratıcılıklarını üst düzeyde desteklediğini gösteren bulgular sunan sanat temelli bir araştırma yöntemi olarak sanat eğitimi terminolojisinde yerini almıştır. A/r/tografi, sonuç odaklı değil aksine sürece bağlı olarak kendiliğinden kendi dinamikleri içinde gelişen ve değişen lokomotif bir araştırma ve uygulama yöntemi olarak diğer öğrenme alanları içinde alternatif yöntem bir olarak eğitimin her alanında kullanılmaya başlamıştır (de Cosson, 2003; Irwin, 2003; Springgay, 2003, 2004; Irwin & de Cosson, 2004; Springgay &Irwin, 2004).

A/r/tografi akademisyenlerin, araştırmacıların, sanatçıların yanı sıra eğitimcilerin de sıklıkla başvurduğu sanat temelli bir araştırma yöntemi olarak karşımıza çıkmaktadır. (Sinner vd., 2006). A/r/tografinin diğer araştırma yöntemlerinden farkı olarak birbirinden ayrı ve ilgisiz görünen pek çok disiplin ve düşünme yollarını kullanması bu konuda cesur ve sıra dışı yöntemlerin hepsine kucak açması gösterilebilir. A/r/tografi kelime kökü olarak incelendiğinde ise Art ve Grafi sözcüklerini bir araya getirerek beraberinde; sanatçı (artist), araştırmacı (researcher) ve öğretmen (teacher) kelimelerini de bünyesinde birleştirip yazı (grafi) ile de bütünleştirilmiştir. Springgay vd, 2005 yılında yapmış oldukları A/r/tografi adlı çalışmaları sonucunda A/r/tografi yöntemini alternatif bir araştırma yöntemi olarak alan yazına kavram yoluyla kazandırmış ve A/r/tografi yöntemini altı kavramla ilişkilendirerek açıklamaya çalışmışlardır. Bu kavramlar; bitişiklik, yaşayan (canlı) sorgulama, mecaz, açıklıklar, yankılanmalar ve aşırılık olarak ifade bulmuştur. Irwin ve Springgay'ın üzerinde çalıştıkları ve açıkladıkları altı kavram, Pourchier (2010) Sanat Eğitiminde Öğrenci ve Öğretmen İçin Yeni Bir Kavram: A/R/Tografi "Araştırma Olarak Sanat: A/r/tografi ile Var Olmak Adlı Kitap İncelemesi" adlı araştırmada sırasıyla başlıklar halinde verilmiştir.

1. Bitişiklik; araştırmacının A/r/t oluşumunda vurgulanan artist/sanatçı, researcher/araştırmacı ve son olarak teacher/öğretmen rol ve kimliklerinin iletişim ve ilişkisini sorgulamayı gösterir.
2. Yaşayan (canlı) sorgulama (soruşturma); A/r/tografi, insanın doğumuyla birlikte var olan kimliği ve rollerini sorgulayarak sanat, araştırma ve öğretim yoluyla yaşam içinde açıklanmasına aracı olur.
3. Metafor (Mecaz); sanatçılar öz yaşam hikayeleri, duygu ve düşünceleri gibi pek çok kişisel algılarını mecaz olarak belirtilen yeni çıkış başlıkları altında başka ilişki ve iletişimler kurulmasına aracı olarak önerilerde bulunabilmesini sağlar.
4. Açıklıklar; A/r/tografinin, sonuca değil sürece odaklı çalışma prensibi ilk başta görünen ya da görünmeyen kesişmelerden ve kurdukları iletişimden etkilenerek yeni yollar açar.
5. Yankılanmalar; A/r/tografi araştırma boyunca bir devinim ve dinamizm içinde seyreder. Bu gelişmeler, ilk başta kestirilemeyen yeni olasılık ve etkileşimlere yerini bırakır. Ortaya çıkan etkileşimler sonucunda araştırmacı pek çok çağrışıma sahip olur.
6. Aşırılık (Fazlalıklar); denenmiş öğreti ve tekniklerin dışında, araştırmacının sıradan düşünce ve öngörülerini terk ederek yeni açılımlar sağlar.

Araştırma Modeli

A/r/tografi/ Yaşayan Sorgulama

Günümüzde öğrencinin öğrenirken aynı zamanda araştıran ve öğreten kişi, öğretmenin ise sadece öğretmenliği yanı sıra sanatçı, araştırmacı zaman zamanda öğrenen kişi rollerine sahip olduğu görülmektedir. Bu anlamda A/r/tografi bu yaklaşımları bir arada toplaması ve deneyimler üzerinde odaklanması nedeniyle hem pedagojik hem de araştırmalar için uygun bir yöntem olarak karşımıza çıkması bakımından tercih edilmiştir.

Katılımcılar ve Ortam

Bu araştırma Denizli Hakkı Dereköylü Güzel Sanatlar Lisesi 11. sınıf resim bölümü öğrencilerinden ve katılımcı-araştırmacı-ders öğretmeni ile sınırlıdır. Çalışma öğrencilerle yapılmış olan çevrimiçi eğitim ortamı ile ilgili araştırma ve bulguların paylaşılması ve tartışılmasına yöneliktir.

Verilerin Toplanması ve Analizi

A/r/tografi uygulamaları standart ya da sistematik bir yöntem olmadığı için, çağdaş uygulamalara cevap verebilmesi adına sanatsal süreçlerin ve ürünlerin ya da veri toplama ve analiz etmenin belirli formlarının standartlaştırılmasına da karşı çıkmaktadır. A/r/tografik araştırmalarda veri elde etme, analiz süreçlerinin kendiliğinden oluşumu ile süreklilik içinde değişerek yapılanmaya devam eden bir yaşayan araştırma yöntemidir (Irwin, 2013b, sf. 105).

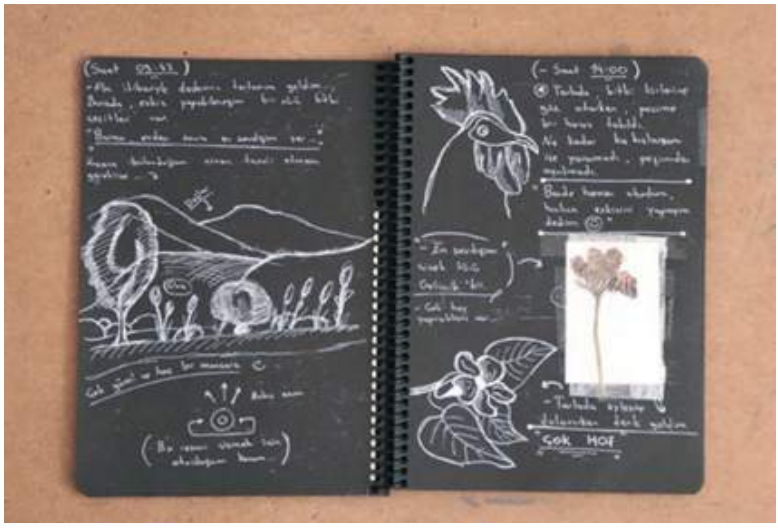
A/r/tograflar, veri toplama yöntemleri olarak; anket, doküman inceleme, görüşme, gözlem gibi bir takım nitel veri toplama yöntemleri kullanırken genellikle kişisel hikâyeler, anılar, notlar, günlükler fotoğraflar hatta telefon yazışmalarını bile veri olarak kullanırlar. Başka bir deyişle A/r/tograflar, kendi sanatsal ve eğitsel sorgulamalarını da veri olarak kullanabilmektedirler (Irwin, 2013b, sf. 105). Bu bağlamda araştırmada, araştırmanın amacına yönelik derinlemesine bilgiler elde edebilmek için veri toplama yöntemleri olarak; yapılandırılmamış gözlem, yapılandırılmamış ve yarı yapılandırılmış görüşme, doküman incelemesi olarak öz değerlendirme yazıları, araştırmacı günlükleri, sesli kayıtlar, görsel materyaller olarak fotoğraflar, videolar, kısa notlar, telefon ve WhatsApp mesajları, öğrenci gelişim dosyaları kullanılmıştır.

TARTIŞMA VE BULGULAR

Salgın hastalık sebebiyle kısıtlamaların kademeler halinde artması, öğrencileri ve öğretmenleri pek çok bilinmeze düşürmüş var olan yüz yüze eğitim modelindeki tecrübelerini bir kenara bırakıp teknolojik araç ve gereçlerin çevrimiçi eğitimde nasıl kullanılacağına yönelik araştırmaya girmelerine neden olmuştur. İlk günden başlayan yeni sanal mecrada eğitim öğretimin sürdürülebilirliğini ve öğrencilerin motivasyonunu dönem sonuna kadar korumayı amaçlayan öğretmen tarafından sanat temelli bir yöntem olan A/r/tografi yöntemli uygulamalar 7/24 çevrimiçi interaktif iletişim kanalları üzerinden öğrenciler üzerinde uygulanmaya çalışılmıştır.

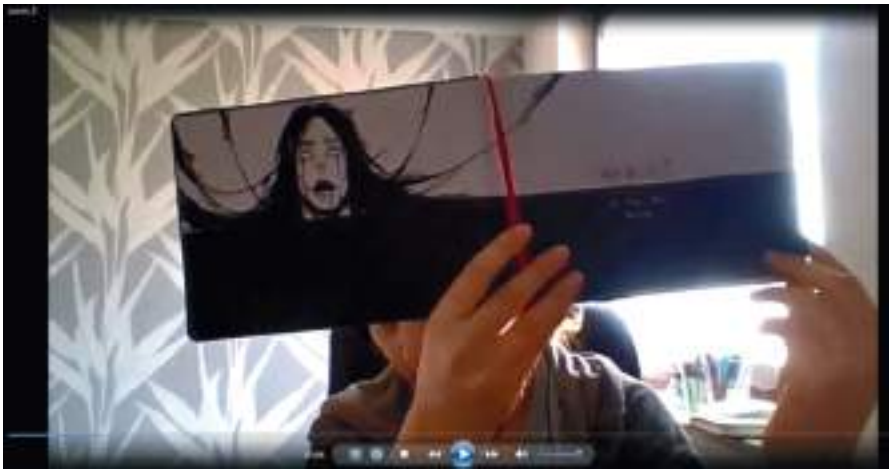


Şekil 1. *Araştırmacının öğrencileri için hazırladığı PowerPoint sunu ve araştırmaya giriş için sanatçı ve eser örnekleri*



Şekil 2. *Öğrenciye ait yaşam ve sanat defterinden örnekler, 2021, Araştırma-sorgulama, Kâğıt üzerine karışık teknik*

14 haftalık sanat eğitimi boyunca öğrencilerin öğrenmelerini ve sanatsal araştırmalarını içeren yaşam ve sanat defterleri üzerinden öğrencilerin bireysel günlükler tutmaları sağlanmıştır. Bu defterler aracılığıyla öğrencilerin yaşadıkları psikolojik gerilim, sıkıntı ve sanatsal çözüm yolları arayışları kendilerini ve isteklerini fark etmeleri var olan potansiyellerini keşfetmelerine aracı olduğu görülmüştür.



Şekil 3. *Çevrimiçi ders kayıtlarından bireysel öğrenci paylaşımı, yaşam ve sanat defteri*

Yapılan çalışmalar tüm telefon, mesaj ve e-posta kayıtları ile çevrimiçi ders video kayıtları üzerinden öğrencilerin gelişimleri ve problem çözme becerileri gözlemlenmiştir. Her öğrenci ile bireysel görüşmeler sağlanarak yapılan iletişim ve değerlendirmeler sonucunda Covid-19 salgın sürecinde benimsenen teknolojik ve çevrimiçi öğrenme yollarının öğrencilere olumlu tesiri olduğu anlaşılmıştır. Öğrencilerin iletişim araç ve gereçlerini öğrenme aracı olarak da kullanabilmelerini görmeleri birbiri aralarındaki kurdukları iletişim ve paylaşım sonucunda akran öğrenmelerini de desteklediği görülmüştür.



Şekil 4. *Araştırmacının öğrencileri ile WhatsApp aracılığıyla kurduğu iletişim örnekleri*

Başlangıçta karşılaşılan bilinmezlik ve tecrübesizlikler ortadan kalktıkça öğrencilerin A/r/tografinin kendi yapısında da bulunan disiplinler arası ve okul dışı öğrenmeye olan cesaretlendirici yönleri sonucunda öğrencilerin daha özgün ve yaratıcı çalışmalar yapabildikleri, sorun çözme becerilerini geliştiren deneyimler ile kendilerine daha güvendikleri görülmüştür. Her öğrencinin seçmiş olduğu uygulama ve yöntemler, kişisel,

tavır ve karakterleri, beğeni ve tercihleri doğrultusunda seçtikleri özgün anlatımlara dönüşmüş öğrenciler arasındaki çekişmeler yerini kendi içlerindeki bireysel gelişime bıraktığı gözlemlenilmiştir.



Şekil 5. *Çevrimiçi ders kayıtlarından bireysel öğrenci paylaşımı*

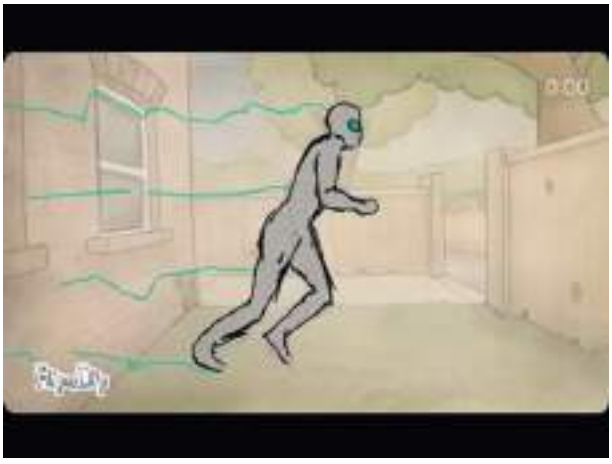
Öğrencilerin birçoğunun salgın öncesinde var olan teknoloji tabanlı araştırma-öğrenme meraklarının ve girişimlerinin diğer teknolojiye uzak öğrencilere göre gözle görünür oranda öne çıktığı tespit edilmiştir. Çevrimiçi eğitim tecrübesi sonucunda hayatında ilk kez teknolojiyi öğrenme için deneyimleyen öğrencilerin sayılarının arttığı böylece farklı disiplinlerden olduğu kadar farklı iletişim ve interaktif öğrenme kanallarından da hayat boyu öğrenme sağlayabileceklerini fark ettikleri söylemlerinden anlaşılmıştır.



Şekil 6. *Öğrenci çalışması, 2021, Kâğıt üzerine dijital tasarım-baskı, 70x100 cm.*



Şekil 7. *Öğrenci çalışması, Oto portre, 2021, T.Ü.Y.B, 50 x70 cm.*



Şekil 8. *Öğrenci çalışması "Hope-5", 2021, video*

ÖNERİLER

Bu araştırmada güzel sanatlar lisesinde resim bölümünde okuyan bir grup öğrencinin, çevrimiçi A/r/tografi tabanlı eğitim uygulamalarına katılımıyla gerçekleştirilmiş olup, katılımcı öğrencilerinin her birinin kişisel duyuş ve işleyiş farklılıkları yanı sıra Covid-19 salgını boyunca yaşanan sınırlama ve değişiklikler içinde tamamlandığından, birbirinden farklı deneyim ve bulgular ortaya çıktığı görülmüştür. Çalışmanın yüz yüze eğitimin aksine çevrimiçi eğitim imkanları ve atmosferi içinde tamamlanması durumundan dolayı tıpkı A/r/tografinin doğal yapısında olduğu gibi çeşitli değişken ve alternatifler öğrenme yolları oluşmuştur. Her öğrenci kendi teknolojik öğrenme ve A/r/tografik sorgulamasına uygun olarak birbirinden farklı sanatsal ürünler yaratmış ve kişisel tecrübeler kazanmıştır. Öğrenciler çevrimiçi eğitim ve teknolojileri kullanarak, sadece sanat eğitimi uygulamalarında değil tüm örgün eğitim kademelerinde hatta okul dışı öğrenmelerde

dahi araştırma yapabilme, bilgiye kısa sürede alternatifleriyle ulaşabilme, düşünme ve problem çözebilme becerilerini geliştirme, başkalarının tecrübe ve çalışmalarını teknolojik tabanlı interaktif bilgi kanallarından öğrenerek ihtiyaçlarını karşılayabilecekleri düşünülmektedir. Çevrimiçi ve dijital öğrenmeler öğrenciler için olduğu kadar öğretmenler, araştırmacılar, eğitim ve araştırma kurumlarının kullanımında da zaman ve mekândan kaynaklı pek çok problemi ortadan kaldırıp alternatif bir öğrenme- öğretme şekli olarak kullanıcılara avantaj sağlayacağı düşünülmektedir.

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Açık ve Uzaktan Öğrenmede Yapay Zeka Destekli Oyunlaştırma

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Özet

Açık ve uzaktan öğrenmede öğrenenler kendilerini yalnız hissettiklerinde veya yönlendirilmediklerinde motivasyonları düşebilir ve sistemden ayrılma eğilimi gösterebilirler. Bununla beraber öğrenenlerin akademik başarılarında da düşüş gözlenebilir. Bu nedenle öğrenenleri öğrenme süreçlerine dahil etmek ve motivasyolarını artırmak için çevrimiçi öğrenme ortamlarına oyunlaştırma dahil edilebilir. Oyunlaştırma ile daha ilgi çekici ve etkileşimli bir öğrenme deneyimi sağlanmaktadır. Ayrıca öğrenenlerin akademik başarısının artması için daha etkileşimli ve motive edici bir öğrenme ortamı sunabilir. Bu çalışmada, Anadolu Üniversitesi Açıköğretim Sistemi tarafından geliştirilen Anadolum eKampüs çevrimiçi öğrenme ortamına entegre edilecek oyunlaştırma bileşenlerinin ve kullanılacak yapay zeka teknolojilerinin belirlenmesi amaçlanmaktır. Bu amaç doğrultusunda, öğrenenlerin öğrenme kaynaklarından verimli ve etkili bir şekilde yararlanmaları için uygun oyunlaştırma bileşenleri belirlenmiştir. Öğrenenlerin öğrenme süreçleri ve sistem içi etkileşimlerini takip edebilmek için hangi yapay zeka teknolojilerinin işe koşulması gerektiğine dair çerçeve çizilmiştir. Bunun için Anadolum eKampüs'e ait geçmiş öğrenen loglarından yararlanılmıştır. Araştırma sürecinin planlanması, bileşenlerin belirlenmesi, entegre edilmesi süreçleri ve yapay zeka tekniklerinin belirlenmesi adımlarında veri ambarından faydalanılmıştır. Yapay zeka dahil edilerek oyunlaştırma ile öğrenenlere bireyselleştirilmiş geri bildirimlerin verilmesi ve bu kapsamda oyunlaştırma bileşenlerinin etkili bir şekilde kullanılmasına rehber olacağı düşünülmektedir. Açıköğretim Sistemindeki öğrenenlerin sayısı ve çeşitliliği dikkate alındığında daha önce yükseköğretimde büyük ölçekli bir oyunlaştırma çalışması bulunmaması ve Anadolum eKampüs çevrimiçi öğrenme ortamında da herhangi bir oyunlaştırma bileşeni bulunmaması önemli bir gerekçedir. Anadolum eKampüs çevrimiçi öğrenme ortamına yapay zeka destekli oyunlaştırma bileşenlerinin belirlenmesi ve rehberlik etmesi bu çalışmanın özgün değerini oluşturmaktadır.

Anahtar Kelimeler: *Açık ve Uzaktan Öğrenme, Yapay Zeka, Oyunlaştırma.*

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GİRİŞ

Açık ve uzaktan öğrenmede öğrenenlerin sayısı dikkate alındığında her bir öğrenene özgü tasarımlar sunmak olanaksızdır. Öğrenenler açık ve uzaktan öğrenmede kendilerini yalnız hissettiklerinde veya yönlendirilmediklerinde sistemden ayrılma eğilimi gösterirler ya da akademik başarılarında düşüşler gözlenir. Öğrenenlerin katılımını ve motivasyonunu artırmak için çevrimiçi öğrenme ortamlarına oyunlaştırma dahil edilebilir. Açık ve uzaktan öğrenmede oyunlaştırma daha ilgi çekici ve etkileşimli bir öğrenme deneyimi sağlamak için kullanılmaktadır. Çevrimiçi öğrenme ortamlarında etkileşimi en iyi düzeyde kullanabilmek için oyunlaştırma son yıllarda sıkça kullanılmaya başlanmıştır (Khakpour ve Colomo-Palacios, 2021). Oyunlaştırma ayrıca öğrenenlerin görevlerini tamamlamaları ve hedeflere ulaşmaları için onları motive etmeye yardımcı olmaktadır. Öğrenenlerin akademik başarılarının iyileştirilmesinin ötesine geçmeyi amaçlayan oyunlaştırılmış uygulamalar öğrenme sürecine eğlenceyi dahil ederek motivasyon ve aidiyette artış sağlar (González-Fernández, Revuelta-Domínguez ve Fernández-Sánchez, 2022).

Oyunlaştırmada kullanılabilecek birçok farklı bileşen vardır. Bu bileşenlerin amacına uygun kullanılması önemlidir. Bunun için oyunlaştırmanın entegre edileceği çevrimiçi öğrenme ortamının alt yapısını ve öğrenenlerin profillerini detaylıca bilmek gerekir. Açık ve uzaktan öğrenmede öğrenenlerin bireysel farklılıklarının zengin olması nedeniyle öğrenen profillerinin belirlenmesi oldukça önemlidir. Bu kapsamda oyunlaştırma bileşenleri öğrenenleri ilgisiz hissetme konumundan çıkararak rekabetçi konuma getirebilir. Rekabetçi konuma gelmek özünde öğrenenlerin motivasyonunu artırma ve öğrenme sürecini daha eğlenceli hale getirme anlamındadır. Bunun için en sık kullanılan oyunlaştırma bileşenlerinden olan lider panoları, rozetler ve puanlar tercih edilebilir.

Günlük hayatımızın bir parçası haline gelen yapay zeka, açık ve uzaktan öğrenmede öğrenenlerin öğrenme süreçlerinde de önemli bir rol oynamaktadır. Yapay zeka ile desteklenen çevrimiçi öğrenme ortamlarının öğrenenlere bireyselleştirilmiş bir öğrenme süreci sunmasıyla öğrenenlerin motivasyonlarını arttırdığı, öğrenme deneyimlerine katkı sağladığı ve aktif katılımı artırdığı görülmektedir. (Jaiswal ve Arun, 2021). Büyük hacimli öğrenen kitlesi düşünüldüğünde etkili, verimli ve keyifli bir öğrenme ortamının oluşturulabilmesi için oyunlaştırma bileşenleri ve dinamikleri yapay zeka teknikleri ile desteklenebilir. Ek olarak, öğrenenlere anında geri bildirim verilebilmesi, öğrenenlerin kendi öğrenme süreçlerini takip edebilmesi, öğrenenlerin güdülenmesi ve motivasyonlarını artırmaya yönelik mesajlar sunulabilmesi için de yapay zeka tekniklerinden faydalanılabilir.

Oyunlaştırma ve Yapay Zeka

Açık ve uzaktan öğrenmede öğrenenlerin katılımını ve motivasyonunu artırmak için oyunlaştırmadan faydalanılabilir. Oyunlaştırma, öğrenenlerin katılımını artırmak amacıyla öğrenme sürecindeki faaliyetlere ve görevlere oyun bileşenlerinin dahil edilmesidir (Ramírez-Verdugo ve López, 2021; Rivera-Trigueros, 2020). Oyunlaştırma öğrenenlerin akademik başarısının artmasını sağlayacak daha etkileşimli ve motive edici bir öğrenme ortamı sunabilir. Ayrıca oyunlaştırma ile etkili ve doğru zamanlarda

geri bildirimler sağlanarak öğrenenlerin bireyselleştirilmiş öğrenme deneyimleri de desteklenebilir. Oyunlaştırmanın dahil edildiği öğrenme ortamlarında öğrenenlerin katılımının arttığı görülmüştür (Zou, Huang ve Xie, 2021).

Alanyazın incelendiğinde oyunlaştırma unsurlarının genel olarak dinamik, mekanik ve bileşenler şeklinde sınıflandırıldığı görülmektedir (Werbach ve Hunter 2012). *Dinamikler*, oyunlaştırılmış sistemin göz önünde bulundurulması ve yönetilmesi gereken ancak doğrudan oyuna dahil edilmeyen ögeleri kapsar. Bu ögeler kısıtlamalar, duygular, öyküleştirme, süreç ve ilişkiler olmak üzere beş grupta toplanır. *Mekanikler*, eylemi ilerleten ve öğrenen katılımını sağlayan temel süreçleri ifade eder. Mekanik ögeleri; meydan okuma, şans, yarışma, işbirliği, geri bildirim, kaynak edinme, ödül, aktarma, sıra ve kazanma durumudur. *Bileşenler* ise; puanlar, rozetler, lider panosu, kazanımlar, avatarlar, bölüm sonunu geçme, koleksiyonlar, düello, kilit açma, hediye gönderme, görevler, seviyeler, sanal eşyalar ve sosyal grafikler ögelerinden oluşur. Bu ögeler daha ilgi çekici ve etkileşimli bir öğrenme deneyimi oluşturmak için açık ve uzaktan öğrenmede kullanılabilir. Açık ve uzaktan öğrenmede oyunlaştırmanın dahil edilmesi ile öğrenenlerin motivasyonu, katılımının artırılması ve öğrenme sürecinin daha eğlenceli hale getirilmesi sağlanabilir (Simoes, Redondo ve Vilas, 2013)

Kapp (2012) ise oyunlaştırmayı yapısal ve içerik olarak ikiye ayırmıştır. *Yapısal oyunlaştırma*, içeriğin yapısına müdahale etmeden öğrenme sürecindeki görevlerin yapısının oyunlaştırıldığı bir modeldir. Bu oyunlaştırma türü puan, rozet ve lider panosu gibi bileşenler aracılığıyla öğrenenlerin ilgisini çekmeyi amaçlamaktadır. *İçerik oyunlaştırma* ise öğrenme içeriğini oyun yapısına dönüştürmeyi ifade etmektedir (Pujolà, 2021). İçeriği daha ilgi çekici hale getirerek, öğrenenlerin ona bağlı kalmaları ve daha fazla şey öğrenmeleri sağlanmaktadır.

Açık ve uzaktan öğrenmede öğrenenlerin sayısı düşünüldüğünde ve buna bağlı olarak bireysel farklılıkları göz önüne alındığında daha kapsamlı, çeşitli ve uyarlanabilir bileşenleri içermesi nedeniyle Werbach ve Hunter (2012) modeli tercih edilebilir. Oyunlaştırmada temel olarak puanlar, rozetler ve lider panosu bileşenleri öne çıkmaktadır. Buna ek olarak öğrenmenin oyunlaştırılması için kullanılan oyun bileşenleri arasında seviyeler, zorluklar, ilerleme çubukları, anında geri bildirim, akran etkileşimi ve işbirliği, ödüller, oyun içi ödüller, alıştırma, hikaye anlatımı, aşamalar, görsel öğeler, hedefler ve karakter-nesne yükseltme yer almaktadır. Oyunlaştırma ile ilgili çalışmaların genel olarak amaçladığı öğrenen çıktıları; katılım, motivasyon, eğlenerek öğrenme, üretken öğrenme deneyimi, başarı duygusu, performans ve derse ilgiyi içermektedir (Nah vd., 2014). Temel bileşenlerin yanında diğer bileşenler de entegre edilerek daha etkili ve verimli öğrenme deneyimi sağlanabilir. Caporarello, Magni ve Pennarola (2021), eğitim alanında oyunlaştırmanın öğrenme süreçlerini ve sonuçlarını iyileştirmeye yönelik etkileri olduğundan söz etmiştir. Bu kapsamda oyunlaştırmanın öğrenme-öğretme süreçlerindeki etkilerine bakıldığında öğrenenlerin motivasyon, aidiyet, katılım ve tutumlarında artış sağladığı görülmektedir (González-Fernández, Revuelta-Domínguez ve Fernández-Sánchez, 2022). Bozkurt ve Genç-Kumtepe (2014) gerçekleştirdikleri çalışmada, oyunlaştırmanın öğrenenlerin öğrenme sürecine katılımlarını artırdığı, daha fazla motive oldukları, öğrenme sürecinin öğrenenler için keyifli, verimli ve etkili olduğu sonucuna ulaşmışlardır. Oyunlaştırmanın dahil edildiği çevrimiçi öğren-

me ortamlarında öğrenenlerin motivasyon ve performanslarında olumlu yönde artış olduğu görülmektedir (Şahin ve Samur, 2017). Ancak oyunlaştırmanın öğrenenlerin motivasyonları üzerinde olumlu yönde etkili olabilmesi için iyi planlanmış bir öğretim tasarımına ihtiyaç vardır (Özkan ve Samur, 2017). Böylelikle öğrenenlerin oyunlaştırmaya dahil olması sağlanabilir. Tan ve Cheah (2021), öğrenenlerin katılımını ve daha fazla puan kazanmalarını teşvik etmek için lider panosundaki başarıları ve harcanan süreyi değerlendirerek gerçek bir ödüle dönüştürülebileceğinden söz etmektedir. Bu kapsamda, akademik başarısı zayıf olan öğrenenlerin bile çabalayarak lider panosuna girmeyi hedeflediklerini dile getirmektedirler. Oyunlaştırma ile geleneksel iki boyutlu öğretim sürecinin (öğrenen-öğreten) üç boyutlu hale getirilerek daha sağlam, anlaşılır bir yapıya kavuşulacağı ifade edilmektedir (Şahin ve Samur, 2017).

Gelişen teknoloji ile birlikte yapay zekanın eğitim uygulamalarına dahil edilmesi oldukça önemli ve gerekli bir durum haline gelmiştir (Uzun vd., 2021). Açık ve uzaktan öğrenmede öğrenenlerin sayısı dikkate alındığında her bir öğrenene özgü tasarımlar yapmak olanaksızdır. Yapay zeka ile bireyselleştirilmiş öğrenme ortamı geliştirmek mümkün hale gelmiştir. Böylelikle öğrenenlere özgü oyunlaştırma sürecinin gerçekleştirilmesinin önü açılmıştır. Genel olarak, öğrenenlere sunulan oyunlaştırma kapsamındaki görevlerin performansını iyileştirmek için makine öğrenimi yöntemleri kullanılmaktadır (Khakpour ve Colomo-Palacios, 2021). Makine öğrenimi yapay zekanın bir alt kümesidir. Tek bir göreve odaklanan bir dizi algoritma olarak tanımlanabilir. Popenici ve Kerr (2017), makine öğrenmesini, "örüntüleri tanıyabilen, tahminlerde bulunabilen ve yeni keşfedilen kalıpları ilk tasarımlarında yer almayan veya kapsanmayan durumlara uygulayabilen yazılımları içeren yapay zekanın bir alt alanı şeklinde tanımlamıştır. Ayrıca mevcut verileri kullanarak veriye dayalı tahminler yapmaktadır (Bilgili, 2022). Dalmazzo ve Ramirez (2017), makine öğrenimi ve oyunlaştırma ile öğrenen etkileşimlerini analiz ederek ve oyunlaştırma aracılığıyla uygun rehberlik sunarak öğrenen için otomatikleşen bir öğrenme sürecinin geliştirilebileceğinden söz etmişlerdir. Oyunlaştırma ve makine öğrenimi, önceden belirlenen görevlere yönelik birlikte kullanıldıklarında etki düzeyi daha da artabilir. Örneğin, davranış değişikliği kapsamında bakıldığında, dinamik olarak değişen oyunlaştırılmış etkileşimler, öğrenenleri öğrenme ortamı ile sürdürülebilir bir şekilde etkileşime girmeleri için motive edebilir (Di Lena vd., 2017). Ayrıca Barata vd. (2015) öğrenenleri; başarılı öğrenenler, motivasyonunu kaybedenler, başarısızlar ve yavaş öğrenenler gibi farklı kategorilere ayıran bir kümeleme tekniği uygulamak için oyunlaştırılmış bir öğrenme görevinden elde edilen verileri kullanmışlardır. Expectation-Maximization adlı bir makine öğrenimi algoritma kullanmışlar ve bu öğrenen kümeleme tekniği ile öğrenen davranışlarını ve etkileşimlerini daha erken tahmin etmenin mümkün olduğunu ve dolayısıyla uyarlanabilir ve akıllı bir öğrenme ortamının geliştirilebileceğini iddia etmişlerdir. Oyunlaştırmada makine öğrenimi kullanımının tahmin etme başarısını iyileştirmede etkisi olduğu söylenebilir. Yapılan bir çalışmada araştırmacılar, öğrenen profilinin erken tespitini yapabilmek için puanlar ve lider panoları gibi oyunlaştırma özellikleri kullanmışlar ve böylelikle makine öğrenimi algoritmalarının güçlü olduğu sonucuna ulaşmışlardır (Barata vd., 2016).

Anadolum eKampüs çevrimiçi öğrenme ortamında herhangi bir oyunlaştırma bileşeni bulunmamaktadır. Anadolum eKampüs çevrimiçi öğrenme ortamına yapay zeka destekli oyunlaştırma bileşenlerinin entegre edilmesi, geliştirilmesi, değerlendirilmesi

süreçleri bu çalışmanın özgün değerini oluşturmaktadır. Sonuç olarak açık ve uzaktan öğrenmede oyunlaştırmanın dahil edilmesi öğrenenlerin akademik başarısını geliştirmek için bir gereklilik haline gelmiştir. Monoton bir öğrenme ortamından eğlenceli bir öğrenme ortamı olması ile öğrenenlerin ilgisini çektiği, motivasyonlarını ve katılımlarını artırdığı söylenebilir.

Açıköğretim Sisteminde öğrenenlerin sayısı ve çeşitliliği dikkate alındığında yükseköğretimde bu kadar büyük bir kitle için oyunlaştırma çalışmaları yetersizdir. Ayrıca yapay zeka destekli oyunlaştırma uygulaması olması ve bu bağlamda çalışmanın Açıköğretim Sisteminin kalitesini artırıcı potansiyel etkisi özgün değerini ortaya koymaktadır.

Anadolu Üniversitesi Açıköğretim Sistemi tarafından geliştirilen Anadolum eKampüs çevrimiçi öğrenme ortamına uygun yapay zeka tekniklerinin, oyunlaştırma bileşenlerinin ve oyunlaştırma bileşenlerinin etkili kullanımı ile öğrenenlerin motivasyonunu, katılımlarını ve başarılarını artıracak yöntemlerin belirlenmesi amaçlanmaktadır.

YÖNTEM

Bu bölümde araştırma deseni, araştırma evreni ve örneklem ve veri toplama teknikleri açıklanmıştır.

Araştırma Deseni

Bu araştırma kapsamında nitel araştırma yöntemlerinden biri olan durum çalışması deseni (case study) kullanılacaktır. Yin (1984)'e göre bir çalışmada; araştırma sürecinde nasıl ve niçin soruları sorulduğunda eğer araştırmacının olaylar üzerinde neredeyse hiç kontrolü bulunmuyorsa, araştırmaya konu olan olay ya da olgu kendi doğal yaşam çerçevesi içinde çalışılıyorsa ve olay ile gerçek yaşam arasındaki bağ yeterince açık değilse, bu zamanlarda araştırma yöntemi olarak durum çalışması kullanılır. Merriam (2013) ise durum çalışmasını tanımlarken; sınırlı bir sistemin derinlemesine betimlemesi ve incelenmesi ifadesini kullanmaktadır. Creswell (2007) durum çalışması yönteminde, gözlem, görüşme, görsel-işitseller, doküman analizi, raporlar gibi çoklu kaynakları içeren veri toplama araçları kullanıldığını belirtmektedir. Bu çalışmada durum, Anadolu Üniversitesi Açıköğretim Sisteminde kayıtlı öğrenenlerin, kendilerine sunulan Anadolum eKampüs ortamını kullanma alışkanlıklarıdır. Bu kapsamda öğrenenlerin eKampüs ortamını kullanma alışkanlıkları ile akademik başarıları arasındaki ilişkiler farklı değişkenler dikkate alınarak analiz edilecektir.

Çalışma Grubu

Araştırmanın çalışma grubunu, 2021-2022 eğitim-öğretim yılında Anadolu Üniversitesinde Açıköğretim Sisteminde kayıtlı yaklaşık 1 milyon aktif öğrenen oluşturmaktadır. Aktif öğrenenlerin seçilmesinin nedeni, araştırmaya konu olan Anadolum eKampüs platformunun kullanımıyla akademik başarı arasındaki ilişkilerin tespitinde sadece kayıt yenilemiş öğrenen verisinin kullanılabilecek olmasıdır. Araştırma grubunda 18 yaşından 70'li yaşlara kadar hemen hemen her yaştan öğrenen bulunmaktadır. Bununla birlikte Açıköğretim Sisteminde yer alan tüm fakülte ve öğrenim programlarındaki öğrenen verileri araştırmaya dahil edilmiştir.

Verilerin Toplanması ve Analiz Süreci

Anadolu Üniversitesi Açıköğretim Sisteminde yer alan öğrenenlerin öğrenme malzemelerine erişerek kullandıkları öğrenme ortamı Anadolum eKampüstür. Bu öğrenme ortamında öğrenenler sorumlu oldukları derslere ilişkin birçok farklı elektronik öğrenme kaynaklarına erişirler. Basılı öğrenme kaynakları, sesli kitaplar, videolar gibi dersin içeriğine ve özelliğine göre 16 farklı öğrenme kaynağına erişebilen öğrenenler bir dönem boyunca bu içeriklere bilgisayarlarından ya da mobil uygulamadan erişilebilmektedir. Açıköğretim Sistemindeki öğrencilerinin bilgilerinin yer aldığı diğer bir sistemde Öğrenci Bilgi Sistemidir. Burada öğrencinin demografik bilgileri, ders ve sınav notlarına ilişkin bilgiler yer almaktadır. Bu çalışma kapsamında öğrencilerin malzeme erişim günceleri ve öğrenci bilgi sistemi verileri birleştirilerek Açıköğretim Sistemindeki bir dönem boyunca öğrenenlerin öğrenme davranışları analiz edilerek oyunlaştırma süreci için nasıl faydalanılabileceği analiz edilmiştir. Ayrıca bu verilerin oyunlaştırma sürecinde yapay zeka ve makine öğrenmesi bağlamında nasıl kullanılabileceği araştırılmıştır.

Çalışma kapsamında öğrenci bilgi sistemindeki veriler ile öğrenme yönetim sistemi verileri birleştirilerek bir veri seti oluşturulmuştur. Veri ambarı mimarisinde saklanan veriler bu çalışma için birleştirilerek analiz edilmiştir. Veri ambarı, öğrenenlerin Anadolum eKampüsteki tüm aktivitelerini düzenli bir şekilde kayıt altına alınmasını ve öğrenenlerin çalışma yöntemleri, çevrimiçi öğrenme kaynakları tercihleri ve sistemde kalma süreleri gibi birçok farklı analitik raporların alınmasını sağlamaktadır. 2021-2022 öğretim yılı güz döneminde 170 milyon satırı aşkın veri, veri ambarından hazırlanarak veri seti oluşturulmuştur. Oluşturulan veri seti çalışmanın bağlamına uygun olarak incelenmiş betimsel istatistik ve veri görselleştirme yardımıyla analiz edilmiştir.

BULGULAR

Bu veriler analiz edilerek öğrenenlerin davranış alışkanlıkları, sistemle etkileşim düzeyleri, artırılmak istenen etkileşim noktaları ve çeşitleri tespit edilmiştir. Ayrıca öğrenenlerin sistemle etkileşimlerinin yanında aldıkları başarı puanları da dikkate alınarak etkileşim düzeyi, çeşidi, sıklığı, zamanı gibi parametrelerle akademik başarı arasındaki ilişki de tespit edilmiştir.

Anadolum eKampüs kullanım durumları tüm öğrenenler ve sınava giren öğrenenler kapsamında incelenmiştir. Kullanım durumları ise içerik kullanma ve deneme sınavı kullanma olarak iki ayrı bileşen olarak ele alınmıştır.

Tablo 1. *Tüm Öğrenenlerin İçerik ve Deneme Sınavı Kullanım Oranları*

	Deneme Sınavı Kullanan	Deneme Sınavı Kullanmayan	Toplam
İçerik Kullanan	%9,19	%35,62	%44,81
İçerik Kullanmayan	%0,47	%54,72	%55,19
Toplam	%9,67	%90,33	%100,00

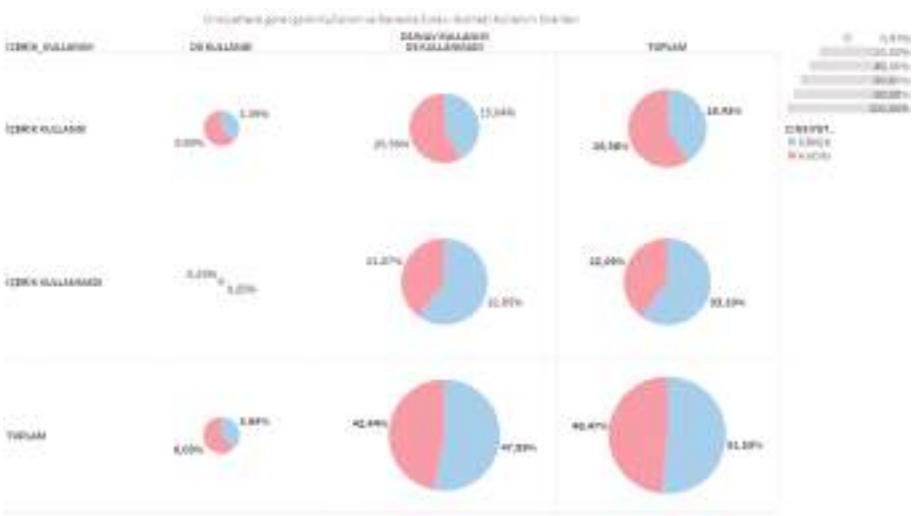
Tablo 1 incelendiğinde, tüm öğrenenler çerçevesinde %44,81 öğrenenin eKampüste içerik kullandığı, %55,19 öğrenenin ise hiç içerik kullanmadığı sonucuna ulaşılmıştır. Ayrıca deneme sınavı kullanma oranı %9,67 iken deneme sınavlarının kullanılmama oranı %90,33 olup oldukça yüksek olduğu görülmektedir.

Tablo 2. *Sınava Giren Öğrenenlerin İçerik ve Deneme Sınavı Kullanım Oranları*

	Deneme Sınavı Kullanan	Deneme Sınavı Kullanmayan	Toplam
İçerik Kullanan	%13,99	%45,45	%59,44
İçerik Kullanmayan	%0,63	%39,93	%40,56
Toplam	%14,62	%85,38	%100,00

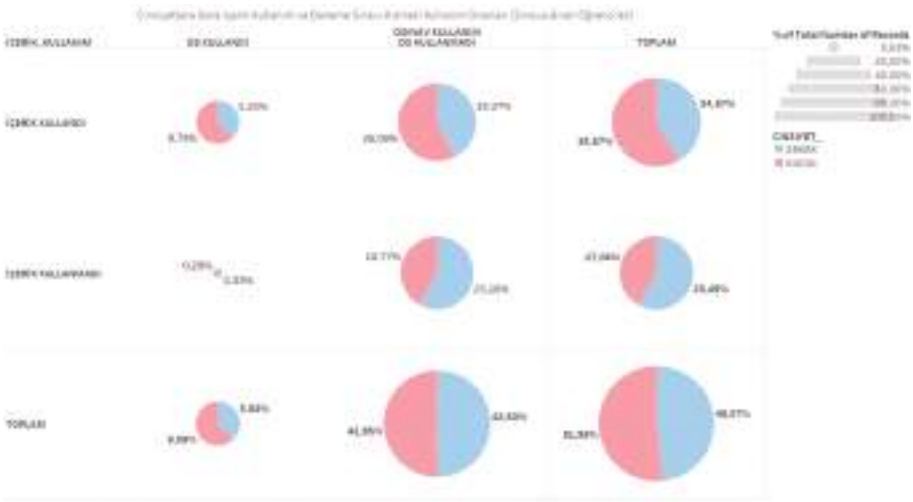
Tablo 2 incelendiğinde, sınava giren öğrenenler çerçevesinde %59,44 öğrenenin eKampüste içerik kullandığı, %40,56 öğrenenin ise hiç içerik kullanmadığı sonucuna ulaşılmıştır. Ayrıca deneme sınavı kullanma oranı %14,62 iken deneme sınavlarının kullanılmama oranı %85,38 olup yüksek olduğu görülmektedir.

Tüm öğrenenlerin ve sınava giren öğrenenlerin cinsiyet ve yaş gruplarına göre içerik ve deneme sınavı kullanma durumları incelenmiştir.



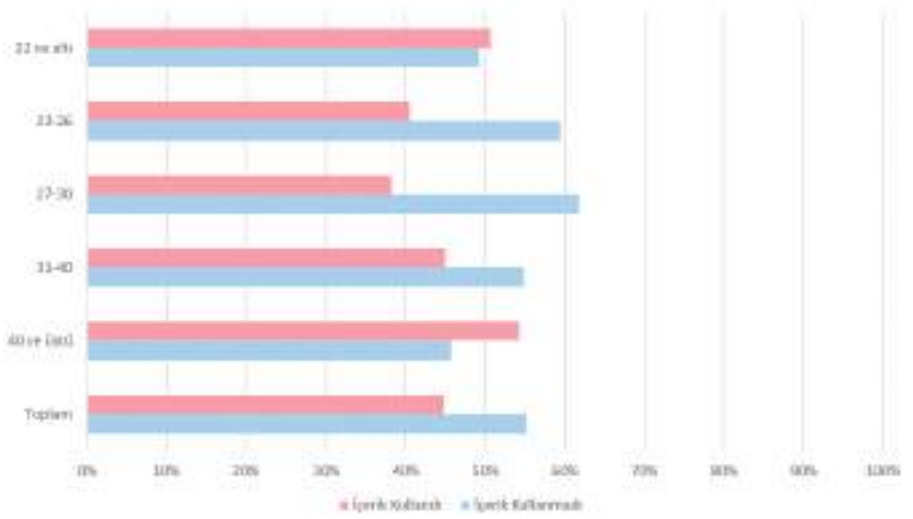
Şekil 1. *Cinsiyetlere Göre İçerik ve Deneme Sınavı Kullanım Oranları (Tüm Öğrenenler)*

Şekil 1 incelendiğinde, tüm öğrenenlerin %48,47'si kadın, %51,53'ü erkektir. Bu kapsamda, kadın öğrenenlerin %26,38 oranında, erkek öğrenenlerin %18,43 oranında eKampüste içerik kullandığı; kadın öğrenenlerin %22,09 oranında, erkek öğrenenlerin %33,10 oranında eKampüste içerik kullanmadığı sonucuna ulaşılmıştır. Ayrıca kadın öğrenenlerin deneme sınavı kullanma oranı %6,03, erkek öğrenenlerin deneme sınavı kullanma oranı %3,64'tür. Deneme sınavlarının kullanılmama oranı ise kadın öğrenenlerde %42,44 iken erkek öğrenenlerde %47,89 şeklinde bulunmuştur.



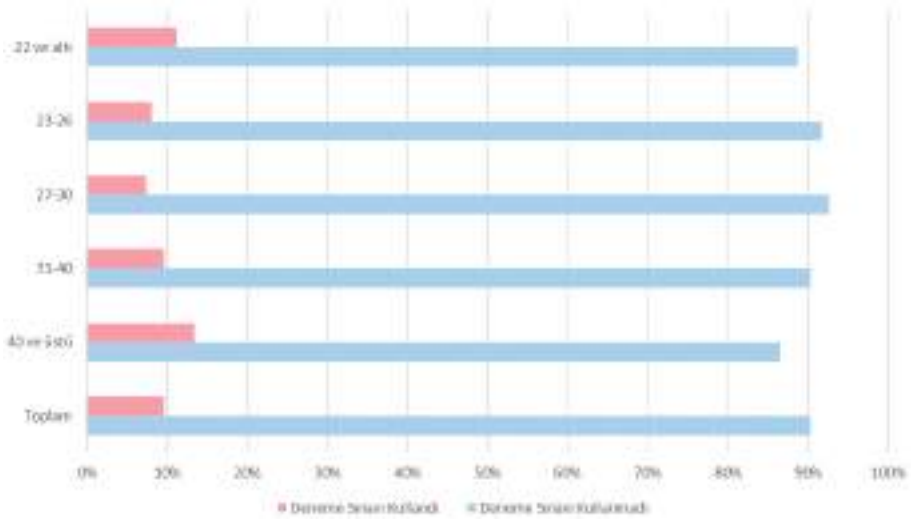
Şekil 2. *Cinsiyetlere Göre İçerik ve Deneme Sınavı Kullanım Oranları (Sınava Giren Öğrenenler)*

Şekil 2 incelendiğinde, sınava giren öğrenenlerin %51,93'ü kadın, %48,07'si erkektir. Bu kapsamda, kadın öğrenenlerin %34,87 oranında, erkek öğrenenlerin %24,57 oranında eKampüste içerik kullandığı; kadın öğrenenlerin %17,06 oranında, erkek öğrenenlerin %23,49 oranında eKampüste içerik kullanmadığı sonucuna ulaşılmıştır. Ayrıca kadın öğrenenlerin deneme sınavı kullanma oranı %9,09, erkek öğrenenlerin deneme sınavı kullanma oranı %5,54'tür. Deneme sınavlarının kullanılmama oranı ise kadın öğrenenlerde %42,85, erkek öğrenenlerde ise %42,53 şeklinde bulunmuştur.



Şekil 3. *Yaş Gruplarına Göre İçerik Kullanımı (Tüm Öğrenenler)*

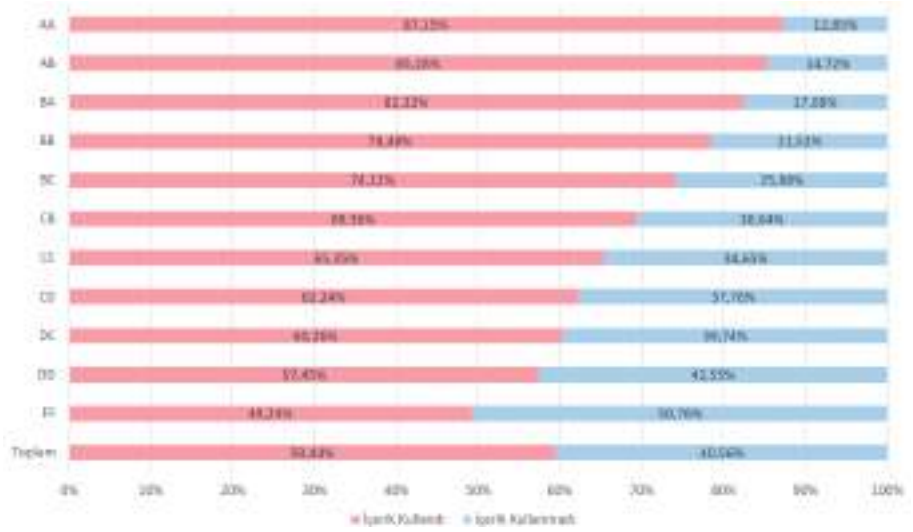
Şekil 3 incelendiğinde, 22 ve altı yaş grubunun %50,70 oranında içerik kullandığı, %49,30 oranında içerik kullanmadığı; 23-26 yaş aralığındaki öğrenenlerin %40,52 oranında içerik kullandığı, %59,48 oranında içerik kullanmadığı; 27-30 yaş aralığındaki öğrenenlerin %38,25 oranında içerik kullandığı, %61,75 oranında içerik kullanmadığı; 31-40 yaş aralığındaki öğrenenlerin %45,06 oranında içerik kullandığı, %54,94 oranında içerik kullanmadığı; 40 ve üstü yaş grubunun %54,28 oranında içerik kullandığı, %45,72 oranında içerik kullanmadığı görülmektedir.



Şekil 4. *Yaş Gruplarına Göre Deneme Sınavı Kullanımı (Tüm Öğrenenler)*

Şekil 4 incelendiğinde, 22 ve altı yaş grubunun %11,26 oranında deneme sınavı kullandığı, %88,74 oranında deneme sınavı kullanmadığı; 23-26 yaş aralığındaki öğrenenlerin %8,17 oranında deneme sınavı kullandığı, %91,83 oranında deneme sınavı kullanmadığı; 27-30 yaş aralığındaki öğrenenlerin %7,42 oranında deneme sınavı kullandığı, %92,58 oranında deneme sınavı kullanmadığı; 31-40 yaş aralığındaki öğrenenlerin %9,66 oranında deneme sınavı kullandığı, %90,34 oranında deneme sınavı kullanmadığı; 40 ve üstü yaş grubunun %13,45 oranında deneme sınavı kullandığı, %86,55 oranında deneme sınavı kullanmadığı görülmektedir.

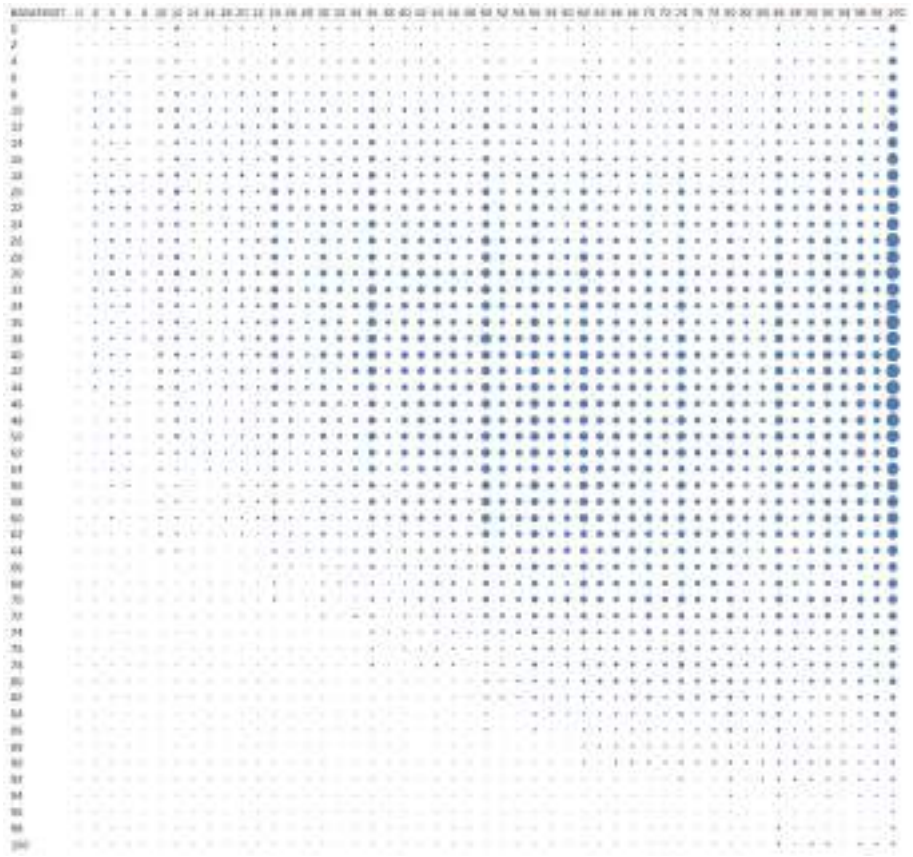
Sınava giren öğrenenlerin dönem sonunda aldıkları harf notlarına göre eKampüsteki içeriklere erişim oranları incelenmiştir.



Şekil 5. *Sınava Giren Öğrenenlerin Harf Notlarına Göre İçeriğe Erişim Oranları*

Şekil 5'te görüldüğü üzere en yüksek harf notuna (AA) sahip öğrenenlerin içeriklere erişim oranı en fazladır. En düşük harf notuna (FF) sahip öğrenenler ise içeriklere en az oranda erişen gruptur.

Öğrenenlerin başarı notları ile eKampüste bulunan deneme sınavı notu ortalamaları karşılaştırılmıştır.



Şekil 6. *Başarı Notu ve Deneme Sınavı Notu Ortalaması Karşılaştırması*

Şekil 6'da satırlar başarı notunu ifade ederken sütunlar deneme sınavı notunu ifade etmektedir. Bu karşılaştırmada deneme sınavı sonucu 0 olan veri dikkate alınmamıştır.

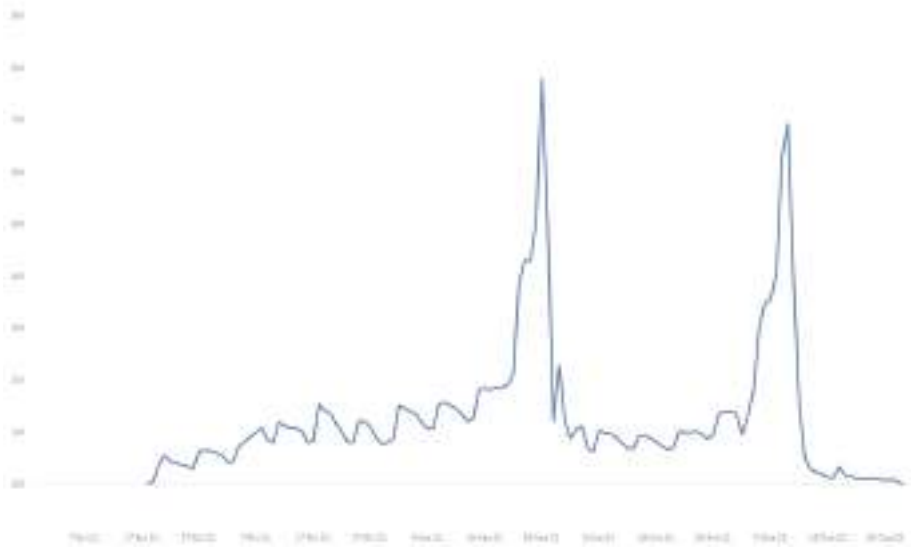
Sınava giren öğrenenlerin illere göre içerik kullanım oranları da karşılaştırılmıştır.



Şekil 7. *Sınava Giren Öğrenenlerin İllere Göre Kullanım Durumları*

Şekil 7'de görüldüğü üzere, yüksek kullanım oranları sırasıyla Niğde, Zonguldak ve Bilecik şehirlerinde; düşük kullanım oranları ise sırasıyla İstanbul, Gaziantep ve Şanlıurfa şehirlerindedir.

Öğrenenlerin tarihe göre içerik kullanım sayıları incelenmiştir.



Şekil 8. *Zamana Bağlı İçerik Kullanım Sayıları*

Şekil 8 incelendiğinde, ara sınav ve dönem sonu sınav dönemlerinde içerik kullanımının diğer tarihlere oranla çok fazla olduğu söylenebilir.

TARTIŞMA VE SONUÇ

Bu araştırmanın amacı; Anadolu Üniversitesinin Açıköğretim Sistemine kayıtlı öğrencileri için sunulan Anadolum eKampüs çevrimiçi öğrenme ortamının kullanılması açısından öğrenen başarıları üzerine etkilerinin incelenmesi ve öğrenenlerin bu ortamdan etkili bir şekilde yararlanması için gerekenlerin belirlenmesidir. Veri ambarından alınan veriler üzerinde yapılan analizler göstermiştir ki; öğrenenlerin sistemle etkileşim oranı ile akademik başarısı arasında anlamlı bir ilişki vardır. Çevrimiçi öğrenme ortamından yararlanma oranı yüksek olan öğrenenlerin akademik başarıları da yüksek olurken, yararlanma oranı düştükçe akademik başarıların düştüğü gözlenmiştir (Şekil 5). İçerik ve deneme sınavı kullanım durumuna göre tüm öğrenenler ve sınava katılan öğrenenler açısından bakıldığında sınava katılan öğrenenlerin eKampüsü daha fazla kullandığı sonucuna ulaşılmıştır (Tablo 1 ve Tablo 2). Ancak bu oran tüm öğrenenlerde %44 iken sınava katılan öğrenenlerde %59,44'tür. Bu sonuca göre öğrenenlerin eKampüs kullanma oranının düşük olduğu görülmektedir. Cinsiyetlere göre içerik ve deneme sınavı kullanım oranları incelendiğinde tüm kadın öğrenenlerin (%26,38) kullanımı tüm erkek öğrenenlere (18,43) göre daha fazla olduğu görülmektedir (Şekil 1). Aynı şekilde cinsiyetlere göre içerik ve deneme sınavı kullanım oranları incelendiğinde sınava katılan kadın öğrenenlerin (%34,87) kullanımı sınava katılan erkek öğrenenlere (%24,57) göre daha fazla olduğu görülmektedir (Şekil 2). Özetle, erkek öğrenen oranının (erkek: %51,53; kadın: %48,47) daha fazla olmasına rağmen kadın öğrenenlerin eKampüsü daha fazla kullandığı görülmektedir. Yaş gruplarına göre içerik ve deneme sınavı kullanımına bakıldığında sırasıyla 40 ve üstü ile 22 ve altı yaş gruplarının en fazla kullandığı görülmektedir (Şekil 3 ve Şekil 4). Ayrıca bu sonuca göre tüm yaş grupları için eKampüs ile etkileşim oranı arttıkça akademik başarının da arttığı söylenebilir. Bunların dışında öğrenenlerin yaşadıkları illere göre de kullanma oranları değişiklik göstermektedir. Özellikle büyük şehirlerde kullanım oranının çok düşük olduğu, daha küçük şehirlerde kullanım oranının yüksek olduğu görülmektedir. Son olarak, öğrenenlerin ara sınav ve dönem sonu sınav zamanlarında eKampüsü daha sık kullandıkları sonucuna ulaşılmıştır.

Öğrenenlerin akademik başarılarının artırılması için Anadolum eKampüs ortamından yararlanma oranlarının artırılması gerektiği sonucuna erişilmiştir. Bunu sağlamanın yollarından biri olarak oyunlaştırma tasarımı seçilmiştir. Bu şekilde öğrenenler için eğlenceli, verimli ve sürekli bir öğrenme ortamı oluşturulması hedeflenmiştir. Oyunlaştırmanın bu kadar değerli ve önemli oluşunun temel dayanağı; öğrenen katılımını artırmasıdır. Genel olarak kişilerin zorlu görevleri, daha rekabetçi bir yaklaşımla eğlenceli bir şekilde tamamlamaya istekli oldukları söylenebilir. Bunun yanı sıra Özkan ve Samur (2017) tarafından yapılan çalışmada etkili bir öğretim tasarımı olmadan, oyunlaştırmadan istenilen verimin alınamayacağı ve hatta istenilen hedeflere ulaşmaya engel olunabileceği belirtilmiştir. Oyunlaştırma ile öğrenenlerin gelişimlerini izleyebilecekleri, bu gelişimlerini devam ettirebilecekleri planlamalar yapabilecekleri belirtilmiştir. Bu şekilde öğrenenlerin motivasyonları ve öğrenmeleri üzerinde olumlu sonuçların alınabileceği ifade edilmiştir. Bu kapsamda oyunlaştırma altyapısı hazırlanırken ilk aşamada analiz sonucu elde edilen verilerden yararlanılmalıdır. Öğrenenlerin demografik özellikleri, sistem ile etkileşimleri ve akademik başarı notları dikkate alınmalıdır. Ayrıca alanyazına göre etkili olabilecek oyunlaştırma bileşenleri

tercih edilmelidir. Buradan yola çıkarak temel düzeyde puanlar, rozetler, görevler, geri bildirimler ve lider panosu bileşenlerinin kullanılmasına karar verilmiştir. Tüm süreç göz önünde bulundurulduğunda ara sınav ve dönem sonu dönemlerinde oyunlaştırma uygulamasının bonus görevlerle güçlendirilmesi gerektiği düşünülmektedir.

Öğrenen kitlesi analiz edildiğinde öğrenenler arasında demografik bazı farklılıkların olduğu görülmüştür. Farklı yaş gruplarından, farklı cinsiyetlerde, farklı coğrafi bölgelerden öğrenenler bulunmaktadır. Bu nedenle her öğrenenin öğrenme yöntemi ve öğrenme ortamından beklentileri farklı olabilmektedir. Yapay zeka destekli bireyselleştirilmiş ve uyarlanabilir bir öğrenme ortamında oyunlaştırma bileşenlerinin etkili kullanımı ile öğrenenlerin motivasyonunu, katılımlarını ve başarılarını artırmaya yardımcı olduğu söylenebilir. Bu noktadan hareketle her öğrenen için bireyselleştirilmiş en uygun öğrenme yönteminin belirlenmesi ve öğrenenin sistemle etkileşiminin artırılması için yapay zekanın alt kümesi olan makine öğrenmesi algoritmaları kullanılabilmektedir. Khakpour ve Colomo-Palacios (2021) gerçekleştirdikleri çalışmada, oyunlaştırma çalışmalarının genellikle makine öğrenimi yöntemleri ile yapıldığından söz etmişlerdir. Açık ve uzaktan öğrenmede makine öğrenimi kullanarak, öğrenme yönetim sistemlerinde öğrenenlerin dersten ayrılma, derse kabul edilme gibi olasılıkların tahmin edilmesi sağlanabilir. Ayrıca makine öğrenimi, yazılı ödevler söz konusu ise ödev konuları belirlemek, cevapları analiz etmek ve bireyselleştirilmiş geri bildirimler sunmak için de kullanılabilir. Bunlara ek olarak öğrenen profili çıkarmak için de makine öğrenimi kullanılabilir (Barata vd., 2015). Makine öğrenimi algoritmaları, öğrenen profillerinin çıkarılması sonucunda onlara özgü geri bildirim sunmak, hedefler ve görevler oluşturmak için gereklidir. Tüm bu beceriler oyunlaştırmaya dahil edildiğinde istenen verim ve etki alınabileceği düşünülmektedir.

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COVID-19 Ortamında Üniversite Uzaktan Eğitim Personellerinin Deneyimlerine Yönelik Bir Durum Çalışması

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Özet

Bu çalışmada uzaktan eğitim personellerinin pandemi sürecinde yaşadığı deneyimler ve sorunlar incelenmiştir. Çalışmada nitel araştırma desenlerinden durum çalışması kullanılmıştır. Araştırmaya bir üniversitede çalışmakta olan beş uzaktan eğitim personeli katılmıştır. Veriler yarı yapılandırılmış görüşmeler ile toplanmıştır. Toplanan veriler içerik analizi tekniği ile analiz edilmiştir. Çalışmanın sonunda iki ana tema ortaya çıkmıştır. Birinci ana tema iş yükleri ve ikinci ana tema sistem ve donanım olarak adlandırılmıştır. Bu çalışma ile uzaktan eğitim personelinin COVID-19 salgınındaki deneyimlerinin ortaya konulmasının yanında gelecek araştırmalara yönelik önerilerde bulunulmuştur.

***Anahtar Kelimeler**: Uzaktan Eğitim, Covid-19, Durum Çalışması.*

GİRİŞ

11 Mart'ta Dünya Sağlık Örgütü'nün salgın olarak tanımlamasıyla birlikte bütün dünyayı etkisi altına alan koronavirüs (COVID-19), tüm dünyada eğitimde kullanılan yaklaşımları ve yöntemleri de etkiledi. 2020 yılı Mart ayında Türkiye'de ilk koronavirüs vakasının görülmesi ile birlikte eğitim sisteminde yüz yüze eğitimden uzaktan eğitime hızlı bir geçiş yapılmıştır. Zaman ve mekândan bağımsız çalışmayı sağlayan bu öğretim türü salgınla birlikte eğitim-öğretim faaliyetlerinin aksamaması için kolaylık sağlamıştır.

Uzaktan eğitim uygulamaları günümüzde açık ve uzaktan öğrenme olarak adlandırılmaktadır (Tekinarslan ve Gürer, 2021). Açık ve uzaktan öğrenmenin doğası gereği öğretmen ve öğrenen fiziksel veya zamansal olarak farklı noktalarda olabilirler (Tekinarslan ve Gürer, 2021). Ancak öğrenenlerin birbirlerinden ve öğretim elemanından mekân ve/veya zaman açısından bağımsız olduğu uzaktan öğrenmede bu etkileşimi sağlamak daha zor olabilmektedir. Öğrenenlerin sosyal, akademik ve yönetim gibi alanlara yönelik ihtiyaçlarının giderilmesi konusunda destek hizmetlerinin önemi giderek artmaktadır. Yükseköğretim kurumlarında bu desteği Uzaktan Eğitim ve Araştırma Merkezi (UZEM) bünyesinde çalışmakta olan akademik ve idari personeller gerçekleştirmektedir. Uzaktan eğitim uygulamaları günümüzde açık ve uzaktan öğrenme olarak adlandırılmaktadır (Gürer, 2021). Alanyazında geleneksel kurumlar ile Açık ve Uzaktan Öğrenme (AUÖ) kurumları arasında mezuniyet oranları arasında

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büyük farklar olabileceği ortaya çıkmıştır. Inkelaar ve Simpson (2015) yaptıkları çalışmada geleneksel okulların ortalama mezuniyet oranları ile açık ve uzaktan eğitim kurumlarının mezuniyet oranları karşılaştırıldığında AUÖ mezuniyetlerinin önemli ölçüde düşük olduğunu bulmuşlardır. Bazı çevrimiçi öğrencilerin kendilerini yalnız hissettikleri, kontrol ve yönlendirmeden yoksun oldukları ve hatta motivasyonlarını kaybedebilecekleri bilinmektedir (Abrami ve Bures, 1996). AUÖ kurumlarını bırakma nedenleri arasında etkileşim ve destek hizmetleri çevrimiçi öğrenenlerin en çok ihtiyacı olan faktörler arasındadır (Moore ve Kearsley, 2011). Kaliteli destek hizmetleri öğrencilerin çeşitli ihtiyaçlarının zamanında giderilmesini sağlamalıdır. Destek hizmetlerinin doğası daha iyi bir şekilde hizmet sağlamak adına mekanik süreçten dijital sürece doğru değişmektedir (Somayajulu ve Ramakrishna, 2008).

UZEM personelleri öğrenci ve akademisyenlere teknik destek ve eğitsel destek sağlamaktadır. Bu destek bünyesinde kurulum ve bakım, altyapı hizmetleri, içerik tasarımı, öğretim programları için teknolojik tasarımlar ve kullanışlılık testleri gibi unsurlar yer almaktadır (Khanna ve Basak, 2013). Teknik/teknolojik destek (El Turk ve Cherney 2016; Watkins ve Kaufman, 2003) alanyazında sıklıkla bahsedilen destek hizmetleri sorunları arasındadır. Öğrenenler ve öğreticilerin çoğunlukla bir arada bulunmadığı uzaktan öğrenmede; öğrenen-öğretici ve içerik arasındaki etkileşimin sorunsuz bir şekilde ilerleyebilmesi için UZEM personellerinin iş hayatında yaşadığı problemlerin anlaşılması verilen eğitimlerin başarıya ulaşabilmesinde önemli bir noktadır. Buradan yola çıkarak bu çalışmada UZEM personellerinin salgın sürecinde yaşadığı deneyimler ve sorunlar incelenmiştir. Çalışmanın UZEM çalışma koşullarının ve dolayısıyla uzaktan öğrenmenin kalitesinin arttırılması için alana katkı sağlaması hedeflenmiştir. Bu çalışmanın amacı UZEM çalışanlarının salgın sürecinde yaşadığı deneyimleri nasıl değerlendirdiklerini ortaya koymaktır.

YÖNTEM

Bu çalışmada nitel durum çalışması deseni temel alınmıştır. Durum çalışması araştırması, araştırmacının gerçek yaşam, güncel sınırlı bir sistem (bir durum) ya da belli bir zaman içerisindeki çoklu sınırlandırılmış sistemler (durumlar) hakkında çoklu bilgi kaynakları (örneğin gözlemler, mülakatlar, görsel işitsel materyaller ve dokümanlar ve raporlar) aracılığıyla detaylı ve derinlemesine bilgi topladığı, bir durum betimlemesi ya da durum temaları ortaya koyduğu nitel bir yaklaşımdır (Creswell, 2021). Bu çalışmada UZEM personelleri yaşadıkları deneyimler ve sorunlar ele alınmıştır.

Çalışma Grubu

Araştırmanın çalışma grubunu Batı Karadeniz Bölgesinde bir devlet üniversitesinde çalışmakta olan beş UZEM personeli oluşturmaktadır. Çalışmada katılımcılara isimlerinin gizli tutulması amacıyla farklı isimler verilmiştir. Çalışmaya UZEM bünyesinde çalışan personellerin tamamı dahil edilmiştir. Çalışmaya katılım gönüllülük esasına dayanmaktadır.

Veri Toplama Araçları

Veri toplama aracı olarak araştırmacılar tarafından oluşturulmuş yarı yapılandırılmış görüşme formu kullanılmıştır. Yarı yapılandırılmış görüşmeler nitel araştırmalarda sıklıkla kullanılan bir yöntemdir. Bu yöntem araştırmacılara hem konularının ana çerçevesini belirleyip kendi konuları kapsamında soru sorma olanağı verir hem de görüşme esnasında ortaya çıkan araştırma konusu ile direk ya da dolaylı olarak ilişkili olabilecek yeni gelişmelere göre görüşme sorularında değişime gitme ve yeni sorular ekleme imkânı verir. Dolayısı ile en esnek bir yapısı olduğu söylenebilir (Güler, Halıcıoğlu ve Taşğın, 2013).

Bu çalışmada kullanılan yarı yapılandırılmış görüşme formu soruları şu şekildedir:

1. UZEM bünyesinde hangi görevleri gerçekleştiriyorsunuz? Yaptığınız işleri tarif eder misiniz?
2. Pandemi sürecinde UZEM personeli olarak tipik bir iş gününüzü anlatır mısınız?
3. Pandemi sürecinde öğrencilerle UZEM kapsamındaki deneyimlerinizi nasıl değerlendirirsiniz?
   Alternatif soru: UZEM personeli olarak pandemi döneminde öğrencilerle yaşadıklarınızı nasıl değerlendirirsiniz?
4. Pandemi sürecinde akademisyenlerle UZEM kapsamındaki deneyimlerinizi nasıl değerlendirirsiniz?
   Alternatif soru: UZEM personeli olarak pandemi döneminde akademisyenlerle yaşadıklarınızı nasıl değerlendirirsiniz?
5. Pandemi sürecinde UZEM'de kullandığınız teknik ekip ekipman ve yazılımla ilgili görüşleriniz nelerdir?
   a. Eğer varsa teknik ekip ekipman ve yazılımla ilgili olumlu görüşleriniz nelerdir?
   b. Eğer varsa teknik ekip ekipman ve yazılımla ilgili olumsuz görüşleriniz nelerdir?
6. Pandemi sürecinde UE personeli olmayı nasıl tanımlarsınız?
7. Pandemi sürecinde UZEM personeli olarak yaşadığınız en çarpıcı olayı anlatır mısınız?
8. Pandemi sürecinde kurum yöneticileriyle UZEM kapsamındaki deneyimlerinizi nasıl değerlendirirsiniz?
   Alternatif soru: UZEM personeli olarak pandemi döneminde kurum yöneticileriyle yaşadıklarınızı nasıl değerlendirirsiniz?
   Sonda soru: Pandemi sürecinde alınan yönetimsel kararları nasıl değerlendiriyorsunuz?
9. Pandemi sürecindeki deneyimleriniz kapsamında ekleme yapmak istediğiniz veya çalışmaya katkısı olabileceğini düşündüğünüz ek görüşünüz var mı?

Veri Toplama Süreci

Verilerin toplanması sürecinde her bir katılımcı ile yüz yüze bireysel görüşmeler gerçekleştirilmiştir. Görüşmeler ses kayıt cihazı kullanılarak kayıt altına alınmıştır. Görüşmeler ortalama olarak 35 dakika sürmüştür.

Verilerin Analizi

Toplanan veriler içerik analizi tekniği ile analiz edilmiştir. Analiz gözlem ve görüşme kayıtlarının yazıya dökülmesi, dökümlenen bu yazıların kodlanması, kodlardan yola çıkarak alt tema ve ana temalara ulaşılması ile gerçekleştirilmiştir. Analiz her iki araştırmacının katılımıyla gerçekleştirilmiştir. Tüm analiz boyunca yinelemeli bir yöntem izlenmiştir. Verinin bir kısmı üzerinde görüş birliği oluşturulduktan sonra verinin başka bir bölümü ele alınmış ve bu işlem veri analizi tamamlanana kadar tekrarlanmıştır.

BULGULAR VE YORUMLAR

Çalışmanın sonunda iki ana tema ortaya çıkmıştır. Birincisi iş yükleri ikincisi ise sistem ve donanımdır. Bu bölümde ortaya konan temalar detaylıca anlatılacaktır.

İş Yükleri

İş yükleri ana teması; iş yükünün türleri, kaynakları, sonuçları ve pozitif etmenler olmak üzere dört alt temaya ayrılmıştır.

İş yüklerinin türleri mesai içi ve mesai dışı olarak ikiye ayrılırken UZEM personelleri görev tanımı dışında gelen iş yüklerine vurguda bulunmuşlardır. Katılımcıların bu tema altında toplanan yorumları şu şekildedir:

> Mesai içi: *"Mesela ben gündüzden başlayayım olmazsa. Sabah işte buraya erken saatlerde geldiğimizde sürekli bir telefon trafiği oluyordu. Yani gerçekten kesintisiz telefonla konuşuyorduk. Ya birini kapatıyorduk, telefon tekrar çalıyordu. Hani bu şekilde bir durum vardı bir yandan işte maillerle ulaşmaya çalışanlar oluyordu. Yani herkes aslında kendi tarafında bir tane sorunu çözmeye çalışıyordu ama bizim tarafta hani ulaşan herkesin sorununu çözmeye çalıştığımız için bize biraz hani anlayış açısından şey yapmıyorlardı."*

> Mesai içi: *"Tipik bir iş günüm yani normal mesai saatinde ofise geldiğimizde ilk olarak maillerle başlıyorduk. Çünkü ilk başta çok aşırı mail geliyordu. Şu anda mesela çok rahatladı maillerimiz ama. İlk başlarda akşam beşten sonraki gün sabah sekize kadar çok fazla mail birikmiş olabiliyordu. Bu yüzden hani maillerle başlıyorduk. Mailleri çözümlerken de bir yandan da işte gelen telefonları cevaplıyorduk."*

> Mesai dışı: *"Uzaktan eğitim personeli olmak bence pandemi dönemi için zorlayıcı bir süreç. Yani gerçekten düşününce aslında bir devlet kurumunda çalışıyoruz şu anda. Ama pandemi sürecinde gerçekten bir özel sektörde çalışıyormuşuz hissi vardı. Çünkü mesai saatlerine bağlı kalmadı. Çok fazla çalıştık. Çok fazla kendimizden taviz vermek zorunda kaldık belki de. Burada gerçekten, hele dönemin ilk haftalarında gece geç saatlere kadar çalışıyordum. Bazen geç saatlere kadar toplantı yapıyorduk. Bu gerçekten bizi zorluyordu. "*

> Mesai dışı: *"Pandemi sürecinde çalışma saatimiz yoktu diyebilirim. Hani özellikle gece bile hani gece 3'lerde bile arayan mesaj atan hocalarımız oluyordu... Bu şekilde bir süreç yaptık ama hani gerçekten de çok hızlı bir şekilde bir geçiş süreci olduğu için yani hafta sonları da çalıştık. Hafta içi geceleri de çalıştık. Mesai saatimiz yoktu yani kısacası."*

İş yüklerinin kaynakları olarak öğrenci ve akademisyenlerin problemlerini net ifade edememesi, acemilik (kullanıcı ve yönetim), pandemide ilk temas noktası olarak düşünülme, yapılan yardımların doğal görev sayılması, kurumsal olmayan ilişkiler, görev tanımlarının net olmaması/dışarıdan bilinmemesi, personel yetersizliği, kestirme çözümler olarak belirtilmiştir.

> Problemlerin net ifade edilememesi: " *Bazı öğretim elemanlarımız sisteminde kullanmayı bilmediklerinden mi, artık tecrübe eksikliğinden dolayı mı neyse yükledikleri aktiviteleri, dokümanları siliyorlardı. Mesela bize ulaşıyorlardı. Sistemden kendi kendine gitti diyorlardı. Hani biz de şuradan görüyorduk. Yani geri dönüşüm kutusu diye bir şey var böyle bir yapısı var sistemin. Yönetici panelinden gözüküyor sadece. Yönetici panelinden baktığımızda hocaya hani diyoruz ki siz silmişsiniz. Silen kişiyi gösteriyor çünkü orada rapor kısmında. Yok diyor itiraz ediyor. Yani sisteme suç atmaya çalışıyor. Kendi hatasını sisteme atmaya çalışıyor. Bunun gibi nedenlerle mesela biz çok fazla şeyle uğraştık. "*
>
> Acemilik (kullanıcı ve sistem yöneticisi): *"Pandemiye hızlı bir geçiş süreci olduğu için öğrenciler ve öğretim görevlileri bu geçiş aşamasında zorlandılar. İllaki tanıma sürecinde sistemleri bilmeyenler olduğu için sistemleri tanıma aşamasında zorlananlar oldu. Bu süreçte biz de biraz zorlandık. Onun dışında sistemleri tanımaya başlayınca aslında bu sorunların biraz daha çözülmeye başladığını düşündük. Yani daha az problem yaşamaya başladık."*
>
> Pandemide ilk temas noktası olarak düşünülme: *"Bizim birimimiz benim görüşümde de çok ulaşılabilir bir birimdi. Öyle olduğu için de bizim birimize ulaşma isteği daha fazlaydı mesela atıyorum farklı birime ulaşamıyor aslında o birimle sorununu çözeceğini biliyor ama o birime ulaşamadığı için bizim birime ulaşıyor. İşte diğer birime yönlendirdiğimizde ama biz oraya ulaşamıyoruz diyor veya hocasıyla çözmesi gereken sorun var hocasına ulaşamadığı için gelip bize ulaşıyor. Hocasına sırf ulaşamadığı için bizimle çözmeye çalış bu tarz geri dönütler çok fazla aldık. Yani böyle olduğu içinde öğrencilerle aslında biraz aramız iyiydi ya öğrencilerle olumsuz durumlar çok yaşadığımızı düşünmüyorum ama işte öğrencilerin yetersizliklerinden biraz yıprandık diyebilirim aslında."*
>
> Yapılan yardımların doğal görev sayılması: *"Pandemi sürecinde birçok konferans, panel gibi birçok yüz yüze olan etkinlik online platformlarda gerçekleşmeye başladı. Bu da çoğunlukla Microsoft Teams uygulaması üzerinden yapılıyor ya da bu Google Meet üzerinden de yapılabilmekteydi. Şimdi bu da çok yayıncılık tarafına girdiği için bu yayıncılık tarafı da UZEM bünyesinde UZEM kapsamında olan bir durum değil. Fakat bu durumda bir iki kere destek olmamız bu işi tamamen bizim yürütmemize sebep oldu. Yani daha sonraki süreçlerde artık UZEM bünyesinde bu kapsamda bizim işimiz olmayan farklı bir işi biz yapıyor duruma geldik. Yani online yayınlar, online webinarlar, online paneller vesaire bunların her birinin yayın süreci artık UZEM bünyesine gelmeye başladı. Ve bu bağlamda bu yayınlardan sorumlu olan birimin yöneticileriyle, birimin görevlileriyle bununla ilgili bir konuşma yaptığımızda şöyle bir cümle geçti: "Bu konuda desteğinizi bekliyoruz" dediler. Ve ben arkadaşlara bu konuda destek verdim daha önce şu an destek vermek istesek bile veremeyiz. Çünkü UZEM bünyesindeki işlerimiz fazlasıyla birikti. Personel eksikliğimiz var. İş yoğunluğumuz fazla ve biz bu İşleri çözmemiz gerekiyor diye bir cümle kurduğumda. Yani oradaki görevli "siz UZEM'de ne yapıyorsunuz ki", "sizin göreviniz ne ki" gibi bir cümle kurdu."*

Kurumsal olmayan ilişkiler: *"Daha çok aslında öğretim görevlileri destek istediğinde işte onu üzmeyelim, yardım edelim, hadi ona destek verelim şeklinde olabiliyordu. Hani bizim sorumluluğumuz olmasa da hani şu hoca şöyle bir destek istedi, ona yardım edelim, onu kırmayalım şeklinde olabiliyordu Hani çok fazla karşı tarafı kırmak istemediğimden dolayı. Ama bu bizim iş yükümüzü artırıyordu. Bu bizi zorluyordu. O açıdan yani. Zorluyordu gerçekten bizi. İstemediğimiz işleri yapmak zorunda kalabiliyorduk."*

Görev tanımlarının net olmaması/dışarıdan bilinmemesi: *"UZEM bünyesinde birçok şeyle ilgileniyoruz. Bunu dışarda çoğu kimse bilmiyor. Akademik kadrodan veya idari kadrodan çoğu kimse UZEM'de hangi işlerin nasıl bir biçimde çözüldüğünü veya nelerle uğraşıldığını, iş yükünün ne kadar fazla olduğunu, yoğunluğun ne kadar fazla olduğunu bilmedikleri için dışardaki birimlerden veya dışardaki görevlilerden birçoğu kalkıp siz burada ne iş yapıyorsunuz diye bir soru sorabiliyor. Yani UZEM olarak hem yayın yapıyoruz hem çekim yapıyoruz prodüksiyon yapıyoruz bazen yeri geliyor film çekiyoruz. Yani her şeyi yapıyoruz."*

Personel yetersizliği: *"Tabi ben iş yükünün biraz da personel eksikliğinden kaynaklandığını düşünüyorum. Personelimiz gerçekten bir uzaktan eğitim birimine göre yetersiz olduğunu düşünüyorum. Öyle olduğu için de yani atıyorum çok daha mesela bunun iki katı personeliniz olsa mesela gün içinde çok rahat bir şekilde görevi paylaşarak bitireceğimiz işler personel yetersizliğinden dolayı görevimizi çok daha uzatıyordu. Bu süreçte tabi uzaktan eğitime ilk geçildiğinde kısmi zamanlı öğrencilerden de yeterli destek alınamadı. Kısmi zamanlı öğrenciler resmi olarak çalıştırılamadı. Böyle sorunlarla karşılaştık. Öyle olduğu için, yani burada olmadıkları için resmi olarak çalışamadılar. Öyle durumlardan dolayı da basit görevler dahi olsa onlara veremedik. Onları da bizi yapmak zorunda kaldık. Ya iş yükümüz çok fazlaydı bence. Bu süreçte bence gerçekten personel ihtiyacımız oldu. Yani birim olarak. Böyle düşünüyorum."*

Kestirme çözümler: *"Öğretim elemanları genellikle hani teknik eksikliklerden dolayı, sistemi kullanamamalarından dolayı veya işte dersleri eksik tanımlanmış, öğrencileri eksik tanımlanmış, işte dersi yaparken internetten kaynaklı yoğunluktan kaynaklı kesintilerden dolayı bize ulaşıyorlardı. Mesela işte ders yapıyorum beyaz tahtayı paylaşamadım ya da ders yapıyordum koptu, işte ders kaydını yapamıyorum ya da işte kaydı nerden ulaşacağım gibi… Aslında youtube kanalımızda, UZEM'in youtube kanalında hazırladığımız rehber eğitimler hepsi bulunmasına rağmen böyle o nedenle bize ulaşıyorlardı. Oraya yönlendirdiğimizde de bize şu cevap geliyordu, mesela işte rehberlik edici videolar olduğunu söylüyorduk. Ben onları izleyemem işte hani siz 2 dakika halledin gibi durumlarla ifadelerle karşılaşıyorduk."*

İş yükünün sonuçları motivasyon, psikosomatik etmenler ve özel hayat olarak alt başlıklara ayrılmıştır. Katılımcılar pandemi sürecinde dönüşümlü çalışmadan faydalanamama, kestirme çözümler, mesai dışı çalışmanın karşılığının alınamaması gibi nedenlerden dolayı motivasyonlarının kırıldığını; iş yüklerinin tükenmişlik, kendine vakit ayıramama, yorgunluk, uyku problemleri ve kestirme çözümlerden kaynaklı sinirlilik gibi psikosomatik rahatsızlıklara neden olduğunu ifade etmişlerdir. Ek olarak iş yüklerinden dolayı özel hayatlarının etkilendiğini ifade etmişlerdir.

Motivasyon: *"Pandemi sürecine geçtiğimizden itibaren dönüşümlü çalışma planı ortaya çıktıktan sonra okulun yüzde sekseni, akademik ve idari kadronun %80 i okula gelmediğinde dönüşümlü çalıştığında biz her gün geldik. Halbuki aslında uzaktan yönetebileceğimiz online platformlar aracılığıyla yönetebileceğimiz bir sistem varken biz pandemi sürecinde her gün geldik. Dönüşümlü çalışma fikrine yöneticiler sıcak bakmadı. Yani bu dönüşümlü çalışma fikrine sıcak bakılmaması noktasını anlamsız bulmuşumdur. Çünkü bir şekilde evden de yürütebildiğimiz bir süreçti bu. Hocalar derslerini evden verebiliyordu. Memurlar birçok işini online platformlarda hallediyordu. Veya dönüşümlü çalışabiliyorlardı. Bir hafta gelmeyip bir hafta gelebiliyorlardı. Elbette ki büyük bir risk vardı. O dönem hastalık çok fazla yayılmıştı. Yayılım hızı da çok fazlaydı ve öldürücü olabiliyordu. Şimdi UZEM personellerinin de kovid ile ilgili sorunları vardı. Bu insanların da çevresinde yaşlı insanlar vardı. Bu konuda dönüşümlü çalışamadığımız için de yöneticilerle sorun yaşadığımızı söyleyebiliriz."*

Mesai dışı çalışmanın karşılığı: *"Pandemi sürecinde uzaktan eğitime girdiğimiz zaman uzaktan eğitim çalışanları için bir düzenleme yapılmadı. Yani görev tanımları belirlenmedi. Hani, ne olursa o anda yürütmek için her şeyi yaptılar. Biz de yaptık. Hatta şöyle bir durum oldu mesela. YÖK'ün bu anlamda bir karar almasını bekledi birçok uzaktan eğitim merkezi de. Hani iletişim halinde olduğumuz diğer çalışanlar da bunu iletmişti. Mesela en azından hani bu süreçte bir ekstra mesai yapılıyor bunu bir şekilde bir ücret karşılığının olmasını bekledik. YÖK tarafından böyle bir düzenlemenin yapılması beklendi ama yapılmadı. Hani en azından belki o açıdan işte yaşanan motivasyon kaybı giderilebilirdi. Yapılmadı ve her işi yapmak zorunda kaldı uzaktan eğitim merkezleri."*

Psikosomatik etmenler: *"Hem psikolojik hem fiziksel olarak rahatsız oluyorduk böyle kendinize ayıracağımız vaktimiz kalmıyordu. Öte yandan diğer taraftan şeyleri görünce insanların böyle çok rahat bir şekilde özellikle birkaç kişiyi tanıdığım birkaç kişiyi gördüm."*

Özel hayatın ihlali: *"İş günümüz şöyle biraz önce de dediğim gibi aslında 24 saat çalışıyor gibi bir durumumuz vardı. Sosyal yaşantımız işte eve gittiğimizde hani ev ortamında dinlenme gibi bir durumumuz söz konusu değildi."*

İş yükleri sırasında pozitif etkenler olarak akademisyenlerin görev bilinci ve anlayış göstermesi, yönetici desteği ve hızlı alınan yönetimsel kararlar belirtilmiştir.

Akademisyen görev bilinci: *"Akademisyenlerimiz uzaktan eğitimi faydalı buldular ve faydalı bulanlar böyle öğrenmeye hevesliydi. Gerçekten işlerini kolaylaştırdığını söyleyerek hani şey yaptılar. Hani kendi kendilerine çözdüler yani sistemi. Veya işte bizim paylaştığımız bu eğitim içeriklerinden çözdüler. Gerçekten bir kısım öğretim elemanımız hani uzaktan eğitimdeki iş yükünün farkında olup kendi bölümlerindeki sorunlarını kendileri çözmeye çalıştılar. Hani bu konuda işte onlar da sağ olsunlar bize destek oldular bu anlamda."*

Akademisyenlerin anlayış göstermesi: *"Sistemden kaynaklı bazı problemler yaşandı. Akademisyenlerimiz bu noktada anlayış gösterdiklerini söyleyebilirim. Yani sistemin bazen gerçekten yani üst düzeyde sinir yaratacak şekilde sıklıkta sorunlar çıkardığını söylemem mümkün ve bundan dolayı da akademisyenlerimiz yine bu sorunlarla baş etme noktasında bize yardımcı oldular diyebilirim. Yani aslında karşılıklı anlayış çerçevesinde birazcık daha bizim fedakârlık yapmamız gereken bir süreç oldu diyebilirim."*

Yönetici desteği: *"Onun dışında ama yönetimsel olarak gerçekten bir müdür, bir patron olarak görmedim. Hani daha çok yanımızda bir iş arkadaşı olarak gördük yöneticilerimizi o açıdan memnundum."*

"Müdür yardımcılarımızın aynı gün benimle birlikte aynı gayreti gösterdiklerini söyleyebilirim. Onlarla ilgili zaten yakın yani yakın amirlik pozisyonunda ya da yakın arkadaşlarımız arasında herhangi bir problem olmadı. Çünkü hepimiz o işin içerisinde yaşadığımız için."

Yönetimsel kararlar: *"Çözücü, çözüm odaklı olduğu için çabuk ve hızlı yönetimsel karar alındı. Çabuk ve hızlı organizasyonlar söz konusuydu ki zaten pandemi herkesle çabuk ve hızlı olmayı gerektiren bir sürü şeyi gerektirdi. Hani alınan sorunları çözmek için alınan sorun kararlar hemen yaşanılan problemlere binaen gelişmeler gösterdi."*

Sistem ve Donanım

Sistem ve donanım teması altında öğrenme yönetim sistemi ile ilgili kapasite sorunu, firma destek sorunları, sistem yöneticisi ve kullanıcı acemiliği ve yük paylaşımına; video konferans sistemi ile ilgili büyük firma desteği, kapasite altyapı eksikliği, performans ve maliyete ek olarak donanım ve iş görebilirlik noktalarına değinilmiştir.

Öğrenme Yönetim Sistemi (ÖYS): *"Sistemdeki sorunlar ortaya çıktığında bunları çözme sürecine şirketle iletişime geçme süreci de biraz sorun olabiliyor. Yani geç geri dönüşler alıyoruz. Bu şirket Türkiye genelinde hemen hemen birçok üniversiteye hizmet veriyor ÖYS bazında düşündüğümüzde. Birçok üniversiteye verdiği desteği düşünüyoruz. Bu bağlamda şirket çalışanlarının da iş yoğunluğunun olduğunu düşünebiliriz. Her üniversitenin yöneticilerine veya burada o birimlerindeki görevlilere ulaşmaya çalışıyorlar veya onlara bir şekilde sistemi anlatmaya çalışıyorlar. Sorunları çözme noktasında yardımcı olmaya çalışıyorlar. Bu bağlamda bizim sistemde yaşadığımız sorunları şirkete aktarıyoruz. Ve aktardıktan sonra geç geri dönüşler alıyoruz ve bu da bir şekilde olumsuz taraflarına işaret ediyor sistemin."*

Video Konferans Sistemi: *"Microsoft Teams'e geçtik [Google Meet kullanımının ardından Microsoft Teams'e yapılan geçiş hakkında konuşuluyor]. Microsoft Teams'e geçince öğrenciler ve öğretim görevlerinin isyanları gelmeye başladı. Hani biz alışmıştık yeni bir sisteme neden geçtik neden bildiğimiz sistemi kullanmıyoruz gibi. Hani burada da Meet'ten Teams'e geçmek öğrenciler ve öğretim görevlileri için zorlayıcı oldu. Orada gerçekten bir belki de yanlış karar mı verdik bilmiyorum. Ama o geçiş sürecinde yeniliğe hazır olmadıklarını hissettik yani. Bu geçiş süreci bizi yine zorladı biraz daha."*

"Microsoft gibi Google gibi firmalar hem farklı farklı bölgelerde sunucu altyapıları kuruyorlar hem de olabilecek en güçlü yapıyı kuruyorlar. Çok büyük firmalar olduğu için de onlar için çok böyle sorun olmuyor bu maliyetler. O yüzden hani büyük firmaları tercih ettik. Sunucu alt yapılarının daha güçlü olacağını düşündüğümüzden dolayı ve yazılımı da aynı zamanda hani daha stabil çalışacağından dolayı o şekilde."

Donanım: *"Ofiste kullandığımız bilgisayarlar yeterliydi. Yazılımlar konusunda bazı sıkıntılar yaşadık. Özellikle hani bazı, isim vermeyim. Şu şu yazılımlar lisanslı olarak elimizde olsa daha rahat ederdik dediğimiz uygulamalar oldu ama tabii*

ücretleri biraz yüksek olduğu için hani kullanamadık. Satın alamadığımız için kullanamadık. Hani donanım açısından bilgisayarda şu an çift ekran kullanıyorum. O zaman da çift ekran kullanıyordum ve bu bizim için yeterliydi. Herhangi bir, yani kendi kullandığımız bilgisayarlar açısından herhangi bir sorun yaşamadık."

SONUÇ VE ÖNERİLER

Çalışmanın sonunda iki ana tema ortaya çıkmıştır. Birincisi iş yükleri ikincisi ise sistem ve donanımdır. İş yükleri ana teması; iş yükünün türleri, kaynakları, sonuçları ve pozitif etmenler olmak üzere dört alt temaya ayrılmıştır. İş yüklerinin türleri mesai içi ve mesai dışı olarak ikiye ayrılırken UZEM personelleri görev tanımı dışında gelen iş yüklerine vurguda bulunmuşlardır. İş yüklerinin kaynakları olarak öğrenci ve akademisyenlerin problemlerini net ifade edememesi, acemilik (kullanıcı ve yönetim), pandemide ilk temas noktası olarak düşünülme, kurumsal olmayan ilişkiler, görev tanımlarının net olmaması, personel yetersizliği, kestirme çözümler olarak belirtilmiştir. İş yükünün sonuçları motivasyon, psikosomatik etmenler ve özel hayat olarak alt başlıklara ayrılmıştır. Katılımcılar pandemi sürecinde dönüşümlü çalışmadan faydalanamama, kestirme çözümler, mesai dışı çalışmanın karşılığının alınamaması gibi nedenlerden dolayı motivasyonlarının kırıldığını; iş yüklerinin tükenmişlik, kendine vakit ayıramama, yorgunluk, uyku problemleri ve kestirme çözümlerden kaynaklı sinirlilik gibi psikosomatik rahatsızlıklara neden olduğunu ifade etmişlerdir. Ek olarak iş yüklerinden dolayı özel hayatlarının etkilendiğini ifade etmişlerdir. Bunun yanında, iş yükleri esnasında akademisyenlerin görev bilincinde olması, anlayış göstermesi, yöneticilerin desteği ve yönetimsel hızlı kararların alınmasını pozitif giden etmenler olarak belirtmişlerdir. Bu bulgu yönetimsel kararların ve yönetimin bakış açılarının uzaktan eğitim kurumlarındaki destek hizmetlerini şekillendirdiğini ileri süren daha önceki çalışmalarla örtüşmektedir (Phan & Dang, 2017; Ulukan, 2005). Sistem ve donanım teması altında ise öğrenme yönetim sistemi ile ilgili kapasite sorunu, firma destek sorunları, sistem yöneticisi ve kullanıcı acemiliği ve yük paylaşımına; video konferans sistemi ile ilgili büyük firma desteği, kapasite altyapı eksikliği, performans ve maliyete ek olarak donanım ve iş görebilirlik noktalarına değinilmiştir.

Pandemi, doğal afet, deprem gibi öğrenenlerin eğitim için gerekli fiziksel ortamlara ulaşamayacağı durumlarda uzaktan eğitim önemli bir araç olarak ortaya çıkmaktadır. Kumtepe ve diğerleri (2019) uzaktan eğitim alanında çalışan kişilere destek hizmetlerinin verilmesi durumunda eğitimin daha sürdürülebilir olacağını ve kalitesinin artacağını ileri sürmektedir. Bu nedenle UZEM personellerinin deneyimlerinden yola çıkarak var olan durumun anlaşılması ve iyileştirilmeye çalışılması eğitim süreçlerini de pozitif yönde etkileyecektir. Bu çalışma bir üniversitede gerçekleştirilmiştir. Çalışmanın farklı üniversitelerde daha az veya daha fazla personelle çalışılan birimlerde gerçekleştirilmesi herhangi bir acil durum anında eğitimin sekteye uğramaması için ilk temas noktası haline gelen UZEM birimlerinde çalışan akademik ve idari personeli anlamayı kolaylaştıracaktır. Ayrıca bu çalışma uzaktan eğitim sürecinin paydaşları olan yönetici, akademisyen, idari personel ve öğrencilerle genişletilebilir. Uzaktan eğitim sisteminin daha iyi yapılandırılması adına paydaşların deneyimlerinin incelenmesi alana katkı sağlayacaktır.

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Pandemi Sonrası Uzaktan Eğitim Süreci: Uzaktan Öğretici Görüşleri

Gürkan YILDIRIM[1]

Özet

Pandemi dönemi ile birlikte yoğun bir şekilde öğreticilerin gündemine giren uzaktan eğitim süreçleri gün geçtikçe tercih edilebilir uygulamalar arasındaki yerini almaktadır. Günümüzde birçok kurum / kuruluş çalışmaları uzaktan ortamlara taşıma kararı almaktadır. Bu gelişmelerle birlikte pandemi dönemi ile birlikte uzaktan eğitim hususunda ciddi tecrübeler kazanan öğreticilerin pandemi dönemi sonrasına yönelik görüşlerinin alınması önemli görülmektedir. İlgili araştırma kapsamında uzaktan öğreticilerin uzaktan eğitime yönelik genel görüşleri ve pandemi dönemi sonrasında tercih eğilimleri belirlenmeye çalışılmıştır. Bu bağlamda mevcut araştırma kapsamında uzaktan eğitim ile önlisans, lisans ve lisansüstü eğitim veren öğreticilerin genel görüşleri incelenmiştir. İlgili araştırmaya farklı bilim dallarından 27 akademisyen dahil edilmiştir. Örneklem seçim yöntemi olarak amaçsal örnekleme tercih edilmiştir. Araştırma nitel araştırma yöntemlerinden durum çalışması desenine göre kurgulanmıştır. Veriler yarı yapılandırılmış görüşme formu ile çevrimiçi ortamlarda toplanmıştır. Katılımcıların pandemi döneminden önce uzaktan eğitimin etkililiğine yönelik görüşleri incelendiğinde birçoğunun kararsız görüş bildirdiği ancak bu durumun pandemi döneminden sonra olumlu yönde ciddi değişimler gösterdiği görülmüştür. Katılımcıların pandemi döneminden sonra lisans ve lisansüstü düzeyde uzaktan eğitim uygulamalarına devam etmeyi istedikleri görülmüştür. Bu görüşün ortaya çıkmasında katılımcılar özellikle ders esnasında zaman ve mekân sınırını ortadan kalkması, coğrafi engeli bulunan öğrenenlerin derse katılımının sağlanması, ders materyallerine daha kolay erişim sağlanması ve dersin yürütülmesinde esneklik sağlanması gibi durumlardan ötürü uzaktan eğitimi tercih edebileceklerini belirttikleri görülmüştür. Ayrıca katılımcılar büyük oranda teorik derslerde uzaktan eğitimi tercih edeceklerini vurguladıkları söylenebilir. Katılımcılar uzaktan eğitim sürecinde özellikle kaynak paylaşımı (makale, kitap vb.), ders sunumlarının iletilmesi, video paylaşımı, ödev aktiviteleri ve canlı dersler olmak üzere birçok etkinliği yürüttüklerini belirtmişlerdir. Katılımcılar uzaktan eğitim sürecinde ders devamının çok yüksek oranda daha iyi olduğunu belirtmişlerdir. Ayrıca bu süreçte program bırakma durumunun da yüz yüze eğitime göre ciddi oranda azaldığını vurgulamışlardır. Uzaktan eğitimi sürecinde en etkili ve verimli ölçme-değerlendirme aktivitelerinin lisansüstü grubunda gerçekleştirildiğini belirten katılımcılar bu süreçte ödev, sunum ve açık uçlu sınavlardan sıklıkla faydalandıklarını belirtmişlerdir. Genel olarak mevcut araştırma kapsamında katılımcıların pandemi döneminden önce ve sonra uzaktan eğitime yönelik görüşlerinde farklılıkların olduğu söylenebilir. Bu durumun özellikle lisans ve lisansüstü öğrenenlerle yürütülen aktivitelerde oldukça verimli olduğunu belirttikleri söylenebilir. Ayrıca ders ortamının hazırlanmasında ve ders materyallerinin öğrenenlere sunulmasında uzaktan eğitim ortamlarının önemli kolaylıkları olduğunun vurgulandığı görülmüştür. Bu sürecin içinde program bırakma durumlarının azaldığı

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ve öğrenenlerin eğitimlerine devam ettiklerini belirttikleri görülmüştür. Ayrıca etkili ölçme – değerlendirme süreçlerinin yaşanabildiği ve bunun sağlanması için de uzaktan eğitim ortamlarında farklı fırsatların olduğu da üzerinde durulan konular arasında gösterilebilir. Ancak öğreticiler arasında hala uzaktan eğitimin teorik derslerde daha etkili olabileceği görüşünün hakim olduğu söylenebilir. Uygulama içeren derslerde uzaktan eğitimin etkililiği sınırlı görülmektedir. Bu durumun harmanlanmış öğrenme aktiviteleriyle giderilebileceği düşünülmektedir.

Anahtar Kelimeler: *Uzaktan Eğitim, Uzaktan Öğretenler, Uzaktan Eğitime Devam Etme Eğilimleri, Uzaktan Eğitimde Programı Terk Etme*

GİRİŞ

Bilgi çağı olarak adlandırılan içinde bulunduğumuz yüzyılda hemen her gün yeni teknolojilerin günlük hayatı etkilediği bir sürecin içinde bulunulmaktadır. Özellikle internet ve bağlı teknolojilerde yaşanan gelişmeler ve bu araçların çok yaygın bir şekilde dünya genelinde kullanılması ile birlikte eğitim alanında da ciddi değişimlerin yaşandığı görülmektedir. Bu değişimlerin başında da tarihsel gelişimi çok eskilere dayanan açık ve uzaktan öğretim sürecinin olduğu söylenebilir.

Geleneksel öğrenme ortamlarına bir alternatif olarak ortaya çıkan uzaktan eğitim uygulamalarına yönelik ilk başlarda ciddi eleştirilerin olduğu söylenebilir. Ancak teknolojik gelişmeler ve öğretim ihtiyaçlarının değişmesi ile birlikte uzaktan eğitime bakış açısının da değişme eğilimine girdiği görülmektedir. Özellikle son zamanlarda Covid - 19 pandemi süreci ile birlikte uzaktan eğitimin ne kadar önemli olduğu daha fazla anlaşılır hale gelmiştir. Bu süreçte birçok ülke yüz yüze öğrenme aktivitelerine ara vermek zorunda kalmış, salgının kontrol altına alınabilmesi için hemen hemen bütün eğitim kurumları çevrimiçi öğrenme ortamlarına geçiş yapmaya başlamıştır (Ferri, Grifoni ve Guzzo, 2020). Bu geçiş sürecinde uzaktan eğitimin alan yazında sıklıkla belirtilen; zaman ve mekan sınırını ortadan kaldırması, ucuz olması, coğrafi engelleri ortadan kaldırması, fırsat eşitliği sunması ve öğrenme ortamlarında esnekliği sağlaması gibi birçok üstün yönünün çok etkili olduğu söylenebilir (Arkorful ve Abaidoo, 2015; de Oliveira, Penedo, ve Pereira, 2018; Sadeghi, 2019).

Uzaktan eğitim alan yazında belirtilen üstün yönleri incelendiğinde aslında her zaman ihtiyaç duyulan bir yöntem olduğu görülmektedir. Bu bağlamda salgın sürecinde de politika üretenler ve idareciler tarafından eğitimde sürekliliğin sağlanabilmesi amacıyla ilk başvurulan yöntemlerden biri olmuştur (Eyles, Gibbons ve Montebruno, 2020). Ancak salgının çok hızlı gelişmesi ve uzaktan eğitimin planlı – programlı bir süreci bünyesinde barındırması gerekliliği bu dönemde alan yazında farklı bir kavramın ortaya çıkmasına neden olmuştur. Acil Uzaktan Eğitim (AUE) olarak adlandırılan bu süreç; çok iyi düzeyde organize edilmemiş, mükemmel olması beklenmeyen ve acil olarak öğrenme sürecindeki eksiklikleri gidermeye yönelik gerçekleştirilen uygulamalar olarak tanımlanabilmektedir (Hodges, vd., 2020). Yani AUE, kriz anında ortaya çıkan ve öğrenme aktivitelerinin alternatif bir ortama aktarıldığı hızlı bir süreci işaret etmektedir. Bu ani süreç ülkelerin farklı arayışlar içine girerek kendilerine en uygun farklı çözümler bulmaları için de bir fırsat oluşturmuştur (Ferri, Grifoni ve Guzzo, 2020).

Her ne kadar AUE sürecinde uzaktan eğitim uygulamaları çok önemli bir rol üstlense de sürecin çok hızlı gelişmesi bazı sınırlılıkların da daha fazla hissedilmesine neden olmuştur. Bu bağlamda sürecin içinde aktif rol alan öğretmenler, öğrenciler, veliler ve idareciler bazı aksaklıklar yaşamışlardır (Ferri, Grifoni ve Guzzo, 2020). Özellikle okulların kapanması ile birlikte sosyoekonomik olarak daha düşük seviyede olan ailelerde teknolojik araçlara ve internete ulaşma hususunda yaşanan sıkıntılar, ailelerin çocuklarına rehberlik etmede yaşadıkları zorluklar, evde öğretimin devam edebilmesi için fiziksel altyapı eksiklikleri gibi durumlar pandemi sürecinde eğitim-öğretim faaliyetlerinin aksaklığa uğramasında etkili olmuştur (Doyle, 2020; Outhwaite, 2020; Thomas ve Rogers, 2020). Bu sınırlılıkların da özellikle dezavantajlı olan ve uzaktan eğitim sürecine hazır olmayan öğrenenlerin başarısında olumsuz etkilere sahip olduğu söylenebilir (Eyles, Gibbons ve Montebruno, 2020). Doğal olarak bu süreçte sınırlılıkların ortadan kaldırılması ve istenilen etkileri gösterebilmesi için alan yazında da belirtildiği üzere başta öğretmen ve öğrenciler olmak üzere paydaşları içeren eğitimlere ihtiyaç duyulduğu söylenebilir (Ferri, Grifoni ve Guzzo, 2020; Yusuf ve Ahmad, 2020). Alan yazında özellikle acil uzaktan eğitim sürecinde yaşanan sınırlılıklar özetlenerek Şekil 1'de sunulmuştur (Montacute, 2020; Outhwaite, 2020; Thomas ve Rogers, 2020; Verawardina, vd., 2020).



Şekil 1. *Acil uzaktan eğitim sürecinde yaşanan zorluk ve sınırlılıklar*

Şekil 1'de belirtilen sınırlılıkların yanı sıra pandemi dönemi ile birlikte uzaktan eğitim hususunda teknik altyapı ve kullanıcıların alışkanlıkları açısından oldukça olumlu gelişmeler yaşanmıştır. Elde edilen bu tecrübelerin daha etkili bir şekilde öğrenme ortamlarına aktarılması önem arz etmektedir. Özellikle günümüzde karma öğrenme ortamlarının etkinliği üzerine birçok çalışma gerçekleştirilmektedir. Bu durum karma öğrenme ortamlarının önemli bir bileşeni olan uzaktan eğitim sürecinin de sürekli ve gelişerek devam edeceğini göstermektedir. Bu nedenle daha etkili öğrenme ortamlarının geliştirilmesinde ve öğretimin etkililiğinin artırılmasında sürecin uygulayıcısı

olan öğretenlerin görüşlerinin incelenmesi önemli görülmektedir. Bu bağlamda mevcut araştırma kapsamında yüksek öğrenimde pandemi dönemi öncesi ve pandemi dönemi sonrasında öğretenlerin uzaktan eğitime yönelik görüşlerinin incelenmesi ve pandemi döneminden sonra uzaktan eğitime yönelik eğilimlerinin belirlenmesi amaçlanmaktadır. Bu amaç doğrultusunda aşağıdaki araştırma sorularının cevapları aranmıştır.

- Pandemi döneminden önce akademisyenlerin uzaktan eğitim yöntemiyle ders yürütme ve ders alma durumları nasıldır?
- Akademisyenlerin pandemi döneminden önce uzaktan eğitime yönelik görüşleri nelerdir? Pandemi döneminden sonra bu görüşler nasıl bir değişim göstermiştir?
  - Pandemi döneminde akademisyenler en çok hangi örneklem düzeyinde ders yürütmüşlerdir?
- Pandemi döneminden sonra akademisyenlerin öğretim faaliyetlerini devam etmeyi planladıkları örneklem düzeyi hangisidir? Bu örneklemi tercih durumunu etkileyen durumlar nelerdir?
- Pandemi döneminde lisansüstü düzeyinde öğretim faaliyetleri nasıl gelişmiştir?
  - Lisansüstü öğrenenlerin ders devam durumları nasıl olmuştur?
  - Lisansüstü öğrenenlerin programı bırakma durumları nasıl değişmiştir?
- Pandemi döneminde acil uzaktan eğitim sürecinde akademisyenlerin en çok faydalandıkları öğretimsel faaliyetler nelerdir?
- Pandemi döneminde acil uzaktan eğitim sürecinde akademisyenlerin en çok faydalandıkları ölçme-değerlendirme faaliyetleri nelerdir?

YÖNTEM

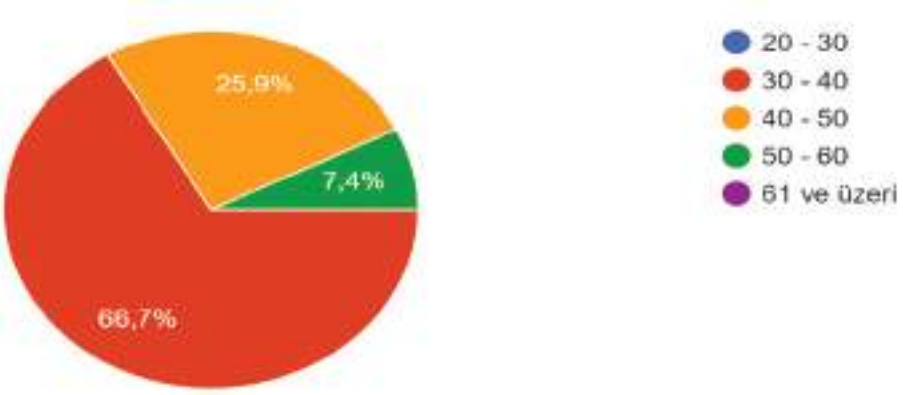
Araştırma Modeli

Araştırma kapsamında nitel araştırma yöntemlerinden durum çalışması deseni tercih edilmiştir. Durum çalışmasının tercihinde uzaktan öğretenlerin deneyimlerinin derinlemesine incelenmesinin gerekliliği etkili olmuştur. Alan yazında da durum çalışması ile yapılan çalışmalarda derinlemesine bilgi toplayabilmek için, bir grup içinden tüm katılımcılar yerine bilgi toplanabilecek kişiler araştırmaya alınabileceği belirtilmektedir (Büyüköztürk, vd., 2010).

Çalışma Grubu

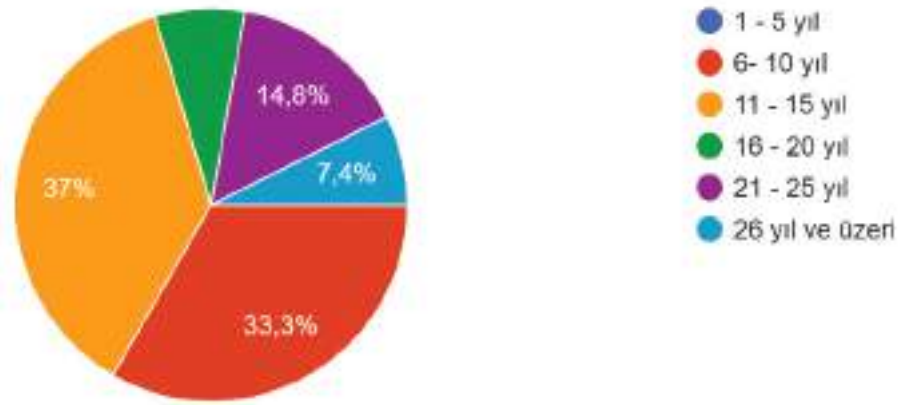
Mevcut araştırma kapsamında 27 akademisyen çalışma grubuna dahil edilmiştir. Akademisyenlerin 21'i erkek altısı ise kadındır. Amaçsal örneklem seçim yöntemi tercih edilmiştir. Bu örneklem seçim yöntemi genellikle belirli bir amaca uygun olarak önemli ve çeşitli bilgi barındırdığı düşünülen grupların ayrıntılı incelenmesinde tercih edilmektedir (Büyüköztürk, vd. 2010). Bu bağlamda katılımcılar gönüllülük esasına uygun olarak çalışmaya dahil olmuşlardır. Katılımcılar araştırmaya dahil edilirken farklı yaş gruplarından, farklı alanlardan ve mesleki tecrübelerinin farklı gruplardan olmasına dikkat edilmiştir.

Araştırmaya katılan öğretim elemanlarının yaş aralıkları incelendiğinde ise 30 ila 60 yaş aralığında oldukları görülmektedir. Katılımcıların yaş aralıkları Grafik 1'de sunulmuştur.



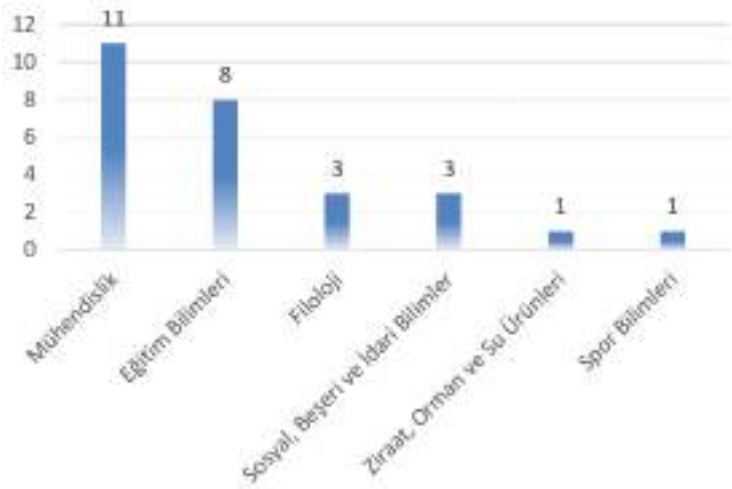
Grafik 1. *Akademisyenlerin yaş aralığı*

Katılımcıların yaş aralıklarının yanı sıra mesleki tecrübelerine bakıldığında ise Grafik 2'de de görüldüğü gibi araştırmaya dahil olanların büyük çoğunluğunun 6 ila 15 yıl arasında mesleki tecrübeye sahip oldukları görülmektedir. Yine mesleki tecrübesi 20 yılın üzerinde olan akademisyenlerin de araştırmaya dahil olduğu söylenebilir.



Grafik 2. *Akademisyenlenlerin mesleki tecrübeleri*

Genellikle mesleki anlamda tecrübeli ve genç akademisyenlerin dahil olduğu mevcut araştırmada farklı alanlardan akademisyenlerin çalışmaya dahil olduğu söylenebilir. Katılımcıların ağırlıklı olarak mühendislik ve eğitim bilimlerinden araştırmaya dahil oldukları görülmektedir. Bunun yanı sıra filolojiden spor bilimlerine kadar farklı bilim dallarından da katılım sağlanmıştır. Bilim alanlarına göre akademisyenlerin dağılımı Grafik 3'te sunulmuştur.



Grafik 3. *Akademisyenlerin bilim alanları*

Verilerin Toplanması

Araştırmada veri toplama tekniği olarak görüşme tekniği kullanılmıştır. Bu amaçla araştırmacı tarafından yarı yapılandırılmış görüşme formu hazırlanmıştır. Yarı yapılandırılmış görüşme formu elektronik ortama aktarılmıştır. Görüşme formunda açık uçlu sorulardan oluşmaktadır. Görüşme formunun geçerliliğini sağlamak amacıyla 3 uzman kişinin görüşleri alınmış ve Türkçe dil uzmanları tarafından kontrol edilen görüşme formuna son hali verilmiştir. Gönüllülük esası göz önünde bulundurularak görüşmeler gerçekleştirilmiştir.

Verilerin Analizi

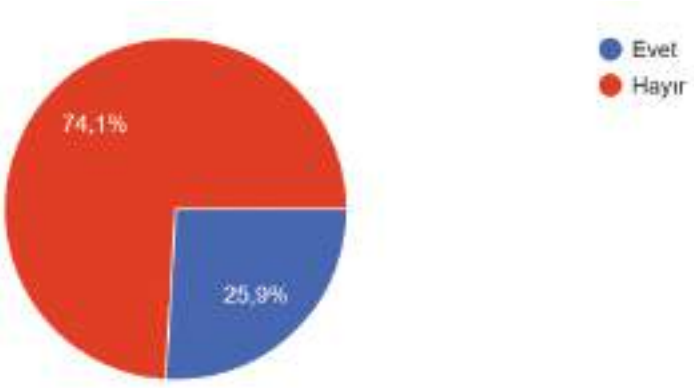
Veri analizi sürecinde içerik analizi yöntemi kullanılmıştır. Çevrimiçi ortamda tutulan veriler araştırmacı tarafından deşifre edilmiştir. Deşifre edilen metin içerikleri, araştırma problemleri çerçevesinde temalar ve analiz birimleri oluşturularak sayısal olarak betimlenmiştir. Bu işlemler gerçekleştirilirken kodlama güvenirliğini sağlamak için araştırmacıdan farklı olarak başka uzmanlar da aynı veriler üzerinde çalışmıştır. Analiz sürecinin neticesinde kod, kategori ve tema yapıları çıkarılmış ve ilişkisel yapılar ortaya koyulmuştur. Ayrıca betimsel istatistiki yöntemler de verilerin analizinde kullanılmış ve yüzde – frekanslar oluşturulmuştur.

BULGULAR

Mevcut araştırma kapsamında katılımcılarla gerçekleştirilen görüşmeler neticesinde elde edilen bulgular araştırma sorularına göre sırasıyla ilgili kısımda sunulmuştur.

Pandemi Döneminden Önce Akademisyenlerin Uzaktan Eğitim Yöntemiyle Ders Yürütme ve Ders Alma Durumları

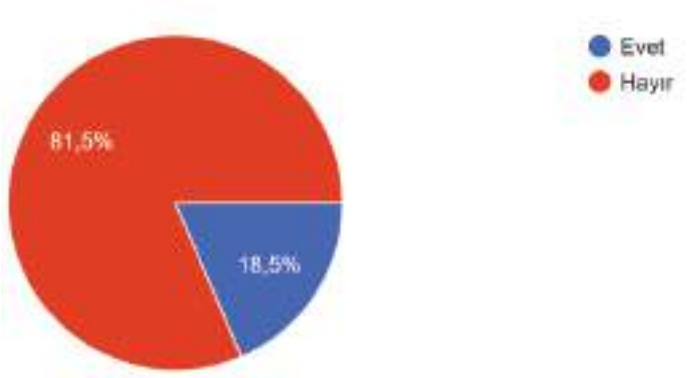
Mevcut araştırma kapsamında öğretim üyelerinin pandemi döneminden önce uzaktan eğitim yöntemi ile ders yürütme durumları incelenmiştir. Elde edilen bulgular Grafik 4'te sunulmuştur.



Grafik 4. *Akademisyenlerin pandemi döneminden önce uzaktan eğitim yöntemiyle ders yürütme durumları*

Grafik 4'te de görüldüğü gibi yanıt veren 27 katılımcıdan 20'si (%74,1) daha önce uzaktan eğitimle herhangi bir ders yürütmediklerini belirtirken yedi katılımcı (%25,9) bu yöntemle ders yürüttüklerini bildirmiştir.

Buna ek olarak mevcut araştırma kapsamında öğretim üyelerinin pandemi döneminden önce uzaktan eğitim yöntemi ile ders alma durumları incelenmiştir. Elde edilen bulgular Grafik 5'te sunulmuştur.



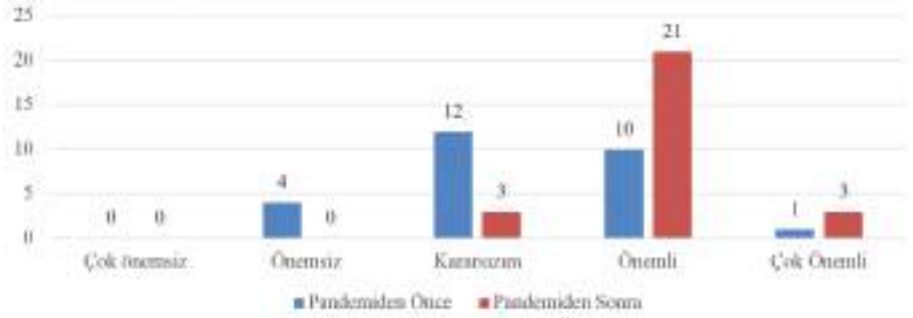
Grafik 5. *Akademisyenlerin pandemi döneminden önce uzaktan eğitim yöntemiyle ders alma durumları*

Katılımcılardan elde edilen veriler incelendiğinde yine büyük çoğunluğunun (N=22; %81,5) uzaktan eğitim yöntemiyle herhangi bir ders almadığını belirtirken; sadece beş katılımcı (%18,5) bu yöntemle en az bir ders aldığını vurgulamıştır.

Genel olarak katılımcıların büyük kısmının uzaktan eğitim yöntemiyle ders alma ve yürütme süreçlerinden pandemi döneminden önce bulunmadıkları; küçük bir grubun ders yürütme ve ders alma aktivitelerini gerçekleştirdiği görülmüştür.

Akademisyenlerin Pandemi Döneminden Önce ve Sonra Uzaktan Eğitime Yönelik Görüşleri

Katılımcıların pandemi döneminden önce ve pandemi döneminden sonra uzaktan eğitim süreçlerine genel olarak bakış açıları incelenmiş ve bulgular Grafik 6'da sunulmuştur.



Grafik 6. *Pandemi döneminden önce ve pandemi döneminde uzaktan eğitime yönelik görüşler*

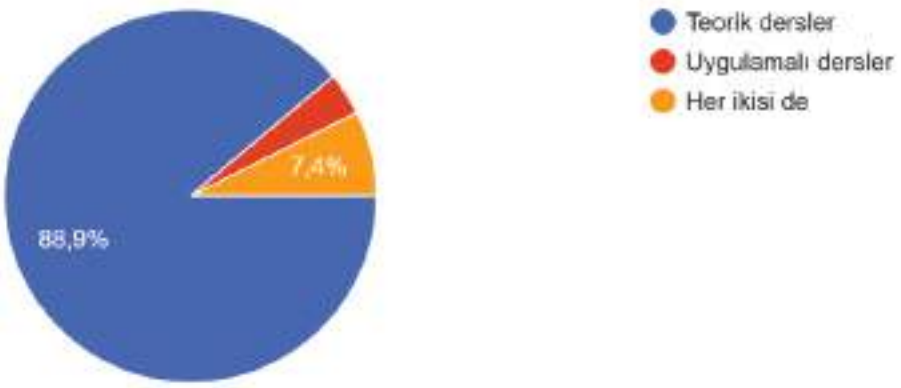
Katılımcıların pandemi döneminden önce ve sonra uzaktan eğitim uygulamalarına bakışları incelendiğinde pandemi döneminden sonra uzaktan eğitime verilen önemin daha fazla arttığı görülmektedir. Özellikle uzaktan eğitimin önemine yönelik kararsız görüş bildiren katılımcıların pandemi dönemi ile birlikte bu sürecin önemli olduğunu vurguladıkları görülmüştür.

Katılımcıların uzaktan eğitimin önemine yönelik görüşlerindeki değişimin sebebi incelendiğinde; genellikle eğitimin kesintisiz devam etmesinin önemli bir etken olduğu belirtilmiştir. Bunun yanı sıra uzaktan eğitim sistemlerine dahil olduktan sonra önemini daha iyi anladıkları ve normalleşme sürecinde de artık uzaktan eğitimi tercih edebileceklerini belirttikleri görülmüştür. Örnek katılımcı görüşlerine aşağıda yer verilmiştir.

> *"Sürecin neden önemli olduğunu uzaktan eğitime geçtikten sonra fark ettik. Yani işin içinde olmak önemliydi"*
>
> *"Uzaktan eğitimin yapısı itibarıyla sağladığı ciddi olanakların olduğunu gözlemledim. Bu nedenle çok önemli olduğunu ve yüz yüze eğitimi destekleyici olarak salgın sonrasında da sürdürülmesi gerektiğini düşünüyorum."*
>
> *"Pandemiden sonra uzaktan eğitim sayesinde eğitime ara vermeden devam edildi. Uzaktan eğitimin önemini daha iyi anladık."*

Akademisyenlerin Pandemi Döneminde Sıklıkla Ders Yürüttükleri Öğrenen Düzeyi

Katılımcılara uzaktan eğitim süreçlerinde hangi örneklem düzeylerinde ders yürüttükleri incelenmiştir. Bu bağlamda katılımcıların tamamı lisans düzeyinde ders yürüttüklerini belirtmişlerdir. Büyük çoğunluğu (%77,8) lisansüstü düzeyde de eğitimler verdiğini söylemiştir. Ayrıca az da olsa (%7,4) diğer düzeylerle birlikte önlisans düzeyinde de eğitim veren katılımcılar bulunmaktadır. Yine katılımcıların hangi tür derslerde uzaktan eğitim uygulamalarını tercih ettikleri incelendiğinde; çok büyük bir çoğunluğu teorik derslerde tercih ettiklerini söylemişlerdir (N=24; %88,9). Bunun yanı sıra sadece bir katılımcı uygulamalı derslerde uzaktan eğitimi tercih edeceğini belirtirken; iki katılımcı da hem uygulamalı hem de teorik derslerde uzaktan eğitimin etkili olabileceğini vurgulamıştır.



Grafik 7. *Uzaktan eğitim uygulamalarının en çok tercih edileceği dersler*

Akademisyenlerin Pandemi Döneminden Sonra Uzaktan Eğitim Yöntemiyle Ders Yürütmeyi Planladıkları Öğrenen Düzeyi ve Tercih Nedenini Etkileyen Durumlar

Katılımcıların uzaktan eğitim vermeyi planladıkları veya istedikleri öğrenme düzeyi incelendiğinde ise çok büyük bir kısmının lisansüstü eğitimde tercih edebileceklerini belirtmişlerdir (N=22; %81,5). Bunun yanı sıra lisans düzeyinde de etkili kullanılabileceğini belirten katılımcılar bulunmaktadır (N=5; %18,5). Ancak önlisans düzeyinde tercih etmeyeceklerini belirtmişlerdir. Buna ek olarak katılımcılar uzaktan eğitimin en etkili yürütülebileceği düzeyin ise lisansüstü eğitim olduğunu (N=23; %85,2); lisans düzeyinde de etkili kullanabileceklerini belirtmişlerdir (N=4; %14,8). Ancak yine önlisans düzeyinde tercih etmeyeceklerini belirtmişlerdir.

Katılımcıların uzaktan eğitim yöntemiyle ders vermeyi tercih ettiğiniz gruba yönelik tercih nedenlerinizi etkileyen durumlar incelenmiştir. Bu bağlamda elde edilen bulgular Tablo 1'de sunulmuştur.

Tablo 1. *Uzaktan eğitimle ders verilmesi tercih edilen gruba yönelik tercih nedenlerini etkileyen durumlar*

	f	%
Zaman ve mekan sınırını ortadan kaldırma	20	74,1
Coğrafi engelleri ortadan kaldırma	16	59,3
Ders materyallerine kolay erişim imkanı	14	51,9
Ders sürecinde esneklik tanıma	12	44,4
Ders materyallerin güncellenme ve dağıtım kolaylığı	10	37
Etkili geribildirim	10	37
İletişim ve etkileşim kolaylığı	8	29,6
Öğrenci sayısının yeterli oluşu	6	22,2
Ders katılımındaki artış	4	14,8
Ders süresinin yeterli oluşu	4	14,8
Öğrenci katılımının takip kolaylığı	1	3,7

Katılımcıların genel görüşleri incelendiğinde özellikle uzaktan eğitim ortamlarının zaman ve mekan sınırını ortadan kaldırmalarının tercih edilmesinde önemli olduğunu belirttikleri görülmüştür. Bunun yanı sıra yine coğrafi engellerin ortadan kaldırılmasının da tercih nedenini etkileyen önemli durumlar arasında belirtilmiştir. Ayrıca ders materyallerine kolay erişim, ders sürecinde esneklik sağlama, ders materyallerinin güncellenme ve dağıtım kolaylığı ve etkili geribildirim sağlaması da tercihi etkileyen en önemli durumlar arasında gösterilmiştir.

Katılımcılar uzaktan eğitim yöntemini tercih etmelerinin yanında bazı durumların da tercih nedenini etkileyen sınırlılıklara neden olduğunu belirtmiştir. Bu bağlamda elde edilen bulgular Tablo 2'de sunulmuştur.

Tablo 2. *Uzaktan eğitimde tercih nedenini etkileyen sınırlılıklar*

	f	%
Yüzyüze iletişim eksikliği	7	25,93
Ölçme - değerlendirme süreçleri	5	18,52
Öğrenen takibinin (kontrolünün) zorluğu	5	18,52
Öğrenen katılımının yetersizliği	4	14,81
Uygulamalı ve sayısal içerikli derslerin yapısı	3	11,11
Teknik aksaklıklar	2	7,41
Ders süresinin iyi ayarlanmaması	1	3,70
Öğretenlerin yükünün artması	1	3,70
Sınırlılık yok	6	22,22

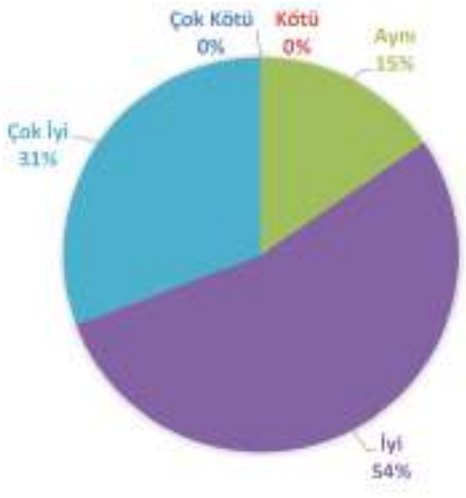
Katılımcıların genel görüşleri incelendiğinde tercih nedenin etkileyen en önemli sınırlılığın yüz yüze etkileşimin sınırlı olması olduğu görülmüştür. Buna ek olarak ölçme – değerlendirme süreçlerinde yaşanan aksaklıklar, öğrenci takibi ve kontrolünün zorluğu ve öğrenenlerin derse katılmadaki isteksizlikleri de belirtilen sınırlılıklar arasındadır. Ayrıca uygulamalı ve sayısal içerikli derslerde öğrenenlerin yeterli imkana

sahip olmamaları ve yeterli düzeyde dersi anlamamaları da belirtilen sınırlıklar arasında gösterilebilir.

Pandemi Döneminde Lisansüstü Eğitimde Öğretim Faaliyetlerinin Gerçekleştirilmesi

Lisansüstü Öğrenenlerinin Ders Devam Durumları

Mevcut araştırma kapsamında katılımcıların il dışından lisansüstü öğrencilerinin olup olmadığı incelenmiştir. Katılımcıların lisansüstü öğrencilerinin büyük çoğunluğunun il dışından olduğu görülmüştür (%88.9). Bunun yanı sıra sayıları sınırlı da olsa aynı il sınırlarında lisansüstü öğrenciler de bulunmaktadır (%11.1). Bu duruma istinaden il dışından katılım sağlayan lisansüstü öğrencilerin uzaktan eğitim ortamlarında derse devam etme durumları incelenmiştir. Elde edilen bulgular Grafik 8'de sunulmuştur.

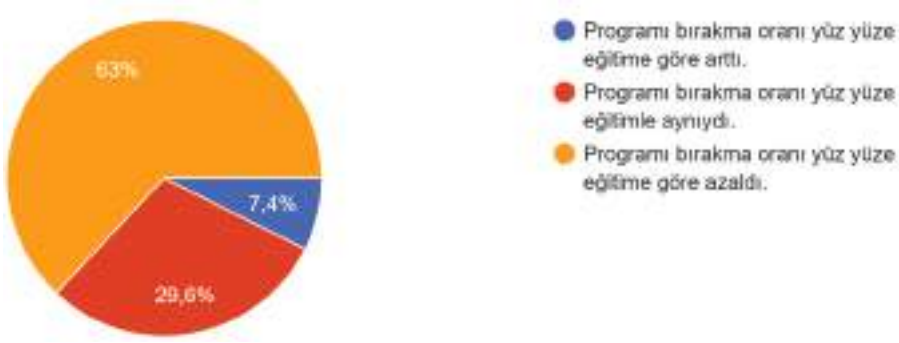


***Grafik 8**. Lisansüstü öğrenenlerin uzaktan eğitim sürecinde ders devam durumları*

Grafik 8'de de görüldüğü üzere il dışından lisansüstü öğrenimine devam eden öğrencilerin ders katılımlarının yüz yüze eğitime göre daha iyi olduğu görülmüştür. Bu bağlamda ders devam durumlarının yüz yüze eğitime oranla çok daha iyi olduğunu belirten katılımcılar (%31) iken; iyi olarak tanımlayanlar %54'tür. Yani katılımcıların %85'i uzaktan eğitimde ders katılım oranının çok daha iyi olduğunu vurguladıkları görülmüştür. Bunun yanı sıra ders katılımında herhangi bir fark olmadığını belirten katılımcılar da bulunmaktadır (%15).

Lisansüstü Öğrenenlerinin Programı Bırakma Durumları

Mevcut araştırma kapsamında katılımcılarla ders devam durumlarının yanı sıra öğrenenlerin programı bırakma durumları da incelenmiştir. Elde edilen bulgular Grafik 9'da sunulmuştur.

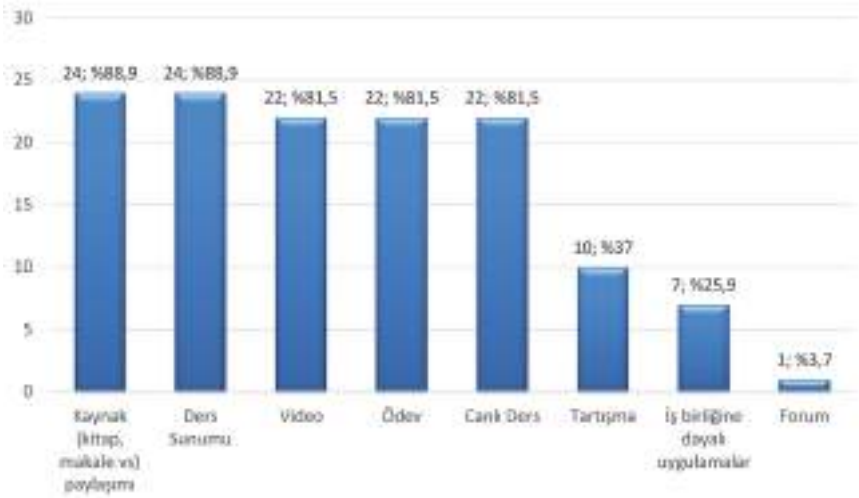


Grafik 9. *Lisansüstü öğrenenlerin programı bırakma durumları*

Grafik 9'da da görüldüğü üzere katılımcılar uzaktan öğrenme ortamlarında programı bırakma oranının yüz yüze öğrenme ortamlarına göre oldukça düştüğünü belirtmişlerdir (%63). Bunun yanı sıra bazı katılımcılar bu oranın aynı olduğunu vurgularken (%29.6); çok azı ise yüz yüze öğrenme ortamlarında programı bırakma durumunun daha az olduğunu söylemişlerdir (%7.4).

Pandemi Döneminde Acil Uzaktan Eğitim Sürecinde Akademisyenlerin En Çok Faydalandıkları Öğretimsel Faaliyetler

Katılımcıların uzaktan eğitim yöntemiyle yürüttükleri derslerde faydalandıkları etkinlikler mevcut araştırma kapsamında incelenmiş ve elde edilen bulgular Grafik 10'da sunulmuştur.



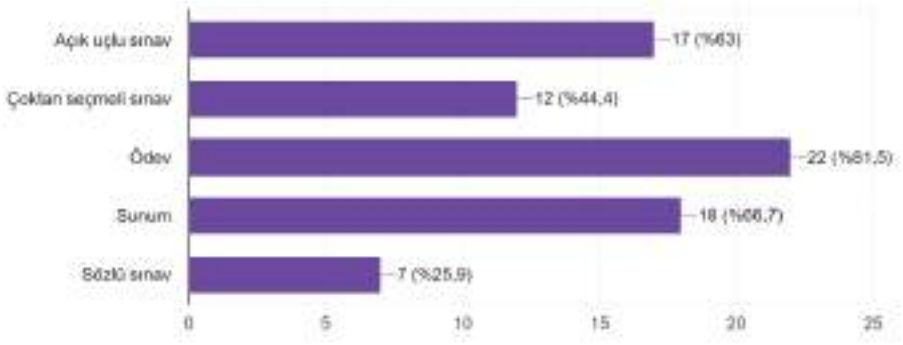
Grafik 10. *Uzaktan eğitim sürecinde akademisyenlerin gerçekleştirdikleri faaliyetler*

Katılımcılarla elde edilen bulgular neticesinde uzaktan eğitimle yürütülen derslerde genellikle kaynak ve ders sunumlarının öğrenenlerle paylaşıldığı görülmüştür. Bunun yanı sıra video, ödev ve canlı ders etkinliklerinden de sıklıkla faydalanıldığı vurgulan-

mıştır. Ancak tartışma ve diğer işbirliğine dayalı uygulamaların katılımcılar tarafından çok fazla tercih edilmediği söylenebilir. Ayrıca en az kullanılan aracın da forumlar olduğu görülmüştür.

Pandemi Döneminde Acil Uzaktan Eğitim Sürecinde Akademisyenlerin En Çok Faydalandıkları Ölçme-Değerlendirme Faaliyetleri

Mevcut araştırma kapsamında katılımcıların en etkili ölçme - değerlendirme sürecini gerçekleştirdikleri örneklem grubunun hangisi olduğu da araştırılmıştır. Bu bağlamda katılımcıların büyük çoğunluğu lisansüstü düzeyde en etkili ölçme - değerlendirme aktiviteleri gerçekleştirdiklerini söylemişlerdir (%66.7). Bazı katılımcılar lisans düzeyinde ölçme - değerlendirme süreçlerinin daha etkili olduğunu vurgularken (%29.6); çok az katılımcı önlisans düzeyinde bu sürecin daha etkili olduğunu söylemişlerdir (%3.7). Ölçme - değerlendirme süreçlerinin en etkili yürütüldüğü grup olarak görülen lisansüstü eğitimde katılımcıların en çok hangi aktiviteleri gerçekleştirdikleri incelenmiştir. Elde edilen bulgular Grafik 11'de sunulmuştur.



Grafik 11. *Uzaktan eğitim sürecinde katılımcıların faydalandıkları ölçme-değerlendirme teknikleri*

Katılımcıların genel görüşleri incelendiğinde uzaktan eğitimle yürütülen derslerde ölçme -değerlendirme aşamasında en çok sırasıyla ödev (N:22; %81.5), sunum (N:18; %66.7) ve açık uçlu sınav (N:17; %63) aktivitelerinin gerçekleştirildiği görülmüştür. Bunun yanı sıra çoktan seçmeli sınavların da katılımcılar tarafından tercih edildiği söylenebilir (N:12; %44.4). Ancak sözlü mülakat şeklinde olan araçların en az tercih edildiği görülmüştür (N:7; %25.9).

SONUÇ, TARTIŞMA VE ÖNERİLER

Yüksek öğrenimde pandemi dönemi öncesi ve pandemi dönemi sonrasında öğretenlerin uzaktan eğitime yönelik görüşlerinin incelenmesi ve pandemi döneminden sonra uzaktan eğitime yönelik eğilimlerinin belirlenmesinin amaçlandığı mevcut araştırma kapsamında ulaşılan sonuçlara araştırma sorularına göre bu bölümde yer verilmiştir.

Mevcut araştırmada katılımcıların yaş aralıklarına bakıldığında genellikle 30 ila 40 yaş aralığındaki akademisyenlerin sayılarının diğer gruplara göre oldukça yüksek ol-

duğu görülmüştür. Bunun yanı sıra mesleki tecrübesi 6-10 ve 11 - 15 olan katılımcıların araştırmaya daha fazla dahil olduğu görülmüştür. Bu durum mesleki açıdan genç sayılabilecek ve mesleki olgunluğa erişmiş katılımcıların araştırmaya dahil edildiğini göstermektedir. Bunun yanı sıra mesleki tecrübesi daha yüksek olan 40 yaş üstü ve 20 yıldan fazla akademide bulunan katılımcıların da sayılarının azımsanmayacak düzeyde olduğu söylenebilir. Yaş durumunun özellikle uzaktan eğitime bakış açısını etkilediği düşünülmektedir. Bazı araştırmalarda uzaktan eğitim sürecinde ileri yaş grupları ile nispeten daha gençler arasında uzaktan eğitimin algılanmasına yönelik farklılıklar olduğu belirtilmektedir (Sayan, 2020). Bu durumda mevcut araştırma kapsamındaki görüşleri etkileyebilmektedir. Ayrıca katılımcıların bilim dalları incelendiğinde mühendislikten spor bilimlerine kadar birçok alanda faaliyet gösteren akademisyenler araştırmaya dahil edilmiştir. Bu durum özellikle uzaktan eğitime yönelik uygulamalı ve teorik ders ayrımının var olmasından dolayı oldukça önemli görünmektedir. Katılımcıların bilim dalları farklı olsa da birçok konuda ortak fikir beyan etmeleri önemli bir durumdur. Bu durumun oluşmasında özellikle Covid - 19 pandemi sürecinde bütün katılımcıların uzaktan yürütülen derslerle muhatap olmalarının etkili olduğu düşünülmektedir. Mevcut pandemi şartları nedeniyle farklı alanlarda bulunan katılımcıların sürecin içine dahil olmaları ile birlikte hemen her alanda uzaktan eğitimin etkilerine yönelik ortak fikirlerin oluştuğu düşünülmektedir. Yani pandemi ile birlikte bütün paydaşların önceden çok tanımadıkları uzaktan eğitim sürecine dahil oldukları ve deneyimleri sonucu uzaktan eğitime yönelik görüşlerinin oluştuğu söylenebilir.

Katılımcıların pandemi döneminden önce uzaktan eğitim yöntemi ile ders alıp verme etkinlikleri incelendiğinde büyük çoğunluğunun pandemiden önce ders alıp vermedikleri görünmüştür. Bu bağlamda pandemi döneminden önce alanda çalışan akademisyenler haricinde uzaktan eğitime yönelik sürecin içinde bulunulacak bir tecrübeye sahip olmadıkları söylenebilir. Bu durumun pandemi döneminde uzaktan eğitim derslerinin işlenişini ve katılımcıların uzaktan eğitime yönelik görüşlerinin değişmesine neden olduğu düşünülmektedir. Çok acil olan bu süreçte öğrenenler gibi daha önce süreci tecrübe etmemiş akademisyenlerin de bir alışma sürecine girdikleri söylenebilir. Tecrübe eksikliğinin uzaktan eğitime yönelik tutumu etkilediği alanyazında sıklıkla belirtilmektedir (Brinkerhoff ve Koroghlanian, 2005; Chang ve Tung, 2008).

İlgili araştırmada katılımcıların pandemi döneminden önce ve pandemi döneminden sonra uzaktan eğitime yönelik genel görüşleri incelenmiştir. Pandemi döneminden önce katılımcıların bazılarının uzaktan eğitimi önemsiz gördüğü ve kayda değer bir kısmının da süreç hakkında kararsız olduğu söylenebilir. Ancak pandemi döneminden sonra önemsiz olan görüşlerin tamamen ortadan kalktığı kararsızların sayısının çok azaldığı belirlenmiştir. Bunun yanı sıra pandemi döneminden önce uzaktan eğitimi önemli ve çok önemli görenlerin sayısı sınırlıyken; pandemi döneminden sonra bu sayının da oldukça arttığı söylenebilir. Bu durumun oluşmasında daha önceden uzaktan eğitim sürecini tecrübe etmeyen katılımcıların özellikle pandemi döneminin sınırlılıkları ile birlikte uzaktan eğitimin avantajlarını tecrübe ettikleri ve bu avantajları günlük yaşamlarında öğretimin devam etmesi için etkili bir şekilde kullanmalarının önemli olduğu düşünülmektedir. Alanyazında da uzaktan eğitim sürecini tecrübe eden bireylerin olumlu bir tutum içine girdikleri belirtilmektedir (Brinkerhoff ve Koroghlanian, 2005; Chang ve Tung, 2008). Katılımcılar daha öncesinde önyargı-

lı baktıkları uzaktan eğitim sürecine yönelik süreç içinde olumlu tutum oluşturmuş olabilirler. Uzaktan eğitimin en önemli avantajları arasında yer alan coğrafi engelleri ortadan kaldırması ve acil durumlarda eğitimin kesintisiz devam etmesini sağlaması gibi özellikleri katılımcıların görüşlerinin değişmesinde oldukça önemli bir etkiye sahip olduğu söylenebilir. Setiawan (2020) da benzer şekilde öğretimin daha güvenli ve sürekli devam etmesini önemli avantajlar arasında göstermektedir. Bu değişim mevcut şartlar değiştikten sonra da uzaktan eğitimin tercih edilebilirliğini artırmaktadır.

Mevcut araştırma kapsamında katılımcıların uzaktan eğitimde bulundukları örneklem grupları incelenmiştir. Bu bağlamda katılımcıların tamamının lisans düzeyinde eğitimler verdiği çok büyük bir kısmının ise yüksek lisans düzeyinde eğitimlerini devam ettirdikleri görülmüştür. Ön lisans düzeyinde de eğitim veren katılımcılar bulunmaktadır. Ayrıca katılımcıların uzaktan eğitimi hangi tür derslerde tercih edecekleri incelendiğinde; çok büyük bir çoğunluğunun teorik derslerde uzaktan eğitimin daha etkili olacağı kanaatinde olduğu görülmüştür. Bu bağlamda uygulamalı derslerde uzaktan eğitimin etkili bir şekilde yürütüleceğini düşünen katılımcı sayısı oldukça azdır. Ancak uzaktan eğitimin temel özellikleri incelendiğinde iyi planlanmış ortamların teorik ve uygulamalı derslerde etkili sonuçlar verdiği söylenebilir. Alanyazında da uygulama gerektiren derslerde de uzaktan eğitim yönteminin etkili sonuçlar verebileceği vurgulanmaktadır (Alasmari, 2021). Bu görüşün oluşmasında pandemi döneminin sınırlılıklarının önemli olduğu düşünülmektedir. Yani çok kısa bir zamanda hazırlanarak yüz yüze yürütülen derslerin uzaktan öğrenme ortamlarına taşınması, uygulamalı dersler için fazladan yapılması gereken etkinlikleri iyi bir şekilde planlanamamasına neden olmuş olabilir. Palloff ve Pratt (2007) da benzer şekilde uzaktan eğitim süreçlerinin ciddi bir planlama gerektirdiğini vurgulamaktadır. Bu bağlamda katılımcılar teorik derslerin yürütülmesini daha kolay görmüş olabilirler. Benzer şekilde Mukhtar, Javed, Arooj ve Sethi (2020) uzaktan eğitim ortamlarının öğrencilerin kendi öğrenme süreçlerini yönetmelerinde esnek ve etkili öğrenme deneyimleri sunmalarına rağmen uygulama gerektiren durumlarda sınırlılıkları olduğunu vurgulamıştır.

Uzaktan eğitimle ders verilmesi tercih edilen örneklem düzeyi incelendiğinde; özellikle lisansüstü eğitimde uzaktan eğitimin tercih edilebilirliğinin yüksek olduğu görülmüştür. Ayrıca lisans düzeyinde de uzaktan eğitim aktivitelerinden faydalanmak istedikleri söylenebilir. Ancak ön lisans düzeyinde uzaktan eğitimi tercih edilmediği vurgulanmaktadır. Katılımcılar uzaktan eğitim etkinliklerinin en verimli ve etkili şekilde lisansüstü eğitimler için uygulanabileceğini düşünmektedirler. Buna ek olarak az da olsa bu etkinliklerin lisans düzeyinde de uygulanabileceğini belirten katılımcılar bulunmaktadır. Katılımcılar ağırlıklı olarak lisans düzeyinde eğitimler verse de özellikle lisansüstü öğrenimin uzaktan eğitim için daha uygun olduğu kanaatindedir. Bu kanaatin oluşmasında öğrenci özelliklerinin önemli olduğu düşünülmektedir. Yani kendi öğrenme sorumluluklarını alabilen ve motive öğrencilerin bulunduğu gruplarda uzaktan eğitimin daha etkili yürütüldüğü ve bu durumun katılımcıların görüşünü etkilediği düşünülmektedir. Bonk (2002) da benzer şekilde süreç içindeki motivasyon eksikliğinin uzaktan eğitime yönelik algıyı etkilediğini belirtmiştir. Buna ek olarak daha fazla rehberliğe ihtiyacı olan gruplarda uzaktan eğitimin nispeten daha az tercih edildiği görülmüştür. Burada da uzaktan eğitimde rehberlik hizmetlerinin tercih nedenini etkileyen önemli bir durum olduğu söylenebilir. Zira lisans ve ön lisans öğ-

rencilerinin lisansüstü eğitime göre daha fazla rehberliğe ihtiyaçları olduğundan katılımcılar bu gruplarda uzaktan eğitime daha az tercih etmiş olabilirler. Alanyazında da yeterli olmayan öğrenen–öğreten iletişiminin ve rehberlik hizmetlerinin sınırlı olmasının uzaktan eğitimin en temel sorunları arasında gösterilmektedir (Falowo, 2007; Galusha, 1997; Li, 2009).

Mevcut araştırmada uzaktan eğitimin tercih nedenini etkileyen en temel durumların zaman - mekan sınırını ortadan kaldırması ve coğrafi engel sınırlılığına son vermesi olduğu söylenebilir. Bu durum uzaktan eğitimin en önemli avantajları arasında gösterilebilir. Pandemi döneminde de bireylerin yüz yüze öğrenme ortamlarından uzak kalması ve bu ortamlara erişim imkanının ortadan kalkması katılımcıların bu yönde görüş bildirmelerine neden olmuş olabilir. Benzer şekilde Barnes (2020) de acil uzaktan eğitim sürecinin eğitimin devamlılığının sağlanmasındaki önemine vurgu yaparak fakültelerin gelişimlerine ve aktivitelerine devam edebildiğini belirtmiştir. Ayrıca uzaktan eğitim sürecinde ders materyallerine kolay erişim, ders materyallerinin güncellenme ve dağıtım kolaylığı ve buna ek olarak ders sürecindeki esneklik de tercih nedenini etkileyen en önemli durumlar arasındadır. Yine bu görüşün ortaya çıkmasında öğretenlerin öğrenenlere dersin daha etkili ve verimli geçmesi için hazırlamış oldukları materyalleri öğrenenlere ulaştırma kaygılarının önemli rolü olduğu düşünülmektedir. Alasmari (2021) de bu süreçte öğrenenlere öğretim materyallerinin sunulmasında mevcut sürecin çok önemli avantajlarının olduğunu vurgulamıştır. Ayrıca uzaktan eğitim sürecinde etkili geri bildirim sağlama, iletişim ve etkileşim kolaylığı da tercih edilebilirliği etkileyen durumlar arasındadır. Burada özellikle uzaktan eğitim sürecinde öğretenlerin sürekli rehberlik hizmetinde bulunmalarının ve kullanılan çeşitli iletişim araçlarıyla rehberlik hizmetinin etkili yürütülmesinin önemli rolü olduğu düşünülmektedir. Ayrıca uzaktan eğitim sistemleri sayesinde öğrenen – öğrenen, öğrenen - öğreten ve öğrenen - içerik arasındaki iletişimin çift yönlü ve sürekli olduğu da alan yazında sıklıkla vurgulanmakla birlikte bu etkileşim türlerinin etkili bir şekilde entegrasyonu sonucunda her birinin varlığının öğrenme çıktıları üzerine olumlu etkileri olduğu vurgulanmaktadır (Bernard, vd., 2009). Bunun yanı sıra derse katılan öğrenci sayısındaki artış, ders süresinin yeterli görülmesi ve ayarlanabilir olması ayrıyeten öğrenci takibinin sistem üzerinden nispeten daha kolay olması da tercih nedenini etkileyen önemli durumlar arasındadır. Bu durumun oluşmasında da özellikle kullanılan LMS'lerin önemli rolünün olduğu düşünülmektedir. Günümüzde kullanılan LMS'lerde öğrencilerin takibini ve öğrenme sürecini kolaylaştıran birçok özelliği bünyesinde barındıran üstün yönlerinin olduğu görülmektedir.

Uzaktan eğitimin tercihini olumlu yönde etkileyen durumlar olduğu gibi bazı sınırlıklarında tercihi yine olumsuz yönde etkilediği söylenebilir. Özellikle bu durum katılımcıların lisans ve ön lisansta lisansüstü eğitime göre uzaktan eğitimi daha az tercih etmelerine sebep olmuş olabilir. Uzaktan eğitimin tercih edilebilirliğini olumsuz yönde etkileyen en temel durumun yüz yüze iletişim eksikliği olduğu söylenebilir. Alanyazın incelendiğinde de uzaktan eğitimin en önemli sınırlılıkları arasında bu durum gösterilmektedir (Appana, 2008; Dumford ve Miller, 2018). Bunun yanı sıra ölçme - değerlendirme süreçlerinde yaşanan sınırlılıklar, öğrenci kontrolünün zor olması, öğrenenlerin derse aktif katılımının azalması ve uzaktan eğitimin özellikle uygulamalı derslerde dersin yapısına tam uygun olmaması tercih edilebilirliği olumsuz yönde

etkileyen durumlar arasındadır. Ayrıca uzaktan eğitimin sınırlılıkları arasında gösterilen teknik aksaklıkların yaşanması ve öğretenlerin daha fazla emek sarf etmesi de tercih edilebilirliği etkileyen sınırlılıklar arasında görülmektedir.

Katılımcıların uzaktan eğitim sürecinde farklı etkinliklerden faydalandıkları söylenebilir. Bu bağlamda özellikle kaynak paylaşımında ve ders sunumlarının öğrenenlere iletilmesinde uzaktan eğitimin etkili bir şekilde kullanıldığı söylenebilir. Ayrıca öğrenenlere video içeriklerinin sunulmasında ve canlı ders aktivitelerinin gerçekleştirilmesinde de kullanılan sistemler ciddi kolaylıklar sağlamıştır. Bunun yanı sıra ödev, tartışma, forum ve işbirliğine dayalı araçlar da yine uzaktan eğitim sürecinde öğretenlerin faydalandıkları araçlar arasındadır. Genel olarak incelendiğinde uzaktan eğitim sistemlerinin sunmuş oldukları imkanların pandemi sürecinde de öğretenlerin öğrenenlere ulaşmasında etkili araçlar olarak kullanıldı söylenebilir. Sindiani, vd., (2020) de öğretim teknolojilerinde yaşanan gelişmeler ile birlikte uzaktan eğitim süreçlerinin çok daha kolay yürütüldüğü platformların ortaya çıktığını vurgulamaktadır. Bu bağlamda özellikle derslerin devam etmesinde, ölçme-değerlendirme süreçlerinin yürütülmesinde ve iletişim - etkileşim araçlarının etkili bir şekilde kullanılmasında birçok uygulamanın kullanıldığı söylenebilir. Özellikle pandemi döneminde derslerin daha verimli geçmesini sağlama isteği gerçekleştirilen aktivitelerin sayısında artışa neden olmuş olabilir.

Katılımcıların uzaktan eğitimle ders yürütmeyi en çok tercih ettikleri grup olan lisansüstü öğrenenlere yönelik mevcut durum incelendiğinde il dışında çok fazla öğrencinin sürece dahil olduğu söylenebilir. Bu durum doğal olarak pandemi döneminde öğrenenlerin derse ve programa devam etme oranlarına oldukça etkileyebilecek durumlar arasında gösterilebilir. Ancak genel olarak bakıldığında pandemi döneminde lisansüstü eğitimine devam eden öğrenenlerin derse devam durumlarını yüz yüze eğitime göre artmış olduğu görülmektedir. Bu durumun oluşmasında uzaktan eğitim süreçlerinin sağlamış olduğu esnekliğin önemli olduğu düşünülmektedir. Öğreten ve öğrenenler istedikleri zaman ve istedikleri yerden derslere devam edebilmiş olmaları ders devam durumunu artırmış olabilir. Ayrıca lisansüstü öğrenenlerin programı bırakma durumları incelendiğinde önceki dönemlere göre programlı bırakma oranlarının düşmüş olduğu görülmüştür. Burada da yine öğrenenlerin derse devam edebilmelerinin önemli bir avantajı olduğu düşünülmektedir. Çünkü yüz yüze devam eden süreçlerde özellikle il dışından katılan öğrenenler derslere devam etmekte zorlanmaktadırlar. Ayrıca lisansüstü eğitimine devam eden öğrenenler genellikle bir iş grubuna dahil olduklarından ve tam zamanlı çalıştıklarından öğretimin gerçekleştirildiği kuruma belirli saat ve zamanlarda gitme zorluğu yaşamaktadırlar. Bu nedenle bir süre sonra programı bırakmaya neden oldu söylenebilir. Ancak pandemi döneminde özellikle öğrenenlerin evlerinden derslere devam etmeleri zaman ve mekan sınırına maruz kalmamaları ve herhangi bir coğrafi engele takılmamaları programı bırakma oranını düşürmüş olabilir. Araştırmalar da akran ve öğretmen desteğinin öğretimi bırakma kararı üzerine etkili olduğunu vurgulamaktadır (Coman, vd., 2020; Potra, vd., 2021). Bu açıdan bakıldığında özellikle öğretimi destekleyecek materyallerin öğrenenlere sunulmuş olması, etkili iletişim kanallarının kurulmuş olması ve öğretmen desteğinin programı bırakma oranını düşürdüğü düşünülmektedir.

Mevcut araştırma kapsamında en etkili ölçme-değerlendirme süreçlerinin lisansüstü eğitimde gerçekleştirildiği görülmüştür. Öğretenler bu süreçte ödev, sunum ve açık uçlu sınav gibi farklı ölçme-değerlendirme tekniklerini kullanmışlardır. Burada özellikle lisansüstü eğitimde öğrenci sayısının azlığı ve kendi öğrenme sorumluluğunu alabilen bireylerin bulunması nedeniyle etkili ölçme-değerlendirme süreçlerinin gerçekleştirildiği düşünülmektedir. Mevcut ölçme-değerlendirme araçları düşünüldüğünde ve alanyazın incelendiğinde uzaktan eğitim süreçlerinde genellikle çoktan seçmeli sınavlar gibi nesnel değerlendirmelerin öğrenenlere sunulduğu ve bu durumun ölçme-değerlendirme etkinliklerini zayıflattığı düşünüldüğü söylenebilir (Baran, 2020). Benzer şekilde Simonson, Smaldino, Albright ve Zvacek, (2012) nesnel değerlendirmenin değerlendirme aşamasında bir yargıya varmayı kolaylaştırsa da üst düzey becerilerin ölçülmesinde sınırlı kaldığını belirtmektedirler. Ancak lisansüstü eğitimde özellikle performansa dayalı ölçme süreçlerinin de işe koşulması ile birlikte, öğrenci sayısının az olması, derinlemesine öğrenme aktivitelerinin gerçekleştirilmesi ve öğrenenlerin motive bir şekilde programa devam etmeleri ölçme değerlendirme süreçlerinin de daha sağlıklı yürütülmesine imkan tanımış olabilir.

Çalışma kapsamında elde edilen sonuçlar bağlamında aşağıdaki öneriler sunulmuştur.

- Pandemi döneminde elde edilen kazanımların devam ettirilerek karma öğrenme ortamlarının işletilmesine yönelik çalışmalar gerçekleştirilmelidir.
- Lisansüstü eğitim-öğretim süreçlerinde hem öğrenenlerin programa devam edebilmelerini sağlamada hem de sürecin daha sağlıklı işletilmesinde uzaktan eğitime verilen önemin artırılması önemli görülmektedir.
- Özellikle ölçme-değerlendirme hususunda günümüz teknolojilerinin sunmuş olduğu imkanlar göz önüne alınarak bu süreç çeşitlendirilmelidir.
- Daha küçük yaş gruplarında uzaktan eğitimin sürecin içine dahil edilmesi sağlanmalıdır.
- Öğreten ve öğrenenlerin uzaktan eğitime yönelik tecrübelerini artıcı yeni nesil uygulamalara ve üstün yönlerine yönelik eğitimler gerçekleştirilmelidir.

Yararlanılan Kaynaklar

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Öğretmen Adaylarının Uzaktan Eğitim Olgusuyla İlgili Zihinsel Yapıları ve Görüşleri

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Özet

Bu çalışmanın amacı farklı branşlardan öğretmen adaylarının pandemi sürecinde deneyimledikleri "uzaktan eğitim" olgusuyla ilgili zihinsel yapılarını ve görüşlerini belirlemektir. Bu çalışma nitel esaslı bir durum çalışmasıdır. Bu çalışma 2021-2022 akademik yılı bahar yarıyılında farklı branşlardan 15 öğretmen adayı ile gerçekleştirildi. Öğretmen adaylarına çalışmanın doğası ile ilgili bilgi verildi ve çalışma katılmaya gönüllü öğretmen adaylarıyla gerçekleştirildi. Öğretmen adaylarının "uzaktan eğitim" olgusuyla ilgili zihinsel yapılarını belirlemek için veri toplama aracı olarak kelime ilişkilendirme testi ve açık uçlu sorular kullanıldı. Kelime ilişkilendirme testinde "uzaktan eğitim" olgusu uyarıcı kelime olarak kullanıldı. Uyarıcı kelime alt alta on kez yazılarak kelime ilişkilendirme testi oluşturuldu. Açık uçlu sorular aracılığıyla öğrencilerin zihinsel yapıları ile ilgili daha detaylı bilgi elde edilmeye çalışıldı. Kelime ilişkilendirme testi ve açık uçlu sorulardan oluşan form Word formatında hazırlanarak öğrencilere online olarak ulaştırıldı ve cevap kağıtları online olarak toplandı. Öğrencilerin cevap kağıtlarına yazdıkları cevaplar bu çalışmanın veri kaynağını oluşturdu. Verilerin analizinde betimsel içerik analizi tekniği kullanıldı. Kelime ilişkilendirme testinin (KİT) analizinde öğrencilerin yazdıkları farklı cevap kelimelerin frekans değerleri belirlendi. Açık uçlu soruların analizinde ise öğrencilerin cevaplarından ilişkili ve benzer anlam yapılanmaları taşıyan cevaplara odaklanıldı. Öğretmen adaylarının kelime ilişkilendirme testlerine verdikleri cevapların analizi sonucunda , öğretmen adaylarının "uzaktan eğitim" uyarıcı kelimesiyle ilgili zihinsel yapılarında en başat olarak yer alan kavramların; adobe connect, bilgisayar, ders kaydı, hocalarla sağlıklı iletişim kuramama, internet, kamera, kolaylık/ rahatlık, online sınavlar, ödevler, teknik aksaklıklar, teknoloji, verimsizlik, yetersizlik, zoom, zorluk olduğu gözlendi.

Keywords: *Uzaktan Eğitim, Öğretmen Yetiştirme, Öğretmen Adayı*

GİRİŞ

Bilgi ve iletişim teknolojilerindeki gelişmelerin eğitim-öğretim alanına yansımasıyla bilgisayar destekli eğitim, web tabanlı eğitim, harmanlayıcı öğrenme, mobil öğrenme, e-öğrenme, çevrimiçi öğrenme ve uzaktan eğitim gibi bilgisayar ve internet teknolojileri tabanlı birçok model (Naidu, 2006) ortaya çıkmıştır. Uzaktan eğitim, bu modeller içinde en geniş ve diğerlerinin tamamını kapsayan eğitim modelidir (Çardak ve Güler, 2022; Gelişli, 2015). Uzaktan eğitim kavramıyla ilgili çok sayıda tanımlama söz konusu olmakla birlikte, İşman'a (2011) göre uzaktan eğitim, en genel anlamıyla öğretmen ve öğrencinin aynı mekânda bulunmak zorunda olmadığı ve eğitim-öğretim etkinliklerinin bilgi iletişim teknolojileri sayesinde yürütüldüğü eğitim modelidir. Yalın (2001) ise uzaktan eğitimi, daha geniş kitlelere eğitim hizmeti götürerek eğitimde fırsat eşitliğini sağlayabilmek amacıyla farklı fiziksel mekânlardaki öğreten ve öğrenenin, çeşitli iletişim teknolojileri aracılığıyla etkileşimde bulunarak öğretme-öğrenme faaliyetlerini gerçekleştirdikleri bir yapı olarak açıklamaktadır. Çok sayıda öğrenciye ulaşabilme imkânı sunması, mekân ve zaman açısından sınırlama olmaması, öğ-

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renenlerin bireysel öğrenme hızlarına göre tekrar imkânı sunması, çoklu ortam araçlarının kullanımına imkan sunması, daha fazla duyu organına hitap edebilmesi, zorunlu durumlarda kullanılabilecek bir model olması uzaktan eğitimin avantajlarındandır Ancak uzaktan eğitim, alt yapı maliyetlerinin yüksek olması, olası teknik sorunlar barındırması, uygulamalı derslerde kullanımının verimli olmaması, yüz yüze eğitimin sunduğu sosyal etkileşimi sağlayamaması, öğretmen ve öğrencilerin için ön koşul düzeyde hazır bulunuşluk gerektirmesi şeklinde sıralanabilecek bazı dezavantajlar da barındırmaktadır (Çardak ve Güler, 2022; İşman, 2011; Karadağ ve Yücel, 2020; Karakuş vd., 2020).

Eğitim sorunlarına çözüm üretme ve eğitimi yaygınlaştırma araçlarından biri de eğitimde teknoloji kullanımıdır (Gelişli, 2015). Pandemi nedeniyle tüm dünyada ve ülkemizde yaygın olarak yüz yüze eğitime ara verilmesi zorunluluğu nedeniyle, uzaktan eğitim uygulamaları küresel çapta bir çare olarak gündeme gelmiştir (UNESCO, 2020). Ülkemizde vaka sayısının artması ve pandeminin uzun süreceğinin anlaşılması üzerine YÖK (2020a) 18 Mart 2020 tarihinde aldığı kararla örgün önlisans, lisans ve lisansüstü programlarındaki teorik derslerin uzaktan eğitimle yürütülmesinde üniversitelere yetki devri yaptı. Bu yetki devri sonrasında Türkiye'deki üniversiteler örgün programlardaki teorik dersleri çeşitli uzaktan eğitim yöntemleriyle yürütmeye başladılar. YÖK 26 Mart 2020 tarihinden itibaren bahar döneminde eğitim-öğretimin sadece uzaktan eğitim, açık öğretim ve dijital öğretim imkânları ile sürdürülmesine karar verdi (YÖK, 2020b)

Bundan sonraki süreçte her kademedeki eğitim ajandasında uzaktan eğitimin bir şekilde ve belli bir oranda (harmanlanmış, hibrit vb. gibi) var olacağı yadsınamaz bir gerçektir. Dolayısıyla geleceğin öğretmenleri olan öğretmen adaylarına sunulacak nitelikli bir uzaktan eğitimin onların da öğrencilerine sunacakları uzaktan eğitimin kalitesini etkileyeceği düşünülmektedir. Bu çalışmada pandemi sürecinde uzaktan eğitimle öğrenimlerine devam eden öğretmen adaylarının uzaktan eğitim olgusuyla ilgili zihinsel yapıları ve bu olguyla ilgili görüşlerinin belirlenmesine odaklanıldı. Bu çalışmada ortaya konulacak bulgular ve yapılacak detaylı betimlemeler, öğretmen yetiştiricilerine, öğretmen adaylarına bundan sonraki süreçte sunacakları uzaktan eğitimin kalitesini geliştirmek noktasında bilgi sunarak (uzaktan eğitimde yaşadıkları problemler, uzaktan eğitimde öğrenmelerine engel oluşturan durumlar gibi) katkı sağlama potansiyeli taşıması bakımından orijinaldir.

METHOD

Bu çalışma nitel esaslı bir durum çalışmasıdır. Bu çalışmada ele alınan durum öğretmen adaylarının pandemi sürecinde deneyimledikleri uzaktan eğitim olgusuyla ilgili zihinsel yapılarıdır.

Çalışmanın Amacı

Bu çalışmanın amacı farklı branşlardan öğretmen adaylarının pandemi sürecinde deneyimledikleri "uzaktan eğitim" olgusuyla ilgili zihinsel yapılarını belirlemektir. Bu amaca ulaşabilmek için aşağıdaki sorulara cevap arandı:

1. Öğretmen adaylarının "uzaktan eğitim" olgusuyla ilgili zihinsel yapıları nasıldır?
2. Öğretmen adaylarının "uzaktan eğitim" olgusuyla ilgili görüşleri nelerdir?

Katılımcılar

Bu çalışma 2021-2022 akademik yılı bahar yarıyılında farklı branşlardan onu kız, beşi erkek 15 öğretmen adayı ile gerçekleştirildi. Öğretmen adaylarına çalışmanın doğası ile ilgili bilgi verildi ve çalışma katılmaya gönüllü öğretmen adaylarıyla gerçekleştirildi.

Veri Toplama

Öğretmen adaylarının "uzaktan eğitim" olgusuyla ilgili zihinsel yapılarını belirlemek için veri toplama aracı olarak kelime ilişkilendirme testi ve açık uçlu sorular kullanıldı. Kelime ilişkilendirme testinde "uzaktan eğitim" olgusu uyarıcı kelime olarak kullanıldı. Uyarıcı kelime alt alta on kez yazılarak kelime ilişkilendirme testi oluşturuldu. Bu çalışmanın araştırmacıları tarafından hazırlanan açık uçlu sorular aracılığıyla öğrencilerin zihinsel yapıları ile ilgili daha detaylı bilgi elde edilmeye çalışıldı. Kelime ilişkilendirme testi ve açık uçlu sorulardan oluşan form Word formatında hazırlanarak öğrencilere online olarak ulaştırıldı ve cevap kağıtları online olarak toplandı. Öğrencilerin cevap kağıtlarına yazdıkları cevaplar bu çalışmanın veri kaynağını oluşturdu.

Veri Analizi

Verilerin analizinde betimsel içerik analizi tekniği kullanıldı. Kelime ilişkilendirme testinin (KİT) analizinde öğrencilerin yazdıkları farklı cevap kelimelerin frekans değerleri belirlendi. Açık uçlu soruların analizinde ise öğrencilerin cevaplarından ilişkili ve benzer anlam yapılanmaları taşıyan cevaplara odaklanıldı. Öğretmen adaylarının uzaktan eğitim olgusuyla ilgili görüşlerini ortaya koydukları ifadelerden doğrudan alıntılar yapılarak detaylı betimlemeler sunulmaya çalışıldı.

BULGULAR

Tablo 1. *Öğretmen adaylarının "uzaktan eğitim" ile ilgili kavramları*

Uyarıcı Kavram	Cevap Kavram	Frekans aralığı
Uzaktan Eğitim	adobe connect, bilgisayar, çevrimiçi ders, ders kaydı, hocalarla sağlıklı iletişim kuramama, internet, internet problemi, kamera, online sınav, ödevler,rahatlık/ kolaylık, stres/korku/kaygı, teknik aksaklıklar, verimsizlik	8≥ f ≥3
	asosyalleşme, bilişsel yorgunluk, bireysel çalışma, dersi tam anlayamama, derslere adapte olamamak, devamsızlığın tam olarak bilinememesi, dijital ortam, döküman, dönüt, dersi dinlememek, eşitsizlik, ev, fırsat eşitliği, hareketsizlik, güven, Google akademik, hızlandırılmış kurslar, katılımcı, kopya çekmek, mail, material eksikliği, mesajlaşmak, mikro-fon, öğretmen merkezli, pandemi, pasif bir eğitim süreci, program, teknoloji, uygulama sıkıntısı, uzem, word, yök tez, zoom, zorluk	2≥ f ≥ 1

Tablo 1'de görüldüğü üzere öğretmen adaylarının "uzaktan eğitim" olgusuyla ilgili zihinsel yapılarında yer alan en başat kavramlar "adobe connect, bilgisayar, çevrimiçi ders, ders kaydı, hocalarla sağlıklı iletişim kuramama, internet, internet problemi, kamera, online sınav, ödevler,rahatlık/kolaylık, stres/korku/kaygı,teknik aksaklıklar, verimsizlik" kavramlarıdır. Öğretmen adaylarının "uzaktan eğitim" olgusuyla ilgili zihinsel yapılarında yer alan ancak frekans değeri düşük olan ($2 \geq f \geq 1$) kavramlar ise "asosyalleşme, bilişsel yorgunluk, bireysel çalışma, dersi tam anlayamama, derslere adapte olamamak, devamsızlığın tam olarak bilinememesi, dijital ortam, dök,,,üman, dönüt, dersi dinlememek, eşitsizlik, ev, fırsat eşitliği, hareketsizlik, güven, Google akademik, hızlandırılmış kurslar, katılımcı, kopya çekmek, mail, material eksikliği, mesajlaşmak, mikrofon, öğretmen merkezli, pandemi, pasif bir eğitim süreci, program, teknoloji, uygulama sıkıntısı, uzem, word, yök tez, zoom, zorluk" kavramlarıdır.

Aşağıda öğretmen adaylarının pandemi sürecinde maruz kaldıkları uzaktan eğitimle ilgili açık uçlu sorulara verdikleri cevaplardan doğrudan alıntılar sunularak öğretmen adaylarının uzaktan eğitim ile ilgili görüşleri detaylı olarak, tüm yönleriyle betimlenmeye çalışıldı.

> *"Pandemi sürecinde en çok eğitimden mahrum kaldığımı düşünüyorum çünkü giremediğim derslerde endişelenmiyor "Nasılsa dersin kaydı sistemde var." diyordum. Bundan dolayı ders çalışmak istemiyor. Sürekli erteliyordum. Sınıf ortamında yüz yüze olmadığımız için derslere etkin katılmadım" (Türkçe öğretmeni adayı, Kız).*

> *"Evim ve okul arasındaki mesafenin uzak olması nedeniyle okula giderken ve okuldan eve dönerken otobüste oldukça fazla zaman kaybı yaşıyordum. Pandemi nedeniyle uzaktan eğitime geçildi. Böylelikle evde zaman kaybı yaşamadan verimli olarak ders çalışabildim. Pandemi sürecinde karantina döneminde kitap okumak için pek çok zamanım oldu. Fakat, uzaktan eğitimde derslerde anlayamadığımız yerleri yüz yüze sorabilme fırsatımız olmadı. Uzaktan eğitime geçilmesi nedeniyle arkadaşlarımızla yaptığımız grup çalışmalarında azalma oldu. Yaptığımız grup çalışmaları sayesinde birbirimizle bilgi paylaşımları yapardık, anlamadığımız yerleri birbirimize sorardık. Uzaktan eğitimde iletişim sıkıntıları oluştu. Yüz yüze eğitimde üniversitedeki arkadaşlarımızla ders sonrasında bir araya gelerek sohbet edip çay içerdik. Buda motivasyonumuzu arttırıp sınav kaygımızı azaltmamıza yardımcı olurdu." (Fen bilgisi öğretmeni adayı, Kız)*

> *"Pandemide lisans eğitimimin üç dönemini geçirdim. Bu süreçte oldukça verimsiz, adeta eğitim sürecinin boşa gittiği bir üç dönem oldu. Kaliteli eğitimden mahrum kaldığımı düşünüyorum. Keşke o günlerin bir telafisi olsa..." (Türkçe öğretmeni adayı, Erkek).*

> *"Pandemi döneminde üniversiteye gidip ders işlemeyi, laboratuvarda deneyler yapmayı ve yakın arkadaşlarımla vakit geçirmeyi özledim. 2 yıl boyunca üniversiteden, çeşitli sosyal etkinliklerden ve arkadaş çevresi bakımından mahrum kaldığımı düşünüyorum. Pandemi ile gelen uzaktan eğitim sürecinde derslerimle ilgilenmek için daha fazla zamanım oldu ve evde kaldığım bu süre zarfında kendime ve aileme daha fazla vakit ayırdığımı söyleyebilirim. Uzaktan eğitim sürecinde yaşanan aksaklıklar ve teknik sıkıntılar derslerin işlenmesini ve anlaşılmasını bir hayli zorlaştırdı bunun yanında sürekli bilgisayar ile iç içe olduğumdan dolayı çoğunlukla bilişsel bir yorgunluk hissi vardı. Bireysel çalışma yönteminin önem kazandığı bu süreçte kendimi geliştirdiğimi düşünüyorum. Ders saatlerinin kısa ve teknik aksaklıkların olması derslerin verimini düşürmekteydi bu olumsuz durumu en aza indirmek için de daha düzenli bir çalışma alışkanlığı kazandım"(Kimya öğretmeni adayı, Kız).*

> *"En çok eğitim hayatımızın bir buçuk yılını kaybettirdiğini düşünüyorum. Uzaktan eğitim yüz yüze eğitim kadar verimli olmadı" (Türkçe öğretmeni adayı, Erkek).*

"Eğitim hayatımda yaşamam gereken 1,5 dönemlik kaybım olduğunu düşünüyorum sadece ancak yine de bu süreçte kişiliğime kazandırdığı değerlerin daha fazla olduğunu düşünüyorum" (Türkçe öğretmeni adayı, Erkek).

TARTIŞMA VE YORUM

Bu çalışmanın birinci araştırma sorusu "Öğretmen adaylarının "uzaktan eğitim" olgusuyla ilgili zihinsel yapıları nasıldır? şeklindeydi.

Öğretmen adaylarının "uzaktan eğitim" olgusuyla ilgili zihinsel yapılarında beliren "teknik aksaklıklar, internet problemi, hocalarla sağlıklı iletişim kuramama, teknik aksaklıklar, stres/korku/kaygı, verimsizlik, dersi tam anlayamama, derslere adapte olamamak, öğretmen merkezli, pasif bir eğitim süreci, material eksikliği, uygulama sıkıntısı, asosyalleşme" gibi kavramlar alan yazında da vurgulanan uzaktan eğitimin dezavantajlı yönleri ile ilişkilendirilebilir. Çünkü uzaktan eğitimin olası teknik sorunlar, kullanılacak uygulamalar için gerekli altyapı ve teknik araç-gereç maliyetlerinin yüksek olması, öğretmen ve öğrenci için ön koşul seviyede bir hazır bulunuşluk gerektirmesi yüz yüze eğitimde yaşanan etkileşimlerin sağlanamaması ve uygulamalı dersler için verimli olmaması gibi bazı sınırlılıkları mevcuttur (Çardak ve Güler, 2022; Gelişli, 2015; İşman, 2011; Yalın, 2001). Ayrıca çalışmamızda elde ettiğimiz bu bulgular Karadağ ve Yücel'in (2020) lisans öğrencileriyle yürüttükleri survey çalışmanın bulgularıyla da büyük oranda örtüşmektedir.

Aşağıda sunulan öğrenci ifadesinden yapılan alıntılar da bu bulguları desteklemektedir.

"Uzaktan eğitim sürecinde yaşanan aksaklıklar ve teknik sıkıntılar derslerin işlenmesini ve anlaşılmasını bir hayli zorlaştırdı bunun yanında sürekli bilgisayar ile iç içe olduğumdan dolayı çoğunlukla bilişsel bir yorgunluk hissi vardı. Bireysel çalışma yönteminin önem kazandığı bu süreçte kendimi geliştirdiğimi düşünüyorum. Ders saatlerinin kısa ve teknik aksaklıkların olması derslerin verimini düşürmekteydi bu olumsuz durumu en aza indirmek için de daha düzenli bir çalışma alışkanlığı kazandım"(Kimya öğretmeni adayı, Kız).

"Uzaktan eğitimde derslerde anlayamadığımız yerleri yüz yüze sorabilme fırsatımız olmadı. Uzaktan eğitime geçilmesi nedeniyle arkadaşlarımızla yaptığımız grup çalışmalarında azalma oldu. Yaptığımız grup çalışmaları sayesinde birbirimizle bilgi paylaşımları yapardık, anlamadığımız yerleri birbirimize sorardık. Uzaktan eğitimde iletişim sıkıntıları oluştu. Yüz yüze eğitimde üniversitedeki arkadaşlarımızla ders sonrasında bir araya gelerek sohbet edip çay içerdik. Buda motivasyonumuzu arttırıp sınav kaygımızı azaltmamıza yardımcı olurdu." (Fen bilgisi öğretmeni adayı, Kız)

Karadağ ve Yücel'in (2020) de vurguladığı gibi uluslararası yükseköğretim tartışmalarında uzaktan eğitim, dijitalleşme ve açık ders materyalleri geniş bir yer tutmaktadır. Bu çalışmada ortaya konan bulgulara dayalı olarak öğretmen yetiştirmede uzaktan eğitim modelinin daha etkili ve verimli kullanılabilmesi için öncelikle teknik aksaklıklarla başedebilmek için uzaktan eğitim teknik altyapısının güçlendirilmesi, öğretmen eğitimcilerinin ve öğretmen adaylarının öğretimde ve öğrenmede yenilikçi teknolojilerin kullanımıyla ilgili hazır bulunuşluk seviyelerinin arttırılması, uzaktan eğitimde kullanılacak her disipline özgü ders içerikleri, öğretim materyalleri ve çoklu ortamlar üzerinde çalışılması önerilebilir. Çünkü, üniversiteler ve öğretim elemanları tarafından kötü bir şekilde planlanan ve kullanılan uzaktan eğitim, önümüzdeki yıllarda bütün paydaşların gözünde bu modelle ve modelin kullanımıyla ilgili olumsuz algılara neden olabilir (Karadağ ve Yücel, 2020).

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Açık ve Uzaktan Öğrenmede Yapay Zeka Destekli Öğrenen Destek Hizmetleri

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Özet

Öğretim programının her aşamasında ihtiyaç duyulan destek hizmetleri öğrenenlerin başarılı olmalarında ve öğrenimi bırakmalarının önüne geçilebilmesinde büyük bir önem taşımaktadır. Uzaktan eğitim alanındaki öğrenenlerin daha yüksek kalite, kesintisiz destek beklentileri öğrenen sayısında yaşanan hızlı artış ile birleştiğinde kuruluşlar açısından problemlere sebep olmakta ve maliyetleri yükseltmektedir. Arzu edilen hizmetin sağlanması için gerekli insan kaynakları sağlanamamaktadır. Öğrenenlerin kesintisiz hizmet taleplerinin karşılanamaması durumunda ise öğrenimi bırakma davranışı gerçekleşmekte, kurum ve öğrenci açısından kayıplara sebep olmaktadır. Halihazırda geleneksel yüz yüze eğitime oranla çok daha yüksek öğrenimi bırakma oranlarına sahip olan açık ve uzaktan öğrenme alanında, maliyetlerin düşürülebileceği sürdürülebilir destek hizmetlerinin etkin kullanımı bu sorunun önüne geçilmesine yardımcı olabilir. Bu beklentinin karşılanabilmesi için yapay zekâ önemli bir araçtır. Bu çalışmada Tait tarafından oluşturulan öğrenci destek hizmetleri modeli bağlamında uygun yapay zekâ araçları ele alınmış ve ilgili çalışmalara yer verilmiştir.

Anahtar Kelimeler: *Uzaktan Eğitim, Öğrenci Destek Hizmetleri, Yapay Zeka.*

GİRİŞ

Açık ve uzaktan öğrenmeye yönelik artan talebin başarılı bir şekilde karşılanabilmesi için kaliteli hizmetin çok sayıda kullanıcıya ulaştırılabilmesi, öğrenenlerin ihtiyaç duyduğu kesintisiz desteğin sağlanması ve bu hizmetin kişiselleştirilmesi gerekmektedir. Ancak öğrenen destek hizmetlerinin yapısı maliyetleri arttırmaktadır. Dahası artan öğrenen sayısı nedeniyle ihtiyaç duyulan insan kaynağına ne derecede ulaşılabileceği yönetim ve maliyet bağlamında karşılaşılan bir sorundur. Tesis edilen kaynaklar arttırıldıkça birim öğrenen maliyeti de artmaktadır. İnsan kaynağının sınırlı ve yüksek maliyetli oluşu nedeniyle insan kaynağının yerine getirdiği fonksiyonları gerçekleştirebilecek öğelere ihtiyaç duyulmaktadır. Öğrenci destek hizmetlerinin sağlanmasında yapay zekâ araçlarının kullanımı kısıtlı insan kaynakları ve artan maliyetler problemlerinin çözümünde önemli bir rol oynayabilir.

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Yapay zekâ ve büyük verinin eğitimde kullanımına yönelik pek çok çalışma mevcuttur. Ancak bu alandaki hızlı değişim, uygulama ve eğilimlere yönelik çalışmaların belli bir aralıkta tekrarlanmasını gerektirmektedir. Bu çalışmada özellikle destek hizmetleri alanında yapay zekanın kullanımına dair mevcut durumun ortaya konulması amaçlanmıştır. Bu araştırmanın amacı uzaktan eğitim destek hizmetlerinde yapay zekâ kullanımını yönelik bir durum tespiti yapmaktır. Destek hizmetleri alanında yapay zekâ araçlarının kullanımı ile alakalı çeşitli çalışmalar mevcuttur. Ancak bu çalışmaların bütüncül bir bakış açısıyla ele alındığı çalışmalar kısıtlıdır. Bu çalışma hem bütüncül yaklaşımı hem de alan yazından güncel çalışmaları içermesi bakımından önem taşımaktadır.

UZAKTAN EĞİTİM ALANINDA DESTEK HİZMETLERİ

Uzaktan eğitim, öğreten ve öğrenenin, zaman ve mekân olarak ayrıldığı eğitim biçimleri için kullanılan genel bir terimdir. Geçmişten günümüze birçok farklı uygulama alanıyla kullanılan uzaktan eğitim, günümüzde internet teknolojileri aracılığıyla gelişimini sürdürmektedir. Bu yönüyle alan yazında e-öğrenme, çevrimiçi öğrenme gibi uygulama türleriyle de çeşitlenmektedir. Çevrimiçi eğitim (içeriğin en az %80'i çevrimiçi iletilir), harmanlanmış eğitim (içeriğin yüzde 30-79'u çevrimiçi iletilir) ve basılmış materyallerin posta ve diğer yollarla iletildiği eğitim biçimlerini kapsar (UNESCO UIL,2016).

Uzaktan eğitime dair özelliklerden birisi de öğrenme süreci boyunca bir öğrenme grubunun neredeyse hiç olmaması; sosyalleşme ve öğretim maksatlı birkaç buluşma olması ihtimali dışında insanların gruplarda değil bireysel olarak öğretim görmesidir. Her ne kadar öğrenen ve öğreten öğrenme süreci boyunca, neredeyse kalıcı olarak ayrı olsalar da öğrenenin faydalanabileceği ve hatta başlatabileceği iki yönlü bir iletişim mevcuttur. Eğitim organizasyonları hem öğrenme materyallerinin planlanmasında ve hazırlanmasında, hem de destek hizmetlerinin sağlanmasında etkindir. (Keegan,1993)

Anlaşıldığı üzere uzaktan eğitimde öğrenen yalnızdır ve öğreten(ler)le arasında etkileşimsel bir uzaklık mevcuttur. Bu uzaklığın göreceli olduğu; uygulamaya, uygulama tasarımına ve katılımcıların yapılarına göre artıp azalabileceği söylenebilir. Kursların yapılandırılması, iletişim ve öğrencinin zorlukların üstesinden ne ölçüde gelebildiği, bu uzaklığın ölçüsünü belirlemektedir. Uzaktan eğitim sınıf dışında gerçekleştirilen bir eğitim olarak değil, tamamen farklı bir pedagojik alan olarak değerlendirilmelidir (Moore,1993).

Bozkurt (2013) destek hizmetlerini "öğrenenlerin işlerini bir öğretim programının her aşamasında kolaylaştıran her türlü hizmettir" şeklinde tanımlamıştır. Destek hizmetleri kavramı uzaktan eğitimde çok uzun yıllardır ele alınan bir konudur. Uzaktan eğitimde, kampüse gelmeyen ve farklı özellikler taşıyan bir öğrenci grubuna hizmet verildiğinden, destek hizmetlerinin sağlanması için yüz yüze eğitime kıyasla daha fazla çaba sarf edilmektedir. (Rumble,2000). Uzaktan eğitimden, genellikle eğitimlerine birkaç yıl ara vermiş, yarı zamanlı çalışan, aile ve iş hayatları birincil öncelikleri olan bireyler yararlanmaktadır. Verilen ara nedeniyle önceki öğrenmelerine dair aktivite ve kavramları daha az hatırlarlar. Sahip oldukları iş, yaşam deneyimleri ve öğrenme

ihtiyaçlarına bağlı olarak uymak zorunda oldukları bir kavramsal çerçeveleri vardır. Geleneksel öğrenenler için kendini tamamen adama ve öğrenmenin tek amaç olması durumu, uzaktan eğitim alan yetişkin öğrenenler için pek de kabul edilebilir değildir. Dahası öğrenme eyleminin kendisi de uzaktan eğitimde geleneksel eğitime göre jenerik olarak farklıdır. Yüz yüze öğrenmede çok hızlı bir şekilde gerçekleşen geri bildirim, uzaktan eğitimde tamamen kaybolmaktadır. Akran grubunun oluşturduğu destekleyici ortamın yokluğu, bireysel özgüvenin korunmasını da zorlaştırmaktadır (Sewart,1980).

Gittikçe daha rekabetçi bir dünyada öğrencileri elde tutma ve öğrencilerin öğrenimi bırakmalarına dair endişeler öğrenci destek hizmetlerine olan ilginin artmaya başlamasını sağlamıştır. Öğrenenlerin kendilerini birer müşteri olarak görmeleri de bunda rol oynamaktadır (Rumble,2000). Öğrencilik kavramı yıllar içerisinde değişmiş ve öğrencinin müşteri gibi ele alınması anlayışı oluşmuştur. Böylesi bir anlayışın rahatsız edici yönleri olsa da verilen bazı hizmetlerin ele alınışında profesyonel bir yaklaşıma ihtiyaç duyulduğu kabul edilmelidir. Öğrenciler eğitim kurumlarından aldıkları hizmetleri, bankalar ve diğer kurumlardan aldıkları birinci sınıf ticari hizmetlerle kıyaslamakta ve ihtiyaçları karşılanmadığında başka yerleri araştırmaktadırlar (Mills,2003). Bir başka nokta ise sadece öğrenme malzemeleri paketini vermenin öğrenci başarısını sağlamaya yetmemesidir. Uzaktan eğitimciler öğrenci destek hizmetlerinin, kendi sistemlerinin tamamının işleyişine bütünleşik olduğunu net bir şekilde anlamışlardır. Ancak neyin çalıştığı ve neden çalıştığına dair şaşırtıcı şekilde az bilgi vardır. Bu sebepler ve hizmetlerin soyut oluşu, işin destek hizmetleri yönünü, özellikle maliyetlerin düşürülmesi noktasında kırılgan hale getirmektedir (Rumble,2000).

Uzaktan Eğitimde Öğrenimi Bırakma, Başarı ve Öğrenci Desteği İlişkisi

Neredeyse tüm eğitim kurumlarında, öğretme eyleminin sağlanmasına kıyasla, akademik, idari veya kişisel öğrenci / öğrenen desteğinin daha önemsiz ve daha az merkezileştirilmiş olduğu ileri sürülebilir (Mills,2003). Sadece maliyetin ele alınması, destek hizmetlerinin önem ve katkılarının kurumsal planlamalarda yer bulmaması da öğrenci destek hizmetlerinin mevcut yaklaşımda ön plana çıkarılmamasının nedenleri arasında görülebilir. Uzaktan eğitim ekonomisi ele alındığında ders materyallerinin birim maliyeti kaydolan her bir öğrenci ile düşerken, öğrenci destek hizmetlerinde öğrenci sayısı arttıkça maliyet de artmaktadır. Bunun nedeni, belli bir birim maliyet eşiğinin üstünde öğrenci sayısının maliyetle doğrudan ilintili olmasıdır (Tait,2000). Ancak öğrenimi bırakma oranları uzaktan eğitimde yüz yüze eğitime kıyasla çok daha yüksektir. Bu da birim maliyetleri ciddi şekilde etkilemektedir. Bu noktada öğrenci destek hizmetlerinin öğrenime devam için önemli bir faktör olduğu kabul edilmektedir. Nichols (2010)'a göre uzaktan eğitimde öğrenci destek hizmetleri, kullanıcıları açısından, Herzberg'in çift faktör teorisindeki ''hijyen faktörü'' olarak algılanmaktadır. Herzberg (2008)'in çift faktör teorisinde bir şeyin varlığı ve yokluğunun birbirinden farklı etkileri olduğu öne sürülmektedir. Yani varlığına minnet duyulmasa da yokluğu kesinlikle fark edilmektedir. Nichols (2010)'a göre eğer destek hizmetleri yeterli değilse, öğrenci davranışı olumsuz bir şekilde etkilenmektedir. Ancak öğrenenler öğrenimi bırakma davranışlarını sadece yetersiz desteğe dayandırmamaktadır. Diğer taraftan, öğrenen destek hizmetleri yeterliyse, öğrenciler başarılarını kendi kendini motive et-

meyle bağlantılı içsel faktörlerle açıklama eğiliminde olmaktadırlar. Öğrencilerin, yeterli öğrenci destek hizmetlerine yönelik açık bir memnuniyetleri bulunmamaktadır. Ancak kişisel motivasyonlarının kaynakları olarak gördükleri bu sessiz yardımcılar aslında ,arka planda, öğrenime devamın sağlanmasında doğrudan etkililerdir.

Destek hizmetlerinin tıpkı bir hijyen faktörü gibi vazgeçilemez bir noktada bulunmasının ardında geleneksel eğitimde öğretmene yüklenen roller olduğu düşünülebilir. Sewart (1980), Birleşik krallık Açık Üniversitesini ele aldığı çalışmasında, öğretmenin geleneksel eğitimde hem akademik bilgiye kaynaklık ettiğini, hem de sıklıkla aracılık rolünü üstlendiğini ancak uzaktan öğrenme sistemlerinde öğretme paketindeki bu iki rolün tamamen ayrıldığını ifade etmiştir. Akademik bilgi rolünü öğrenme paketleri üstlenirken, aracılık rolü için öğrenci destek hizmetlerine ihtiyaç duyulmaktadır (Sewart,1980).

İşte bu nedenlerle öğrenci desteğini ve öğretme materyalleri üretimini uzaktan eğitim sisteminin merkezine koyacak yeni bir yaklaşıma ihtiyaç duyulmaktadır. Yaklaşımdaki bu değişimi destekleyebilmek için de ders üretiminin bir kuruluş için gelir, öğrenci desteğinin ise maliyet yaratacağı düşüncesinden uzaklaşılması gerekmektedir (Mills,2003).

Uzaktan eğitim alanında öğrenci destek hizmetleri tasarım ve modellemeleri ile alakalı çeşitli tanımlar mevcuttur. Bozkurt (2013), Genç-Kumtepe ve diğerleri (2019) çalışmalarında alandaki farklı sınıflandırmaları belirlemişlerdir. Destek hizmetleri bazı araştırmacılar tarafından ,verilen hizmetin yapısına göre, akademik olmayan destek ve teknik destek olarak sınıflandırılmaktadır. Bazı araştırmacılar ise öğrenim sürecini birbirini takip eden süreçler olarak kabul etmekte ve destek hizmetlerini bu süreçlerin ilgili dönemlerine göre program öncesi ve kayıt esnası şeklinde tanımlamaktadırlar. Bozkurt (2013)'un da belirttiği üzere, destek hizmetleri ile alakalı terimlerin net bir şekilde tanımlanması ve ortak sınıflandırılmalara gidilmesi kalite standartlarının yakalanması bağlamında oldukça önemlidir. Ancak uzaktan eğitim alanındaki eğitim hizmetleri, öğrenci profili ve etkileşim gibi birçok kavramın oldukça geniş aralıklı tanımlara sahip olması ve sınırları çizilmiş tanımlara ulaşmanın güçlüğü destek hizmetlerinin de yapılandırılmasını güçleştirmektedir. Bu noktada Sewart (1993), uzaktan eğitimde destek hizmetlerinin neredeyse sonsuz çeşidi olduğundan bahsedilebileceğini, eğitimi verecek kuruluşun ve bu kuruluşun bulunduğu coğrafyanın eğitsel değerlerinin ve öğrenci kitlesinin jenerik farklılıklarının da bu çeşitliliğin nedenleri arasında olduğunu ifade etmiştir.

Tait'in (2000) öğrenci destek hizmetlerinin temel fonksiyonlarını bilişsel, duyuşsal ve sistemsel olmak üzere 3 bölümde açıkladığı yaklaşımı, arzu edilen desteği tasarlama ve sunmada yol gösterici olabilir. Öğrenci özellikleri, ders /program gereklilikleri, coğrafya, teknoloji, büyüklük ve yönetim sistemleri olmak üzere 6 eşdeğer kurucu unsurdan oluşan öğrenci destek hizmetleri modeli, on bir ayrı hizmet çeşidini kapsamaktadır. Bu hizmetler şunlardır:

1. İnceleme, kabul ve öğrenim öncesi tavsiye hizmetleri
2. Özel ders
3. Rehberlik ve danışmanlık hizmetleri
4. Öğrenim geçmişinin değerlendirilmesi ve kredi transferi

5. Etüt ve sınav merkezleri
6. Yerleşke
7. Kütüphane hizmetleri
8. Bazı durumlarda aralıksız değerlendirmeyi de içeren kişiselleştirilmiş açık öğretim
9. Kayıtların saklanması, bilgi yönetimi ve diğer idari sistemler
10. Engellilik, coğrafi uzaklık, cezaevinde olma gibi özel ihtiyaç grubundaki öğrencilere yönelik farklılaştırılmış hizmetler
11. Öğrenim kabiliyetlerini, program planlamayı veya kariyer gelişimini destekleyecek materyaller

Uzaktan Eğitim Öğrenci Destek Hizmetlerinde İnsan Kaynağı ve Maliyet Sorunu

Yukarıda bahsedilen bu hizmetlerin tasarlanması esnasında kullanılacak unsurların tespitinde ve hizmetlerin sunumunun önünde engeller bulunmaktadır. Özellikle insan kaynağının sınırlı ve yüksek maliyetli oluşu nedeniyle, insan kaynağının yerine getirdiği fonksiyonları gerçekleştirebilecek öğelere ihtiyaç duyulmaktadır. Adamson, Dyke,Jung ve Rose 'a (2014) göre çevrimiçi eğitimdeki yoğunluk ve internet tabanlı kurslara kayıtların artmasıyla, çevrimiçi eğitim deneyimlerinde kalitenin yükseltilmesi ihtiyacı da hiç olmadığı kadar acil bir duruma gelmiştir. Karşılaşılan sınırlamaların en büyüğü etkili eğitim deneyimlerinin insani yönü ile ilişkilidir. Birçok kursta eğitimcinin zamanı kısıtlı ulaşılabilen bir ticari ürünken, katılımcı sayısı oldukça fazladır. Kitlesel kurslar için, insan faktörünün olmadığı durumlarda, yüksek kaliteli işbirlikli öğrenme etkileşimleri sağlanabilirse, yüksek katılımcı sayıları yönetilebilir ve kitlesel ortamlarda aranan öğrenme deneyimleri için potansiyel bir kaynak sağlanabilir. Keeton (2004) da Maryland üniversitesinde gerçekleştirdiği çalışmasında fakülte üyelerine göre çevrim içi eğitim ile yüz yüze eğitim arasındaki farkın öğrencilerin fakültenin kesintisiz bulunuşluğuna dair beklentileri olduğunu tespit etmiştir. Keeton'ın bu çalışmasına değinen Li (2007), öğrencilerin bu beklentisini karşılayabilmek için eğitmenlerin e-posta ve mesajlarını sürekli kontrol etmek zorunda kaldıklarını belirtmiştir. Sıklıkla yapılması beklenen bu etkinlik, çevrimiçi eğitmenlerin üzerinde yoğun bir mental baskı yaratmaktadır. Bu ve benzeri ihtiyaçlardan dolayı, geniş kitlelere yayılan uzaktan eğitime yönelik artan talebin karşılanabilmesi için akıllı destek sistemlerinin kullanılması beklentisinin ön plana çıktığı söylenebilir.

UZAKTAN EĞİTİM ÖĞRENCİ DESTEK HİZMETLERİNDE YAPAY ZEKA KULLANIMI

Yapay zeka, insan tarafından tanımlanmış belli amaçlara ulaşmak için gerçek ya da sanal çevreleri etkileyen kararlar, öneriler ve tahminler sunan makine tabanlı bir sistemdir. Bu sistemde makine öğrenmesi, derin öğrenme gibi farklı teknikler kullanılarak makinelerin otomatik öğrenmelerine olanak tanınabilir (OECD, 2019). Sohbet botları ve pedagojik ajanlar gibi sosyal süreçleri takip ve taklit eden programlar; çözümler sunabilen tavsiye sistemleri ve uzman sistemler; verilerin elde edilmesi ve işlenmesi noktasında veri madenciliği ve öğrenme analitikleri kavramları destek hizmetleri alanında artarak kullanılmaktadır.

Alan (2000) tarafından yapılan destek hizmetleri sınıflandırılmasının kullanılacağı bu bölümde ilgili hizmetler ve hizmete dair yapay zekâ uygulamaları ele alınacaktır.

İnceleme, Kabul ve Öğrenim Öncesi Tavsiye Hizmetleri

Bu hizmet esnasında öğrenciye dair bir veri seti olmaması ihtimali oldukça yüksektir. İlk veri setleri öğrenci tarafından sağlanacaktır. Bu verilerin elde edilmesi sürecinde sohbet botlarının kullanılması süreci kolaylaştırabilir. Öğrenciye verilecek tavsiye hizmetleri için hibrit sistemlerin kullanılması daha uygun olabilir. Çünkü cold start problemi ile baş edebilen tek tavsiye sistemi hibrittir. Cold start verinin olmadığı veya çok kısıtlı olduğu durumlarda yaşanmaktadır (Tarus, Niu ve Yousif ,2017) Uzman sistemler ve uygun algoritmaların kullanılması ile öğrencinin yeterlik düzeyi saptanabilir ve ilgili alanlara yönlendirilebilir.

Akıllı Öğretim Rehberliği Sistemi -ITS

VanLehn (2011)'e göre ITS , insanlar tarafından gerçekleştirilen rehberliğe ait özelliklerin bir kısmını taşır ve benzer amaçlarla gerçekleştirilir. Ancak bilgisayar tarafından gerçekleştirilen rehberlik daha farklıdır. Geleneksel olarak 2 çeşit bilgisayar rehberliğinden bahsedilebilir. İlki, öğrencilere hemen geri bildirimde bulunan ve soruların çözümü için ipuçları veren bilgisayar temelli öğretim, bilgisayar destekli öğretim olarak da isimlendirilen türdür. İkincisi ise farklı ara yüzlerle (diyalog, elektronik form, simüle edilmiş öğretim paneli gibi) öğrenciye problemi çözecek basamakları oluşturma imkanı sunar. Öğrenciye her basamakta veya adımda anında geri bildirimler ve ipuçları vermektedir veya öğrencinin tüm basamakları tamamlamasını bekleyerek değerlendirmektedir. Bu sistemler genellikle ITS olarak anılmaktadır.

Steenbergen-Hu ve Cooper (2014)'e göre ITS'yi diğer sistemlerden ayıran nokta ITS'lerin bir alana yönelik özel, uzmanlık gerektiren bilgileri içermeleridir. Yani ITS tek ve özel bir alanla ilgilidir. Bu nedenle de belli bir alanla ilgili olmayan diğer bilgisayar programlarının aksine kavramsal öğrenmeye olanak sağlayabilir. VanLehn (2011), geliştirilmeleri ve muhafaza edilmeleri ucuz olmasa da, ITS'lerin kullanımının arttırılmasını tavsiye etmiştir. Özellikle çok sayıda öğrenci tarafından kullanılan sistemlerin maliyeti, öğretim rehberlerinin kullanılacağı programlara oranla çok daha düşük olacaktır. Sadece öğrenci sayısı değil, ödev miktarı gibi verilen görevlerin sıklığı da ITS kullanımına ihtiyacı arttırırken maliyeti düşürecektir. Özellikle çok sayıda öğrenciye hizmet ulaştıran kurumlarda ITS kullanımı hem öğrencinin akademik anlamda desteklenmesi ,hem de öğrenimi bırakma eyleminin önüne geçilmesi anlamında bir çözüm olabilir.

Rehberlik ve Danışmanlık Hizmetleri, Öğrenim Geçmişinin Değerlendirilmesi

Rehberlik ve danışmanlık hizmetleri yapay zekâ uygulamaları ile sağlanabilir. Gerekli bilgiler, öğrencilerden sohbet botları veya pedagojik ajanlar vasıtasıyla elde edilerek tavsiye sistemlerinin ve uygun algoritmaların kullanımı ile analiz edilebilir ve yine sohbet botları veya pedagojik ajanlar tarafından öğrenciye sunulabilir. Parab, Palkar

Maurya ve Balpande (2017) tarafından gerçekleştirilen çalışmada kariyer danışmanlığı botu tasarlanmıştır. Bu bot aldığı bilgileri basit bir eşleme algoritması ile kullanarak kullanıcıya cevap verebilmektedir. Özellikle hibrit tavsiye sistemlerinin ve uygun veri tabanlarının kullanımı ile nitelikli bir hizmet vermek mümkün olabilir.

Etüt /Sınav Merkezleri ve Yerleşke

Bu alanlarda destek hizmeti sağlamak için akıllı eğitim sistemlerinin en yüksek noktası olarak tanımlanan akıllı kampüsler kullanılabilir. Wu, Wang ,Liu,Tan ve Ruoyan (2021) 3 boyutlu dijital bir kampus geliştirmek için sanal gerçeklik teknolojisini kullandıkları çalışmalarında böylesi bir yapının daha uygun ve daha kullanıcı dostu olduğunu belirtmişlerdir. Dong, Zhang, Swift ve Beswick (2020) paydaşlardan biri olarak tanımladıkları öğrencilerin, kendilerine uygun bir kampus yaşamı ihtiyaçlarının ,akıllı kampüsler ile karşılanabileceğini belirtmişlerdir. Öğrenciler bu kampüslerde ilginç, kişiselleştirilmiş, etkili, bilgilendirici ve bağlılık derecesi yüksek eğitim deneyimleri yaşayabilirler. Akıllı kampüslerde bulut bilişimi, nesnelerin interneti, artırılmış gerçeklik ve yapay zeka teknolojileri kullanılmaktadır.

Kütüphane Hizmetleri

Uzaktan eğitimde göz önünde bulundurulması gereken bir diğer hizmet kütüphane hizmetleridir. Gelişen teknoloji geleneksel kütüphane dışında da kütüphane çeşitlerinin ortaya çıkmasını sağlamıştır. Cao, Liang ve Li (2018), dijital, hibrit, karma, yaygın ve mobil gibi türleri bulunan kütüphane hizmetlerinin akıllı kütüphane hizmetleri başlığı altında toplandığını belirtmişlerdir. Akıllı kütüphaneler hizmet, insan ve teknoloji boyutlarını içermelidir. Akıllı kütüphaneler kullanıcı ihtiyaçlarını tespit etmek ve bu ihtiyaçları karşılamak üzere iki kademeli olarak çalışmaktadır. Özellikle ihtiyaçların karşılanması noktasında tavsiye sistemlerinin kullanılması uygun olabilir. Veri madenciliği, bulut bilişim ve yapay zekâ ile kullanıcı bilgilerinin analizi yapılır. Bu da kütüphanede kişiselleştirilmiş akıllı hizmetlerin sunulmasına olanak sağlar.

Sürekli Değerlendirmeye Dayalı Kişiselleştirilmiş Açık Öğretim

Öğrencilerin değerlendirilmesinin sadece dönem sonuna bırakılmaması ve mümkünse program boyunca değerlendirilebilmeleri amaçlanmaktadır. Bu hizmetin verilebilmesi için birden çok yapay zekâ öğesinin birlikte kullanılması uygun olabilir. Veri madenciliği ve uygun algoritmalar aralıksız değerlendirmeye imkân verecektir. Buradan elde edilecek kişiselleştirilmiş bilgileri öğrencinin akademik sorunlarının tespitine yardımcı olarak bir erken uyarı sistemi vazifesi görebilir. Hussain, Wenhao,Wu, Abidi ve Ali (2018) tarafından gerçekleştirilen çalışmada öğrencinin içinde bulunduğu dönemde yaşadığı zorlukların tespitinin önemi vurgulanmıştır. Uygun makine öğrenmesi algoritması seçilerek öğrenme yönetim sistemleri üzerinden gelen bilgiler işlenebilir. Böylece öğrencinin sorun yaşadığı noktaların tespiti ve bunun için bir erken uyarı yayınlanması sağlanabilir. Makine öğrenmesi, eğitimsel veri madenciliği, akıllı öğretim rehberliği sistemleri gibi araçların kullanımı ile öğrencilerin öğrenimi bırakmalarının önüne geçmek mümkün olabilir.

Kayıtların Saklanması, Bilgi Yönetimi ve Diğer İdari Sistemler

Kayıtların saklanması özellikle büyük ölçekli eğitim programlarında oldukça zor ve maliyetlidir. Li, Song, Mei ,Li, Cheng ve Sun'un (2018) da belirttiği gibi, hacmi gittikçe büyüyen verilerin saklanması ve korunması önemli bir konu haline gelmiştir. Saklama, koruma ve güvenlik problemlerini aşmak için sertifikasız blockchain teknolojileri, uygun algoritmalar ve bulut tabanlı sistemler kullanılarak güvenli veri depolaması mümkün olabilir (Li vd., 2018). Bilgi yönetimi ve diğer idari işlemler alanında ise veri madenciliği, uzman sistemler ve akıllı ajanlar kuruluşların mevcut verileri etkin bir şekilde işlemesine ve dağıtmasına yardımcı olabilirler. Paydaşlara işlenmiş verilerin sunulması, trendlerin analizi, e-posta, web sayfası, bilgi akışı gibi bir çok alanda kullanılabilen yapay zeka, kuruluşların bilgi örgütlerine dönüşmesini mümkün kılabilir (Liebowitz,2001).

Öğrenim Kabiliyetlerini, Program Planlamayı veya Kariyer Gelişimini Destekleyecek Materyaller

Uygun öğrenme materyallerinin seçiminde öğrenciler kişiselleştirilmiş tavsiye, ipucu ve yorumlara ihtiyaç duymaktadırlar. Bu ihtiyacın karşılanması için yapay zekâ tekniklerini içeren tavsiye sistemlerinin kullanımı uygun olabilir. Gün geçtikçe kullanımı artan ve gelişen bu sistemler birçok farklı alanda kullanılmaktadır. Kullanıcıların ihtiyaç ve isteklerini tespit ederek, uygun çözümü sağlamak üzere tasarlanmaktadırlar (Souali , Rahmaoui, Ouzzif ,2018) .Zhang , Lu ve Zhang'ın (2020) (e-öğrenme tavsiye sistemleri alanında yapılan araştırmaları ele aldıkları) çalışmalarında uygun öğrenme materyallerinin tespiti için farklı yapay destek yöntem ve tekniklerinin kullanılabileceği ortaya konulmuştur. Ye, Tang , Xu ve Jin (2015) semantik tabanlı yöntemi kullandıkları çalışmalarında kullanıcının sıradaki içeriğe, okuma veya öğrenme bağlamında hazır olmasına yönelmişlerdir. Dijital kaynaklardan alınan içerik, sistem tarafından ,semantik ilişkilerine göre bileşenlerine ayrılmakta ve sınıflandırılmaktadır. Daha sonrasında bilgiler ve içerik ,kullanıcıya ,hazır oluş durumuna göre tavsiye edilmektedir. Öznitelik tabanlı çalışmalar için Lu (2004) tarafından gerçekleştirilen 'Kişiselleştirilmiş e-öğrenme materyal tavsiye hizmeti çalışması' örnek verilebilir. Bu çalışmada sistem ,öğrencilerin özelliklerini tespit ederek bir veri tabanı oluşturmakta ve daha sonrasında bu veritabanındaki bilgilerden, öğrencinin ihtiyaçları tespit edilerek öğrenme materyalleri tavsiyesi verilmektedir. Suali vd., (2018) sorgu tabanlı tavsiye sistemlerinde sohbet botlarını kullanarak öğrenci ile iletişimde kalmış ve ihtiyaç duyulan bilginin niteliğini sohbet botlarının sorduğu sorular aracılığıyla tespit etmişlerdir. Bu sorulara verilen cevaplar veri bankasındaki verilerle karşılaştırılarak, hem sistemsel düzeltmeler yapılmış hem de sohbet botları öğrenciye güncel materyal tavsiyelerinde bulunmuştur.

Tavsiye hizmetlerinde iş birliğine dayalı filtreleme çeşitleri, derin öğrenme ve bağlam farkındalığı yöntemleri kullanılarak gerçekleştirilebilir. Klašnja-Milićević, Vesin ve Ivanović (2018) öğrenme kaynaklarını ele alırken folksonomiye dayalı bir tavsiye hizmeti oluşturmuşlardır. Wang, Zhang, Yu, Liu, Yuan ve Wang (2017) derin öğrenmeyi kullandıkları yöntemin özellikle çok sayıda kullanıcı bulunan sistemler için çok daha uygun olduğunu ifade etmişlerdir. Bilgi tabanlı tavsiye sistemleri ise semantik web ve sezgisel analiz yöntemlerini kullanmaktadır. Bu sistemlerde esas olan ontolo-

jik yaklaşımlardır ve ontoloji tabanlı tavsiyeler verilmektedir. Tarus vd., (2017) bilgi tabanlı tavsiye sistemlerini sıralı patern madenciliği tekniği ile kullandıkları çalışmalarında hibrit bir yapıya ulaşarak daha başarılı ve kesin sonuçlara ulaşmışlardır. Deneysel olarak gerçekleştirilen bu çalışma tavsiye sistemlerinde karşılaşılan soğuk başlama gibi sorunları engellemiş ve yüksek bir kullanıcı memnuniyeti yakalanmıştır. Tavsiye sistemlerinde bilginin elde edilmesi aşamasında eğitimsel veri madenciliği, makine öğrenmesi, derin öğrenme ve sohbet botları gibi pek çok yapay zeka bileşenini kullanabilir.

Özel İhtiyaç Grubundaki Öğrencilere Yönelik Farklılaştırılmış Hizmetler

Özel ihtiyaç grubunda bulunan öğrencilere yönelik yapay zeka hizmetleri konusunda pek çok çalışma yapılmıştır. Özel ihtiyaç grubunda bulunan öğrencilerin uzman sistemler (Nanni ve Lumini,2008) veya yapay sinir ağları vasıtasıyla tespiti (Wu, Meng,Huang,2006); Akıllı öğretim rehberliği sistemlerinin bu bireylerin akademik başarısına etkileri (Lanzilotti ve Roselli,2007) ve katkısı (Brodin,2010) konuları oldukça önemlidir. Yapay zeka, özel ihtiyaç grubundaki tüm bireylerin desteklenmesini sağlamakta etkili olabilir. Bu alanda verilebilecek diğer hizmetler bağlamında da çalışmalar yapılması gerekmektedir.

SONUÇ

Her geçen gün artan öğrenen sayısı ve öğrenenlerin artan talepleri ile uzaktan eğitim alanı, kaynak yeterliliği ve kullanımı bağlamında büyük bir baskı altında bulunmaktadır. Mills'in (2003) de belirttiği üzere öğrencileri elde tutmak gittikçe daha önemli hale gelmeye başlamış, katılım genişlemiş ve öğrencilerde yüksek kaliteli hizmet sağlanması beklentisi ortaya çıkmıştır. Bu noktada kaliteli hizmetin çok sayıda kullanıcıya ulaştırılabilmesi, öğrencilerin ihtiyaç duyduğu kesintisiz desteğin sağlanması ve bu hizmetin kişiselleştirilmesi, kısıtlı insan kaynakları ve artan maliyetler problemlerinin çözülmesi için yapay zeka uygun çözümleri sunabilir. Açık ve uzaktan öğretimde öğrenci destek hizmetleri tasarlanırken, hedef kitlenin yapısı ve özelliklerine uyumlu ve yeterli hizmetlerin verilebilmesi ancak farklı yapay zeka araç ve sistemlerinin kullanılması ile sağlanabilir. İhtiyaç ve beklentileri karşılanan öğrenenlerin, öğrenimi bırakma oranlarının daha düşük olması olasıdır. Girdilerdeki artış, öğrenci başarısını da arttırabilir.

Öğrenci sayısının artması, sistemlerin maliyetini birim öğrenci bağlamında düşürürken, öğrenci başına verilen destek miktarında da artışa neden olmaktadır. Uzaktan eğitim gören öğrencinin, öğretmenden ve kurumdan talep ettiği sürekli hazır bulunurluk bilgisayarlar tarafından karşılanabilir. Bu da hem öğrencilerin memnuniyetlerinin artması hem de öğretmenlerin üzerinde yaratılan iş yoğunluğu ve mental baskının azaltılmasına yardımcı olabilir. Sürekli değişen ve gelişen yapısıyla yapay zeka sadece öğrencilerin değil öğretmenlerinde desteklenmesinde gittikçe artan bir öneme sahip olmaktadır. Ancak yapay zeka alanında yapılan çalışmaların farklı dalların altında gerçekleşmesi ve hızlı gelişimi nedeniyle güncel ve bütüncül bir bakış açısına sahip olabilmek oldukça zordur. Açık ve uzaktan öğretimde kullanılabilecek yapay zeka araçları ile alakalı güncel bilgilerin dönemsel olarak derlenmesi önem arz etmektedir.

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Özet

Bu araştırmanın amacı, üniversite öğrencilerinin canlı derslere yönelik memnuniyetleri ile canlı derslerdeki bilişsel yüklenmelerini cinsiyet, yaş ve dikkat dağınıklığı değişkenleri bakımından incelemektir. Araştırmanın katılımcılarını 2019-2020 eğitim-öğretim yılında Sakarya Üniversitesinde lisans öğrenimine devam etmekte olan 667 lisans öğrencisi oluşturmaktadır. Araştırma nicel araştırma türlerinden kesitsel tarama araştırma desenine uygun olarak gerçekleştirilmiştir. Araştırmada veri toplama araçları olarak; kişisel bilgi formu, "Canlı Derslere Yönelik Memnuniyet" ve "Bilişsel Yük" ölçekleri kullanılmıştır. Kişisel bilgi formu; cinsiyet, yaş ve dikkat dağınıklığı yönelik sorulardan oluşmaktadır. "Canlı Derslere Yönelik Memnuniyet" ölçeği tek faktörlü bir yapıdan meydana gelmektedir. Veriler katılımcılardan çevrimiçi form aracılığıyla uygun örnekleme yöntemine göre gönüllülük ilkesine uygun şekilde toplanmıştır. Verilerin analiz işlemlerinde önce uygun istatistiksel yöntemin seçimi için normallik varsayımları çarpıklık ve basıklık değerleri ile sınanmıştır. Çarpıklık ve basıklık değerleri verilerin normal dağılım gösterdiğine yönelik gerekli referans aralığında olduğundan dolayı parametrik testlere yönelinmiştir. Elde edilen verilerin analizi Sosyal Bilimler için İstatistik Paket Programı (SPSS) ile gerçekleştirilmiştir. Araştırmada cinsiyet ve dikkat dağınıklığı değişkenlerine göre canlı derslere yönelik memnuniyet ve bilişsel yüklenme değişimine ilişkisiz örneklemler için t-testi ile bakılmıştır. Yaş değişkenine göre canlı derslere yönelik memnuniyet ve bilişsel yüklenme değişimlerine tek yönlü varyans analizi ile incelenmiştir. Araştırma sonucunda öğrencilerin canlı derslere yönelik memnuniyet düzeyleri dikkat dağınıklığı değişkenine göre anlamlı farklılık gösterirken cinsiyet ve yaş değişkenlerine göre anlamlı farklılık göstermediği tespit edilmiştir. Araştırmada canlı derslerde dikkat dağınıklığı yaşayan öğrencilerin canlı derslere yönelik memnuniyetleri dikkat dağınıklığı yaşamayan öğrencilere göre daha düşük olduğu sonucuna ulaşılmıştır. Ayrıca bilişsel yüklenme düzeylerinin cinsiyet, yaş ve dikkat dağınıklığı değişkenlerine göre anlamlı farklılık göstermediği tespit edilmiştir.

Anahtar Kelimeler: *Canlı Ders, Memnuniyet, Bilişsel Yüklenme, Cinsiyet, Yaş, Dikkat Dağınıklığı*

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GİRİŞ

Bilim ve teknolojinin hızlı bir şekilde gelişmekte olduğu günümüzde eğitim alınabilecek ortamlarda değişmekte, her yaştan bireylerin eğitim ortamlarına ulaşabilmesi daha kolay hale gelmektedir. Uzaktan eğitim ortamları da bu kolaylığı sağlayan eğitim ortamlarından biri olarak karşımıza çıkmakta, farklı mekanlarda bulunan bireylerin birbirleriyle iletişime geçmesine ve bilgi alışverişi yapabilmesine imkân sağlamaktadır (Valentine, 2002). Uzaktan eğitim; öğretimin genellikle sunulduğu mekândan farklı bir yerde meydana geldiği, özel örgütsel ve yönetsel düzenlemelerin yanı sıra, özel ders tasarımı tekniklerinin kullanıldığı, özel öğretim yöntemleri içeren, elektronik ve diğer teknolojiler yardımıyla gerçekleşen kendine özgü iletişim yolları gerektiren öğrenme süreçlerinin planlandığı bir eğitim şekli olarak tanımlanmaktadır (Moore ve Kearsley, 1996). Uzaktan eğitim ortamlarından etkili ve verimli bir şekilde yararlanabilmek için uzaktan eğitim ortamlarının bileşenleri olan öğrenen, öğretici, içerik ve etkinliğe yönelik bilgi sahibi olunmalı ve eğitim faaliyetlerinde bu bileşenlerin etkili bir şekilde kullanılmasına dikkat edilmesi gerekir (Anderson ve Garrison, 1998; Moore, 1989). Uzaktan eğitim bu bileşenleri birbirleriyle ne kadar etkileşimli olursa, öğrenenlerin öğrenme süreçlerinde başarıları ve ortama yönelik memnuniyetleri de o oranda artabilecektir.

Son zamanlarda ve özellikle de salgın döneminde her eğitim düzeyinde uzaktan eğitimden yararlanılmaktadır. Her eğitim düzeyi dikkate alındığında canlı dersler ile sürecin yürütülmesi ön plana çıkmaktadır. Canlı derslerde bileşenler arası etkileşim oldukça yüksektir. Bireyler uzaktan eğitim platformlarındaki canlı ders etkinliklerine ne kadar çok katılım sağlar ise bu ortamdan daha etkili bir şekilde faydalanabilir. Alanyazın incelendiğinde canlı derslere erişimde internet alt yapısının zayıf olması (Bayburtlu, 2020; Özdoğan ve Berkant, 2020; Ünal ve Bulunuz, 2020), canlı derslerde öğrenci devamsızlığındaki artış (Demir ve Özdaş, 2020; Özgül, Ceran ve Yıldız, 2020), canlı derslerde sınırlı etkileşim olması (Arslan ve Şumuer, 2020; Başaran, Doğan, Karaoğlu ve Şahin, 2020) gibi sorunlar yaşandığı belirtilmiştir. Uzaktan eğitim ortalarındaki canlı ders etkinliklerinden bireylerin etkili şekilde yararlanabilmesi, olumlu sonuçlar elde edebilmesi için hem ortamdan memnun olmaları hem de bilgiyi kalıcı hale getirebilmeleri gerekmektedir.

Memnuniyet değişken olarak uzaktan eğitimde sıkça kullanılan değişkenlerden biridir (Horzum, 2007). Memnuniyet değişkeni özellikle uzaktan eğitimde öğrenci bağlamında ele alınmaktadır. Öğrenci memnuniyeti öğrencinin aldığı hizmet ve hizmetin sunulduğu ortam ve içerik bağlamında değerlendirmesine dayalı hoşnut olma durumunu içermektedir (Waterhouse, Samra ve Lucassen, 2022). Alanyazın incelendiğinde öğrenci memnuniyeti motivasyon (Goulimaris, 2015), öğrenme stilleri (Wu, 2014) kaygı (Azizi, Rezai ve Naserpour, 2022) gibi farklı değişkenlerle ilişkilendirildiği görülmekle birlikte bütünde öğrencilerin çevrimiçi öğrenmeyi bırakma ya da devam etmesine etki etmesi bağlamında önemi vurgulanmaktadır (Lee, Choi, ve Kim, 2013). Alanyazın incelendiğinde sanal sınıflara yönelik memnuniyetin pek çok değişkenle ilişkilendirildiği görülmektedir (Noetel, Griffith, Delaney, Harris, Sanders, Parker, Del Pozo Cruz ve Lonsdale, 2021). Bunlar arasında ön plana çıkan değişkenlerden birisi de cinsiyettir.

Cinsiyete göre çevrimiçi öğrenmede memnuniyet değişimini inceleyen çalışmalara bakıldığında farklı bulguların olduğu görülmektedir. Bu çalışmalar arasında cinsiyet değişkeni ve çevrimiçi öğrenme memnuniyeti arasında fark olmadığını ortaya koyan araştırmalar bulunmaktadır (Harvey, Parahoo ve Santally, 2017; Li, 2019). Bunun yanında Shen, Cho, Tsai ve Marra (2013) tarafından gerçekleştirilen araştırmada cinsiyetin çevrimiçi öğrenmede anlamlı yordayıcı olduğu ortaya koyulmuştur. Ayrıca Basith, Rosmaiyadi, Triani ve Fitri (2020) ve Choi, Oh ve Cho (2021) tarafından yapılan çalışmalarda kız öğrencilerin Kovid 19 salgın dönemi çevrimiçi öğrenmede erkeklere öğrencilere göre daha memnun oldukları sonucuna ulaşmışlardır. Bu yönüyle farklı bulguların ve farklı ortamlardaki memnuniyetin ölçüldüğü araştırmaların olması nedeniyle araştırmanın ilk alt problemi olarak çevrimiçi öğrenme öğrencilerinin cinsiyetlerine göre memnuniyetlerinde fark olup olmadığı seçilmiştir.

Yaş ve memnuniyet ile ilgili alanyazın incelen zaman çok fazla çalışmanın olmadığı ayrıca yapılan çalışmaların ise farklı yaş gruplarını karşılaştırdığı görülmüştür. Bu araştırmalardan Altınpulluk, Kılınç, Fırat ve Yumurtacı (2019) tarafından yapılan araştırmda ise 17-23 yaş aralığındakilerin daha üst yaş aralığındakilere göre memnuniyet bakımından avantajlı oldukları bulunmuştur. Bunun yanında Artino 2008, Ke ve Kwak (2013) tarafından yapılan çalışmalarda çevrimiçi öğrenme memnuniyetinde yaşın anlamlı bir yordayıcı olmadığı bulunmuştur. Ancak ilgili çalışmalarda memnuniyet farklı uzaktan eğitim ortamlarında ölçüldüğünden sanal sınıf ortamındaki memnuniyet ile ilgili araştırma yapılması amacıyla araştırmanın ikinci alt problemi olarak çevrimiçi öğrenme öğrencilerinin yaşlarına göre memnuniyetlerinde fark olup olmadığı seçilmiştir.

Dikkat dağınıklığı ile canlı derslerde memnuniyet arasındaki ilişkiyi inceleyen çalışmaya rastlanamasa da dikkat dağınıklığının pandemi döneminde çok arttığı ve dikkat dağınıklığının öğrenme çıktılarını olumsuz etkilediği bulunmuştur (Cockerham, Lin, Ndolo ve Schwartz, 2021). Yapılan araştırmalar sınırlı sayıda görüldüğünden dikkat dağınıklığı ile ilgili uzaktan eğitim alanyazınında çalışma yapmak amacıyla araştırmanın üçüncü alt problemi olarak çevrimiçi öğrenme öğrencilerinin dikkat dağınıklığına göre memnuniyetlerinde fark olup olmadığı seçilmiştir.

Bilişsel yük kuramı insanın sahip olduğu bilişsel mimarinin doğal süreçleri ve özelliklerine göre öğrenme görevleri ve süreçleri planlayarak öğrenmeyi en iyi hale getirmeyi ele almaktadır (Paas ve van Merriënboer, 2020). Kuramda farklı kapasite ve niteliklere sahip iki ayrı belleğin işlevsel kullanılmadığında bilişsel yüklenmenin oluşacağı öğrenmenin olumsuz etkileneceği vurgulanmaktadır (Sweller, Van Merriënboer ve Paas, 2019). Kuram bütünde bilişsel yapıdaki çalışma belleğine odaklanarak sınırlı kapasiteye sahip bu bellekte sınırlı süreli tutulan bilginin işlenerek uzun süreli belleğe aktarılmasında öğretim tasarımını ön plana çıkarmaktadır. Bu yönüyle kuram konu dışı yükü azaltıp etkili yükü artırmanın önemini ve burada öğretim tasarımının gereğini ortaya koymaktadır. Alanyazın incelendiğinde bilişsel yüklenmenin pek çok değişkenle ilişkilendirildiği görülmektedir (Noetel ve diğerleri, 2021). Bunlar arasında ön plana çıkanlardan biri cinsiyettir.

Cinsiyete göre bilişsel yüklenmenin değişimini inceleyen çalışmalara bakıldığında farklı bulguların olduğu görülmektedir. Bu çalışmalar arasında Cinsiyet değişkeni ve bilişsel yük arasında fark olduğunu ortaya koyan çalışmalar bulunmaktadır (Wong, Castro-Alonso, Ayres ve Paas, 2015; Bevilacqua, 2017). Bunun yanında Roh, Jang ve Issenberg (2021) tarafından gerçekleştirilen araştırmada genel bilişsel yük, dışsal bilişsel yük ve toplam bilişsel yük puanında cinsiyete göre fark olmadığını ortaya koyulmuştur. Ayrıca Marinas, Groff-Aguilar, Panesar-Aguilar ve Bobbie (2022) fizik tedavi öğrencileriyle yaptığı çalışmada bilişsel yükte cinsiyetin anlamlı yordayıcı olmadığını bulmuştur. Bu yönüyle çelişkili bulguların olması nedeniyle araştırmanın dördüncü alt problemi olarak çevrimiçi öğrenme öğrencilerinin cinsiyetlerine göre bilişsel yüklenmelerinde fark olup olmadığı seçilmiştir.

Araştırmada ele alınan bir diğer değişken ise yaştır. Yaş ile ilgili alanyazın incelendiğinde çok fazla çalışma olmadığı ayrıca olan çalışmaların ise farklı yaş gruplarını karşılaştırdığı görülmüştür. Bu araştırmalardan Chen, Hwang ve Wang'ın (2021) yapmış oldukları çalışmalarında öğrenme kapasitesi oluşmamış genç öğrencilerin bilişsel yüklerinin arttığı sonucuna ulaşılmıştır. Ayrıca Altınpulluk ve diğerleri (2019) tarafından yapılan çalışmada ise 17-23 yaş aralığındakilerin daha üst yaş aralığındakilere göre bilişsel yüklenme bakımından avantajlı oldukları bulunmuştur. Bu yönüyle yaşla ilgili alanyazındaki çalışma sayısını artırmak amacıyla araştırmanın beşinci alt problemi olarak çevrimiçi öğrenme öğrencilerinin yaşlarına göre bilişsel yüklenmelerinde fark olup olmadığı seçilmiştir.

Araştırmada ele alınan bir diğer değişken ise dikkat dağınıklığı olmuştur. Dikkat dağınıklığı ile bilişsel yüklenme arasındaki ilişkiyi inceleyen çalışmalarda dikkat dağınıklığı ile bilişsel yüklenem arasında ilişki olduğunu ortaya koymaktadır (Lavie, 2000; MacNamara ve Proudfit, 2014). Bu araştırmalar doğrudan teknoloji temelli öğrenme ortamlarında gerçekleştirilmediğinden teknoloji temelli sanal sınıf ortamlarında bu değişkenlerin ele alınmasına karar verilmiştir. Bu yönüyle dikkat dağınıklığı ile ilgili uzaktan eğitim alanyazınındaki çalışma yapmak amacıyla araştırmanın altıncı alt problemi olarak çevrimiçi öğrenme öğrencilerinin dikkat dağınıklığına göre bilişsel yüklenmelerinde fark olup olmadığı seçilmiştir. Tüm bunlar kapsamında araştırmanın amacı öğrencilerin canlı derslerde memnuniyet ve bilişsel yüklenme düzeylerinin cinsiyet, yaş ve dikkat dağınıklığı değişkenlerine göre değişip değişmediğinin ele alınmasıdır.

YÖNTEM

Araştırmanın bu bölümünde, araştırmanın deseni, katılımcılar, veri toplama araccları, verilerin toplanması ve verilerin analizine yönelik bilgilere yer verilmiştir.

Araştırma Deseni

Araştırma nicel araştırma türlerinden kesitsel tarama desenine uygun olarak gerçekleştirilmiştir. Kesitsel araştırmalar örneklemin büyük olduğu ve betimlenecek değişkenlerin tek seferde ölçüldüğü araştırmalardır (Büyüköztürk, Kılıç-Çakmak, Akgün, Karadeniz ve Demirel, 2017). Bu bağlamda katılımcıların araştırma kapsamında canlı derse yönelik memnuniyet düzeyleri ve bilişsel yüklenme düzeyleri cinsiyet, yaş ve dikkat dağınıklığı değişkenleri açısından incelenmiştir.

Katılımcılar

Araştırma Sakarya Üniversitesinde lisans öğrenimini gören 667 öğrenci ile yürütülmüştür. Sakarya Üniversitesi lisans öğrencileri ulaşılabilir olması yönüyle araştırmaya dahil edilmiştir. Araştırma gerçekleştirilirken uygun örnekleme yönteminden yararlanılmıştır. Araştırma katılımcılarının demografik özelliklerine ilişkin veriler Tablo 1'de sunulmuştur.

Tablo 1. Örneklem grubunun cinsiyet, yaş ve dikkat dağınıklığına değişkenlerine göre dağılımı

Değişkenler		Frekans (f)	Yüzde (%)
Cinsiyet	Kadın	475	71.2
	Erkek	192	28.8
Yaş	18-20	326	48.9
	21-23	272	40.8
	24 ve üzeri	69	10.3
Dikkat Dağınıklığı	Evet	499	74.8
	Hayır	168	25.2

Veri Toplama Araçları

Araştırmada veri toplama araçları olarak; üniversite öğrencilerinin demografik bilgilerinin bulunduğu kişisel bilgi formu, canlı derslere yönelik memnuniyet ve bilişsel yük ölçekleri kullanılmıştır.

Kişisel Bilgiler Formu

Araştırmada üniversite öğrencilerinin cinsiyet, yaş ve "Uzaktan Eğitim sürecinde almış olduğum canlı derslerde dikkat dağınıklığı oluştu mu?" sorularından oluşan "Kişisel Bilgiler Formu" oluşturulmuştur.

Canlı Derslere Yönelik Memnuniyet Ölçeği

Araştırma kapsamında araştırmacılar tarafından geliştirilen "Canlı Derslere Yönelik Memnuniyet" ölçeği üniversite öğrencilerinin canlı derslere yönelik memnuniyet düzeylerini belirlemek amacıyla kullanılmıştır. Ölçeğin amacının belirlenmesinden sonra alanyazın taraması doğrultusunda ölçme aracının kuramsal boyuttaki temelleri inşa edilip bu kuramsal temellere dayalı olarak ölçme aracının madde havuzu oluşturulmuştur. Ölçme aracının madde havuzu 5'li likert derecelendirme yapısına sahip olarak düzenlenmiştir. Oluşturulan taslak ölçme aracı uzman görüşü için 2 alan uzmanına yönlendirilmiştir. Uzman görüşlerinden gelen öneriler doğrultusunda gerekli düzeltme işlemleri gerçekleştirilmiştir. Oluşturulan ölçeğin geçerliliğine yönelik faktöriyel geçerlik kapsamında açımlayıcı faktör analizi (AFA), güvenirliğine yönelik olarak ise iç tutarlılık katsayı değerleri incelemiştir. Analiz işlemleri sonucu "Canlı Derslere Yönelik Memnuniyet" ölçeğinin geçerli ve güvenilir bir ölçme aracı olduğuna yönelik bulgular elde edilmiştir. Ölçek tek faktörlü yapıdan ve toplam 10 maddeden meydana gelmektedir. Ölçme aracının iç tutarlılığına yönelik Cronbach Alfa değeri .962 olarak

tespit edilmiştir. Ölçek maddeleri 5'li likert yapıda olup ters madde içermemektedir. Ölçeğin yanıtlayıcıları ölçme aracından en az 10, en fazla 50 puan alabilmektedirler. Ölçme aracının geçerliği ve güvenirliğine yönelik işlemler bulgular bölümünde detaylı olarak açıklanmıştır.

Bilişsel Yük Ölçeği

Üniversite öğrencilerinin bilişsel yük puanlarının hesaplanmasında ise Paas ve Van Merrienboer (1993) tarafından geliştirilen Kılıç ve Karadeniz (2004) tarafından Türkçe'ye uyarlanan "Bilişsel Yük" ölçeği kullanılmıştır. Ölçek tek maddeden meydana gelmekte ve öğrencilerin bir görevi gerçekleştirirken sarf ettikleri çabayı ölçmektedir. Bu çaba da bilişsel yükün göstergesi olarak ele alınmaktadır. Ölçme aracı "çok çok az", "çok az", "az", "kısmen az", "ne az ne fazla", "kısmen fazla", fazla" "çok fazla" ve "çok çok fazla olarak şekilde 9'lu derecelendirmeye sahiptir. Özgün ölçeğin güvenirliğine ilişkin Cronbach Alfa iç tutarlılık katsayı değeri ise .90 olarak hesaplanmıştır (Pass,1993).

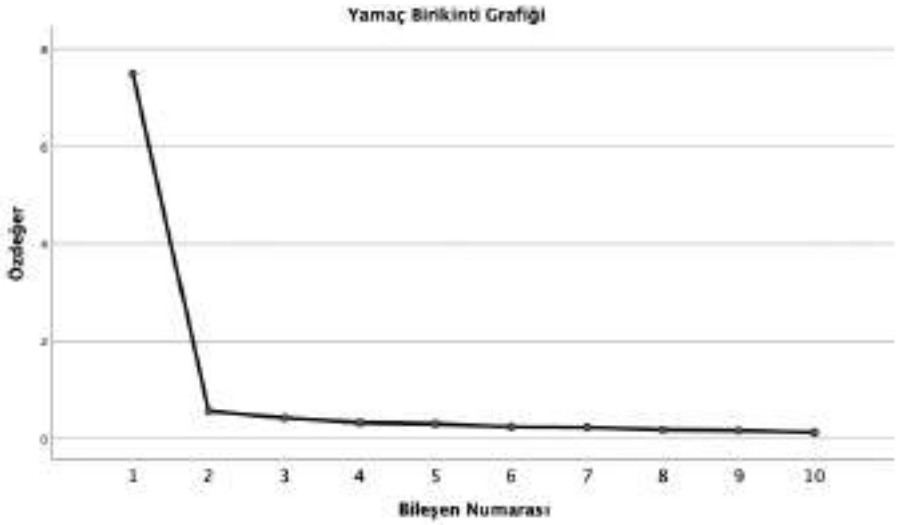
Verilerin Toplanması ve Analizi

Veriler katılımcılardan çevrimiçi form aracılığıyla gönüllülük ilkesine uygun şekilde toplanmıştır. Verilerin analiz işlemlerinde önce uygun istatistiksel yöntemin seçimi için normallik varsayımları çarpıklık ve basıklık değerleri ile sınanmıştır. Canlı derse yönelik memnuniyet ölçeği toplam puanları için çarpıklık değeri .041, basıklık değeri -1.063 bulunmuştur. Bilişsel yükleme ölçeği toplam puanları için ise çarpıklık değeri -.431, basıklık değeri ise -402 bulunmuştur. Çarpıklık ve basıklık değerleri ±1.5 aralığında olduğu ve bu değerlerin Kline (2015) tarafından önerilen sınırlar dahilinde olduğu için normallik ölçütünün sağlandığı kabul edilebilir. Çarpıklık ve basıklık değerleri verilerin normal dağılım gösterdiğine yönelik gerekli referans aralığında olduğu için parametrik testlere yönelinmiştir. Elde edilen verilerin analiz işlemlerinde Sosyal Bilimler için İstatistik Paket Programı (SPSS) ile gerçekleştirilmiştir. Araştırmada cinsiyete ve dikkat dağınıklığına göre canlı derslere yönelik memnuniyet ve bilişsel yüklenme değişimine ilişkisiz örneklemler için t-testi ile bakılmıştır. Yaş değişkenine göre canlı derslere yönelik memnuniyet ve bilişsel yüklenme değişimlerine tek yönlü varyans analizi ile bakılmıştır.

BULGULAR

Açımlayıcı Faktör Analizi (AFA)

Ölçme aracında öncelikle faktöriyel geçerliğine yönelik açımlayıcı faktör analizi uygulanmıştır. 10 maddeden meydana gelen ölçme aracının örneklem yeterliliğini sınama işlemi için KMO testi yapılmıştır. KMO testi sonucu .960 değeri bulunmuş ve bu değerin .70 değerinden büyük olması nedeniyle veriler üzerinde faktör analizi yapılabileceğine karar verilmiştir. Daha sonra Barlett Sphericity test sonuçlarına bakılarak ($\chi 2$ =6841.731, p=.000) verilerin faktör analizi işlemi için uygun olduğu çıkarımına ulaşılmıştır. Faktör analizi işleminde 10 maddenin öz değeri 1 olacak şekilde temel bileşenler analizi öncelik verilerek uygulanmıştır. Geçerlik çalışmaları sonucunda da ölçme aracının tek faktörlü bir yapıya sahip olduğu görülmüştür.



Şekil 1. *Yamaç Birikinti Grafiği*

Faktör analizi işlemi sonucunda ise faktör sayısı Şekil 1'de görüldüğü gibi tek faktörlü bir yapıdan meydana gelmektedir. Sonraki adımda ise ölçme aracının mevcut yapısında yer alan bütün maddeler için ölçme aracı güvenilirliğine yönelik iç tutarlılık katsayılarına bakılmıştır. Bu işlem sonrası tekrar faktör analiz işlemi ve iç tutarlılık katsayıları incelenmiştir. Tek faktörlü yapıdan meydana gelen ölçeğin geçerlik, güvenirlik verileri, faktörün açıklayıcı varyans, döndürme işlemi sonrasındaki faktör yük değerleri, iç tutarlılık katsayıları ve ölçme aracının genel değerleri Tablo 2'de sunulmuştur.

Tablo 2. *On Maddelik Ölçme Aracının Ayırt Edicilik ve Temel Bileşenler Analizi*

No	Ort.	Ss	Fakt. Ort. Vary.	Fakt. Yük Değ.
M1	3.06	1.285	.744	.862
M2	3.02	1.404	.659	.812
M3	3.02	1.400	.795	.892
M4	3.03	1.333	.732	.855
M5	2.91	1.429	.783	.885
M6	2.84	1.489	.795	.892
M7	2.93	1.425	.738	.859
M8	2.79	1.365	.832	.912
M9	2.95	1.398	.840	.917
M10	2.65	1.460	.566	.752

Tablo 2'de görüldüğü gibi canlı derslere yönelik memnuniyet ölçeği tek faktörlü bir yapıdan meydana gelmiştir. Tek faktörlü yapı 10 maddeden oluşturmaktadır. Ölçme aracının maddelerinin faktör yük değerleri ise .752 ile .917 arasında değişmektedir. Tek faktör toplam varyansın %74.82'sini açıklamaktadır. Faktöriyel geçerliği çalışması

sonucunda ölçme aracı 10 madde ve tek faktörlü yapıdan meydana gelmiştir. Bu değerler ölçme aracının canlı derse yönelik memnuniyetlerini iyi bir şekilde açıkladığını gösteren bir bulgudur. Faktöriyel geçerliği işleminden sonra ölçme aracının güvenirliğinin tespiti için Cronbach Alfa güvenirlik analizi uygulanmıştır. Ölçme aracının 10 maddeden oluşan toplam iç tutarlılık katsayı değeri .962 olarak tespit edilmiştir.

Problem Cümlesi ve Alt Problemlere İlişkin Bulgular

Araştırma kapsamında bulgular; cinsiyet, yaş ve dikkat dağınıklığı sırasıyla sunulup değişkenlerin canlı derslere yönelik memnuniyet ve bilişsel yüklenme düzeylerine göre anlamlı farklılık gösterip göstermediği incelenmiştir. İlk olarak canlı derslere yönelik memnuniyetin cinsiyete göre değişimi için ilişkisiz örneklemler için t-testi uygulanmış ve sonuçlar Tablo 3'te verilmiştir.

Tablo 3. *Üniversite Öğrencilerinin Canlı Derslere Yönelik Memnuniyet Düzeylerinin Cinsiyete Göre Değişimi*

Canlı Derslere Yönelik Memnuniyet	Cinsiyet	N	x̄	Std. Sapma	sd	t	p
Toplam Puan	Kadın	475	29.54	11.83	665	1.154	.249
	Erkek	192	28.34	12.64			

Tablo 3 incelendiğinde araştırmaya katılan üniversite öğrencilerinin canlı derslere yönelik memnuniyet düzeyleri, toplam puanları (t=1.154) açısından cinsiyete göre anlamlı farklılık göstermediği (p>.05) tespit edilmiştir.

Üniversite öğrencilerinin canlı derslere yönelik memnuniyet düzeylerinin yaşa göre farklılık gösterip göstermediği tek yönlü varyans analizi ile incelenmiştir. Analiz işlemleri sonucu elde edilen değerler Tablo 4'te sunulmuştur.

Tablo 4. *Üniversite Öğrencilerinin Canlı Derslere Yönelik Memnuniyet Düzeylerinin Yaşa Göre Değişimi*

Canlı Derslere Yönelik Memnuniyet	Yaş	N	x̄	S		Kareler Top.	sd	Kareler Orta.	F	p
Toplam Puan	18-20	326	29.11	11.27	Gruplar Arası	853.03	2	426.519	2.941	.054
	21-23	272	28.47	12.74						
	24 ve üzeri	69	32.40	12.72	Gruplar içi	96312.84	664	145.049		
	Toplam	667	29.19	12.07	Toplam	97165.87	666			

Tablo 4 incelendiğinde araştırmaya katılan üniversite öğrencilerinin yaşa göre canlı derslere yönelik memnuniyet düzeyleri toplam puan açısından farklılık göstermediği tespit edilmiştir [$F_{(2-664)} = 2.941, p>.05$].

Üniversite öğrencilerinin canlı derslere yönelik memnuniyet düzeylerinin dikkat dağınıklığına göre farklılık gösterip göstermediğine ilişkisiz örneklemler için t-testi ile bakılmış ve sonuçlar Tablo 5'te verilmiştir.

Tablo 5. *Üniversite Öğrencilerinin Canlı Derslere Yönelik Memnuniyet Düzeylerinin Dikkat Dağınıklığına Göre Değişimi*

Canlı Derslere Yönelik Memnuniyet	Dikkat Dağınıklığı	N	x̄	Std. Sapma	sd	t	p	Hedges' g
Toplam Puan	Evet	499	26.15	11.04	665	-12.464	.000	1.11
	Hayır	168	38.25	10.39				

Tablo 5 incelendiğinde araştırmaya katılan üniversite öğrencilerinin canlı derslere yönelik memnuniyet düzeyleri, toplam puanları (t=-12.464) açısından dikkat dağınıklığına göre yüksek düzey etki değeri (Hedges' g = 1.11) olan anlamlı farklılık gösterdiği (p<.05) tespit edilmiştir. Yapılan analizler sonucu dikkat dağınıklığı yaşayan öğrencilerin canlı derslere yönelik memnuniyet düzeyleri (x̄=26.15), dikkat dağınıklığı yaşamayan öğrencilerin canlı derslere yönelik memnuniyet düzeylerinden (x̄=38.25) düşük olduğu sonucuna ulaşılmıştır.

Üniversite öğrencilerinin bilişsel yüklenme düzeylerinin cinsiyete göre farklılık gösterip göstermediğine ilişkisiz örneklemler için t-testi ile bakılmış ve sonuçlar Tablo 6'da verilmiştir.

Tablo 6. *Üniversite Öğrencilerinin Bilişsel Yüklenme Düzeylerinin Cinsiyete Göre Değişimi*

Bilişsel Yüklenme	Cinsiyet	N	x̄	Std. Sapma	sd	t	p
Toplam Puan	Kadın	475	5.92	2.21	665	-.666	.506
	Erkek	192	6.04	2.13			

Tablo 6 incelendiğinde araştırmaya katılan öğrencilerin bilişsel yüklenme düzeyleri, toplam puanları (t=-.666) açısından cinsiyete göre anlamlı farklılık göstermediği (p>.05) tespit edilmiştir.

Üniversite öğrencilerinin bilişsel yüklenme düzeylerinin yaşa göre farklılık gösterip göstermediği tek yönlü varyans analizi ile incelenmiştir. Analiz işlemleri sonucu elde edilen değerler Tablo 7'de sunulmuştur.

Tablo 7. Üniversite Öğrencilerinin Bilişsel Yüklenme Düzeylerinin Yaşa Göre Değişimi

Bilişsel Yüklenme	Yaş	N	$\bar{x}$	S		Kareler Top.	sd	Kareler Orta.	F	p
Toplam Puan	18-20	326	5.75	2.16	Gruplar Arası	28.43	2	14.216	2.981	.051
	21-23	272	6.12	2.28						
	24 ve üzeri	69	6.27	1.84	Gruplar içi	3166.39	664	4.769		
	Toplam	667	5.95	2.19	Toplam	3194.82	666			

Tablo 7 incelendiğinde araştırmaya katılan üniversite öğrencilerinin yaşa göre bilişsel yüklenme düzeyleri toplam puan açısından farklılık göstermediği tespit edilmiştir [$F_{(2-664)} = 2.981, p>.05$].

Üniversite öğrencilerinin bilişsel yüklenme düzeylerinin dikkat dağınıklığına göre farklılık gösterip göstermediğine ilişkisiz örneklemler için t-testi ile bakılmış ve sonuçlar Tablo 8'de verilmiştir.

Tablo 8. Üniversite Öğrencilerinin Bilişsel Yüklenme Düzeylerinin Dikkat Dağınıklığına Göre Değişimi

Bilişsel Yüklenme	Dikkat Dağınıklığı	N	$\bar{x}$	Std. Sapma	sd	t	p
Toplam Puan	Evet	499	5.91	2.29	665	-.862	.389
	Hayır	168	6.07	1.84			

Tablo 8 incelendiğinde araştırmaya katılan üniversite öğrencilerinin bilişsel yüklenme düzeyleri, toplam puanları (t=-.862) açısından dikkat dağınıklığına göre anlamlı farklılık göstermediği (p>.05) tespit edilmiştir.

TARTIŞMA VE SONUÇ

Araştırmanın amacı canlı derslerde memnuniyet ve bilişsel yüklenmenin cinsiyet, yaş ve dikkat dağınıklığına göre değişip değişmediğinin ele alınmasıdır. Araştırma sonucunda canlı derslere yönelik memnuniyette dikkat dağınıklığına göre fark olduğu tespit edilmişken cinsiyet ve yaşa göre fark olmadığı ortaya çıkmıştır. Bunun yanında canlı derslerde bilişsel yüklenme açısından ise cinsiyet, yaş ve dikkat dağınıklığına göre fark olmadığı bulunmuştur.

Araştırmanın en önemli bulgulardan birisi olarak dikkat dağınıklığı yaşamayan öğrencilerin yaşayanlara göre canlı derslerde daha memnun oldukları ortaya çıkmıştır. Anlık mesajlaşma, e-posta, zamanı kontrol etme, oyun oynama ya da sosyal medya paylaşımı gibi nedenlerle hem uzaktan hem de yüz yüze öğrenmeler de dikkat dağınıklığı oluşabilmektedir (McCoy, 2013). Bu durum kovid-19 salgın döneminde daha fazla yaşandığından (Cockerham, Lin, Ndolo ve Schwartz, 2021) daha fazla memnuniyetsizlik oluşmasına neden olmuş olabilir. Dikkat dağınıklığı yaşayan öğrencinin canlı derslere yönelik olarak memnuniyetsizlik belirtmesi beklenen bir durumdur. Çünkü bu dersler anlık ve canlı gerçekleştiğinden dikkat dağıldığında dersin tüm süreci bo-

yunca akış ve bağlamdan kopmuş olunacağından öğrenme süreci olumsuz etkilenebileceğinden dolayı memnuniyetleri düşmüş olacaktır. Dikkat dağınıklığı ile ilgili çok fazla araştırma bulgusu olmadığından dolayı daha genellenebilir bulgular için daha fazla çalışma yapılması önerilebilir.

Araştırmada cinsiyete göre canlı derslerde memnuniyet açısından fark olmadığı bulunmuştur. Bu bulgu literatürdeki bazı araştırmalarla (Harvey, Parahoo ve Santally, 2017; Li, 2019) tutarlılık gösterirken bazıları ile (Basith ve diğerleri, 2020; Choi ve diğerleri, 2021; Shen ve diğerleri, 2013) çelişmektedir. Alanyazındaki farklı bulguların temel nedeni olarak çalışılan grupların ve uzaktan eğitimin sunulduğu farklı ortamlarda farklı araçlarla memnuniyetin ölçülmesi olabilir. Ayrıca bu çalışmada canlı derslerdeki memnuniyetin ele alınması ve diğer uzaktan eğitim uygulamalarından farklı olması bağlamında canlı derslerdeki memnuniyet ve cinsiyete yönelik daha fazla araştırma yapılması önerilebilir. Araştırmanın diğer bir bulgusu da yaşa göre canlı derslerdeki memnuniyette fark olmadığıdır. Alanyazın incelendiğinde benzer bulguların olduğu çalışmalar (Artino 2008; Ke ve Kwak, 2013) olduğu görülmektedir. Altınpulluk ve diğerleri (2019) tarafından yapılan çalışmada farklı bulgu olmasına rağmen farklı bulguların temel nedeninin bu çalışmada geniş yaş gruplarının ele alınması olabilir. Bu yönüyle farklı uzaktan öğrenme ortamlarında da olsa memnuniyetle ilgili çalışmalarda yaşın anlamlı yordayıcı olmaması benzer yaşlardaki bireylerin benzer geçmiş yaşantı ve özelliklere sahip olmasına bağlanabilir. Ayrıca çalışmada canlı derslerdeki memnuniyetle ilgili çok fazla araştırma olmaması nedeniyle bundan sonraki çalışmalarda daha genellenebilir sonuçlar için benzer çalışmalar yapılması önerilebilir.

Araştırmalardaki farklı bulguların nedeni olarak bilişsel yükün ölçüm yöntemi (göz izleme, anket gibi), ölçüm için kullanılan araçlar, ölçümün yapıldığı dersler ve uzaktan eğitimin sunum şekli gösterilebilir. Araştırmada ayrıca yaşa göre bilişsel yüklenme düzeyinde fark olmadığı da bulunmuştur. Yaş ile ilgili alanyazın incelendiğinde çok fazla çalışma olmadığı ve bu çalışmaların farklı yaş gruplarını karşılaştırdığı görülmüştür. Bu araştırmalardan Chen ve arkadaşlarının (2021) ve Altınpulluk ve diğerleri (2019) çalışmalarında farklı bulguların olması farklı uzaktan öğrenme ortamlarını temel almalarına ve katılımcıların yaş gruplarının farklı olmasına bağlanabilir. Yaş ve bilişsel yüklenme ile ilgili yeterli çalışma olmaması nedeniyle daha fazla çalışma yapılması önerilebilir. Araştırmanın diğer bir bulgusu ise dikkat dağınıklığı yaşamaya göre ile bilişsel yüklenmede fark olmadığıdır. Alanyazındaki çalışmalarda dikkat dağınıklığı ile bilişsel yüklenme arasında ilişki olduğu vurgulanmaktadır (Lavie, 2000; MacNamara ve Proudfit, 2014). Bu araştırmalar doğrudan teknoloji temelli öğrenme ortamlarında gerçekleştirilmediğinden teknoloji temelli canlı ders ortamlarında farklı bulgu çıkması olası bir durumdur.

Bu çalışmada canlı derslerdeki bilişsel yüklenmenin değişkenlere göre farklılık göstermemesi ders bazlı değil genel olarak ölçülmesi, ölçümün verilere dayalı ya da araçla yapılmayıp anketle gerçekleştirilmesi ve öğrencilerin bilişsel yüklenme ilgili genel bir tanımı sadece anketten okumuş olmalarına bağlanabilir. Bundan sonraki çalışmalarda bu nedenleri ortadan kaldırabilecek ve farklı değişkenleri ele alan çalışmalar gerçekleştirilebilir. Ayrıca bundan sonraki çalışmalarda nitel yöntemleri temel alan ya da karma metodoloji temelli çalışmaların kullanımı önerilebilir.

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Avrupa'da Açık ve Uzaktan Öğrenmeye Yön Veren Öncü Uzaktan Eğitim Kuruluşlarının Mikro-Krediler Üzerine Stratejileri

Selin ÇELİKBAŞ[1]

Özet

Dijitalleşme ile yaşanan teknolojik gelişmelerin eğitim alanına bir yansıması olarak öğrenme süreçleri hızla değişmekte ve öğrenenlerin ihtiyaçlarına ve beklentilerine yanıt verebilecek birtakım yenilikler sunulmaktadır. Avrupa Yükseköğretim Alanında yer alan üniversiteler ve özellikle bu alanda aktif çalışmalar yürüten uzaktan eğitim kuruluşlarının mikro-krediler alanı üzerine yaptıkları çalışmalar ve hizmet sundukları hedef kitle bağlamında yeni değişimlere ve yeniliklere uyum sağlaması gereken kurumların başında geldikleri ve farklı projeler üreterek alternatif uygulamalar geliştirdikleri görülmektedir. Bu uluslararası kuruluşlar arasında Avrupa Uzaktan Eğitim Üniversiteleri Birliği - EADTU "*European Association of Distance Teaching Universities*", Avrupa Uzaktan ve E-öğrenme Ağı - EDEN "European Distance and E-learning Network", Avrupa Yükseköğretimde Kalite Güvencesi Birliği - ENQA "*European Association for Quality Assurance in Higher Education*" ve Avrupa Üniversiteler Birliği - EUA "*European University Association*" sayılabilir. Bu alanda son yıllarda geliştirilen ve yükseköğretim süreci boyunca ve sonrasında çalışma hayatına yönelik dönüştürücü bir potansiyele sahip yeniliklerden biri mikro kredilerdir. Avrupa Yükseköğretim Standartları (*ESG*) ile uyumlu kalite güvencesine tabi olan mikro-krediler, ilgili sektör veya faaliyet alanında uzlaşılan standartları takip eden kalite güvencesi ile desteklenmektedir. Bu bağlamda esneklikleri göz önüne alındığında mikro-krediler; bir işte çalışan, mesleğini değiştirmek isteyen, iş arayan ya da işe başladıktan sonra profesyonel olarak kendini geliştirmek için yeni beceriler kazanmak isteyenler için kolay ve erişilebilir seçenekler sunmaktadır. Alanyazına dayalı betimsel bir doküman analizi çalışması olarak tasarlanan bu çalışmanın amacı Avrupa'daki Uzaktan Eğitim Kuruluşlarının (EADTU ve EDEN), ENQA'nın ve EUA'nın Avrupa'da açık ve uzaktan öğrenmenin yönetiminde güçlü ve dönüştürücü bir potansiyele sahip olan mikro-kredilere yönelik bakış açıları ve buna yönelik geliştirdikleri stratejilerin, uluslararası işbirliği projelerinin ve proje raporlarının uzaktan eğitim özelinde incelenmesi ve yükseköğretimde kalite güvenceye etkilerinin araştırılmasıdır.

Anahtar Kelimeler: *Mikro-Krediler, Uzaktan Eğitim Kuruluşları, Avrupa Yükseköğretim Standartları, Yükseköğretim, Kalite Güvencesi*

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GİRİŞ

Günümüzde hızla ilerleyen teknolojik gelişmelerle şekillenen, kişilerin bilgiyi edinmeye yönelik hızlı değişen ihtiyaçlarına yanıt verebilen ve yenilikçi uygulamalardan biri olan mikro-krediler, eğitim alanında yeni bir kavram olarak ortaya çıkmakta ve öğrenenlere yeni bakış açıları sunmaktadır. Geleneksel öğretim derecelerinden ve sertifika programlarından ayrı değerlendirilerek yükseköğretim alanının geleneksel öğrenme imkanlarının gözden geçirilmesini ve yeniden değerlendirilmesini sağlayan mikro-krediler, ulusal yeterlilikler çerçevesi ve yükseköğretim alanı düzeyinde açıkça tanımlanmış öğrenme çıktılarına, Avrupa Kredi Transfer Sistemi-AKTS kredileriyle ilgili göstergelere, değerlendirme yöntemlerine ve belirli ölçütlere sahiptir. Bu çalışma, öğrenenlerin istekleri ve ihtiyaçları doğrultusunda günümüzde oldukça popüler bir eğilim gösteren mikro-krediler konusunu, uzaktan eğitim kuruluşlarının, ENQA'nın ve EUA'nın bu konuya dair yaklaşımları mikro-kredilere yönelik geliştirdikleri proje raporları çerçevesinde detaylı şekilde incelemek ve mikro-kredilerin sunduğu fırsatları kalite güvence açısından tartışmayı amaçlamaktadır. Araştırma yöntemi olarak Avrupa'daki Uzaktan Eğitim Kuruluşlarının, ENQA'nın ve EUA'nın uluslararası işbirliği projelerini ve proje raporlarını uzaktan eğitim bağlamında incelemek amacıyla betimsel bir doküman analizi yöntemi tercih edilmiştir. Çalışmada, mikro-kredilerin kimlik bilgilerinin bilinen bazı tanımlarının, mikro-kredilerin ayırt edici özellikleri, mikro kredilerin tercih edilme sebepleri, Avrupa'da öncü uzaktan eğitim kuruluşlarının, ENQA'nın ve EUA'nın uluslararası işbirliği projeleri ve proje raporlarının ortak ve farklı yönleri karşılaştırmalı olarak sunulmaktadır.

Avrupa Yükseköğretim Alanında Mikro-krediler

Mikro-krediler, öğrenenlerin belirli bir sertifika kazanmak için konuyla ilgili belirli sayıda etkinliği, değerlendirmeyi veya projeyi tamamlamaları gereken mini nitelikler, sertifikalardır. Ortaya çıkan teknolojik gelişmeler, yeni teknik ve mesleki beceriler, uzmanlık ve yetenek için talep yaratmaktadır. Böylece mikro krediler, bilgi, beceri ve yeterlilikleri tanımanın yeni ve daha esnek bir yolu olarak günümüzde giderek daha fazla yer almaktadır ve sürekli olarak ortaya çıkan daha yeni marka adlarıyla gelişmektedir.

Mikro-krediler; belirli bir öğrenme çıktıları grubuna odaklanarak daha kısa bir sürede elde edilmektedir. Ayrıca ticari kuruluşlar, özel sağlayıcılar ve meslek kuruluşları, geleneksel eğitim ve öğretim sağlayıcıları, topluluk kuruluşları ve diğer kuruluş türleri tarafından sunulmaktadır. Birçok mikro-kredi, daha geleneksel öğrenme deneyimlerinin sonuçlarını temsil ederken, diğerleri, işyerinde olduğu gibi, gönüllülük yoluyla veya kişisel ilgi alanıyla öğrenme yoluyla başka yerlerde elde edilen başarıların gösterilmesini doğrulamaktadır. Mikro-krediler, genellikle çalışanların yaşam süresi boyunca becerilerini artırmanın etkili bir yolu olarak tanıtılmaktadır ve Avrupa Yükseköğretim Alanı (EHEA) bağlamında, yükseköğretim kurumları tarafından sunulabilir veya uygun olduğu durumlarda Lizbon Tanıma Sözleşmesi veya önceki öğrenmenin tanınması doğrultusunda tanıma prosedürleri kullanılarak onlar tarafından tanınabilir. Mikro-krediler, öğrenene toplumsal, kişisel, kültürel veya işgücü piyasası ihtiyaçlarına yanıt veren belirli bilgi, beceri veya yeterlilikleri sağlamak için de tasarlanmıştır. Mikro-krediler, EHEA ve yeterlilikler çerçevesi düzeyinde açıkça tanımlanmış öğrenme sonuçlarına, AKTS kredilerinde ilişkili iş yükü göstergelerine, değerlendirme yöntemlerine ve kriterlerine sahiptir ve ESG ile uyumlu kalite güvencesine tabidir.

Bir mikro-kredi:

1. Öğrenenin ne bildiğini, anladığını veya yapabileceğini doğrulayan odaklanmış öğrenme başarısının bir kaydıdır;
2. Açıkça tanımlanmış standartlara dayalı değerlendirmeyi içerir ve güvenilir bir sağlayıcı tarafından verilir;
3. Bağımsız bir değere sahiptir ve ayrıca önceki öğrenmenin tanınması dahil olmak üzere diğer mikro-kredilere katkıda bulunabilir veya bunları tamamlayabilir;
4. İlgili kalite güvencesinin gerektirdiği standartları karşılar.

Mikro-kredilerin daha fazla esneklik sunması ve eğitim sistemine girmeye cesareti olmayanlar ve dezavantajlı geçmişlerden gelenler de dahil olmak üzere yeni öğrenenlere ulaşarak onların yaşam boyu öğrenmeye dahil edilmesini kolaylaştırması teşvik edilmektedir (Avrupa Komisyonu 2020). Mikro-kredi türlerinin birçok çeşidi bulunmaktadır ve türler şunları içerebilir:

- organize bir öğrenme etkinliğinin tamamlandığını gösteren ve genellikle eğitim kurumları tarafından verilen akademik sertifikalar; (Bazı durumlarda, lisans programlarına uygun akademik krediler verirler.)
- meslek kuruluşları, endüstriler veya ürün satıcıları tarafından verilen profesyonel/endüstriyel sertifikalar;
- BT ve siber güvenlik gibi sektörler tarafından yönlendirilen mikro sertifikalar;
- KAÇD'ler veya Küçük Özel Çevrimiçi Kurslar (SPOC'ler) gibi çevrimiçi olarak veya yerinde sağlanan kısa kurslar;
- eğitim kampları (çok özel bir öğrenme sonucu/yeterlilik üzerine kısa, yoğun eğitim programları);
- web rozetleri veya e-badgeler olarak da adlandırılan dijital rozetler;
- açık rozetler;
- nano dereceler.

Mikro-kredilerin Ayırt Edici Özellikleri

Mikro-krediler veriliş şekilleri açısından bakıldığında; çevrimiçi, yüz yüze veya karma olabilmektedir ancak çoğunlukla çevrimiçi olarak sunulma eğilimindedirler (Kato ve diğerleri, 2020, s. 18). Bu tür imkanlar genellikle öğrenenlere çalışma hızı ve süresi açısından esneklik sunmaktadır. Çevrimiçi olarak verilen mikro-kredilerin göze çarpan bir örneği KAÇD'lerdir. Class Central'a göre, 2019'da, genellikle eğitim teknolojisi şirketleri ile işbirliği içinde ve çevrimiçi öğrenme platformları aracılığıyla 13.500'den fazla KAÇD sunan 900'den fazla yükseköğretim kurumu ve yaklaşık 500 şirket ve diğer kuruluş ve 110 milyondan fazla kişi (Çin hariç) KAÇD'lere kaydolmuştur (Shah, 2019).

Mikro-krediler yükseköğretim kurumları tarafından yüz yüze olarak ise genellikle akşamları veya hafta sonları olmak üzere kurum bünyesinde düzenlenen sürekli eğitim programlarının bir parçası olarak sunulmaktadır. Ayrıca, belirli bir beceri veya yeterliliğe odaklanan çalışma biriminde (genellikle müfredat dışı) modülü/programı başarıyla tamamlamanın ardından öğrenenlere derece, sertifika ve rozetler sunmak-

tadırlar (EDUCAUSE, 2019; Dakovic ve Loukkola, 2017, s. 9-11). Bunlar, öğrenenin özgeçmişinde veya sertifikasında belirtilebilmekte ya da LinkedIn gibi platformlarda toplanabilmekte ve görüntülenebilmektedir.

Mikro-kredilerin karma olarak sunulması da yaygındır ancak hem katılımcılar hem de sağlayıcılar için daha maliyetli olma eğilimindedir. Yine de, harmanlanmış sunum, esas olarak risk altındaki öğrenen kesimleri için öğrenme çıktıları üzerinde iyi bir etkiye sahip görünmektedir (Kato ve diğerleri, 2020, s. 11). Örneğin, Küçük Özel Çevrimiçi Kurslar, yerel bir insan grubuna hitap etmekte, kişiye özel bir kurs sunmakta ve öğrenenler bir topluluğun veya kampüsün parçası olarak kalırken genellikle karma öğrenmeyi ve ters yüz sınıf yöntemlerini desteklemektedir.

Bir mikro kredinin tamamlanması için gereken süreye bakıldığında ise; bu süre, türlerine, sağlayıcılarına ve odak alanlarına vb. bağlı olarak değişmektedir. Bazı mikro-krediler, tanımlanmış bir başlangıç ve bitiş tarihi olan bir programa göre çalıştırılırken, diğerleri kendi hızındadır ve öğrenenler istedikleri kadar hızlı veya yavaş ilerleyebilmektedir. Geleneksel yeterlilikler kazandıran eğitim programlarıyla karşılaştırıldığında, mikro-kredilerin tamamlanma süresi tipik olarak daha kısadır.

"Alternatif bir sertifika" sunan mikro-kredilerle öğrenmenin değerlendirilmesi konusu da büyük ölçüde farklılık göstermektedir. Katılımla veya ödevlerle, bir sınavı geçme veya her ikisinin birleşiminin temelinde bir yeterlilik belgesi verilebilmektedir. Kato et al. (2020), bir sınavı geçme sonucunda elde edilen mikro-kredilerin sınırlı bir süre için geçerli olabileceğini ve sınava yeniden girmeyi veya belirli gereksinimlerin periyodik olarak yerine getirilmesini gerektirebileceğini (ör. yoklama ve/veya ödevlere dayalı olarak verilenler, ömür boyu geçerliliğe sahip olma eğilimindedir) desteklemektedir (s.14). KAÇD platformları ise, bir kursa katılımı/tamamlanmayı onaylayan sertifikalar ve öğrenenin kimliğini doğrulayan ve öğrenme çıktılarının elde edildiğini doğrulayan sertifikalar olmak üzere iki tür dijital sertifika sunmaktadır (Witthaus ve diğerleri, 2016, s. 23). Mevcut mikro-krediler arasındaki bir diğer önemli ayrım da, bazılarının kredi taşıması, bazılarının ise kredi vermemesidir. Kredi taşıyan mikro-kredilerin değerlendirme prosedürü, geleneksel bir yeterlilik düzeyine göre düzenlenmiştir.

Mikro-kredilerin bir başka özelliği de modüler olmalarıdır ve daha büyük başka bir yeterlilik belgesinin parçaları olarak entegre edilebilmektedirler. Bu nedenle, mikro-krediler yükseköğretimde eğitim sunumunun ayrı birimler olarak tamamlanan daha küçük parçalarına bölünebilir, diğer birimlerle birleştirilebilir ve sonuç olarak daha büyük bir öğrenme birimi oluşturulabilir (Pickard, 2018).

Tüm bunlara ek olarak, öğrenenler için mikro-krediler geleneksel derecelerden daha az maliyetli görünebilmektedir (Kato ve diğerleri, 2020). Pek çok mikro-kredi sağlayıcı, öğrenenlere ücretsiz olarak veya düşük bir ücretle sertifika sunmaktadır. Yükseköğretim kurumları için ise mikro-kredileri geliştirmek ve sürdürmek maliyetlidir. Örneğin, bir KAÇD geliştirmek, ders içeriği geliştirmeyi ve bir eğitmenin diğer hazırlıklara ek olarak KAÇD videolarını kaydetmek için 100 saatten fazla zaman harcadığı çevrimiçi öğrenme materyallerinin oluşturulmasını gerektirebilmektedir (Kolowich, 2013). KAÇD'lerle ilgili eğilimler ve bakış açıları hakkındaki OECD (2016) araştır-

ması, KAÇD'leri geliştirme ve sürdürmenin yüksek maliyetleri nedeniyle, çoğu yükseköğretim kurumunun KAÇD'leri kurumlarının eğitim sunumunun maliyet verimliliğini artırmanın bir yolu olarak görmediğini ortaya koymuştur (s. 15).

AVRUPA UZAKTAN EĞİTİM KURULUŞLARININ PROJELERİ

Avrupa'daki öncü uzaktan eğitim kuruluşlarından EADTU, EDEN, ENQA VE EUA'nın mikro-kredilere yönelik başlattığı uluslararası işbirliği projeleri incelendiğinde, EADTU'nun 10 ortakla [EADTU, UNINETTUNO, UNED, Universitate Aberta, Fern Universitat in Hagen, Hellenic Open University Open Universiteit, Open University of Cyprus, Kaunas University of Technology, Universitat Oberta de Catalunya (UOC)] birlikte 2022'de başlattığı ve 36 ay sürecek olan mikro-kredilerin uygulanması ve tanınması için adımlar planlayan *'Modularisation of Continuing Education and professionalisation by Micro- credentials'* (MCE) projesi, EDEN'in 7 proje ortağı [Duale Hochschule Baden-Württemberg (DHBW), Institut Jozef Stefan (JSI) , Vytauto Didziojo Universitetas (VMU), Tampere University (TAU), Knowledge Innovation Centre (KIC), Fondazione Politecnico di Milano**,** The Knowledge 4 All Foundation (K4A)] ile 2018'de başlattığı *'Micro-Credentialing in Higher Education'* (MicroHE) projesi ve ENQA ve EUA'nın Erasmus+ KA3 Politika Reformuna Destek ve "EHEA Reformlarının Uygulanmasına Destek" tarafından 2020-2022 yılları arasında Finlandiya Eğitim ve Kültür Bakanlığı, İtalya CIMEA (Akademik Hareketlilik ve Denklik Bilgi Merkezi) ile ortaklaşa koordine edilen *'Micro-credentials linked to the Bologna Key Commitments'* (MICROBOL) projesi temel olarak, Avrupa ve mikro-krediler için ulusal çerçevelerle uyumlaştırmaya odaklanmaktadır.

MCE projesi ile M ICROBOL projelerinin odak noktası olan ortak konular ise yükseköğretim alanında kurumsal gelişimin desteklenmesi ve EHEA adına mikro krediler için AB çerçevelerinin üretilmesi ve politikalar geliştirilmesi ve Ortak Çerçeve yayınlarının sunulması olarak saptanmıştır. Mikro-kredilere dair; AKTS, diploma eki ve yeterlilik çerçeveleri için Avrupa tanıma araçlarının yeterliliğinin incelenmesi; Avrupa'da mikro kredilerin tanınmasını, transferini ve taşınabilirliğini kolaylaştırmaya yönelik bir meta-veri standardının önerilmesi konusundaki MicroHE projesinin çıktılarından olan "EHEA'da Mikro-krediler için Ortak Çerçeve" nihai yayınını ile MICBROBOL projesinin dış kalite güvence uzmanlığı sağlayan kalite güvencesi, yeterlilik çerçeveleri ve tanınma ve kısa öğrenme deneyimleriyle ESG'nin projeye uygulanabilirliği hususunda iki proje birbirini tamamlar niteliktedir.

Avrupa Yüksek Öğreniminde modülerleştirme, ayrıştırma ve mikro akreditasyonun etkisine ilişkin şimdiye kadar yürütülen en kapsamlı politika analizini sağlamak, Yükseköğretim Alanı içinde sunulan mikro kredilerin kalitesini artıran ve aynı kimlik bilgilerinin Avrupa'da farklı eğitim kurumları ve işverenler tarafından tanınmasını, transferini ve taşınabilirliğini kolaylaştırılmasını sağlamak adına MicroHE projesi ise diğer ki projeden farklı olarak bir meta-veri standardı önermiştir. Ayrıca, MicroHE projesi mikro-kredi türlerinin bir araya getirilerek mikro kredilerin sağlanmasında gelecekteki eğilimlerin saptanmaya çalışılması ve geleceğe yönelik tarama tekniklerin-

den DELPHI metodolojisinin kullanılarak mikro kredilerin Yükseköğretim Kurumları üzerinde oluşabilecek gelecekteki eğilimlerin ve etkilerinin tahmin edilmesi ile diğer projelerden ayrışmaktadır.

MICROBOL projesi ise, Avrupa Yükseköğretim Alanının mikro kredileri nasıl ele alacağına odaklanmakta ve aynı zamanda da şirketler veya kâr amacı gütmeyen kuruluşların sağladığı 'açık rozetler' sistemine değinerek, Bologna Süreci kapsamında mevcut Bologna araçlarının kullanılıp kullanılamayacağını veya mikro kredilere uygulanabilir olacak şekilde uyarlanmasına dair proje çıktıları sunarak diğer iki projeden ayrışmaktadır. Bunlara ek olarak; MICROBOL projesi AKTS, diploma eki ve yeterlilik çerçeveleriyle uyumlu olacak mikro-kredilerle ilgili detaylı bilgi vermek için "kredi eki" öneren tek projedir.

KURULUŞLARIN MİKRO-KREDİLERE YÖNELİK STRATEJİLERİNİN KARŞILAŞTIRILMASI

Yaşam boyu öğrenmenin öneminin uzun süredir kabul edilmesi, artan istihdama yönelik esnek ve bireyselleştirilmiş öğrenme yollarına duyulan ihtiyaç üzerine, geleneksel nitelikleri tamamlayan mikro-krediler öğrenenler arasında önemli bir yer bulmaktadır. Proje raporları incelemeleri sonucunda da, mikro-kredilerin hem mezun hem üniversite öğrencisi adaylarının öğrenme süreçlerini desteklemek, başarılarını belgelemek ve kanıtlamak adına iş sektörüne yönelik öğrenenlere kısa süre içinde yeni beceriler ve yetkinlikler kazandıran ve farklı alternatifler sunduğu açıktır. Bu anlamda mikro-krediler, EHEA ve AB içinde beceri geliştirme, yaşam boyu öğrenme ve içermeyi desteklemek için yenilikçi bir yol olarak Avrupa alanında ivme kazanmaktadır.

Mikro-krediler çeşitli biçimlerde ve farklı sağlayıcılar tarafından sunulduğundan, mikro kredilere yönelik herhangi bir Avrupa çerçevesinin amacı da, ihtiyaç duyulan netliği ve şeffaflığı artırmak olmalıdır. Bu bağlamda çalışmada ulaşılmak istenen amaç; EADTU, EDEN, ENQA ve EUA gibi uzaktan eğitim kuruluşlarının mikro-krediler alanı üzerine yaptıkları uluslararası işbirliği projelerinde ve proje raporlarında tartışılan Avrupa'daki mikro-kredi girişimleriyle, bir bütün olarak EHEA için ya da EHEA içindeki bireysel yükseköğretim kurumları için ilham kaynağı olabilecek olanaklar sunulmasına yönelik gelecekteki araştırmacılara ışık tutmaktır.

Literatürde bahsedilen tüm bu raporlarda atıfta bulunulan projeler esnek yapısı ile öğrenen bireylere istedikleri şeyi kendi öğrenme ihtiyaçları doğrultusunda şekillendiren mikro-kredilere dair sundukları çalışmalarla birbirini tamamlamakta, Avrupa yükseköğretim kurumlarının mikro kredilerin ana sağlayıcılarından biri olduğunu ve dolayısıyla bu alandaki inovasyonun itici güçlerinden de biri olduğunu göstermektedir. Ancak, mikro kredilerin sağlanmasında ne ölçüde ve hangi koşullar altında yer aldıkları yükseköğretim sistemine ve kurumdan kuruma büyük ölçüde farklılık göstermektedir. Bu nedenle, EHEA araçlarının mikro kredileri nasıl ele aldığı tartışılırken, gelecekteki yeterlilik çerçevelerinin ve araçların tüm mikro kredileri ve sağlayıcılarını mı yoksa yalnızca yükseköğretim kurumları tarafından sağlananları mı kapsadığına karar vermek önemlidir.

EHEA araçlarının her biri farklı amaçlara hizmet etmektedir ve bunların uygun kullanımı ve yorumlanması, mikro kredilere uygunlukları açısından hayati önem taşımaktadır. Özellikle, EADTU, EDEN, ENQA ve EUA'nın Avrupa'da açık ve uzaktan öğrenmenin yönetiminde mikro-kredilere yönelik geliştirdikleri stratejilerin, uluslararası işbirliği projelerinin ve proje raporlarının uzaktan eğitim özelinde incelenmesiyle yükseköğretimde kalite güvencesi altında tartışılan aslında AKTS'ye veya yeterlilik çerçevelerinin nasıl tanımlandığına ve uygulandığına bağlı olmasıdır. Bu da özellikle, eğitim kalitesinin çok önemli göstergeleri olan AKTS sayısı, yeterlikler çerçeveleri seviyeleri, gösterge niteliğindeki öğrenme saatleri, içerik, değerlendirme uygulamaları ve öğrenme çıktıları gibi konuların tartışıldığı uzaktan eğitim kuruluşlarının proje raporlarında görülebilir. Bu nedenle, projelerin sonraki aşamalarında ve bu raporlarda sorulan sorular yanıtlanırken bunların birbirleriyle olan bağlantıları da akılda tutulmalıdır.

Bu bağlamda, öğrenenlerin ihtiyaçları bağlamında EADTU, EDEN, ENQA ve EUA'nın bu konuya dair yaklaşımları uzaktan eğitim bağlamında mikro-kredilere yönelik olarak ilgili kurumlar kalite güvence süreçlerinden geçmeye yönlendirilerek mikro-kredilerin sunduğu fırsatlar ve süreçler izlenmektedir. Ayrıca, mikro kredilerin eşitlik gündemini ilerletebileceği, dezavantajlı topluluklara erişilebilir ve uygun fiyatlı öğrenme ve beceri geliştirme imkanları getirerek, Birleşmiş Milletler Sürdürülebilir Kalkınma Hedefi 4'ün (Nitelikli Eğitim) gerçekleştirilmesini sağlayacağına dair güçlü beklentiler de bulunmaktadır.

SONUÇ VE ÖNERİLER

Avrupa'da öncü uzaktan eğitim kuruluşlarının proje raporlarına bakıldığında, her üç proje de mikro kredilerin daha fazla kavramsallaştırılmasına ve ulusal ve AB politikaları ve çerçeveleriyle etkileşim içinde dönüştürücü kurumsal gelişmelere katkıda bulunmayı amaçlamaktadır. Avrupa üniversitelerinde mikro-kredi kavramını geliştirmeleri ve desteklemeleri, mikro-kredilerin uygulanması açısından uygun koşulları yaratmaları ve mikro-kredilere yönelik ulusal düzeyde ve AB düzeyinde işbirlikleri gerçekleştirme çıktıları ise üç projenin ortak yönleri olarak belirlenmiştir.

Bu çalışma kapsamında; Avrupa yükseköğretim alanındaki mikro-kredi çalışmalarına yönelik standartların belirlenmesi ve Avrupa'daki öncü uzaktan eğitim kuruluşlarının mikro-kredilere yönelik çalışmalarının kalite güvencesi sağlama ve akreditasyon koşullarının belirlenmesi önerilebilir. Yükseköğretim kurumlarının derslerin içeriklerini mikro-kredi şeklinde sunabilmeleri adına; çeşitli çalışmalarının yapılmasına ek olarak, mevcut derslerin kredi sistemleriyle ilişkilendirilebilecek çalışmalar da yapılabilir. Mikro-krediler uzaktan eğitim kuruluşlarının Avrupa yükseköğretim alanındaki işbirliklerinin geliştirilmesi ve bu alandaki ihtiyaçlara yanıt verebilmesi açısından önem arz etmektedir. Bu doğrultuda, Avrupa yükseköğretim alanında, işverenlerin desteklediği alanlarda ve KAÇD platformlarında gelecekte yapılması düşünülen mikro-kredi çalışmalarının başarılı olması açısından kapsamlı bir ihtiyaç analizi yapılarak Avrupa yükseköğretim alanındaki kurumlardan, uzaktan eğitim kuruluşlarından ve ilgili sektörlerden sunulacak taleplerin belirlenmesinin alana oldukça faydası olacaktır.

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Topluluk Makine Öğrenme Yöntemleri ile Önlisans Uzaktan Eğitim Öğrencilerinin Başarı Tahmin Modeli

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Özet

Öğrenci başarısı, son zamanlarda yükseköğretim kurumları için önemli bir stratejik hedef haline gelmiştir. Artan başarının sürdürülebilmesi için teknolojik yeniliklerden istifade etmek oldukça fayda sağlayacaktır. Eğitimde öğrenci başarısının artırılması için mevcut durumlarını ve olumsuzlukları çok iyi gözlemlemek gerekmektedir. Özellikle akademik kurumlar, eğitimin titizliği ve kalitesinden ödün vermeden öğrencilerin programlarına kayıtlarını sürdürmeye daha fazla önem vermektedir. Mevcut verileri sınıflandırmak ve makine öğrenme tekniklerini kullanarak öğrenci performanslarını ve devamsızlığını tahmin etmek gelecekteki süreci iyi yönetebilmek için fayda sağlayacaktır. Böylece mevcut durumun analizini yaparak iyileştirmeler ve yenilikler yapma fırsatı sağlanacaktır. Öncelikle sürece etki eden tüm değişkenler dikkate alınmalıdır. Yaşanan teknolojik gelişmeler sayesinde tüm alanlarda olduğu gibi eğitim alanında da öğrencilere ait birçok değişkene ve bu değişkenlerin verisine ulaşmak mümkündür. Elde edilen değişkenlere ait verileri analiz etmek için en yaygın kullanılan yöntemler veri madenciliği ve makine öğrenme teknikleridir. Bu çalışmada öğrencilerin başarı durumlarını incelemek, başarıya/başarısızlığa en çok etki eden değişkenleri belirlemek ve öğrenimi terk etme eğiliminde olan öğrencileri tespit etmek amaçlanmıştır. Bu sayede yönetsel açıdan karar alma süreçlerine fayda sağlayacağı düşünülmektedir. Çalışma grubu olarak Sakarya Üniversitesi Meslek Yüksek Okulu uzaktan eğitim programlarında öğrenim gören 3600 öğrenci incelenmiştir. Öğrenci yerleşme puanı, tercih sırası, lise mezuniyet yılı, liseden sonra yerleşme süresi gibi üniversiteye giriş bilgileri veri setinin girdi değişkenini oluşturmaktadır. Öğrencinin başarı durumu, mezuniyeti veya öğrenimi terk etme durumu ise çıktı değişkeni olarak kurgulanmıştır. Bu çalışmada eğitsel veri madenciliği teknikleri kullanılmıştır. Öncelikle aykırı ve tekrarlı verilerin temizlenmesi, eksik verilerinin tespit edilmesi ve düzeltilmesi, dönüştürme ve normalleştirme gibi adımları içeren veri ön işleme süreci gerçekleştirilmiştir. Ardından girdi değişkenlerine göre öğrencinin başarılı olma ya da öğrenimi terk etme durumlarını tahmin etmek için bir tahmin modeli oluşturulmuştur. Modelde temel olarak hedeflenen en yüksek doğruluk oranları ile tahminler yapabilmektir. Tahmin doğruluklarının yükseltilmesi için çalışmada bireysel algoritmaların performansını iyileştirdiği düşünülen topluluk makine öğrenme algoritmaları kullanılmıştır. Öncelikle en temel makine öğrenme algoritmalarından yapay sinir ağları, karar ağacı ve en yakın komşu algoritmaları bireysel olarak uygulanmıştır. Sonuçlar incelenerek üç algoritma yığılmış genelleme algoritması ile sıralı olarak

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bağlanarak hatalı tahminlerin azaltılması hedeflenmiştir. Tahmin doğruluğunu azaltan bir diğer faktör algoritmaların parametreleri olabilmektedir. Bu nedenle çalışmada tüm algoritmaların parametre seçimleri için girdi değişkenlerinin parametre optimizasyon tekniği kullanılmıştır. Ayrıca öğrenme yöntemi olarak verileri k-eşit parçaya ayıran çapraz doğrulama yöntemi kullanılmıştır. Model veri seti üzerinde uygulanarak topluluk makine öğrenme algoritmasının tahmin doğruluklarını arttırdığı görülmüştür.

Anahtar Kelimeler: *Öğrenci başarısı, topluluk makine öğrenme algoritmaları, tahmin modeli, parametre optimizasyonu*

GİRİŞ

Son yıllarda büyüklüğü ve karmaşıklığı artan veri yığınları ile çalışmak için birçok yöntem ve teknoloji kullanılmaktadır. Veri madenciliği teknikleri bu verilerin temizlenmesini ve anlamlı sonuçlar elde etmeyi kolaylaştırmaktadır. Veri yönetimi ve geliştirme süreçlerini kapsayarak gelişen yapay zeka ve makine öğrenme teknikleri, makinelerin zeki hale gelmesini ve insanlara yol gösterecek tahminler yapmasını kolaylaştırmaktadır. Üretim, finans, sağlık gibi pek çok alanda kullanılan bu yöntemler, eğitim alanında da oldukça değer görmektedir. Öğrencilere ait olan veriler doğrultusunda, ihtiyaç duyulan iyileştirme çalışmaları yapılarak eğitimde uyum ve kalite elde edilebilmektedir (Kuleto, Ilic, Dumangiu, Rankovic, Martins, Paun ve Mihoreanu, 2021). Bu sayede öğrencilerin gelecekteki performansları tahmin etmek ve erken müdahale ile öğrencileri elde tutma stratejileri geliştirebilmek amaçlanmaktadır. Eğitsel veri madenciliği adı verilen alan Karar Ağaçları, Sinir Ağları, Naive Bayes, K- En yakın komşu gibi birçok teknik kullanılmaktadır. Bu teknikleri kullanarak birliktelik kuralları, sınıflandırmalar ve kümeleme gibi birçok bilgi türü keşfedilebilir. Keşfedilen bilgi, öğrencilerin belirli bir dersin kaydıyla ilgili tahmin, öğrencinin performansı hakkında tahmin veya öğrencinin mezuniyeti ile ilgili tahminleri verebilir (K. Bunkar, Singh, Pandya ve Bunkar, 2012). Örneğin Delen (2010) öğrenci elde tutma konusunda yaptığı çalışmada, tahmin modeli uygulaması yapılmıştır. Uygulama sonucu olarak %80 doğruluk oranlarında tahmin başarısı elde edilmiştir. Bu tahmin modellerini kapsayan bir bilgi sisteminin yükseköğretimde öğrenci kayıt departmanına yol gösterici olabileceği belirtilmiştir. Slim, Heileman, Kozlick ve Abdallah (2014) tarafından yapılan çalışmada, farklı bölümlerde eğitim alan öğrencilerin akademik kariyerlerinin başlangıcındaki performanslarını tahmin etmek amacıyla makine öğrenme algoritmalarından Bayes İnanç Ağı kullanılmıştır. Öğrenci not ortalamasının temel alındığı bu çalışma sonucunda, öğrencilerin başarı ivmelerinin tahmin edilebileceği savunulmuştur. Xu, Moon ve Van Der Schaar (2017) tarafından yapılan çalışmada yine makine öğrenme yöntemi kullanılarak öğrenci performansı tahmin edilmeye çalışılmıştır. Öğrencilerden toplanan verilerin analizi sonucunda öğrenci performanslarına dayalı tahminler yapılmıştır. Tahmin edicileri belirlemek için ders ilişkileri tespit edilmeye çalışılmıştır. Beemer, Spoon, He, Fan ve Levine (2018) tarafından yapılan çalışmada, bireyselleştirilmiş davranışların başarı üzerindeki etkilerini tahmin etmeye çalışmıştır. Bunun için bir topluluk öğrenme yaklaşımı önermişlerdir. Cui, Chen, Shiri ve Fan (2019) tarafından yapılan çalışmada yükseköğretimde öğrenme analitiği uygulamalarında geliştirilmiş metodolojik bileşenler incelemiştir. Görmez, Okumuş Dağdeler ve Kavuklu

(2022) kişiselleştirilmiş bir yabancı dil öğretiminde kullanılması için öğrencilerin ilgi alanları tahmin edilmeye çalışmışlardır. Tahmin modelleri için makine öğrenme yöntemlerinden k-en yakın komşu, yapay sinir ağları ve rastgele orman kullanılmıştır.

Bu çalışmada Sakarya Üniversitesi Meslek Yüksekokulu uzaktan eğitim programlarında öğrenim gören bir grup öğrenci incelenmiştir. Mevcut öğrencilerin giriş bilgilerine göre mezuniyet başarısını tahmin eden bir model kurulmuştur. Modeller uygulamaya geçilmeden önce veriler veri madenciliği tekniklerinden veri ön işleme adımları uygulanarak analiz için hazırlanmıştır. Tahmin modelleri için temel makine öğrenme algoritmalarından karar ağacı, naive bayes ve en yakın komşu algoritmaları tekli olarak kullanılmıştır. Ardından bu algoritmalar arasından en başarılı olan tespit edilerek başarı oranlarını yükseltmek hedeflenmiştir. Bu amaçla bu algoritma yükseltme ve torbalama makine öğrenme algoritmaları kullanılarak topluluk halinde uygulanmıştır. Çalışmanın geri kalanı şu şekilde organize edilmiştir; ikinci bölümde çalışmada kullanılan yöntemler ve değerlendirme kriterleri kısaca açıklanmıştır. Üçüncü bölümünde uygulama çalışmasından elde edilen sonuçlar ayrıntılı şekilde sunulmuştur. Son olarak ise sonuçlar tartışılarak çalışma tamamlanmıştır.

YÖNTEM

Çalışmaya ait problem belirlenip ilgili veriler toplandıktan sonra analiz yapmak için eğitsel veri madenciliği yöntemi kullanılmış olup aşağıda sunulan adımlar izlenmiştir.

Veri Önişleme ve Hazırlık

Modelin çalıştırma işleminden önce veri setinin uygun hale getirilmesi için kullanılan veri ön işleme adımları uygulanmıştır. Bu adımlar sırasıyla veri temizleme, veri birleştirme, veri dönüştürme ve veri indirgeme olarak sıralanabilir.

Veri Birleştirme: Bu adımda iki farklı veri tabanında bulunan verilerin birleştirilmesi sağlanmaktadır.

Veri temizleme: Bu adımda veri setindeki aykırı ve eksik değerler veri setinden temizlenir. Bunun için ya veri örneği veri setinden çıkartılır ya da farklı yöntemler aracılığıyla ortalama bir değer ile tamamlanır.

Veri dönüştürme: Bu adımda verilerin daha uygun yorumlanmasını sağlayacak dönüşümler yapılandırılır.

Veri indirgeme: Veri setinin boyutunun özetlenerek azaltılması işlemidir.

Ayrıca modelde eğitim yöntemi için çapraz doğrulama yöntemi kullanılmıştır. Çapraz doğrulama verileri eğitim ve test olarak kendi içerisinde ayırmayı sağlayan istatistiksel bir yöntemdir. Çalışmada K-katlamalı çapraz doğrulama yöntemi kullanılmıştır. Buna göre veri ilk önce K eşit eğitim kümesine ayrılır ve her küme eşit öneme sahiptir. Her küme algoritma tarafından hem test hem de eğitim amacıyla kullanılmış olmaktadır. Bu sayede tüm veri seti işlenmiş olmaktadır (Refaeilzadeh, Tang ve Liu, 2009).

Modelleme

Çalışmada hedeflenen tahmin doğruluklarını en yüksek oranda elde edebilmektir. Bu amaçla çalışmada öğrenci başarısının tahmini için üç adet model kurulmuştur. Algoritmaların bağımsız olarak tekli kullanımının ardından, algoritmalar arasından en yüksek başarı oranına sahip olanı torbalama (bagging) yöntemi ile sıralı ve yükseltme (boosting) yöntemi ile de paralel bağlanması şekline topluluk olarak kullanılmıştır.

Tekli Makine Öğrenme Modelleri

Tekli modellerde sadece tek bir makine öğrenme algoritması kullanılmaktadır. Çalışmada sınıflandırma algoritmalarından en sık kullanılanlarından karar ağacı (KA), naive bayes (NB) ve en yakın komşu (k-NN) kullanılmıştır.

Karar Ağacı (KA): Makine öğrenme algoritmaları içerisinde en yaygın kullanılan algoritmalardan biri olan karar ağacı, oldukça pratik bir yöntemdir (Mitchell, 1997). Temel olarak veri setinin özyinelemeli bölünmesine dayalı olan bu yöntem düğümlerden oluşan bir ağaç yapısına sahiptir. Kök, ara ve yaprak düğümden oluşmaktadır. Prensip olarak dallanmaya kök düğümden başlanır, sonrasında ara düğüm ve yaprak düğümüne doğru bir yol ile devam ettirilir (Agrawal, Imielinski ve Swami, 1993). Kök düğümünün belirlenmesi önemli bir adımdır ve belirli kriterler vardır. Bunlar bilgi kazancı, gini indeks ve kazanç oranıdır (Quinlan, 1986; Bilgin, 2018). Dallanmada geçilen yollar Eğer-İse kalıbıyla kural yapısında ifade edilmektedir (Maimon ve Rokach, 2010). Hem sürekli hem de kategorik verilerle çalışabilmesi algoritmanın kullanışlılığını arttırmaktadır. Ayrıca kural yapı sayesinde yorumlanması ve anlaşılması kolaydır.

Naive Bayes (NB): Bu yöntem öncü bilgi ile mantıksal bir çıkarım yapmayı sağlar (Alpaydın, 2012). Olasılıkları temel alan bayes yaklaşımı sayesinde öğrenme problemleri elverişli bir yöntemdir. Mevcut veriler ve istenen sonuç arasındaki ilişkiyi tahmin ederek hipotezin gerçekleşme olasılığını hesaplamayı sağlamaktadır (Mitchell, 1997).

En yakın komşu (K-NN): Etiketlenmemiş örnekleri en benzer etiketli örneklerin sınıfına atayarak sınıflandıran bu algoritma basit ve etkili bir yöntem olarak veri ile ilgili herhangi bir varsayıma ihtiyaç duymamaktadır (Lantz, 2013). Örneğe ait sınıfı iki örnek arasındaki benzerlik ölçülerek tespit edilmektedir. Bu mesafeyi hesaplamak için Öklid, Manhattan ve Minkowski gibi uzaklıklar bulunmaktadır (Bilgin, 2018). Algoritmada sınıf atamasını yapmak için bir de komşu sayısının belirlenmesi gerekmektedir. Bu önemli bir husustur, birden büyük ve eşit oylama olmaması için tek sayı olmalıdır. Yalnız çok büyük olmamasına da dikkat edilmelidir çünkü k sayısı sonsuzluğa yaklaşırsa Bayes hata oranı da büyüyecektir (Nilsson, 1996).

Topluluk Makine Öğrenme Yöntemleri

İstatistik ve yapay zeka gibi birçok disiplini içine alan araştırmacılar tarafından kullanılmakta olan bu yöntem, öğrenme başarısının arttırmayı amaçlayarak algoritmaları farklı şekillerde birleştirmektedir (Rokach, 2010). Aynı türde algoritmaları birleştirmek için torbalama ve yükseltme yöntemleri kullanılırken, farklı türdeki algoritmaları birleştirmek için ise ortalama ve yükseltme yöntemleri kullanılmaktadır. Çalışmada aynı türde tekli algoritmalar için torbalama ve yükseltme yöntemleri kullanılacaktır.

Torbalama Topluluk Yöntemi: Bu yöntem topluluk modellemesinin en eski ve kolayıdır. Aynı türden algoritmaları birleştirme prensibine dayanmaktadır. Algoritmalar paralel şekilde birleştirilerek çoğunluk oyuna göre tahmin sonucu belirlenmektedir (Rokach, 2010; Gowda, Kumar ve Imran, 2018). Algoritmaların veri düzensizliklerinden etkilenen performanslarına karşı etkili bir yöntemdir (Zhou, 2012).

Yükseltme Topluluk Yöntemi: Bu yöntemde aynı türden algoritmalar sıralı şekilde bağlanmaktadır. Birleştirme prensibi olarak, algoritmalar bir önceki algoritmanın çıktısını girdi olarak kullanmaktadır. Torbalama yönteminden farklı olarak her algoritmaya eşit oy verilmemektedir. Her algoritmanın performansına göre ağırlıklandırma yapılmaktadır (Lantz, 2013). Tahmin doğruluk oranları yüksek olan birden çok algoritmanın birleştirilmesi sayesinde hatalı sınıflandırma oranında azaltıcı etki yapmaktadır (Rokach, 2010).

Değerlendirme

Geleceğe dayalı tahminler yapmak için makine öğrenme algoritmalarıyla geliştirilmiş olan yöntemlerin çalışma, doğruluk ve performanslarını değerlendirmek için bazı kriterler mevcuttur. Model için uygun algoritma da performans kriterlerinin sonuçlarına belirlenmektedir (Raschka, 2018). Kullanım amacına göre algoritmaları değerlendirme kriterleri değişmektedir. Regresyon uygulamasında hatalar ile ilgili kriterler kullanılırken sınıflandırma uygulamasında doğruluklarla ilgili kriterler kullanılmaktadır (Zheng, 2015). Çalışmada sınıflandırma yapıldığı için doğruluk, kesinlik ve duyarlılık kullanılmıştır. Bu kriterlerin değerleri Tablo 1'de sunulan hata matrisi kullanılarak hesaplanmaktadır (Bilgin, 2018).

Tablo 1. *Hata Matrisi*

	Gerçek Pozitif Sınıf	Gerçek Negatif Sınıf
Tahmin Pozitif Sınıf	GP	YN
Tahmin Negatif Sınıf	YP	GN

GP: test kümesindeki gerçek pozitif örnek sayısı,
GN: test kümesindeki gerçek negatif örnek sayısı,
YP: test kümesindeki yanlış pozitif örnek sayısı,
YN: test kümesindeki yanlış negatif örnek sayısı olarak ifade edilmektedir.

Doğruluk; Bu kriter doğru tahminlerin toplam veriye oranı olarak sınıfların etkinliğini anlamına gelmektedir. Eşitlik 1'deki gibi hesaplanmaktadır.

$$(TP+TN)/(TP+FP+TN+FN) \quad (1)$$

Kesinlik; Pozitif olarak değerlendirilen tahminlerin kaç tanesinin gerçekten pozitif olduğunu belirlemeyi sağlamaktadır. Eşitlik 2' deki gibi hesaplanmaktadır.

$$TP/(TP+FP) \quad (2)$$

Duyarlılık; Pozitif olarak tahmin edilmesi gereken örneklerin kaç tanesinin pozitif olarak tahmin edildiğini gösteren bir kriterdir. Eşitlik 3'deki gibi hesaplanmaktadır.

$$TP/(TP+FN) \quad (3)$$

Veri Toplama Araçları ve Analizi

Çalışma, Sakarya Üniversitesi Meslek Yüksekokulu öğrencilerinin üniversiteye giriş bilgileri ile mezuniyet durumları arasındaki ilişkiler incelenmiştir. Çalışma için iki ayrı veri tabanındaki veri seti kullanılmıştır. Veri analizi Rapidminer Studio 9.9 aracılığıyla uygulanmıştır. Veri setlerinin birleştirilmesi ve verilerin analize uygun hale getirilmesi için ilk olarak veri ön işleme adımları uygulanmıştır.

Veri Birleştirme: Çalışmada iki veri tabanında bulunan veriler birleştirilerek tek bir veri seti elde edilmiştir. Birinci veri seti (ogr_gırıs), öğrencilerin üniversiteye giriş öncesindeki bilgilerini içermektedir. Veri setinde 4900 adet veri bulunmaktadır. Bu veri setindeki değişkenler ve değişkenlere ait ölçüm değerleri ile ilgili bilgiler Tablo 2'de sunulmuştur.

Tablo 2. *Birinci veri seti değişken ve açıklamaları*

Değişkenler	Açıklama	Min. Değer	Max. Değer	Ortalama
Ortalama	Öğrenci lise ortalaması	0.02	2.99	1.09
Yaş	Öğrencinin yaşı	22	53	27.76
Cinsiyet	Öğrencinin cinsiyeti	Erkek/Kadın		
Nüfus İl	Öğrencinin hangi şehirde yaşadığı	Adana,Adıyaman,.....Osmaniye, Düzce.		
Okul Türü	Öğrencinin okuduğu Lisenin türü	Açıköğretim, Çok programlı, Öğretmen, İmam Hatip Liseleri,....		
Okul Kolu	Öğrencinin lisede okuduğu alan	Adalet, Gıda, Bilgisayar, Tekstil, Makine, Sağlık,.....885		
Başarı Puanı	Lise yerleştirme sınavından alınan başarı puanı	250	441	Eksik
Tercih Sırası	Üniversite tercih sırası	1, 2, 3, ...,30		
ÖSYM Yerleşme	İlk yerleşme/Ek yerleşme	Asil, Yedek		

İkinci veri seti (sonuç), öğrencilerin giriş bilgilerine karşılık gelen başarılı şekilde mezun olma, mezun olmama ve kendi isteğiyle bölüm ya da program değiştirme durumunu içermektedir. Veri setinde 4900 adet veri bulunmaktadır. Veri birleştirme işlemi ikinci veri seti temel alınarak yapılmıştır. 3069 adet öğrencinin sonuç değeri bilindiği için bu öğrencilerin giriş bilgileri ile eşleştirilmiştir.

Veri temizleme: Çalışmadaki veri setinde 739 öğrencinin lise ortalaması boş olarak girilmiştir. 1703 öğrencinin ise öğrenim durumu kaydının silindiği, hiç kayıt yaptırmadığı, durumunun belirsiz olması boş bırakılmıştır. Bu nedenlerle 2442 veri örneği veri setinden çıkarılmıştır. Sonuç olarak çalışma için 627 öğrenciye ait örnek değerleri içeren veri seti elde edilmiştir.

Veri dönüştürme ve indirgeme: Çalışmada yer alan veri seti için veri setinde bu adımlara ihtiyaç duyulmamıştır.

BULGULAR

Veri ön işleme adımlarının ardından veriler analiz için hazır hale gelmiştir. Veriler geliştirilen sınıflandırma ve tahmin modellerinde işlenmiştir. Sınıflandırma ve tahmin modelleri ilk olarak tekli algoritmalarla tasarlanmıştır. Modellerin tahmin doğrulukları karşılaştırılarak en yüksek başarı oranını sahip algoritma seçilmiştir. Algoritmaların tahmin doğruluklarını etkileyen en önemli etkenlerden biri de parametre seçimidir: Çalışmada K-NN, NB ve KA algoritmaları kullanılmıştır. Parametre seçimi ise sezgisel belirleme yerine optimizasyon tekniği kullanılmıştır. Çünkü algoritmalar birçok parametreye bağlıdır ve parametrelerin alabileceği onlarca değer kombinasyonu bulunmaktadır. Bu kombinasyonları tek tek denemek ya da sezgisel olarak karar vermek zor, zaman alıcı ve hataya elverişli olabilmektedir. Çalışmada parametre seçimi için grid optimizasyon tekniğinden yararlanılmıştır. NB için kullanılan herhangi bir parametre bulunmamaktadır. K-NN parametre değerleri Tablo 3' de görülmektedir.

Tablo 3. *K-NN Parametre Değerleri*

Algoritma	K sayısı	Ölçü Tipi	Karma Ölçü Tipi
K-NN	5	Karma	Karma Öklid Uzaklığı

KA için kullanılan parametre değerleri Tablo 4'de gösterilmektedir. K-NN algoritmasının en önemli parametrelerinden olan K sayısı 5 olarak belirlenmiştir. Bununla birlikte veri seti için K-NN algoritmasında karma ölçü tipi ve öklid uzaklığı en optimum parametreler olarak seçilmiştir.

Tablo 4. *KA Parametre Değerleri*

Algoritma	Kriter	Maximum Derinlik
KA	Bilgi kazanımı	10

Belirlenen parametre değerleri kullanılarak tekli algoritmalar bağımsız olarak uygulandığında sınıflandırma modelleri için elde edilen performans değerleri Tablo 3' de sunulmaktadır. Çalışmada KA algoritması için bilgi kazanımı ve 10 katman derinlik parametre değerleri kullanılmıştır.

Tablo 5. *Tekli Algoritmaların Performans Kriter Değerleri*

Algoritma	Doğruluk %	Duyarlılık (Recall)	Kesinlik (Precision)	Hata
NB	79.74	61.99	64.03	20.26
K-NN	59.17	40.71	41.43	40.83
KA	86.60	64.97	61.40	13.40

Değerler incelendiğinde modeller arasında tahmin açısından %86.60 doğruluk, % 64.97 duyarlılık, 61.40 kesinlik, 0.737 kappa ve 13.40 hata değeri ile en başarılı algoritma KA algoritması olarak görülmektedir. Ardından NB algoritması yer almaktadır, K-NN algoritması ise % 59.17 doğruluk, %40.17 duyarlılık, %41.43 kesinlik, %40.83 hata ve 0.17 kappa değeri ile çalışmadaki veri setinde sınıflandırma için en düşük başarıya sahiptir.

Topluluk yöntemi ile birleştirilmek için sınıflandırma tahmin doğruluğu en yüksek olan algoritma seçilmiştir çünkü başarılı algoritmanın bu şekilde daha da başarılı olacağı düşünülmektedir. Bu nedenle tahmin doğruluklarını daha da yükseltebilmek için karar ağacı algoritması sıralı ve paralel olarak birleştirilerek topluluk tahmin modelleri oluşturulmuştur.

Torbalama yöntemi için belirlenen parametre değerleri Tablo 6'da görülmektedir. Torbalama yönteminin iterasyon tekrar sayısı 13, bireysel algoritma olarak seçilmiş olan KA algoritması ise bilgi kazanımı ve 10 max derinlik değerlerine göre uygulanmıştır. Ayrıca çapraz doğrulama k değeri tekli modellerde olduğu gibi 10 olarak seçilmiştir.

Tablo 6. *Torbalama Yöntemi Parametre Değerleri*

Yöntem	İterasyon Sayısı	KA Kriteri	KA max. Derinlik
Torbalama-KA	13	Bilgi Kazanımı	10

Belirlenen parametre değerlerine göre KA algoritmasının torbalama yöntemi ile paralel şekilde bağlanması ile elde edilen performans değerleri Tablo 7'de sunulmaktadır.

Tablo 7. *Torbalama-KA Performans Değerleri*

Model	Doğruluk	Duyarlılık	Kesinlik	Hata	Kappa
Torbalama-KA	87.40	65.41	61.45	12.60	0.751

Değerler incelendiğinde %87.40 doğruluk, %65.41 duyarlılık, %61.45 kesinlik, %12.60 hata ve 0.751 kappa değeri sonuçları KA algoritmasının torbalama yöntemi ile birleştirilmesinin bireysel kullanılmasına göre başarı oranlarını yükselttiği ve hatayı düşürdüğü görülmektedir.

Torbalama topluluk yöntemi ile karar ağaçlarını birleştirdikten sonra yükseltme topluluk yöntemi ile karar ağacı algoritması sıralı olarak birleştirilerek performans değerlendirilmiştir.

Yükseltme yöntemi için belirlenmiş olan parametre değerleri Tablo 8'de sunulmaktadır. İterasyon sayısı 10 olarak belirlenirken KA algoritmasının kriteri doğruluk olarak ve 10 değerinde bir derinlikte ağaç yapısı olarak bulunmuştur.

Tablo 8.*Yükseltme Yöntemi Parametre Değerleri*

Model	İterasyon Sayısı	KA Kriteri	Max. Derinlik
Yükseltme-KA	10	Doğruluk	10

Belirlenen parametre değerlerine göre KA algoritmasının yükseltme yöntemi ile paralel şekilde bağlanması ile elde edilen performans değerleri Tablo 9'da sunulmaktadır.

Tablo 9. *Yükseltme-KA Performans Değerleri*

Model	Doğruluk	Duyarlılık	Kesinlik	Hata	Kappa
Yükseltme-KA	89.48	66.58	61.61	10.52	0.787

Tablo değerleri incelendiğinde Yükseltme-KA algoritması ile geliştirilen tahmin modelinde %89.48 doğruluk, %66.58 duyarlılık, %61.61 kesinlik, %10.52 hata oranı ve 0.787 kappa değeri ile başarılı bir performans elde edilmiştir. Karar ağacının bireysel uygulanması ve iki farklı yöntemle topluluk olarak birleştirilerek uygulanması sonucunda topluluk yönteminin bireysel algoritmanın gücünü arttırdığı görülmüştür.

SONUÇ VE TARTIŞMA

Eğitimde başarıyı arttırmanın en temel yollarından biri öğrencinin başarısını izlemek ve incelemekten geçmektedir. Süreçleri, başarıya etki eden faktörleri, mevcut durumlar çerçevesinde meydana gelebilecek sonuçları doğru şekilde tahmin etmek kurumlara ve öğreticilere yol gösterici olacaktır. Eğitimde veri madenciliği kullanımına yönelik araştırmaların sayısı artmaktadır. Bunkar ve diğerleri (2012) tarafından yapılan çalışmada öğrencinin ödev notları, sınavları, laboratuvar çalışması, önceki yıl notu, devam durumu ve ekstra müfredat etkinliklerine katılımı iç değerlendirmesi yapılmıştır. Öğrencilerin final sınavına dayalı olarak başarısız ve başarılı oranları hakkında tahminde bulunmaktadır. Ismail (2015) tarafından yapılan çalışmada ise yükseköğretim öğrencilerinin lise mezuniyet dereceleri araştırılarak, öğrenciler iki kategoriye ayrılmıştır. Model kalitesini ve geçerliliğini belirlemek için sağlam bir test yapılmıştır. Deneysel sonuçlar, %71-84 arasında değişen yüksek bir doğruluk seviyesinde olduğu kanıtlanmıştır. Bu sayede zayıf öğrenci olarak nitelendirilen öğrenciler üniversite personeli tarafından akademik rehberlik veya özel ders verilerek yeteneklerini geliştirmelerine yardımcı olmak amaçlanmıştır.

Topluluk makine öğrenme yönteminde verileri doğru bir şekilde sıralamak ve bağlantı kurmak doğru sonuçlar almak ve doğruluk seviyesini yükseltmek için son derece önemlidir. Veriler genellikle birçok değişken bilgisi içeren, kodlanmış, karmaşık ve büyük boyutlu olduğu için yorumlanması için çeşitli teknik ve yöntemlere ihtiyaç duyulmaktadır. Çalışmada kullanılan veri setinde dokuz giriş değişkeni bulunmaktadır. Öğrenci durumu mezun olma, mezun olmama ve kendi isteğiyle bölüm ya da program değiştirme şeklinde üç sınıftan oluşmaktadır. Sınıflandırma için farklı türde makine öğrenmesi algoritmaları etkili olarak kullanılmaktadır. Bu nedenle probleme ve veriye en uygun olan algoritmayı ve yöntemleri tespit etmek kritik önem taşımaktadır. Amaç öğrencinin giriş bilgilerine göre mezuniyet durum tahmini yapılmaya çalışmaktır. Bu sayede öğreticilere öğrencilerin giriş bilgisine göre fikir vermek amaçlanmıştır. Modellerin sınıflandırma ve tahmin doğrulukları ne kadar yüksek ise geleceğe yönelik yapılacak planlamalar o derece de doğru şekilde olacaktır. Sınıflandırma için çalışmanın ilk aşamasında üç temel makine öğrenme algoritması ilk önce tekli olarak bağımsız şekilde uygulanmıştır. Bunlar; NB, K-NN ve KA algoritmaları sayesinde analize tabii tutulmuştur. Algoritmaların sınıflandırma doğruluklarını belirleyen önemli bir etmen parametre seçimidir. Ça-

lışma da parametre seçimi için de optimizasyon tekniği kullanılmıştır. Sonuç olarak algoritmaların sınıflandırılmasında doğruluk oranları sırasıyla; 79.74, 59.17 ve 86.60 olarak elde edilmiştir. Algoritmanın performansları doğruluk dışında duyarlılık, kesinlik, hata ve kappa kriterlerine göre de incelenmiştir. Tüm kriterlerin incelenmesi sonucunda 64.97 duyarlılık, 61.40 kesinlik, 13.40 hata ve 0.737 kappa değerleri ile sınıflandırma başarısı en yüksek olan algoritmanın karar ağacı olduğuna karar verilmiştir. Bu doğruluk oranlarına göre veri seti için en uygun algoritma KA algoritmasıdır. Tekli algoritmalar arasından en başarılı olan belirlendikten sonra çalışmanın ikinci aşamasında bu algoritmanın başarı oranını arttırmak için topluluk yöntemi uygulanmıştır. Topluluk yöntemleri arasından torbalama ve yükseltme kullanılmıştır. Torbalama yöntemi kullanıldığında %87.40, yükseltme yöntemi kullanıldığında ise %89.48 doğruluk oranına ulaşılmıştır. Ancak modelin duyarlılık ve kesinlik değerleri biraz düşük olarak elde edilmiştir. Bunun nedeni verinin dengesiz olmasına bağlı olarak sınıf doğruluklarının düşük olmasından kaynaklanmış olduğu düşünülmektedir. Genel olarak topluluk algoritmalarının başarıyı arttırdığı söylenebilir. Delen (2010) tarafından yapılan çalışmada benzer şekilde topluluk algoritmalarının tahmin doğruluğunu arttırdığı görülmüştür. Sonuç olarak veri setini sınıflandırma için en başarılı olan yükseltme topluluk yöntemi ile KA algoritmasını kullanmaktır. Ayrıca elde edilen kurallar arasında en temeli ortalama puanın 1.8'den küçük olduğunda öğrencinin bölüm değiştirme eğiliminde olduğu aksi durumda başarı ile mezun olduğudur.

Gelecek çalışması olarak öğrencilerin başarısını tahmin ederken buna öğrencilerin gelişme süreçlerini de eklemek düşünülmektedir.

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Sanal Dünyalarda İngilizce ve Türkçe Telaffuz için Konuşma Anatomisinin Uygulanması

Dursun AKASLAN[1], Songül AKDAĞ[2]

Özet

Latin alfabesi İngilizce ve Türkçe metin yazmak için kullanılır. Ancak konuşulan İngilizce ve Türkçe, İngilizce ve Türkçe'nin telaffuzunu göstermek için Latin alfabesindeki harflerden daha fazla sese sahiptir. Uluslararası Fonetik Alfabesindeki (IPA) semboller genellikle kelimelerin telaffuzlarını yazmak için tercih edilir. Konuşma anatomisinin anlaşılması, her bir sesin nasıl üretildiğini bulmaya yardımcı olur. Örneğin hem İngilizce hem de Türkçe /p/, /b/ ve /m/ gibi sesler için her iki dudak da tamamen kapalıdır. Bu çalışmanın amacı, dudak, dil ve diş anatomisini göz önünde bulundurarak, sanal dünyalarda İngilizce ve Türkçe telaffuz için konuşma anatomisini uygulamaktır. Amacımıza ulaşmak için: ilk olarak, bir JavaScript kitaplığı (ör. THREE.js) kullanılarak bir insan ağzı tasarlanır ve uygulanır; ikincisi, İngilizce ve Türkçe yazılı metinlerin konuşma seslerine dönüştürülmesiyle sesler telaffuz edilir; üçüncüsü, insan ağzındaki dudaklar, dil ve dişler, konuşma anatomisi dikkate alınarak canlandırılır. Bu çalışmanın bulguları, insanların konuşma yaparken birinci şahıs karakterleri sanal gerçeklikte daha doğal bir şekilde canlandırmasına yardımcı oluyor. Ek olarak, bu çalışma, herhangi bir derecede işitme kaybı olan kişileri, diğer insanlarla etkileşime girmeleri gerektiğinde sanal gerçeklik dünyalarına girmeye teşvik etmektedir.

Anahtar Kelimeler: *konuşma anatomisi, sanal gerçeklik, fonetik , işitme kaybı, ağız anatomisi*

GİRİŞ

Teknolojinin gelişmesiyle beraber Metaverse hayatımızda hızlı bir şekilde yer edinmeye başladı. Bununla beraber sanal gerçeklik uygulamaları her alanda gelişerek kullanılmaya başlandığı görülmektedir.

Dünya genelinde her doğan 1000 bebekten ortalama ikisi tek veya çift taraflı işitme kaybı ile doğmaktadır. [1]

Bu bireyler teknolojiyi kullanırken maksimum şekilde fayda sağlayabilmelidirler. Sanal dünyada akıllı teknoloji olarak, sesle yönlendirilen sanal yüz animasyonu, sanal karakterlerin gerçek ve doğal yüz animasyonunu oluşturmak için bir ses parçasını kullanabilir. [2]

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Sanal gerçeklik; üç boyutlu bilgisayar ile simüle edebildiğimiz diğer bir deyişle kendi dünyamızı oluşturmaktır. Sanal gerçeklik ortamında gerçeklik algısını oluşturabilmek için gerçeğe en yakın insan modelleri, konuşma anındaki yüz hareketleri, beden dili vs. ne kadar gerçekse o kadar sanal ortamdan gerçeklik hissiyatına varabiliriz. Yapılan çalışmalarda şu an da gerçeğe en yakın insanı simüle eden sanal ortama aktarılan doğal yüz bulunmamaktadır.

Bu çalışmada amacımız; dudak, dil ve diş anatomisini göz önünde bulundurarak, sanal dünyalarda İngilizce ve Türkçe telaffuz için konuşma anatomisini uygulamaktır.

Amacımıza ulaşmak için hedeflerimiz:

- İlk olarak, Blender kullanılarak bir insan ağzı tasarlanır ve uygulanır,
- İkincisi, İngilizce ve Türkçe yazılı metinlerin konuşma seslerine dönüştürülmesiyle sesler telaffuz edilir,
- Üçüncüsü, bir JavaScript kütüphanesi (ör. THREE.js) ile insan ağzındaki dudaklar, dil ve dişler, konuşma anatomisi dikkate alınarak canlandırılır.

LİTERATÜR TARAMASI

Suwajanakorn ve arkadaşları, yapmış olduğu bu çalışmada Başkan Barack Obama'nin bir videosundan yararlanarak dudak hareketini doğru bir şekilde sentezleyebilmek için bir sinir ağı tasarlayıp ham ses özelliklerinden ağız şekline kadar haritalamayı kullanarak doğru bir şekilde dudak hareketini sentezler.[3]

Töret ve arkadaşları, bu çalışmada Otizm spektrum bozukluğu (OSB) olan çocuklar ile normal gelişim gösteren çocukların odaklanma süreleri ve toplam ziyaret sürelerini göz izleme ile karşılaştırmıştır [4]. Töret ve arkadaşları bu karşılaştırmayı ise 3B animasyon karakteri ile canlı model tarafından anlatılan öykü içerikli videolar kullanılarak gerçekleştirilmiş olup OSB'li çocukların 3B animasyonda insan yüzlerine daha fazla odaklandığı ve diğer çocuklara oranla yüz işleme yetenekleri edindiği gözlemlenmiştir.

Edwars ve arkadaşları, bu çalışmada anlamlı dudakla senkronize yüz animasyonu üreten bir sistem sunmaktadırlar [5]. Edwars ve arkadaşları bu sistemi geliştirirken iki anatomik hareket olan çene ve dudak kullanarak faydalanılmaktadır. Ses öncelikle çene artikülasyonu ve alt yüz kasları tarafından kontrol edilir. Fizyolojik ve anatomik olarak çeşitli kombinasyonlarla yüz hareketlerini alarak konuşmacının yüz kaslarının hareketlerini elde etmiş doldular.

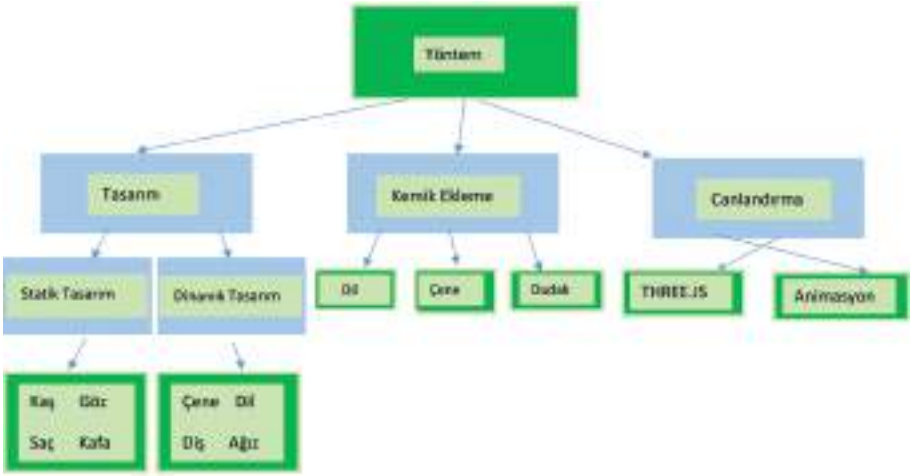
Uzaktan eğitimin en büyük sorunlarından biri etkileşim yüz yüzeden farklıdır. Öğrenciler öğretmenin yüz ifadesini görerek derse motive olurlar. Sanal gerçeklik ortamında dersi bir avatar anlattığı zaman öğrenci motive olamayabilir. Çünkü dümdüz ağız oynamayan mimikler bulunur. Dersi dinleyen öğrenci için kulakla beraber dudak hareketine görüp kulağa destek ne kadar çok duyuya hitap etmesi o kadar kalıcılığını arttıracaktır.[6]

Teknolojinin gelişmesiyle beraber günümüzde Arttırılmış Gerçeklik, Sanal Gerçeklik, Karma Gerçeklik gibi kelimeler sıklıkla konuşulmaktadır. Sanal dünyalarda sanal yüz

animasyonunu daha fazla geliştirmek için bu çalışmada, İngilizce ve Türkçe kelimeleri sanal ortamda telaffuzu ile doğal bir yüz animasyonu modellenerek oluşturulacaktır.

MATERYAL VE YÖNTEM

Modelleme için açık kaynak kodlu olduğundan dolayı birçok esnekliğe sahip, kurulumu ve kullanımı kolay olan 3 boyutlu modelleme programı Blender ile bir kadın ve bir erkek iki karakter için üç boyutlu model oluşturuldu. [7]



Şekil 1. *Çalışmanın Yöntemine Ait Harita*

Tasarım

Bu çalışmada insan yüzü tasarımı Statik ve Dinamik olarak iki aşamadan oluşmaktadır. Statik tasarım kaş, göz, saç, ve kafadan oluşmaktadır ve herhangi bir hareketi bulunamamaktadır. Dinamik tasarım çene, diş, dil ve ağızdan oluşmaktadır. Dişler çeneye bağlı hareket etmektedir.

Kemik

Dinamik tasarıma sahip dil, dudak ve çeneye hareket özelliği kazandırmak için blender modelleme programı ile kemik eklenmiştir. Dişler ise çene ile beraber hareketi sağlanılmıştır.

Canlandırma

Canlandırma için ilk yöntem blender üzerinde A'dan Z'ye harf animasyonları oluşturarak bu animasyonları javaScript kodlarıyla karakter üzerinde çalıştırarak dudak hareketlerinin oluşturulmasıdır. İkinci yöntem ise karakterle beraber önceden oluşturulan ve hareketi sağlayan kemik yapılarına javaScript kodlarıyla erişim sağlayarak dudak hareketlerini kemikler üzerinden sağlamaktır.

BULGULAR

Tasarım

Statik Tasarım

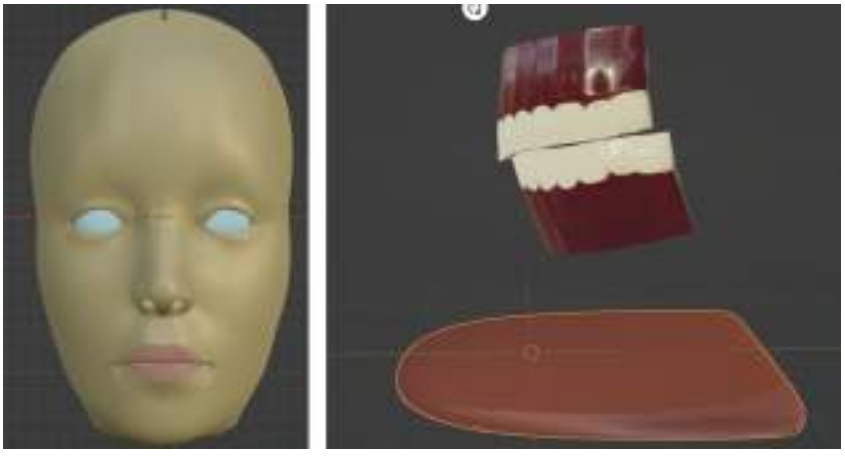
Blender uygulamasında bir bayan ve bir erkek iki karakter için üç boyutlu model oluşturuldu. Modelin daha gerçekçi görünmesi için belli alanlarının renklerini değiştirebilmek için karakter üzerinde eklemeler yapıldı kaş, göz, dudak, saç vb. (Şekil 2)



Şekil 2. *Statik Tasarım için Çizilen Modeller*

Dinamik Tasarım

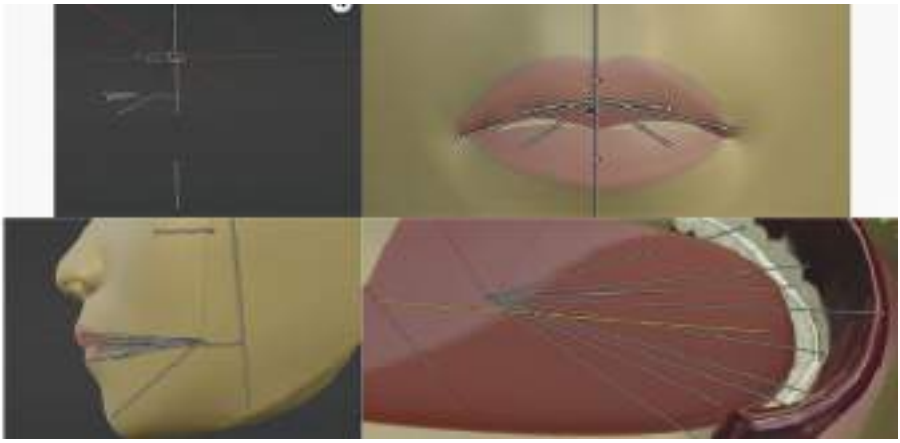
Karaktere ait hareket sağlayacak olan dudak, dil ve çene-diş yapıları blender ile üç boyutlu modellenerek gerçeğe yakın renklendirmeler yapıldı. (Şekil 3)



Şekil 3. *Dinamik Tasarım için Çizilen Modeller*

Kemik

Karakterimize dil, çene ve dudak hareketlerini uygulayabilmek için karaktere kemik (armature) eklenildi. Kemik yapılarının plan aşamaları Şekil 4'te gösterilmiştir.

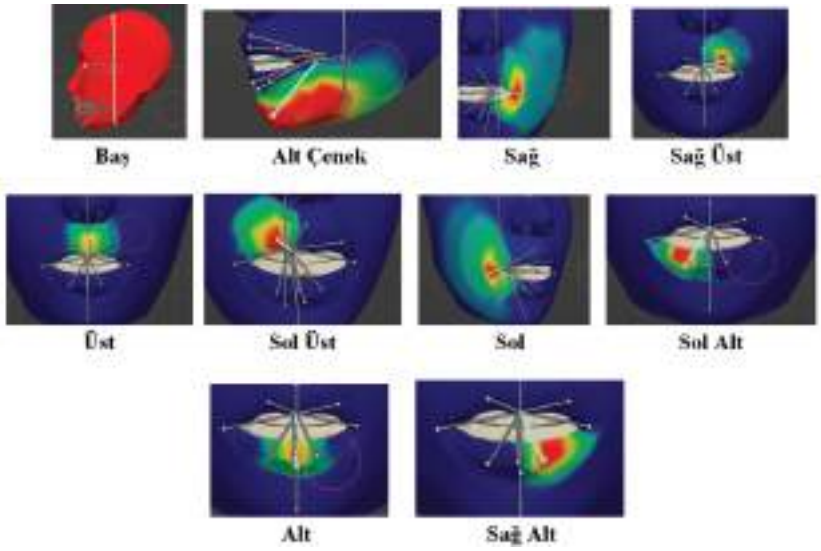


Şekil 4. *Kemik Yapılarının Planı*

Kemik eklemek için ilk yöntemde Blender' dan karakterin kemik yapından faydalanarak harf animasyonları eklendi ve harf animasyonlarının kodlara entegre edildi.

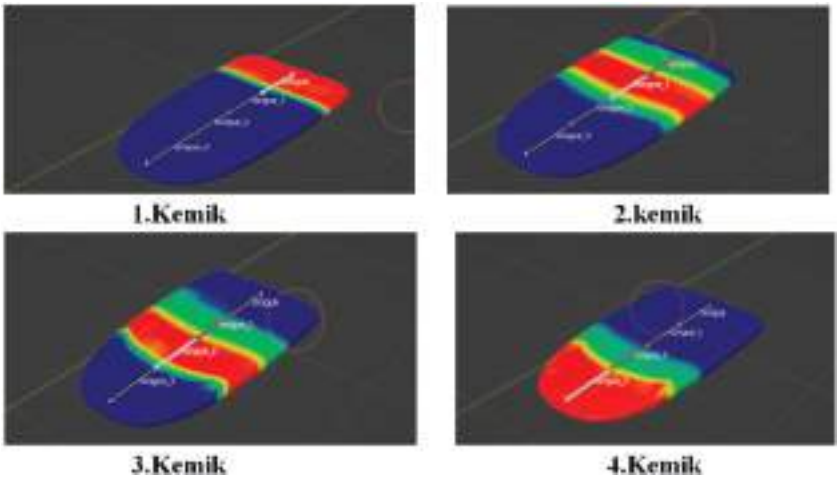
İkinci Yöntem: Blender uygulaması ile yeniden kemik yapısı oluşturarak her bir kemik için hareket alanını belirlendi ve bu karakterimizi kemikler üzerinden yön ve pozisyonlarını belirleyerek harfler için kemik hareket kontrollerini sağlayabilmeleri için bir veri tabanı oluşturuldu. Veri tabanını her harf hareketi için kullanıp dudak hareketleri gerçekleştirildi.

Üst dişler baş kemiğiyle bağlanır alt dişler ise alt çene ile bağlanır.



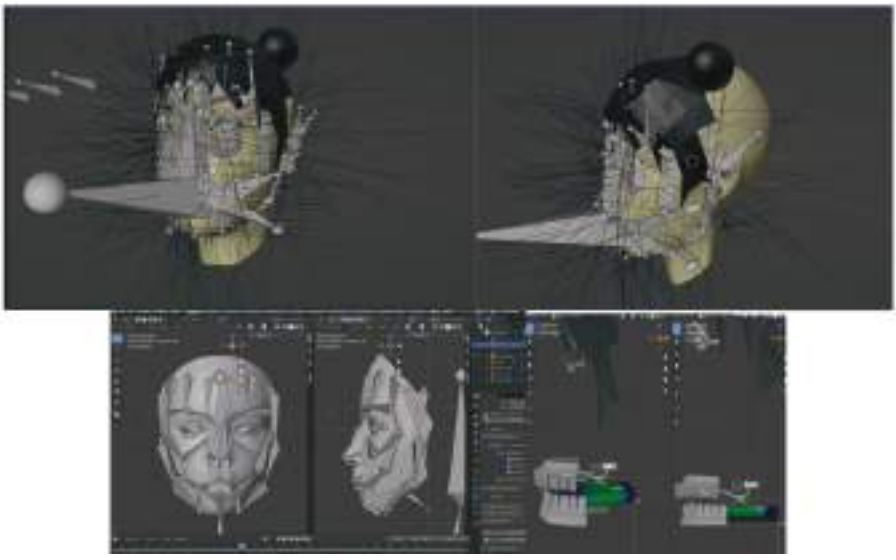
Şekil 5. *Kemik Yapısı*

Dili bağlamak için; dilin kontrolünü bilmek için birden fazla kemiği aldığı için Weight Paint mode'si yöntemiyle yapılarak, dilin kontrolü için dört kemik kullanılmaktadır, her kemiğin ağırlığı Şekil 6'te göstermektedir.



Şekil 6. *Dilin Kemik Yapısı*

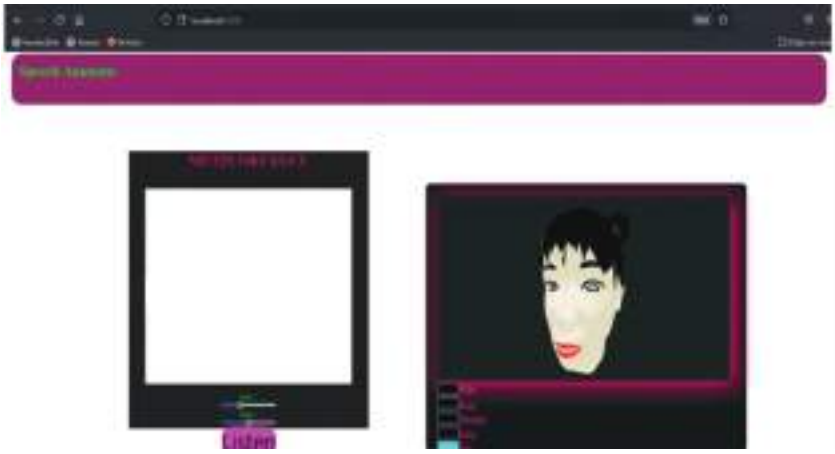
Kemikler birleştirildikten sonra ağırlık işlemleri gerçekleştirildi. Her kemik için nasıl etkileneceği ayarlandı. Şekil 7' de kemikler gösterilmektedir.



Şekil 7. *Kemik Yapıları*

Canlandırma

React kullanılarak bir arayüz oluşturuldu tüm entegreler gerçekleştirildi. Metni konuşturmaya dönüştürmek ve dudak hareketleri sağlanırken aynı zamanda sesleri de duyabilmek için Sesli metin okuyucu React-speech-kit kütüphanesi kullanıldı. (Şekil 8)



Şekil 8. Arayüz

Blender yazılımını kullanarak iki adet karakter oluşturuldu. Oluşturduğumuz karakterleri dil çene diş ağız yapısı baz alındı.8-10 tane Rig eklendi. Daha sonra three.js aktararak kontrol ettik. Metni her harf için ayrı ayrı işlettik, React ile arayüz oluşturarak metni seslendirdik. (Şekil 9)



Şekil 9. Oluşturulan Arayüzün Son Hali

SONUÇ

Yapılan çalışmada sonuç olarak doğal bir görüntü elde edemedik. Sonraki hedefimiz doğallığı oluşturmaktır. Bir önceki çalışmalarda sanal dünyalar yoktu. Günümüzde ise sıklıkla sanal gerçeklik, artırılmış gerçeklik, karma gerçeklik gibi teknolojilerden konuşmaktayız.

Metaverselerin sıklıkla çalışmalara konu olduğu şimdilerde bu çalışmanın devamı için yapay zekaya alt yapıyı hazırlamış olduk. Amacımız TensorFlow kullanarak daha gerçekçi, daha doğal karakter oluşturup konuşma yapmaktır. Bu şekilde karakteri de

şekillendirerek gerçek bir öğretmen karakteri oluşturarak gerçek kişiden faydalanarak kişinin konuşma hareketlerini algılayıp doğallığı gerçekliği sanal karakterde oluşturmayı amaçlamaktayız.

Doğal canlı ve gerçek sese dayalı sanal yüz oluşturmak sanal gerçeklik dünyası için önemli adımlardan biridir. Konuşma anatomisinin oluşturulması sanal ortamlarda gerçeklik hissiyatını arttıracaktır. Sanal gerçekliği kullanan işitme engelli bireyler için ise ağızdan çıkan kelimeleri anlayarak daha iyi bir etkileşimli deneyim sağlayacaktır.

Bu çalışmayla beraber eğitim, oyun, akıllı robotlar vs. lerde yapay zeka teknolojisinin de olduğu bir çok yeni teknolojiyle kullanıldığı uygulamalama alanlarını yakın zamanda sıklıkla araştırmalara konu olacağı öngörülmektedir.

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Artırılmış Gerçeklik Teknolojisinin Eğitim Ortamlarında Kullanılabilirliğinin Değerlendirilmesi

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Özet

Dijital teknolojiler hızla yayılırken, bireylerin yeni yüzyılın zorluklarıyla yüzleşebilmek ve fırsatlarını değerlendirebilmek için ihtiyaç duyacağı yeterliliklerin geliştirilebilmesi, makineler ve algoritmalar arasındaki iş bölümüne daha fazla uyum sağlayacak şekilde yetiştirilebilmesi ve sosyo-ekonomik kırılmaların etkisini minimize edebilmek için yeni öğretme ve öğrenme modelleri vaat eden yöntemlerin yararlanılır duruma getirilmesi zorunluluk teşkil etmektedir.

Düşük maliyetli donanım ve yazılımın yaygınlaşması ve gözlemlenen teknolojik gelişmeler dolayısı ile öğretimin uzaktan ve dijital platformlarda gerçekleştirildiği e-öğrenmenin belirgin bir yükselişinin deneyimlendiği bu dönemde, öğrenenlerin motivasyonunu yüksek tutarak öğrenme süreçlerine katılımlarını artırmak amacıyla Artırılmış Gerçeklik de eğitimde daha geniş kitlelere ulaştırılarak daha uygulanabilir ve arzu edilir hale gelmiştir.

Yeni teknolojilerin verimli bir şekilde uygulanması, yöntem ve prosedürleri yeni bir paradigmaya uyarlamayı ve öğreten ile öğrenen rolünü de yeniden tanımlamayı gerektirmektedir.

Amaç: Literatüre göre, yıkıcı bir teknoloji olacağı öngörülen Artırılmış Gerçekliğin, eğitim ortamlarının daha büyük bir bölümüne entegrasyonu hızlanmıştır. Bu teknolojinin eğitim ortamlarında etkinliğini sağlamak için, deneyimlerden çıkarımlarda bulunulması ve bağlamın yeni bir perspektiften tasarlanması elzemdir.

Öğreneni merkeze konumlandırarak, Artırılmış Gerçeklik uygulamalarının İnsan-Bilgisayar Etkileşimi alanındaki eğilimler ile uyumlu bir şekilde incelenme ihtiyacı tespit edilmiş ve bu amaç uyarınca çalışmada, AR teknolojisinin eğitim ortamlarında yoğunlaşma eğilimi gösterdiği uygulama örnekleri üzerinde durulmuştur.

Metodoloji: AR uygulamalarının eğitim ortamlarında kullanılabilirliği üzerine ulusal ve uluslararası dergilerde yayınlanan makaleleri ele alan bir literatür incelemesi gerçekleştirilmiştir.

Bulgular: Çalışma sonucu elde edilen bulgular, AR uygulamalarının çeşitli eğitim ortamlarında mevcut kullanımına dair bir izlenim sağlamakla beraber, Artırılmış Gerçeklik teknolojisinin özellikleri, avantajları ve handikaplarını irdelemektedir.

Piaget'nin Bilişsel Gelişim Kuramı'na dayanarak, öğrenenlerin duyularını kullanmaları gerektiği ve sesler, videolar ve grafikler gibi dijital bilgileri gerçek dünya ortamıyla ilişkilendiren bu teknolojinin uygun öğrenme stratejileriyle bütünleştirildiğinde didaktik bir araç

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olarak kullanılabildiği görülmektedir. Eğitim ortamlarının zenginleştirilerek öğrenme materyalinin ilgi çekici ve anlaşılır kılınabildiğini işaret eden çalışmalar bulunmaktadır. Bunun yanı sıra, eğitim ortamlarında AR uygulamalarının kullanılabilirliği üzerine, pedagojik faktörlerin önceliklendirilmesi gereken bir unsur olduğu da söylenebilmektedir. AR teknolojisi, diğer simülasyon tekniklerine göre daha az maliyetli bir alternatif olarak tercih edilebilir olmakla birlikte, bazı tasarımların kullanıcıların bilişsel yükünü artırabildiği incelenen çalışmalarda ortaya konmuştur. Ayrıca, uygulama esnasında donanımsal veya yazılımsal teknik sorunlarla karşılaşıldığında, öğrenenin zaman kaybına sebep olduğu ve geleneksel eğitim ortamlarına göre daha uzun eğitim sürelerine ihtiyaç duyulabildiği de bulgular arasında yer almaktadır.
Devamlı değişen tasarımlar ve teknoloji standartları temel bir kısıt teşkil etse de AR uygulamalarının eğitim ortamlarında kullanılabilirliğini artırmak için öğrenenlerin uygulama arayüzleri ve fiziksel çevreleriyle etkileşimi hakkında daha ayrıntılı çalışmalara ihtiyaç duyulduğu ifade edilebilir.
Özgünlük/Yaygın Etki: Eğitim ortamlarında Artırılmış Gerçeklik uygulamalarının kullanılabilirliği üzerine çalışmaların ilgili literatürde eksikliği gözlemlenerek yapılan bu kapsamlı literatür incelemesi, geleceğe yönelik araştırma olanaklarını ortaya koymaktadır.

Anahtar Kelimeler: *Artırılmış Gerçeklik, Eğitim Ortamları, Kullanılabilirlik*

"These things are quite improbable, to be sure; but are they impossible?"
Lyman Frank Baum (The Key Master, 1901).

GİRİŞ

Sufilerin farklı yorumlar getirdiği "tay" kavramı, tasavvufta "uzak bir yere bir anda gitmek, an içinde çok uzun bir zaman yaşamak, aynı anda birden fazla yerde bulunmak" gibi olağanüstü durumları belirtmek için kullanılmaktadır (Ülker, 2021). Kavramın mekân ile ilişkisi "tayy-i mekân, bast-ı mekân", zaman ile ilişkisi de "tayy-i zaman, neşr-i zaman, bast-ı zaman" olarak ifade edilmektedir (Tan, 2022). Teknolojik tekilliğe (Vinge, 1993) doğru ilerlenirken, Facebook CEO'su Mark Zuckerberg'in marka adını "Meta" olarak yenileyerek şirket hedeflerini, Nesnelerin İnterneti (IoT), Blockchain gibi çeşitli teknolojileri bir araya getiren Metaverse vizyonu üzerine inşa edeceklerini 2021 yılı sonlarına doğru ilan etmesi ve takip eden aylarda da Horizon Worlds olarak adlandırılan sosyal Sanal Gerçeklik (VR) platformunu A.B.D. ve Kanada'da kullanıcılara sunması ile farklı endüstri ve sektörlerden firmalar da bu konsept etrafında gündemlerini belirleyerek iş süreçlerine destekleyici teknolojileri dahil etmeyi hızlandırmışlardır.

Metaverse katmanlarından biri olarak da nitelendirilebilen (Radoff, 2021), "mekansal bilişim" ya da "uzamsal bilişim" şeklinde ifade edilebilecek "spatial computing" ise üç boyutlu motorlar, VR/AR/XR, multitasking UI (çok-görevli kullanıcı arayüzü), geospatial mapping (jeo-uzamsal haritalama) gibi çeşitli teknolojileri kapsamakta olup, mevcut mekân ve uygulamalara sistemleri entegre etmenin faydalarının farkına varan araştırma çevrelerinin yönelimlerini şekillendirmektedir (Greenworld, 1995). "Mekânsal bilişim" bileşenlerinden olan "Artırılmış Gerçeklik" (AR: Augmented Reality) teknolojisinde; akıllı telefonlar, yüksek çözünürlüklü görüntüleme ekranları, görüntü işleme yeteneği, konum ve yön sensörleri, kablosuz iletişim, hesaplama yetenekleri ve özel üç boyutlu grafik çipleri, deneyimlerin gerçekleştirilmesini sağlar (Zhang vd., 2014). AR'de sensör tabanlı, görü tabanlı ve hibrit takip yöntemleri bulunmaktadır (Rabbi vd., 2016). Görü tabanlı

takip yöntemi, "İşaretçi tabanlı AR" ve "İşaretçisiz AR" olarak ikiye ayrılmaktadır. İşaretçi tabanlı AR, görüntü tanıma kullanılarak; İşaretçisiz AR ise tanıma algoritması ile süre, ivme-ölçer, GPS ve pusula bilgileri ya da kamera kullanılarak oluşturulmaktadır. Kullanıcılar için AR'ye daha ekonomik ve daha kolay bir yaklaşım sunan mobil cihazların kullanıcı sayılarındaki artış ve geçtiğimiz birkaç yıl içerisinde yaşanan mobil teknolojilerdeki gelişmeler de Artırılmış Gerçeklik teknolojisini daha geniş kitlelere ulaştırmıştır (Statista, 2015). AR uygulamaları için en çok kullanılan cihazlar mobil veya elde taşınan cihazlar olup, bunu masaüstü bilgisayar veya PC takip etmektedir (Quintero vd., 2019).

Bu çalışmada, mekânsal bilişim bileşenlerinden, gittikçe yaygınlaşan bir bilişim paradigması olarak Artırılmış Gerçeklik kavramı irdelenerek; bu teknolojinin, arayüzleri doğallaştırmayı ve kullanıcının dijital ve fiziksel alanlar ile etkileşimlerini daha sorunsuz ve sezgisel hale getirmeyi amaçlayan İnsan-Bilgisayar Etkileşimi alanındaki eğilimler ile uyumlu olarak incelenmesi gereği temel alınmıştır. Literatürde, eğitim ortamlarında Artırılmış Gerçeklik uygulamalarının kullanımı üzerine çalışmalar taranarak bir anlam sentezine ulaşmak hedeflenmiştir.

Artırılmış Gerçeklik Teknolojisine Tarihsel Bir Bakış

"Augmented Reality" (Artırılmış Gerçeklik) terimi ilk defa Caudell ve Minzell (1992) tarafından ortaya atılmış olsa da Lyman Frank Baum'un (1901) "The Key Master" adlı romanındaki "Character Marker" (Karakter Belirteci) gözlükleri Artırılmış Gerçeklik kullanımına ilişkin ilk fikirlerden biri olarak kabul edilmektedir (Pavlik, 2015). Ivan Sutherland'in ise 1968 yılında "Sword of Damocles" adını verdiği başa takılan ilk görüntüleyiciyi tasarlayarak artırılmış gerçekliğin günümüzdeki gelişimine ön ayak olduğu ifade edilebilir. İlk işlevsel AR sistemi Amerika Birleşik Devletleri Hava Kuvvetleri'nde ve NASA'da kullanılmış, 1990'lardan sonra da Artırılmış Gerçeklik teknolojisi yaygınlaşarak daha geniş kitlelere ulaşmıştır (Feiner, 2002). 2009 yılında Pranav Mistry, MIT Media Lab'de "Sixth Sense" (Altıncı His) Artırılmış Gerçeklik projesini hayata geçirmiş, aynı yıl yaptığı TED konuşmasında bu projenin beş duyuya altıncıyı ekleyerek insanın makineler karşısında oturan makinelere dönüşmesini engelleyeceğini dile getirmiştir (TEDIndia, 2009). Gelecekte kullanıcı ile hologram arasında teması taklit eden pnömatik aktüatörlere sahip eldivenler ile (Zhu vd., 2020) veya kullanıcının derisinin altına yerleştirilen benzer bir teknolojiyle dokunsal deneyimin sağlanabileceği beklenmekte, derinlik sensörü içeren yeni nesil akıllı mobil cihazlar ile gerçek ürünleri tarayarak ürünlerin birer kopyasını AR ortamlarına entegre etmenin mümkün olabileceği de öngörülmektedir (Rauschnabel, 2021).

ARTIRILMIŞ GERÇEKLİK VE KULLANILABİLİRLİK

Kullanılabilirlik, Uluslararası Standartlar Örgütü (ISO) tarafından "belirli bir bağlamda belirli bir kullanıcı grubunun bir ürünü kullanarak belirli amaçları etkili, verimli ve memnuniyet içerisinde gerçekleştirme seviyesi" olarak tanımlamıştır (ISO 9241–11:2018). AR'nin etkili ve verimli bir çözüm sunması için yüksek çözünürlük, yeterli görüş alanı, parlaklık ve kontrast gibi uygun enformasyon tabakalarını kolaylaştıracak güçlü donanıma; doğru izleme, sağlamlık, kalibrasyon kolaylığı, içerik oluşturma ve yönetimi araçları sağlayacak güvenilir yazılıma; ve arayüz ve etkileşimlerin tasarımında

"İnsan Faktörleri" hususlarına ihtiyaç duyduğu yaygın olarak kabul edilmektedir (Akcayir vd., 2016; Poushneh, 2018). Cheng ve Tsai (2013), AR teknolojisi kapsamlı kullanıcı etkileşimi içerdiğinden kullanılabilirlik sorunlarının ele alınması gerektiğini savunmuştur. Kullanıcıların bilişsel özellikleri ve sistem özellikleri iyi anlaşılmadığı takdirde de uyumsuz entegrasyonla karşılaşılacaktır (Ariansyah vd., 2022). Bimber ve Raskar (2004), AR'nin kurgusal olmaktan ziyade bilgilendirme amaçlı olmasının "izlemeyi" bu teknolojinin temel zorluklarından biri haline getirdiğini belirtmişlerdir. Artırılmış Gerçeklik teknolojilerinin uzun vadede kapsayıcı bir şekilde uygulanmasını sağlamak için görme mesafesi ile ilgili sorunlar ve yavaş el-göz koordinasyonu yaşayanlar da dahil olmak üzere çok çeşitli kullanıcılar için AR kullanımını ele almak da önemlidir (Rauschnabel, 2021).

"Evrensel Tasarım" kavramı temelinde de farklı antropometrik, bilişsel ve yetkinlik düzeyindeki (görme, işitme, hareketlilik) bireylerin özelliklerinin anlaşılması ile daha çok kişiyi kapsayan tasarımların ortaya çıkarılabileceği yatmakta olup (Dostoğlu vd., 2009), kullanıcıların arayüz tasarım süreçlerine dahil edilmesiyle elde edilen dönütler ile arayüzlerin kullanılabilirliği ve geliştirilmesinin artırılması mümkün olmaktadır.

David Travis (2009), "The Fable of User-Centred Designer" (Kullanıcı Merkezli Tasarımcının Masalı) adlı kitabında, "kullanıcı merkezli tasarım"ın önemini vurgulayarak, tasarımcının görsel tasarım veya son teknolojiye değil, ürünleri kullanan kişilere ve onların görevlerine erken ve sürekli olarak odaklanması gerektiğini ifade etmiştir. Kullanıcı davranışlarının ampirik ölçümü ve iteratif tasarım da kullanıcı odaklı tasarımcının edinmesi gereken temel ilkelerdendir.

EĞİTİMDE ARTIRILMIŞ GERÇEKLİK

Öğrenme stilleri ve öğrenme ortamlarından beklentileri değişmiş olan (Arabacı ve Polat, 2013), bağlayıcı olmayan yöntemlere karşı duyarsızlaşmaya başlayan (Ar, 2016), dijital yerliler olarak adlandırılan yeni neslin (Prensky, 2001) dijital ekonomi çağında ihtiyaç duyacağı yetkinlikleri onlara kazandırabilmek adına, Birleşmiş Milletler Sürdürülebilir Kalkınma Hedefleri doğrultusunda, gelişen teknolojilerden faydalanarak yeni yöntemler geliştirme gereği kaçınılmaz olarak artmaktadır. Ayrıca, Dünya Sağlık Örgütü'nün COVID-19 pandemisi ilan ettiği Mart 2020 sonrası okulların ve diğer öğrenim alanlarının kapatılması, dünyadaki öğrenci nüfusunun yüzde 94'ünü, düşük ve orta gelirli ülkelerde de öğrenci nüfusunu yüzde 99'a varan oranlarda etkilemiştir (United Nations, 2020). Bu durum öğrenme sürekliliğini sağlamak için acil düzenlemeler yapılmasını zorunlu kılmış, öğretimin uzaktan ve dijital platformlarda gerçekleştirildiği e-öğrenmenin belirgin bir yükselişine yol açmıştır. Öğrenenlerin motivasyonunu yüksek tutarak öğrenme süreçlerine katılımlarını artırmak ve amaçlanan öğrenim çıktılarına ulaşabilmek için eğitime yeni yaklaşımlar entegre edilmektedir. Artırılmış Gerçeklik uygulamalarının da öğrenen motivasyonunu artırmaya katkı sağladığını gösteren araştırmalar mevcuttur (Bacca vd., 2014).

Piaget'nin bilişsel gelişim evrelerine göre de ilköğretim öğrencileri ve erken ergenlik çağını yaşayanlar somut işlemsel aşamada olduklarından bilmek için görmeleri, duymaları veya başka bir şekilde duyularını kullanmaları gerekir (Martin ve Loomis, 2013). Okullardaki eksik bilgi teknolojisi altyapısının yerini alacak şekilde de çalışarak AR uygulamaları kullanımında kolaylık sağlayan akıllı telefonlar ve diğer mobil cihaz-

lar ile çocuklara mümkün olduğunca erken ulaşıp; doğa, uzay bilimleri ve diğer STEM (Science, Technology, Engineering and Math) alanlarında hem teorik hem pratik uygulamalar çerçevesinde disiplinlerarası çalışma imkânı sunarak karmaşık ve soyut konular ilgi çekici kılınabilir (Lindner vd., 2019). Bazı araştırmacılar, eğitim materyali ile doğrudan etkileşim sağlaması nedeniyle AR uygulamalarının, vücut hareketlerinin ve duyuların içerikle içselleştirilerek kinestetik öğrenmenin gerçekleştirilmesine vesile olduğunu iddia etmektedir (Seo, Kim ve Kim, 2006).

Öğretmenler AR'yi hareket ve gerçeğe yakın keşif yoluyla etkileşimi artırmak, soyut konseptleri görselleştirmek ve deneyimlemek, gizli katmanlar ve sistemleri daha derine inerek incelemek, hikayeleştirmeye yeni yorumlar getirebilmek, hem ayrıntıları hem de büyük resmi görebilmek ve gösterebilmek, mevcut olmayan kaynaklar ile etkileşim kurabilmek gibi motivasyonlarla kullanabilmektedirler.

AR'nin güçlü görselleştirme özellikleri öğrenme ortamlarında önemli bir rol oynamaktadır. Nesli tükenmiş canlıların ve fosillerin 3D versiyonlarını Sir David F. Attenborough'nun rehberliğinde keşfetmeye olanak sağlayan Museum Alive, Artırılmış Gerçeklik teknolojisinden faydalanan uygulamalardan biridir. SkyView, öğrencilerin mobil cihazlar ile gece, gökyüzünde AR katmanlarını kullanarak yıldızları, takım yıldızları, gezegenleri ve uyduları tanımlayarak evreni keşfetmelerine imkân tanıyan bir başka uygulamadır. Kurbağa iç organlarının AR teknolojisi aracılığıyla görselleştirilebildiği Froggipedia uygulaması da biyoloji dersinde öğrencilerin faydalanabildiği uygulamalara örnek olarak gösterilebilir. GeoGebra Augmented Reality uygulaması, öğrencilerin matematiği üç boyutlu şekiller ile sanal ortamda görselleştirmelerine yardımcı olmaktadır. Görsel 1'de ise kullanıcılara kas, sinir, dolaşım veya iskelet sistemlerini görüntüleyerek insan vücudunu çeşitli perspektiflerden inceleme imkânı sunan Anatomy 4-D uygulaması görülmektedir.



Görsel 1. *Anatomy 4-D uygulaması.*

Kaynak: *https://www.kqed.org*

Eğitimde Artırılmış Gerçeklik Üzerine Literatür

Son yıllarda, teknoloji destekli öğrenme araştırmaları, özellikle mobil cihazlar için donanım ve yazılımlardaki teknolojik yenilikler ile öğrenciyi öğrenme sürecinin merkezine yerleştiren kullanıcı modelleme ve kişiselleştirme süreçlerindeki önemli gelişmelerden yararlanarak ortaya çıkan Artırılmış Gerçeklik, her yerde bulunan öğrenme, mobil öğrenme gibi teknolojilere daha fazla odaklanmaktadır (Bacca vd., 2014).

Chen vd. (2017), Sosyal Bilimler Atıf İndeksi (SSCI) tarafından 2011'den 2016'ya kadar AR üzerine eğitim ortamında yayınlanan 55 çalışmayı inceledikleri çalışmalarında, eğitim alanında AR ile ilgili çalışmaların sayısının 2013'ten itibaren çalışmanın yapıldığı tarihe kadar oldukça hızlı bir şekilde arttığı ve büyük ölçüde Tayvan, İspanya ve Amerika Birleşik Devletleri'nden yazarlar tarafından yazıldığını tespit etmişlerdir. 2011-2016 yılları arasında fen, sosyal bilimler ve mühendisliğin ampirik olarak en çok çalışılan alanlar olduğu ve genellikle çalışmaların nicel yöntemlerle yapıldıkları görülmektedir.

Ozdemir vd. (2018), meta-analiz yöntemi ile Artırılmış Gerçeklik uygulamalarının öğrenme sürecindeki etkisini araştırdıkları çalışmalarında SSCI tarafından indekslenen dergilerdeki 2007-2017 yılları arasındaki 16 yayını inceleyerek eğitimde AR kullanımına ilişkin bulgular elde etmişler, AR uygulamalarının geleneksel yöntemlere göre öğrenme sürecinde öğrencilerin akademik başarılarını artırdığı sonucuna ulaşmışlardır. "AR görüntü cihazlarının" öğrenme sürecinde öğrencilerin akademik başarılarını etkileyen önemli bir değişken olduğunu, en büyük etkinin mobil cihazların kullanımında görüldüğünü belirtmişlerdir. Ayrıca doğa bilimleri derslerinde AR uygulamalarının etkisinin sosyal bilimler derslerine göre daha yüksek olduğu tespit edilmiş, bunun fen bilimlerinde soyut kavramların AR öğrenme ortamlarında sosyal bilimlere göre daha kolay somutlaştırılabiliyor olmasından kaynaklandığı ifade edilmiştir.

Akcayir ve Akcayir (2017), Artırılmış Gerçeklik teknolojilerinin eğitimde avantaj ve dezavantajlarına değindikleri sistematik derleme çalışmalarında yine SSCI tarafından indekslenen bir dergide 15 Ocak 2016 tarihinden önce yayınlanmış 68 makaleyi inceleyerek AR çalışmaları için bilişsel yük ve kullanılabilirlik gibi bazı tartışmalı noktaları açıklamışlardır. AR'nin bilişsel yükü azalttığının ifade edildiği makalelerin de bilişsel yüke sebep olduğunu bildiren makalelerin de bulunmasının literatürde çelişkili sonuçların görülebileceğine işaret ettiğini belirtmişlerdir.

Erbas vd. (2020), araştırma soruları doğrultusunda, İngilizce olarak "Artırılmış Gerçeklik ve "Eğitimde Artırılmış Gerçeklik" anahtar kelimeleri ile inceledikleri 103 çalışmada elde ettikleri bulgulara dayanarak eğitim bağlamında en fazla sayıda çalışmaya Amerika Birleşik Devletleri'nin ev sahipliği yaptığını, Türkiye'nin ise 19 artırılmış gerçeklik çalışmasıyla ikinci sırada olduğunu belirtmişlerdir. Eğitim amaçlı AR uygulamaları üzerine en çok çalışılan değişkenlerin sırasıyla akademik başarı ve ardından motivasyon, algı, kullanılabilirlik ve memnuniyet olduğu sonucuna varılmıştır.

Villers (2004), Drigus ve Cohen (2005) kullanılabilirlik yöntemlerinin pedagojik faktörleri ele alması gerektiğini vurgulamışlardır (Madan ve Dubey, 2012). Eğitim ortamlarında kullanılması maksadıyla AR uygulamalarının geliştirilmesinde dikkate alınması gereken ana meselelerin pedagojik yön ve kullanıcı ile AR uygulaması arasındaki etkileşim yönü olduğu bulgulanmıştır. Hantono vd. (2018), etkileşim ve pedagojik yaklaşımın AR incele-

me makalelerinin en çok vurgulanan iki konusu olduğunu tespit etmişlerdir. Ayrıca, öğrenenler için daha rahat ve öğretmenlerin içerik eklemesini veya güncellemesini kolaylaştıran bir öğrenme deneyimi sağlayabilecek AR uygulamalarının nasıl geliştirilebileceğinin düşünülmesi gerekmektedir. Eğitim ortamlarında AR uygulamalarının en fazla başvurulduğu alan bilim olup, özellikle STEM alanında AR uygulamaları, öğrenciler arasında artan ilgi ve motivasyonun yanı sıra bilişsel ve sosyal becerileri kazandırması nedeniyle popülerlik kazanmıştır (Li vd., 2017). Abdüsselam ve Karal'ın (2012), "Fizik öğreniminde artırılmış gerçeklik ortamlarının öğrencilerin akademik başarısı üzerine etkisi: 11. Sınıf Manyetizma konusu örneği" isimli, deney ve kontrol gruplu olarak yapılan çalışmalarında deney grubunda artırılmış gerçeklik etkinlikleri gerçekleştirilirken, kontrol gruplarında ise sınıf ve laboratuvar ortamlarında MEB müfredatına uygun çalışmalar yürütülmüştür. Çalışma sonucunda deney grubunun başarı düzeyinin artmış olduğu gözlenmiştir.

Nechypurenko vd. (2018) de AR teknolojilerinin kimya eğitiminde aktif olarak kullanılmakta olduğunu; atomların, moleküllerin ve buzsul örgüsülerin yapısının üç boyutlu görselleştirilmesi için AR uygulamalarının sıklıkla kullanıldığını belirtmişlerdir. Matematik, fizik, anatomi, mimari ve diğer alanlardaki çalışmalarda da artırılmış gerçekliğin kullanılma potansiyeli bulunmaktadır. AR uygulamaları, organlar ve kemikler üzerindeki görsel efektler ve bilgilerle anatomi çalışmasını kolaylaştırabilmekte, fen eğitiminde sanal deneyler veya mimari çalışmalarda mimari modeller için gerçek zamanla görselleştirme imkânı sunabilmektedir (Pochtoviuk vd., 2020).

Öğrencilerin AR teknolojilerini karmaşık buldukları ve kullanırken sıklıkla teknik sorunlarla karşılaştıkları, iyi tasarlanmış arayüzler olmadan bu teknolojileri kullanırken zorluklar yaşayabilecekleri de tespit edilmiştir. (İçten, 2017). Yu vd. (2009), başa takılan ekranlar (HMD) gibi kullanımı kolay olmayan AR teknolojileri yerine daha hafif ve taşınabilir teknolojilerin geliştirilmesi gerektiğini öne sürmüşlerdir. Kullanılabilirlik zorlukları öğrenciler için zaman kaybına neden olabilir ve aşırı ek ders süresi gerektirebilir (Ozdemir, 2018). Gavish vd. (2015), çalışmalarında AR kullanan bir grubun, AR kullanmayan gruba kıyasla önemli ölçüde daha uzun ortalama eğitim sürelerine ihtiyaç duyduğunu, bu sorunun kısmen Artırılmış Gerçeklik teknolojisinin yeniliğinden de kaynaklanıyor olabileceğini belirtmişlerdir.

Demirer vd. (2015) derleme çalışmalarında, mobil ortamlarda kullanılan işletim sistemlerinde çalışabilen, özel bir amaç için geliştirilmeyen, çalışma alanına göre özelleştirilebilecek, tasarımlanan eğitsel öğelerin uygulama arayüzleri üzerinden kolayca eklenerek çalışmasına imkan tanıyacak Alive, Augment, Aurasma, Blippar, Junaio, Layar ve Wikitude mobil AR uygulamalarını seçerek eğitim ortamlarında kullanılabilirliklerini karşılaştırmalı bir şekilde incelemişlerdir. İncelenen uygulamaların çoğunluğunun iki ve üç boyutlu görselleri desteklediği görülmüş ve eğitsel içeriklerin görselleştirilerek öğrenenlerin soyut kavramları somutlaştırmasının kolaylaştırabileceği çıkarımında bulunulmuştur. Junaio ve Wikitude uygulamalarının konum tabanlı çalışmaları desteklediği görülmüştür.

Vuta (2020), 2018-2020 yılları arasında artırılmış gerçekliğin eğitim ortamlarında kullanımına ilişkin yayınlanan 30 çalışmayı incelediği literatür taramasında, en fazla kullanılan anahtar kelimeleri sanal gerçeklik, mobil teknolojiler, dijital eğitim kaynakları, öğrenme süreci, öğretmen eğitimi ve altyapı olmak üzere altı ana kategoride gruplandırmıştır.

Araştırma bulguları, AR/VR uygulamalarıyla zenginleştirilmiş eğitim ortamları aracılığıyla artan öğrenme başarısının, öğrenci katılımının, motivasyonun ve iş birliğinin kanıtını sağlayan bir dizi çalışmayı işaret etmektedir. Huang vd. (2019), hem AR hem de VR'nin bilime dayalı bilgileri öğretmek için etkili bir şekilde kullanılabileceğini belirtmektedir. Hayvan ve diğer canlı dokularının simüle edilebildiği modeller ile karşılaştırıldıklarında etik sorunları gündeme getirmemekle beraber, prosedürleri eksiksiz gerçekleştirme imkanı sağlayan AR/VR simülatörleri (Pantelidis vd., 2018) çeşitli ortamlarda ve zorluk seviyelerinde tekrarlanabilir eğitim için diğer simülasyon tekniklerine göre nispeten maliyetsiz bir fırsat sunsa da AR ve VR başlıklarının uzun süre kullanılması bazı rahatsızlıklara sebep olmaktadır, bunun için daha rahat ve erişilebilir başlıklar önerilebilir.

Nurbekova ve Baigusheva (2020), AR ile dijital eğitim kaynaklarının didaktik bir araç olarak kullanılmasının öğrenme sürecini zenginleştirdiğine, öğrenme materyalini ilgi çekici ve anlaşılır kıldığına dikkat çekmektedirler. Öğrenmeye yönelik ilginin artması, yüksek düzeyde anlama ve öğrenmede kalıcılık, laboratuvar becerilerinin geliştirilmesi, öğrencilerin laboratuvar çalışmalarına karşı olumlu bir tutum sergilemesi, görsel düşünme becerilerinin etkin bir şekilde geliştirilmesi AR uygulamasının eğitimdeki etkinliğini gösteren avantajlar arasındadır.

Son olarak Hanid, Said ve Yahaya (2020) çalışmalarında, Artırılmış Gerçeklik teknolojisine dayalı dört tür öğrenme stratejisi belirlemişlerdir. Bu stratejiler; etkileşimli öğrenme, oyun tabanlı öğrenme, işbirlikçi öğrenme ve deneyimsel öğrenmedir. Öğrenme süreci kalitesinin iyileştirilmesinde etki yaratmak amacıyla AR teknolojileri uygun öğrenme stratejileriyle bütünleştirilmesi gerektiğini öne sürmektedirler.

TARTIŞMA VE SONUÇ

Bilgisayar bilimleri gibi alanlar, AR platformlarına yeni algoritmik yaklaşımlar geliştirmek için teknoloji endüstrileriyle birlikte çalışırken, hümanist çalışmalar da bu algoritmaların etkilerini açıklamak için kullanıcı alışkanlıklarını nasıl şekillendirdiği daha geniş kapsamda incelemeli ve takip etmelidir (Crider vd., 2020).

Mainzer (2017), Artırılmış Gerçeklik teknolojisinin başarısının insan vücudu ve insanın fiziksel çevre ile etkileşimi hakkındaki bilgimize bağlı olduğunu, bu noktada da reaktif duyu-motor koordinasyonu ile ne kadar ileri gidilebileceği sorunun ortaya çıktığını belirtmektedir. Artırılmış Gerçeklik arayüzlerinin çoğu görsel duyuyu artırdığı için derinlik ve görsel algıya vurgu yapılmaktadır. Ancak Artırılmış Gerçeklik teknolojisinin, birden fazla duyunun aktif olarak kullanılabildiği gerçek öğrenme deneyimlerinin sağlanabilmesi için ihtiyaç duyulan zenginleştirilmiş eğitim ortamlarının oluşturulmasında faydalanılabilir olduğu görülmektedir. İncelenen araştırmalar karşılaştırıldığında ise çelişkili bulgular saptanılmakta, AR uygulamalarının getirdiği en büyük zorluklar arasında da kolaylıklar arasında da kullanılabilirlik meselesinin varlığı göze çarpmaktadır. İç ve dış mekanlarda Artırılmış Gerçeklik uygulamalarının kullanımının farklılık gösterdiği ve belirli mekân çalışmalarından elde edilen bulguların tüm ortamlara genellenemeyecek olduğu ifade edilebilir, AR uygulamalarının geliştirilmesi ve kullanılabilirliği ile ilgili daha fazla çalışmaya ihtiyaç olduğu çıkarımında bulunulabilmektedir.

Sürekli değişen teknoloji ile AR tasarımlarının sunduğu fırsatların da zaman içinde değişebilmesi bu çalışmanın temel sınırlılığını oluşturmaktadır. Kullanılabilirlik çalışmalarının iteratif bir süreç arz ettiği göz önünde bulundurularak, saha çalışmalarının ve öğrenenlerin Artırılmış Gerçeklik tabanlı öğrenme ortamlarında uygulamaların ergonomik, donanımsal ve yazılımsal kullanılabilirliği hakkındaki görüşlerinin analiz edilmesi ile daha fazla içgörü sağlanarak literatüre katkı sağlanabilir. Bu sayede eğitim arayüzleri, kullanıcıların bilişsel yüküne uyarlanabilir hale de getirilerek yeni tasarımların ihtiyaca yönelik ve daha verimli kullanılması mümkün kılınabilir.

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Öğrenme Analitiklerinin Öz Düzenleyici Öğrenmeye Etkileri

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Özet

Gelişen çevrimiçi teknolojilerin öğrenme süreçlerinde yer almasıyla, öğrenenlerin bu ortamlarda gerçekleştirdikleri tüm etkileşimler izlenebilir hale gelmiştir. Bu da yeni bir araştırma alanı olarak öğrenme analitiklerini ortaya çıkarmıştır. Öğrenme analitikleri, öğrenmenin kendisini ve öğrenme çevrelerini anlamak ve iyileştirmek için kullanılır. Öğrenenlerle ve öğrenme bağlamlarıyla ilgili verilerin toplaması, ölçülmesi, analiz edilmesi, görselleştirilmesi ve öğrenme çevrelerine yansıtılması süreçleriyle ilgilenir. Öğrenme analitikleri, öğrenenlerin öz düzenleyici öğrenmelerine de destek olmaktadır. Alanyazında öğrenme analitikleri ile öz düzenleyici öğrenme ilişkisini inceleyen çalışmalar yer almaktadır. Bu araştırmada ise öğrenme analitiklerinin öz düzenleyici öğrenmeye etkileri, ilgili alanyazın bağlamında değerlendirilmiştir. Bu bağlamda Web of Science veri tabanı kullanılarak başlığında "learning analytic" ve "self-regulated" anahtar kelimeleri bulunan makaleler incelenmiştir. Çalışma sonucunda öğrenme analitikleri kullanmanın, öz düzenleyici öğrenme becerilerinin tespitinde ve geliştirilmesine yardımcı olduğu sonucuna ulaşılmıştır.

Anahtar Kelimeler: *Uzaktan Eğitim, Öğrenme Analitikleri, Öz Düzenleyici Öğrenme, Öz Düzenleme*

GİRİŞ

Yaşam boyu öğrenme ihtiyacı, bireylerin kendi öğrenme sorumluluklarını yerine getirmeleri için gerekli öz-düzenleyici öğrenme (ÖDÖ) becerilerine ihtiyacı da arttırmıştır. Bireyler yetişkinlik dönemlerinde kendi öğrenme sorumluluklarını alabilmeli, hedef ve stratejilerini kendileri belirleyebilmelidirler. Uzaktan öğrenme yüz yüze öğrenme ortamlarına göre daha esnek, daha öğrenen merkezli ve daha fazla otonomi içermektedir (Kuo, Walker, Schroder ve Belland, 2014). Öğrenenlerin, bir uzaktan öğrenme programı sonunda başarı elde edebilmeleri için kendilerini derse odaklanmaları ve öğrenme planlamalarını yapmaları, kendilerini gözlemlemeleri ve güdülenmeleri gerekmektedir (Ergül, 2006).

Eş zamansız öğrenmenin yaygınlaşması, öğrenenlerin kendi hızlarında ilerleme özgürlüğüne sahip olmalarını sağlarken, öğrenme süreçlerini bağımsız olarak planlamaları ve yönetmeleri gerekliliğini ortaya çıkarmaktadır (Broadbent & Poon, 2015). Öğrenenler ve öğretim elemanları arasında fiziksel etkileşimin olmadığı eşzamansız çevrimiçi öğrenme ortamlarında öğrenenler yeni zorluklarla karşı karşıyadır (Kozan,

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2016). Bu zorluklar kendi öğrenmelerini planlama, yönetme ve yürütme gibi içsel motivasyon zorlukları ve zaman kısıtlılığı, erişim güçlüğü gibi dışsal etkilerdir (Winne, 2017). Özgür öğrenme ortamlarındaki bu benzersiz zorluklar, öğrencilerin ÖDÖ stratejilerini kullanmasını gerektirir (Broadbent & Poon, 2015). Açık ve uzaktan öğrenme ortamlarına öğrenenlerin devamlılığını sağlayan en önemli unsurlardan biri bireyin ÖDÖ becerilerine sahip olmasıdır.

Çevrimiçi öğrenme ortamlarında ÖDÖ becerilerini incelemenin bir yolu olarak öğrenme analitiklerinin (ÖA) potansiyel avantajlarının kullanımı yaygınlaşmıştır (Järvelä, Malmberg & Koivuniemi, 2016). ÖA yardımı ile öğrenme yönetim sistemleri (LMS), sosyal platformlar, forumlar gibi dijital ortamlarda bireylerin bıraktıkları izler izlenebilir. Böylece öğrenenlerin öğrenme ortamlarında ne sıklıkla kullandıkları, hangi içerik ya da uygulamaları tercih ettikleri, ortamda ne kadar vakit geçirdikleri ve hangi konuda yorumlar yaptıkları gibi birçok veri toplanabilir. Bu sayede bireylerin farklı yeteneklerine uygun bireyselleştirilmiş ortamlar tasarlanabilir ya da öğrenen motivasyonlarını arttıran uygulama ve içerikler geliştirilebilir.

Öz Düzenleyici Öğrenme ve Öğrenme Analitikleri

ÖDÖ becerileri, bireylerin öğrenme süreçlerinde kendi hedeflerini belirleyebilmesini, bu hedeflere ulaşmak için stratejiler geliştirebilmesini ve öz değerlendirme yeteneklerini kapsamaktadır (Efklides, 2011; Schunk & Ertmer, 1998; Zimmerman, 1990). Bireylerin ÖDÖ becerilerinin gelişmesi için motivasyonlarının yüksek olması gerekir (İbicioğlu & Antalyalı, 2005; Winne, 2017). ÖDÖ becerisine sahip bireyler, öğrenme için içsel motivasyona sahiptirler. Kendi yeteneklerine güvenirken zayıf yönlerinin de farkındadırlar (Callan, DaVia Rubenstein, Barton & Halterman, 2022; Yüksel, 2013). ÖDÖ becerilerine sahip bireyler kendi öğrenme süreçlerini düzenleyebilir ve bu süreçte aktif rol alırlar.

ÖDÖ becerisine sahip olan bireyler bilişsel süreçleri izler ve kendi bilişlerini kontrol edebilirler (Winne, 2017). Yani bu kişiler dikkatlerini ve algılarını kontrol edebilir, bilgileri kodlayarak hatırlamalarını kolaylaştırabilirler. Kendilerine ulaşabilecekleri hedefler koyarlar ve bu hedeflere ulaşmak için stratejiler geliştirebilirler. Başarısızlık hissine kapılarak pes etmezler, gerektiğinde yardım arayarak sorunların üstesinden gelmeye çalışırlar. Ancak başarısız olduklarında da suçlu aramaz kendi eksilerini görmeye çalışırlar. Performanslarını değerlendirirken kendilerini başkalarıyla kıyaslamazlar, koydukları hedefe ne kadar ulaştıkları onlar için önemlidir. Zamanı etkin kullanma becerisine sahiptirler. Daha etkili çalışma için seçme, düzenleme ve oluşturma gibi ayarlamaları yaparlar. Kendilerini objektif bir şekilde değerlendirme yeteneğine sahiptirler (Pintrich, 2000).

ÖDÖ stratejilerini iyi kullanan bireylerin karşılarına çıkan problemleri çözmede kendilerine daha fazla güvendikleri ve daha gayretli oldukları görülmüştür. ÖDÖ becerileri gelişmiş öğrenenler hedeflerine ulaşmak için strateji belirleyebilir ve uyguladıkları stratejilerin performanslarını nasıl etkilediğini değerlendirebilirler (Kumar & Gupta, 2021). Öğrenenlerin ÖDÖ becerilerini bilmek, öğrenme hızlarını, stillerini ve stratejilerini tahmin etmeyi sağlayacaktır. Bu da öğrenme süreçlerinde, öğrenenlere ÖDÖ becerilerine uygun ortamlar sunulmasına yardımcı olacaktır.

ÖA, öğrenmenin ve öğrenmenin gerçekleştiği çevrelerin anlaşılması ve geliştirilmesi için öğrenenler ve bağlamları hakkında bilgi toplanması, bu bilgilerin ölçülmesi, analizi ve raporlanmasıdır (Siemens, 2012). ÖA verilerinin analizi, yorumlanması ve değerlendirilmesi uzmanlık gerektiren bir iştir. Ancak günümüz teknolojileri Web analitikleri, LMS'ler ya da sosyal ağ analizleri yoluyla elde edilen verileri kolayca görselleştirilebilir. Böylece bu verilerden öğrenenler, öğretenler ya da yöneticilerin faydalanmaları sağlanabilir. Çevrimiçi öğrenme ortamlarındaki ÖA'nin grafikler, tablolar ya da diğer görsellerle bireylere sunulması, ÖDÖ becerilerini geliştirmelerine katkı sağlamaktadır (Pardo, 2014).

ARAŞTIRMA PROBLEMİ

Çevrimiçi öğrenme ortamları, özellikle Web 2.0'ın ortaya çıkışından bu yana çok hızlı şekilde yaygınlaşmıştır(Gewerc, Rodríguez Groba & Martínez Piñeiro, 2016). Çevrimiçi öğrenmede kişilerin kendi öğrenmelerini gerçekleştirme gereksinimleri, ÖDÖ'ye dayalı öğrenmeye duyulan ihtiyacı artırmıştır (Üredi & Üredi, 2007). ÖDÖ sürecinde bireyler sorumluluk alırlar ve kendi hedef ve stratejilerini belirlerler (Zimmerman, 1990; Schunk & Ertmer, 1996; Efklides ,2011). Yapılan çalışmalar ÖDÖ'nin küçük yaşta başladığını ve süreç içinde geliştirilebilir olduğunu göstermektedir (Pintrich & De Groot, 1990).

Çevrimiçi öğrenme ortamlarını kullananlar, öğrenme süreçlerinin nasıl gerçekleştiğini ortaya çıkarabilecek izler bırakmaktadırlar. Öğrenenlerin, çevrimiçi ortamlarda çalışırken izledikleri yolu ortaya çıkaran öğrenme analitiği araçları, öğrenme süreçleri hakkındaki bilgileri tutar. Bu bağlamda ÖA öğrenenlerin, öğrenmek için neler yaptıklarını gözlemleme imkanı sunmaktadır. Dolayısıyla ÖA'ni kullanmanın, kişilerin öz-düzenleme yeteneklerini belirlemede ve geliştirmede etkili olduğu düşünülmektedir. Bu alanda yapılan çalışmaların incelenmesi ÖA'nin ÖDÖ'ye olan etkilerinin görülmesi açısından önemlidir.

ÖA ve ÖDÖ ile ilgili ilişkiyi araştıran çalışma sayısının hızla artması dikkat çekicidir. Yapılan çalışmaların amacı genellikle ÖA yardımıyla öğrenenlerin mevcut ÖDÖ becerilerini ortaya çıkarmaktır. ÖA yoluyla bireylerin ÖDÖ becerilerinin ve motivasyonlarının arttırılması da ortak amaçlardan biridir. Daha önce yapılan bir sistematik alanyazın taramasında (Matcha, Gašević & Pardo, 2019) ÖA gösterge panelleriyle ilgili yapılan deneysel çalışmalar, ÖDÖ modeline dayalı olarak analiz edilmiştir. Bu çalışmada ise ÖDÖ ile öğrenme analitikleri ilişkisini araştıran çalışmalar bulguları açısından karşılaştırılmaktadır.

ÖA bireyin ÖDÖ becerilerini tahmin etmesi ve geliştirmesi açısından önemli bir potansiyele sahiptir (Goda vd., 2015). Bu çalışmada ÖA'nin ÖDÖ becerileri üzerindeki etkileri sistematik alanyazın taraması yöntemiyle incelenmektedir. Sistematik alanyazın taraması, araştırılmak istenen bir konunun daha önce yapılan çalışmalar çerçevesinde değerlendirilmesine ve genel bir kanıya varılmasına yardımcı olur (Göktaş vd., 2012). Sistematik olarak bir araya getirilen kaynaklar önemli bir bilgi birikimi sağladığından konunun birçok farklı açılardan incelenmesine katkı sağlamaktadır. Araş-

tırma, ÖA'nin ÖDÖ becerilerinin ve stratejilerinin belirlenmesine ve bu becerilerin geliştirilmesine katkı sağlayıp sağlamadığını öğrenmek açısından önemlidir.

Amaç ve Araştırma Soruları

Yapılan çalışma, ÖA'nin ÖDÖ 'ye etkilerinin sistematik alanyazın taraması yöntemi ile incelemeyi amaçlamaktadır. Bu çerçevede aşağıda yer alan sorulara cevap aranmaktadır:

1. ÖA yoluyla öğrenenlerin ÖDÖ becerileri tahmin edilebilir mi?
2. ÖA kullanılarak öğrenenlerin geliştirilmesi gereken ÖDÖ becerileri saptanabilir mi?
3. ÖA ÖDÖ'yi nasıl etkiler?

İLGİLİ ALANYAZIN

Bu çalışmada ÖDÖ ile öğrenme analitikleri ilişkisini araştıran çalışmalar bulguları açısından karşılaştırılmaktadır. Alanyazın taraması sonucunda ulaşılan makalelerden yola çıkılarak ÖDÖ ve ÖA ilişkisi anlaşılmaya çalışılmıştır.

Gewerc, Rodríguez Groba ve Martínez Piñeiro (2016), ÖDÖ'yi açıklamak için ÖA'nin kullanılmasıyla ilgili bir örnek olay çalışması yapmıştır. Araştırma başında eğitim teknolojileri dersine katılan üniversite öğrencilerine, ÖDÖ becerilerini tespit etmek için bir anket uygulanmıştır. Anket sonucunda öğrencilerin ÖDÖ becerilerinin ortalama düzeyde olduğu bulunmuştur. Verilen kursta sosyal ağ analitiği kullanılarak öğrenenlerin kurstaki etkileşimlerine bakılmıştır. Kurs sonunda etkileşimin kurs sonuna doğru arttığı ve etkileşime ez az giren öğrenenlerin en düşük notları aldığı sonucuna varılmıştır. Kurs sonunda yeniden uygulanmıştır. Anket sonucunda ÖDÖ becerilerinin geliştirilebilir özellikler olduğu ve etkileşimle bu becerilerin arttığı sonucuna varılmıştır.

Cha ve Park (2019) tarafından yapılan bir çalışmada ise öğrenme analitiğine dayalı ÖDÖ yeteneklerini geliştirmek için MOOC gösterge paneli oluşturmak amaçlanmaktadır. Bir öğrenme analitiği gösterge paneli geliştirilmiş, öğrenenler ve uzmanlar tarafından değerlendirilmiştir. Öğrenenlerin zaman yönetimi ve ilerleme hızları izlenmiş ve çalışma sonunda geliştirilen bu gösterge panelinin ÖDÖ becerilerine fayda sağladığı bulunmuştur. Bulgular öğrenenlerin öğrenme ortamlarındaki davranışlarının etkili bir şekilde görselleştirilmesinin gerekli olduğunu ortaya koymuştur. Aguilar, Karabenick, Teasley ve Baek (2021) de öğrenme analitiği gösterge panellerinin, motivasyon ve ÖDÖ ile ilişkisini araştırmıştır. Yapılan çalışmada akademik danışmanlar, gösterge panelleri kullanmış ve öğrenenlerin performans ve etkileşimlerini izlemişlerdir. Bu veriler öğrenenlerle sadece belirli dönemlerde paylaşılmıştır. Araştırmanın sonunda öğrenenlerin hedef yönelimlerinin ve içsel motivasyonlarının arttığı sonucuna varılmıştır.

Yapılan diğer bir çalışmada öğrenenlerin ÖDÖ becerilerine ilişkin zamansal ve kavramsal verileri tutan bir yapı tasarlanmıştır (Kivimäki, Pesonen, Romanoff, Remes & Ihantola, 2019). Bu yapı içerik verilerini, kavram haritalarını ve yapılandırılmış öğrenme günlüklerini birleştirmektedir. Çalışmada, öğrenenlerin bu yapıya her hafta girdikleri öğrenme günlükleri ve katılımcılara ait zaman verileri analiz edilmiştir. Çalışma sonucunda öğrenenlerin ÖDÖ ile ilgili verilerin toplanmasının ÖDÖ becerilerinin geliştirilmesine katkı sağladığı bulunmuştur.

Silva, Zambom, Rodrigues, Ramos ve de Souza (2018) tarafından ters yüz edilmiş sınıflarda kullanılan ÖA'nin, ÖDÖ üzerine etkilerini araştıran deneysel bir çalışma yapılmıştır. Ters yüz edilmiş öğrenme ortamında sunulan ve iki gruptan oluşan bir mühendislik dersine katılan öğrenenlerin ÖDÖ becerilerini ölçmek için başlangıçta bir anket uygulanmıştır. Ders sonunda anket tekrar edilmiş ve öğrenme analitiği kullanılan gruptaki öğrenenlerin ÖDÖ becerilerinin geliştiği sonucuna ulaşılmıştır. Çalışma sonucu, öğrenme analitiğinin ters yüz edilmiş ortamlarda ÖDÖ'yi teşvik etmek için kullanılabileceğini ve öğrenenlerin akademik performanslarını arttırabilecek stratejileri belirlemede yardımcı olabileceğini göstermektedir.

Papamitsiou ve Economides (2019) ÖA'ni kullanarak, ÖDÖ'nin otonom öğrenme kapasitesini nasıl etkilediğine dair deneysel bir çalışma yapmıştır. Avrupa'da bir üniversitede çevrimiçi yürütülen bir derse kayıtlı 113 öğrenciye ders başında ÖDÖ becerilerini ölçmek için bir anket uygulanmıştır. Ders sonunda ise öğrencileri değerlendirmek için 60 dakika içinde 12 görevi tamamlamaları istenmiştir. Bu görevlerden ilki rastgele olarak gelmektedir, diğer görevlerin seçimi ise öğrenen tarafından daha kolay, daha zor, aynı düzey ya da rastgele seçeneklerinden biri seçilerek yapılmaktadır. Bu şekilde 12 soru tamamlandığında, 60 dakika dolduğunda ya da 10 puan alındığında görevler bitmiş olmaktadır. ÖA öğrenenlerin soruları yanıtlarken yaptıkları seçimleri ve süreleri tutmaktadır. Çalışma sonunda öğrenme analitiği verileri analiz edilerek öğrenenlerin ÖDÖ becerileri ile öz yeterlilikleri arasında anlamlı bir ilişki olduğu bulunmuştur.

Bir çalışmada kişilerin ÖDÖ becerileri ve ÖA gösterge panellerini yorumlamaları üzerine bir çalışma yapılmış ve böylece bir öğrenme analitiği aracı geliştirmek amaçlanmıştır (Jivet vd., 2020). Yapılan bu deneysel çalışmada öğrenenlere basit ve daha karmaşık olarak hazırlanmış iki gösterge paneli gösterilmiş ve yorumlamaları istenmiştir. Çalışmada katılımcıların ÖDÖ becerileri ile gösterge panolarına öğrenenlerin bakış açıları arasındaki ilişkiye bakılmıştır. Çalışma sonucunda katılımcıların ÖDÖ becerileri ile gösterge panelinin tasarımını, referans çevrelerini (karşılaştırma yapabileceği bağlantılar, kurs aktivite bağlantıları, tamamlanan kurslara ilişkin bağlantılar) ve eylem desteğini (bir sonraki konu ile ilgili bilgiler) yorumlamaları istenmiştir. Çalışma, öğrenenlerin kendi performansları hakkında anında geribildirim alabilecekleri, güçlü ve zayıf yönlerini görebilecekleri, öğrenme stratejileri hakkında öngörü oluşturabilecekleri ve ÖDÖ becerilerini geliştirebilecekleri bir öğrenme analitiği aracının önemini ortaya çıkarmıştır.

2018 yılında farklı ÖDÖ becerisine sahip bireylerin ÖA yardımıyla değerlendirilmesini sağlayan bir çalışma yapılmıştır (Kim, Yoon, Jo & Branch, 2018). Bu çalışmada, öğrenenler ÖDÖ becerisine sahip olanlar, kısmen sahip olanlar ve sahip olmayanlar olarak üç gruba ayrılmıştır. Çalışma sonunda ÖDÖ becerisi gelişmiş kişilerin daha fazla çalıştıkları ve daha az yardım aradıkları görülmüştür. ÖDÖ becerisi daha düşük olan bireyler ise daha az çalışıp daha fazla yardım ararken bu beceriye sahip olmayan bireylerin ise hem az çalıştıkları hem de daha az yardım arama etkinliği sergilediği gözlemlenmiştir. ÖDÖ becerileri yüksek bireyler sınav döneminden önce ders içeriklerini incelerken bu beceriye daha az sahip olan ya da sahip olmayan bireylerin ise yalnızca sınav dönemlerinde ders içeriklerini inceledikleri görülmüştür.

Viberg, Wasson ve Kukulska-Hulme (2020) tarafından yapılan bir çalışma, öğrenenlerin dil öğrenmede başarılı olmalarını sağlamak için mobil destekli öğrenme, ÖDÖ ve ÖA alanlarındaki gelişmelerden yararlanabileceğini savunmaktadır. Bu çalışma ÖDÖ'yi sağlamak ve öğrenme analitiği kullanarak ikinci dil öğrenmeyi desteklemek için kavramsal bir çerçeve sunmaktadır. Yapılan çalışma, ÖA kullanılarak mobil destekli dil öğrenimi tasarlamanın, öğrenenlerin öz düzenleme becerilerini artıran gerçek zamanlı, akıllı, uyarlanabilir, kişiselleştirilmiş bir yapı oluşturduğunu ortaya koymaktadır.

2019 yılında yapılan bir çalışmada nStudy adı verilen, Chrome web tarayıcısının uzantısı olarak tasarlanmış açık kaynaklı bir yazılım açıklanmıştır (Winne vd., 2019). Bu yazılımla öğrenenlerin biliş, üstbiliş ve motivasyon verileri toplanır. nStudy tarafından toplanan ortam izleme verileri ÖA geliştirmek, öğrenenlerin kendi öğrenme stillerini biçimlendirmelerini sağlamak için kullanılabilmektedir. Örneğin nStudy kullanan bir kişi ders içeriğinde yer alan bir metinde "burayı açıkla" şeklinde bir pençeyi açabilir ve buraya notlar alabilmektedir. Bu notlar da nStudy tarafından incelenerek, kişiye sorular yöneltilebilmekte, ya da aldığı notlardan, yaptığı diğer işlemlerden yola çıkılarak kişiye model önerilebilmektedir. Daha sonra da önerdiği bu modeli bireyin uygulayıp uygulamadığını kontrol edebilir. Böylece öğrenenlerin öğrenmelerini daha verimli bir şekilde nasıl düzenleyebilecekleri konusunda deneysel bir rehberlik sağlar.

Başka bir çalışmada ise mobil bir araçla öğrenmeye ayrılan zaman izlenerek, bu izlemenin ÖDÖ üzerindeki etkileri araştırılmıştır (Tabuenca, Kalz, Drachsler & Specht, 2015). Üç farklı çevrimiçi kurstan mezun olan öğrenenler, dört aylık bir süre boyunca öğrenme ortamına ne kadar zaman ayırdıklarını izlemek için kendi mobil cihazlarını kullanmışlardır. Kurs boyunca "ÖDÖ anketi" ve "zaman yönetiminin geçerlik ve güvenirliği" anketi tekrar edilmiş ve anketler sonucunda, zamanı takip etmenin zaman yönetimi becerileri üzerinde olumlu etkilerinin olduğu ortaya çıkmıştır. Çalışma sonuçları, öğrenme zamanını kaydetmenin faydalarına dair kanıt sunmaktadır. Öte yandan mobil bildirimlerin nasıl tasarlanması gerektiğine ve öğrenenlerin çevrimiçi kurslarda ÖDÖ'lerinin nasıl geliştirileceğine ilişkin ipuçları da önermektedir.

Montgomery, Mousavi, Carbonaro, Hayward ve Dunn (2019)'in yaptığı çalışmada harmanlanmış ters yüz öğrenme modeli ile gerçekleştirilen müzik öğretmenliği eğitiminde ÖA kullanılarak, öğrenenlerin ÖDÖ öğrenmeyi kullanımları araştırılmıştır. Öğrenenlerin ÖDÖ davranışları Moodle'daki kurs materyalleriyle etkileşimleri aracılığıyla gerçek zamanlı olarak kaydedilmiştir. Öğrenenlerin içeriğe erişim zamanları ve konumları, geçirdikleri süre ve erişim sıklığı gibi ÖDÖ becerilerinin akademik başarı ile orta düzeyde ilişkili olduğu ortaya çıkmıştır. Sonuçlar, erişim günü ve erişim sıklığının öğrenci başarısı için güçlü belirleyiciler olduğunu göstermiştir. Önceki "ÖDÖ ve ÖA" araştırmalarının sonuçlarına bakıldığında da erişim düzenliliği ve ÖDÖ becerisine ait bulguların öğrenci başarısı üzerindeki olumlu etkisi görülmektedir.

ÖA, öğretim tasarımı ve ÖDÖ arasındaki bağlantıyı ortaya çıkarmak için de kullanılmıştır (Fan, Matcha, Uzir, Wang & Gašević, 2021). Fan vd. (2021) göre, özellikle çevrimiçi öğrenmede, öğrenenlerin öğretim tasarımı ortamlarını etkili bir biçimde kullanmaları için ÖDÖ becerilerini de etkili şekilde kullanmaları gereklidir. Çin'de Ters yüz öğrenme yöntemiyle yürütülen bir kitlesel çevrimiçi derse (KAÇD) katılanlar performanslarına göre kümelenmiş ve çalışma sonunda farklı performans gruplarındaki öğrenenlerin öğrenme taktiklerini kullanırken farklı yollar izlediği bulunmuştur.

2022 yılında yapılan bir çalışmada öğrenme analitiğine dayalı bir tahmin modeli kullanılarak düşük performans göstermesi muhtemel biyoloji lisans öğrencileri belirlenmiştir (Cogliano, Bernacki, Hilpert & Strong, 2022). Belirlenen öğrencilerden rastgele seçilen bir gruba ÖDÖ becerilerini geliştirmeyi amaçlayan iki haftalık kurs verilmiştir. Çalışma sonunda eğitim verilen öğrencilerin derslerinde gösterdikleri performansın eğitim verilmeyenlere göre daha üstün olduğu belirlenmiştir.

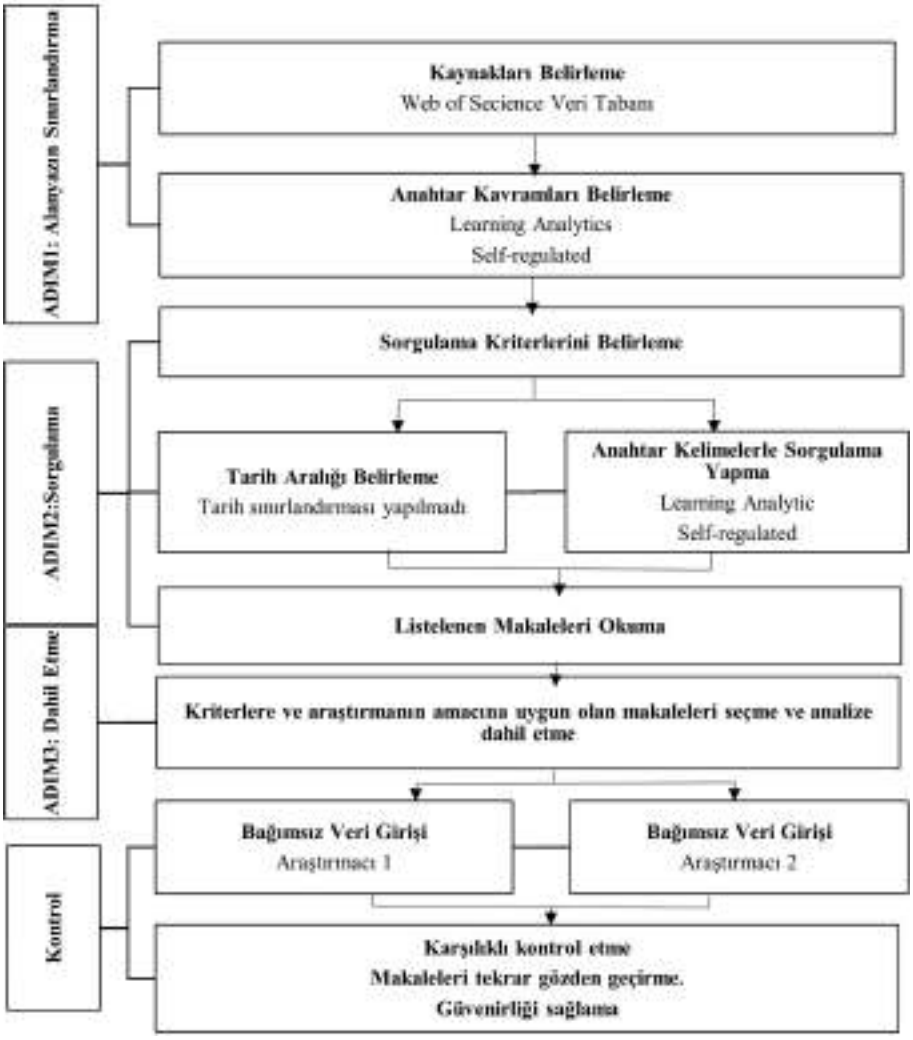
Winne (2022) yaptığı bir çalışmada ÖA'nin ÖDÖ becerilerinin geliştirilmesine nasıl katkı sağlayabileceğini incelemiştir. Winne (2022)'ye göre üst biliş, ÖDÖ'nin motorudur. Öğrenenler öğrenme etkinliklerini analiz ederler. Kullandıkları stratejilerin uygunluğunu, çabalarının yeterli olup olmadığını değerlendirir ve öğrenme süreçlerini buna göre yeniden düzenlerler. Çalışma, öğrenenlerin ÖDÖ becerilerini desteklemek için, kullandıkları e-öğrenme ortamlarında bıraktıkları izleme verilerine dayalı öğrenme analitiği geliştirmeyi önermektedir. Böylece sürekli olarak yenilenen ve gelişen öğrenme stratejilerinin oluşturabileceği bir ortama olanak sağlanır.

Galaige, Steele, Binnewies ve Wang (2022) tarafından yapılan çalışmada mobil öğrenmede öğrenme analitiğine dayalı müdahalelerin öğrencilerin akademik başarıları, ÖDÖ becerileri ve motivasyonları üzerindeki etkisi araştırılmıştır. Bu amaçla literatürden elde edilen iç görülere ve öğrenme analitiği uzmanlarıyla yapılan bir ankete dayanarak, öğrenciye dönük öğrenme analitiğinin (ÖDÖA) tasarımına rehberlik edecek bir çerçeve geliştirilmiştir. Bu çerçeve, öğrenciye dayalı ÖDÖ desteği ihtiyaçlarını belirlemek, ÖDÖ ihtiyaçlarını karşılamada ÖDÖA 'ya bakış açılarını anlamak ve hangi ÖDÖA özelliklerinin ÖDÖ 'yi desteklediğini belirlemek için oluşturulmuştur. Çerçeveyi değerlendirmek için öğrenme analitiği uzmanlarıyla bir odak grup görüşmesi yapılmış ve çerçeveyi yenilemek için elde edilen geri bildirimler kullanılmıştır. Çerçeve, öğrenen ihtiyaçlarını anlamayı sağlamıştır.

Başka bir çalışmada mobil tabanlı bir öğrenme ortamında öğrenme analitiğini kullanmanın öğrenenlerin ÖDÖ becerileri, motivasyonları ve akademik başarıları üzerindeki etkileri incelenmektedir (Cavus Ezin & Yilmaz, 2022). Yapılan bu deneysel çalışmada mobil öğrenme ortamında verilen bir derste, deney grubu öğrencilerine öğrenme davranışları hakkında geri bildirim olarak haftalık öğrenme analitiği raporu verilirken, kontrol grubu öğrencilerine verilmemiştir. Çalışma sonucunda mobil öğrenme ortamında ÖA yoluyla geribildirim sağlamanın, ÖDÖ becerilerini ve akademik başarını geliştirmede deney grubu öğrencileri lehine istatistiksel olarak anlamlı bir fark yarattığı gözlemlenmiştir. Bununla birlikte deney ve kontrol grubu öğrencileri arasında derse yönelik motivasyon açısından istatistiksel bir fark bulunmamıştır.

YÖNTEM

Bu çalışmanın genel amacı ÖA'nin ÖDÖ'ye etkilerini inceleyen, şu ana kadar yapılmış çalışmaları incelemektir. Bu hedefe ulaşmak adına alanyazında yer alan kaynaklar sistematik alanyazın tarama yöntemiyle bir araya getirilmiştir. Mevcut en iyi sonuca ulaşmak için ilgili konuda yapılan çalışmaları değerlendirmek ve sentezlemek için sistematik alanyazın taraması yapılır (Elliott vd.,2017). Sistematik alanyazın taramalarında belirli ölçütler kullanılarak araştırmaya dahil edilecek çalışmalar belirlenir. Bu sistematik alanyazın taramasının metodolojik adımları Şekil 1'de verilmiştir.

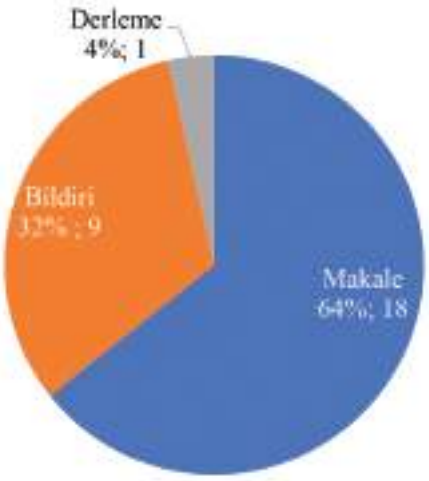


Şekil 1. *Sistematik Alan Yazın Taraması Metodolojik Adımları*

Şekil 1'de görüldüğü gibi yapılan çalışma 4 adımda gerçekleşmiştir. İlk adımda anahtar kelimeler yoluyla alanyazın sınırlandırılmıştır. Veriler toplanmaya başlanmadan önce anahtar kelimeler denenmiş amaca uygun çalışmalara "learning analytics" ve "self-regulated" kelimeleriyle ulaşıldığına karar verilmiştir. Bilim alanlarındaki yayın ve atıf sayısı oldukça yüksek olan Web of Secience veri tabanı kullanılarak (Karasözen & Bayram, & Zan, 2011) "learning analytics" ve "self-regulated" anahtar kelimeleri aranmıştır. Anahtar kelimeler yalnızca makale başlıklarında aranmış ve bir tarih sınırlandırılması yapılmamıştır. Bu sorgulama sonucunda İngilizce dilinde toplam 18 makaleye ulaşılmış ve bu makalelerin 17 tanesine ulaşılarak çalışmaya dahil edilmiştir. Toplanan veriler ve veri analiz süreci araştırmacılar tarafından gözden geçirilmiştir.

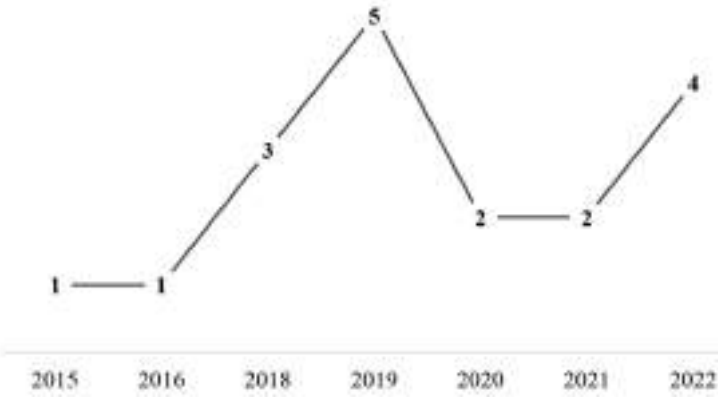
Verilerin Toplanması

Verilerin toplanması sürecinde ilk olarak anahtar kelime havuzu oluşturulmuş, bu havuzdan "learning analytics" ve "self-regulated" anahtar kelimelerine karar verilmiştir. Web of Secience veri tabanı kullanılarak denemeler yapılmış ve "learning analytics" + "self-regulated" anahtar kelimelerinin kullanılmasına karar verilmiştir. Şekil 2'de bu anahtar kelimeler kullanılarak erişilen 28 belgenin türlerine göre dağılımı görülmektedir.



Şekil 2. *Doküman Türlerinin Dağılımı*

Grafikte görüldüğü gibi erişilen belgelerin %64'ü dergi makalesi, %32'si bildiri özeti %4 ü ise derleme yazısıdır. Bu çalışmada anahtar kelimeler yalnızca makale başlıklarında aranmış diğer belge türleri çalışma dışında tutulmuştur. Bütün bu sınırlandırma işlemleri yapıldıktan sonra çalışmaya dahil edilen dergi çalışmalarının yıllara göre dağılımı aşağıdaki grafikte verilmiştir.



Şekil 3. *Yayınlanan Makalelerin Yıllara Göre Dağılımı*

2015-2022 arasında ÖA ve ÖDÖ konularını kapsayan çalışmaların sayısı şekil 3'te yer almaktadır. Bu konudaki en fazla çalışma 2019'da yapılmıştır. 2022 yılı halen devam etmekte olduğundan yayın sayısı henüz tamamlanmamıştır. 2018'de yayınlanan makalelerden birine erişim sağlanamadığından bu makaleye çalışmada yer verilememiştir.

Ulaşılan makalelere ilişkin veri analizinde betimsel analiz tekniği kullanılmıştır. İncelemeler neticesinde toplanan veriler araştırmacılar tarafından kontrol edilmiş, böylece ulaşılan bulguların tutarlılığı test edilmiştir. Çalışmalar incelenirken ÖDÖ becerileri ile ÖA arasındaki ilişki temel alınmıştır. Analiz yapılırken Web of Secience veri tabanından taranan makaleler ile ilgili veriler .txt dosyası olarak kaydedilmiştir. Bu tabloda makale başlıkları, anahtar kelimeler, yazar adları, çalışmanın yapıldığı tarih gibi veriler yer almaktadır. Veri temizliği yapıldıktan sonra txt dosyası VOSviewer programı kullanılarak analize tabi tutulmuştur. VOSviewer, bibliyometrik ağlar oluşturmak ve görselleştirmek için bir yazılım aracıdır. Bu yazılım ile ÖAnin ÖDÖ'ye etkisini incelemek için çalışmada yer alan makalelerin hangi sözcük grupları üzerinde yoğunlaştığı tespit edilmiştir. ÖA ve ÖDÖ çalışmalarında en sık kullanılan anahtar kelimeler ortaya çıkarılmış ve ağ haritaları ile görselleştirilmiştir. VOSviewer'da bibliyometrik haritalama analizi yapılmıştır. Tanımlayıcı verilerin görselleştirilmesinde MS Excel kullanılmıştır.

BULGULAR

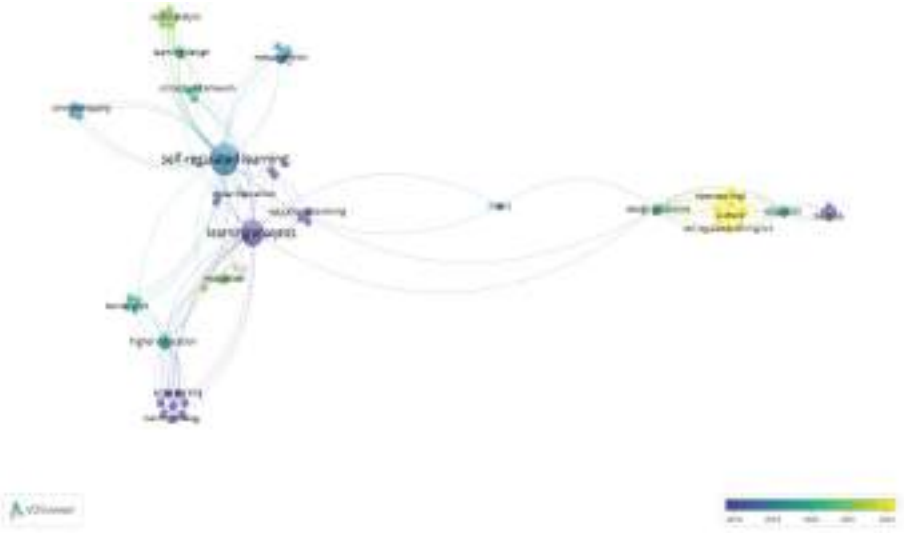
Çalışmada "learning analytic" ve "self-regulated" anahtar kelimeleri kullanılarak Web of Science veri tabanında bulunan ve çalışmaya dahil edilen dergi makaleleri Tablo1'de yer almaktadır.

Tablo 1. *İlgili Çalışmalar*

Sıra No	Makale Başlığı	Yıl
1	A Framework for Designing Student-Facing Learning Analytics to Support Self-Regulated Learning	2022
2	The effect of learning analytics-based interventions in mobile learning on students' academic achievements, self-regulated learning skills, and motivations	2022
3	Modeling self-regulated learning as learners doing learning science: How trace data and learning analytics help develop skills for self-regulated learning	2022
4	A Self-Regulated Learning Analytics Prediction-and-Intervention Design: Detecting and Supporting Struggling Biology Students	2022
5	Learning Analytics to Reveal Links Between Learning Design and Self-Regulated Learning	2021
6	Associations between learning analytics dashboard exposure and motivation and self-regulated learning	2021
7	Mobile-assisted language learning through learning analytics for self-regulated learning (MALLAS): A conceptual framework	2020
8	From students with love: An empirical study on learner goals, self-regulated learning and sense-making of learning analytics in higher education	2020

9	nStudy: Software for Learning Analytics about Learning Processes and Self-Regulated Learning	2019
10	Curricular Concept Maps as Structured Learning Diaries: Collecting Data on Self-Regulated Learning and Conceptual Thinking for Learning Analytics Applications	2019
11	Exploring autonomous learning capacity from a self-regulated learning perspective using learning analytics	2019
12	Applying and Evaluating Visualization Design Guidelines for a MOOC Dashboard to Facilitate Self-Regulated Learning Based on Learning Analytics	2019
13	Using learning analytics to explore self-regulated learning in flipped blended learning music teacher education	2019
14	Effects of Learning Analytics on Students' Self-Regulated Learning in Flipped Classroom	2018
15	Learning analytics to support self-regulated learning in asynchronous online courses: A case study at a women's university in South Korea	2018
16	Academic Social Networks and Learning Analytics to Explore Self-Regulated Learning: a Case Study	2016
17	Time will tell: The role of mobile learning analytics in self-regulated learning	2015

Tablo'da tarihe göre yeniden eskiye doğru listelenen çalışmalar Web of Secience'de tarih sınırı yapılmaksızın ulaşılmış 2015-2022 yılları arasında yayınlanan 17 dergi makalesini kapsamaktadır. Çalışmaya dahil edilen makalelere ait anahtar kelimelerin bibliyometrik analizi yapılmıştır. Analiz sonucu şekil 4'te yer almaktadır.



Şekil 4. *Makalelerin Anahtar Kelimelerinin Kümelenmesi*

Anahtar kelime bibliyometrik ağına baktığımızda MOOCs, design guidelines ve education anahtar kelimelerinin kapı tutucu (gatekeeper) rolünde olduğu görülmektedir. Şekil 4'te anahtar kelimelerin 6 küme oluşturduğu görülmektedir. Bu kümeler aşağıda sıralanmıştır.

1. self regulated learning ve learning analytics
2. self-regulated learning ve meta cognition
3. learning analytics ve MOOCS (Kitlesel Açık Çevrimiçi Ders)
4. self-regulated learning ve concept mapping
5. learning analytics ve educational data mining
6. self-regulated learning ve conceptual framework

Şekilde görüldüğü gibi en büyük kümelenmeyi çalışmanın anahtar kelimeleri olan "öz-düzenlemeli öğrenme (self regulated learning)" ve "öğrenme analitikleri (learning analytics)" anahtar kelimeleri oluşturmaktadır. Ulaşılan 17 makale incelenmiştir. Buna göre:

1. ÖA kullanmanın etkileşimi artırdığı; ÖDÖ becerilerinin de etkileşimle arttığı bulgularına ulaşılmıştır.
2. ÖA gösterge panellerinin zaman yönetimi konusunda öğrenenlere yardımcı olduğu ve motivasyonlarını arttırdığı görülmüştür.
3. Çalışmada ÖA'nin öğrenenlerin kendi performansları hakkında anında geri bildirim alabilmelerinin, güçlü ve zayıf yönlerini görebilmelerinin ÖDÖ becerilerini geliştirebileceği sonucuna varılmıştır.
4. ÖA verilerinin öğrenenlerle paylaşılmasının, öğrenenlerin zamanı takip etmesini sağlayarak zaman yönetimi becerilerini arttırdığı bulunmuştur.

TARTIŞMA VE SONUÇ

Yapılan çalışmalardan birçoğu bireylerin ÖDÖ becerilerini ÖA ile geliştirmeyi amaçlamaktadır. Çalışmalar detaylı incelenerek makalelerin genel amaçları gruplanmış ve Tablo 2'de listelenmiştir. Tabloda, çalışmada yer alan makalelerin amaçlarına göre dağılımı görülmektedir.

Tablo 2. *Çalışmaların Amaçlarına Göre Dağılımı*

Yapılan Çalışmanın Amacı	Çalışma Sayısı
ÖDÖ becerilerini geliştirmek.	8
ÖDÖ becerileri ve başarısı ilişkisini açıklamak	5
ÖDÖ becerilerini tahmin etmek	4
ÖDÖ becerilerine uygun ÖA geliştirmek	3
Gösterge Panelleri ile ÖDÖ arasındaki ilişkiyi açıklamak	2
Öğretim tasarımının ÖDÖ etkisini açıklamak	2

Tablo 2'ye göre çalışmaların yarısından fazlası ÖA kullanılarak ÖDÖ becerilerini geliştirmeyi amaçlamaktadır. Bu çalışmalar incelendiğinde, ÖA kullanılarak öğrenenlerin ÖDÖ becerilerinin gelişmesine katkı sağlayabileceği sonucuna ulaşılmıştır.

Çalışmaların 5 tanesinde, ÖDÖ becerilerinin başarıya etkisini araştırmak için ÖA kullanılmıştır. Papamitsiou ve Economides (2019)'un yaptığı çalışma ÖDÖ becerileri ile öz yeterlilik arasında pozitif yönde anlamlı ilişki olduğunu açıkça ortaya koymuştur. İncelenen makalelerin 2 tanesinde Gösterge Panelleri ile ÖDÖ arasındaki ilişkiyi açıklamak amaçlanmıştır. Cha ve Park (2019) ile Aguilar, Karabenick, Teasley ve Baek'in (2021) çalışmalarının sonucuna göre gösterge panellerinin kullanımı öğrenenlerin hedef yönelimlerinin ve içsel motivasyonlarının, dolayısıyla ÖDÖ becerilerinin gelişmesine katkı sağlamaktadır. Fan (2021) tarafından yapılan bir çalışma öğretim tasarımcılarına, öğrenen becerilerine uygun öğretim tasarımı yapma konusunda ipuçları vermektedir. Öğretim tasarımını etkin kullanan bireylerin ÖDÖ becerilerinin geliştiği bulgular arasındadır. ÖA öğretenlere de hazırladıkları içerikleri yenileyerek onları öğrenenlerin ihtiyaçlarına uygun hale getirme fırsatı tanımaktadır. Tablo 2'de yer alan amaçlar doğrultusunda yapılan çalışmaların sonuçları incelendiğinde ÖA'ni ÖDÖ bağlamında inceleyen bu çalışmaların hem öğrenenlere hem öğretim tasarımcılarına hem de öğretenlere katkı sağladığı açıkça görülmektedir.

Araştırmaya dahil olan çalışmalardan 4 yanesinde mobil öğrenme ortamlarında öğrenme analitiklerini kulllanılmıştır. Çalışmalara göre mobil ortamlarda ÖA kullanımının, diğer çevrimiçi ortamlarda olduğu gibi, ÖDÖ becerilerinin gelişimine katkı sağladığı görülmektedir. Cavus Ezin & Yilmaz (2022)'nin deneysel çalışmasının sonucuna göre bir mobil öğrenme ortamında ÖA yoluyla geribildirim sağlamanın, ÖDÖ becerilerini ve akademik başarını geliştirmede etkili bir fark yarattığı gözlemlenmiştir.

Çalışmalar incelendiğinde ÖA'nin ÖDÖ bağlamında kullanılma amaçlarını aşağıdaki gibi özetlemek mümkündür:

1. Öğrenenlerin ÖDÖ becerilerini tespit ederek bu becerileri geliştirmelerine yardımcı olmak: Yapılan çalışmalar ÖA yoluyla öğrenenlerin ÖDÖ becerilerinin tahmin edilebilir olduğunu göstermektedir. Bu da araştırma sorularımızdan ikincisi olan "ÖDÖ becerileri saptanabilir mi?""nin cevabını vermektedir.
2. ÖA gösterge panellerinin öğrenenler tarafından takip edilebilmesine olanak tanınarak kendi becerilerini fark etmelerini sağlamak: Erişim sıklıklarını, zaman yönetimlerini, içeriklerin kullanım durumunu takip edebilen bireylerin içsel motivasyonları artmakta ve ÖDÖ becerileri gelişmektedir. Gösterge panellerinin öğrenenlerin kendi öğrenmelerini gerçekleştirmesinde rehberlik sağladığı görülmüştür.
3. ÖDÖ becerileri farklı bireyleri tespit ederek bu beceriye düşük düzeyde sahip bireylere bu konuda eğitim verilmesini sağlamak: Yapılan çalışmalar incelendiğinde, ÖA kullanılarak öğrenenlerin geliştirilmesi gereken ÖDÖ becerilerinin saptanabildiği sonucuna varılmıştır. Bu da araştırma sorularımızdan ilkinin cevabıdır.
4. ÖA yoluyla öğrenenlerin sürekli izlenerek ÖDÖ becerilerinin gelişimini takip etmek.

ÖA'nin ÖDÖ bağlamında en sık kullanım amacı ÖDÖ becerilerinin gelişimini incelemek olmuştur. Yapılan çalışmalar sonucunda farklı ÖDÖ becerisine sahip bireylerin içeriklere erişimde, erişim sürelerinde ve sıklıklarında farklılıklar olduğu sonucuna varılmıştır. ÖDÖ becerisi yüksek bireylerin öğrenme ortamına erişim sıklıkları faz-

layken, düşük olan bireylerin ise sadece sınav zamanı erişim sağladığı görülmektedir. Yine yapılan çalışmaların ortak sonucu olarak ÖDÖ becerilerinin geliştirilebilir olduğu, ÖA verilerinin öğrenenler tarafından izlenebilir olmasının içsel motivasyonu artırdığı ve zaman yönetimi becerilerinin de arttığı sonucuna varılmıştır. ÖDÖ becerisi düşük bireylerin önceden tespit edilerek bu becerilerini geliştirmeye yönelik eğitim verilmesinin de başarıyı arttırdığı görülmüştür. Bu da araştırma sorularımızın üçüncüsü olan "bireylerim ÖDÖ becerileri ÖA yoluyla geliştirilebilir mi?" sorunsun cevabını vermektedir.

ÖNERİLER

Bu araştırmanın sınırlılıkları içerisinde bazı öneriler oluşturulmuştur. Öneriler aşağıda sıralanmıştır.

1. Özellikle açık ve uzaktan öğrenmede ÖA yoluyla, ÖDÖ becerileri belirlenerek kişilerin becerilerine uygun olarak öğrenme ortamları kişiselleştirilebilir.
2. Öğrenme yönetim sistemlerinde öğrenenlerin gösterge panolarına erişimine izin verilerek bireylerin kendi öğrenmelerini izlemesine ve diğer öğrenenlerin de öğrenme ortamlarında geçirdikleri süreyi, etkileşimleri, kullandıkları içerikleri görmesine imkan sağlanabilir. Böylece bireylerin ÖDÖ becerileri ve içsel motivasyonları arttırılabilir.
3. Öğrenenlerin öğrenme ortamlarında bıraktıkları izler ÖA yoluyla takip edilerek onlara uygun öğrenme kaynakları önerilebilir.
4. ÖA yoluyla ÖDÖ becerileri tahmin edilen bireylere uygun öğrenme ortamı sağlanabilir.
5. Açık ve uzaktan öğrenmede öğrencilerin ÖDÖ becerilerini tespit etmek için ÖA verilerinin nasıl toplanacağı ve analiz edileceği konusunda araştırmalar yapılabilir.

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Uzaktan Eğitimde Oyunlaştırma: Teoriden Pratiğe Güncel Eğilimler

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Özet

Oyun, insan tarihi kadar eski bir kavramdır. Satranç, Cirit, Go vb. oyunlar eğlenceden sosyalleşmeye, savaş tatbikatlarından eğitime kadar pek çok alanda kullanılmıştır. Günümüzde oyun kültürü insan yaşamının her türlü alanında iz düşümlerinin keşfedilebileceği önemli bir unsur haline gelmiştir. Dünyanın en çok satan oyunlarından birisi Ms. Pac-Man cinsiyet eşitliğine vurgu yapmak için geliştirilmiştir, Microsoft'un Solitaire oyunu ise bireylerin hem motor hem de bilişsel gelişimlerine katkı sağlamak amacıyla tasarlanmıştır. Oyun kültürünün insan hayatındaki yerini ve önemini istatistiki verilerle desteklemek gerekirse, oyun sektörü 2021 yılında 145,7 milyar dolar seviyesine ulaşarak 42,5 milyar dolar seviyesindeki Hollywood'u geride bırakmıştır (Statista, 2021). Raporun devamında, oyun sektörünün 2025 yılında 268,81 milyar dolar seviyesine ulaşacağı öngörülmüştür. Yıllara göre oyuncu sayılarının incelendiği ve raporlandığı bir başka çalışmada ise, 2021 yılında 2,81 milyar kişinin oyun oynadığı belirlenmiş ve bu sayının 2023 yılında 3,07 milyar kişi seviyesine ulaşacağı tahmin edilmektedir (Statista, 2021). Eğlence Yazılımları Derneğinin (2021) çalışmasına göre, oyunların bireylerde rahatlama, eğlenme, diğer insanlarla bağlantı kurma, gerçeklikten kaçma ve zekâ geliştirmek için kullanıldığı raporlanmıştır. Oyun kültürünün baskın karakteri, oyunlaştırma yaklaşımı çerçevesinde pek çok farklı çalışma alanını doğrudan etkilemektedir. Uzaktan eğitim de bu alanlardan bir tanesidir.

Bu çalışmanın odaklandığı temel nokta oyunlaştırma kavramının uzaktan eğitim alanında kullanımına yönelik tüm unsurları, teoriden pratiğe güncel eğilimler ışığında incelemektir. Çalışma kapsamında alanyazında en sık kullanılan oyunlaştırma kuramları ve modelleri, eğitimde kullanılan oyunlaştırma uygulamaları ve oyunlaştırma çalışmaları, oyunlaştırmanın psikolojik temelleri, oyunlaştırma tasarımında kullanılan oyuncu tipleri ve özellikleri, oyunlaştırma ögeleri ile öğrencinin akış yaşantısı, motivasyonu ve katılımı oyunlaştırma başlığı altında araştırılmıştır. Çalışmanın araştırma boyutu kavramsal ve uygulamaya dönük tartışmaların ele alındığı sistematik bir alanyazın taraması olarak desenlenmiştir. Sistematik alanyazın taraması, önceden belirlenmiş araştırma sorularını protokollerde belgelenen yöntemleri kullanarak ve bulgularını güvenilir çalışmalara dayandırarak ön yargıyı en aza indirmeyi amaçlayan bir araştırma desenidir (Lasserson vd., 2019: 3). Sistematik alanyazın taramasının genel özellikleri, bir araştırma sorusunun önceden belirlenmesi; incelemenin kapsamı ve hangi çalışmaların araştırmaya dahil edilmeye uygun olduğu konusunda netlik, ilgili tüm çalışmaları bulmak ve dahil edilen çalışmalarda ön yargı konularının hesaba katılmasını sağlamak için her türlü çabayı göstermek; ve tespit edilen tüm araştırmalara dayalı olarak tarafsız ve nesnel bir şekilde sonuçlar çıkarmak için dahil edilen çalışmaları analiz etmektir (Lasserson vd., 2019: 4). Ulaşılan bulgular ve sonuçlar güncel eğilimler bağlamında ortaya

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konulmuştur. Çalışmayla birlikte uzaktan eğitimde oyunlaştırma potansiyelini kullanmak isteyen araştırmacılara, tasarımcılara ve yöneticilere temel düzeyde kavramsal bir rehber oluşturulması amaçlanmıştır.

Anahtar Kelimeler: *Oyun Kültürü, Oyunlaştırma, Açık ve Uzaktan Öğrenmede Oyunlaştırma, Teoriden Pratiği Güncel Eğilimler.*

GİRİŞ

Bilgi teknolojilerinin ve internetin geniş kitlelere yayılmasıyla birlikte bilgiye ulaşmada yeni bir döneme girildiği söylenebilir. Yeni döneme geçişi hızlandıran bir başka olay ise, Covid-19 pandemisinin dünyayı derinden etkilemesidir. Dünyada ve ülkemizde açık ve uzaktan öğrenenlerin sayısının oldukça fazla olduğu görülmektedir. Bununla birlikte, örgün eğitim gören öğrenenler de Covid-19 döneminde uzaktan öğrenen niteliği kazanmıştır. Öğrenenlerin dikkatlerinin, motivasyonlarının, katılımlarının ve ilgilerinin bu yeni durumdan olumsuz etkilendiği söylenebilir. Öğrenme içerik sunum çeşitlerinin arttığı, yeni nesil öğrenme ortamlarının ortaya çıktığı, öğrenmeyi eğlenceli ve keyifli hale getiren uygulamaların fazlaca olduğu bir dönemde bu zorlukların teoriden pratiğe çözümlerle aşılabileceği düşünülmektedir.

Oyun ve oyunlaştırma, eğlence başta olmak üzere farklı sektörlerde en sık işlenen konulardan biridir. Oyunlaştırma üzerine yapılan çalışmalar incelendiğinde, farklı disiplinlerdeki alanların kapsamına girdiği görülmektedir (Web of Science, 2021). Web of Science veritabanına (2021) göre, oyunlaştırma en fazla eğitim alanında kullanılmaktadır.

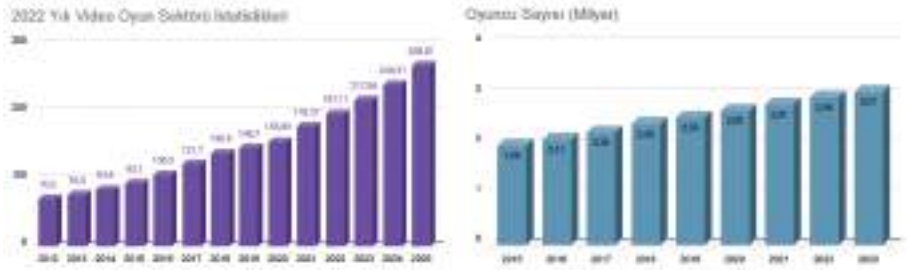
Teoriden pratiğe güncel eğilimlerin incelendiği bu çalışmada, insan yaşamının ayrılmaz bir parçası olan oyun kültürüne, oyunlaştırmaya, açık ve uzaktan öğrenmede oyunlaştırmaya ilişkin kavramlar açıklanmıştır. Sistematik alanyazın taraması kapsamında oyunlaştırma kullanımında sıkça kullanılan kavramlar incelenmiş ve ayırt edici özellikleri belirlenmiştir.

Oyun Kültürü

Oyun tarihinin ve kültürünün 5000 yıllık bir geçmişi olduğu yapılan kazılarda ortaya çıkmıştır (Lorenzi, 2013). İnsan yaşamının bir parçası olan oyunlar, kültürel değerlerin yansıması olarak değerlendirebilir. Oyunlar bir toplumun değerlerinin somutlaştığı ve aktarıldığı bir yer anlamına gelir. Oyunlar kültürel değerleri ve ideolojileri açık bir şekilde yansıtmasına rağmen, yalnızca pasif bir görev almazlar. Oyunlar bir kültürün değer sistemini aşılamaya ve güçlendirmeye katkı sağlar (Salen ve Zimmerman, 2004). Bir başka ifadeyle oyun kültürü: Tarihle, kültürle, sanatla, teknolojiyle ve en önemlisi insan yaşanmışlıklarıyla gelişen bir yapı olarak tanımlanabilir. Her geçen gün farklı bir yapıya bürünen oyun kültürü, geçmişten günümüze ve hatta geleceğe emin adımlarla ilerlemektedir.

Statista (2021)'nın verilerine göre, Video oyun sektörü 2012-2021 yılları arasında artan bir seyir izlemiştir. Raporun devamında, yıllara göre oyuncu sayısı incelendiğinde, oyuncu sayısının her geçen gün arttığı gözlenebilir. Bu bilgiler ışığında, video oyun

sektörünün büyümesiyle birlikte oyun kültürünün etki alanın da artmaya devam edeceğini söylemek istatistiklere göre doğru olacaktır.



***Şekil 1.1** ve **Şekil 1.2** Yıllara göre Video Oyun Sektörü İstatistikleri ve Oyuncu Sayısı Rakamları (Statista, 2021)*

Oyunlaştırma

Oyunlaştırma üzerine yapılan birçok tanım bulunmasına rağmen, Deterding ve diğerlerinin (2011) yaptığı tanım en anlaşılır olanlarından biridir: Oyun tasarım ögelerinin oyun dışı alanlarda kullanılmasıdır. Başka bir ifadeyle oyunlaştırma, oyun dışı ortamlarda oyun tasarım felsefesinin, ögelerinin ve mekaniklerinin uygun bir şekilde uygulanması olarak tanımlanabilir.

Öğrenenlerin belirli konularda öğrenmelerini kolaylaştırmak için oyunlaştırma uygulamalarınının tasarımında farklı modeller ve kuramlar kullanılabilir. Oyunlaştırma tasarımında alanyazında sıkça kullanılan kuramlardan bazıları şöyledir: Öz belirleme kuramı, Teknoloji kabul modeli, Planlı davranış kuramı, Akış kuramı ve Sosyal etki kuramı.

Oyunlaştırma kuramları ile birlikte kullanılacak bir başka unsur ise oyunlaştırma modelleridir. Oyunlaştırma tasarımında sıkça kullanılan modeller arasında Kevin Werbach ve Hunter'ın (2012) D6 Tasarım Modeli, Yu-Kai Chou'nun (2013) geliştirdiği Octalysis modeli, Al Marshedi, Wanick Viera ve Ranchhod'un (2015) Sürdürebilir Oyunlaştırma Etki Çerçevesi ve Marczewski'nin (2015) Oyunlaştırma Çerçevesidir.

Oyunlaştırma tasarımlarının ve kuramlarının uygulanacağı hedef kitlenin belirlenmesi gerekir. Oyuncuların özelliklerini tanımak ve sınıflandırmak için alanyazında önemli çalışmalar yapılmıştır. Bu çalışmalardan bazıları: Bartle'ın(1996) oyuncu sınıflandırması, Nacke, Bateman ve Mandryk'in (2014) Brainhex modeli, Marczewski'nin (2015) oyuncu ve kullanıcı tipleri, Vahlo ve diğerlerinin (2017) oyuncu tipleri sınıflandırması öne çıkmaktadır.

Oyunlaştırmada oyuncu özelliklerinin bilinmesi, oyunlaştırma uygulamalarına ve hedef kitleye uygun tasarımların geliştirilmesine yardımcı olabilir. Oyunlaştırma aşamalarından bir diğeri ise oyunlaştırma ögeleridir. Oyunlaştırma ögelerini detaylı bir şekilde inceleyen Werbach ve Hunter (2012) oyunlaştırma ögelerinin hiyerarşisi belirlemiştir. 'Club Psych' isimli oyunlaştırılmış web sitesinde yüzü aşkın incelemede bulunmuşlar ve bu hiyerarşiyi ortaya koymuşlardır.

Açık ve Uzaktan Öğrenmede Oyunlaştırma

Açık ve uzaktan öğrenmede kullanılan oyunlaştırma uygulamalarının ve çalışmalarının sayısı her geçen gün artmaktadır. Dil eğitimi, kodlama, sağlık, müzik vb. farklı disiplinlerde eğitim amacıyla oyunlaştırma çalışmaları yapılmaktadır. Açık ve uzaktan öğrenmede kullanılan pek çok öğrenme uygulaması ve yöntemi vardır. Yer, zaman ve mekan tanımlarının kalktığı günümüzde geniş kitlelerin öğrenmesi için kullanılabilecek araç çeşitliliğinden öğrenene en uygun olan seçilmelidir. Öğrenme yönetim sistemlerinden mobil uygulamalara, sanal gerçeklikten bulut destekli sistemlere kadar farklı uygulamalar kullanılabilir.

YÖNTEM

Kavramsal ve uygulamaya dönük tartışmaların ele alındığı bu çalışmada sistematik alanyazın taraması kullanılmıştır. Covid-19 pandemi döneminde öğrenme yönetim sistemlerinin ve farklı öğrenme araçlarının kullanımının arttığı söylenebilir. Teoriden pratiğe güncel eğilimleri öğrenmek için 2020-2022 yılları arasında Web of Science veritabında 'gamification' ve 'distance education' sorgusu kullanılarak arama yapılmıştır.

Araştırmaların derlenmesi için bazı kritirler belirlenmiştir: 1-) çalışmaların açık ve uzaktan öğrenme ile ilgili ve 2020-2022 yılları arasında yapılmış olması, 2-) çalışmaların nitel araştırma yöntemlerine başvurularak yapılmış olması, 3-) yükseköğretimde yapılan araştırmalar olması şeklindedir. 2020 yılı ve sonrasındaki çalışmaların derlenmiş olmasının sebebi ise, Covid-19 pandemi sürecinde oyunlaştırma alanında açık ve uzaktan öğrenmeye katkı sağlayacak disiplinlerarası çalışmaların yapılmış olabileceği öngörülmüştür. Arama kriterlerine uygun 50 makale incelenmiş, ancak araştırma amacına uygun toplam 11 makale incelenerek tamamlanmıştır.

BULGULAR

Çalışma kapsamında 2020-2022 yılları arasında Web of Science veritabında yayınlanan toplam 11 çalışmanın; oyunlaştırma kuramları, modelleri, yöntemleri, oyunlaştırma ögeleri ve araştırma sonuçları aşağıdaki tabloda özetlenmiştir (Tablo 1).

Tablo 1. *Oyunlaştırma Araştırmalarında Kullanılan Kuramlar ve Modeller, Oyunlaştırma Ögeleri ve Sonuçları*

Araştırma	Oyunlaştırma Kuramları ve Modelleri	Yöntem	Oyunlaştırma Ögeleri	Araştırma Sonucu
Denden ve diğerleri (2022)	Teknoloji Kabul Modeli ve Beş Faktör Kişilik Kuramı	Nicel	Puan, Seviye Sistemi, Rozetler, Avatarlar, Liderlik Tablosu, Geri Bildirim, İlerleme Çubuğu, Sohbet Odası	Kullanışlılık, dışa dönüklük, nevrotiklik ve açıklık gibi davranışsal tutumların oyunlaştırılmış öğrenme ortamının kullanımını etkilemiştir.
Ghai ve Tandon (2022)	Mayer'in Çoklu Ortam Tasarım İlkeleri ve Öz Belirleme Teorisi	Karma	İlerleme Çubuğu, Liderlik Tablosu, Puan, Rozetler, Başarımlar	Oyunlaştırma ögeleri, oyun dinamikleri ve oyun mekaniği çok boyutlu yapısını doğrulamıştır. Öğretim tasarımı, oyunlaştırma ve e-öğrenmenin kullanılabilirliği arasındaki ilişkiye kısmen aracılık ettiği belirlenmiştir.
Bovermann ve Bastiens (2020)	Öz Belirleme Teorisi	Nicel	Forum, Wiki, Quiz, Akran Değerlendirmesi, Görevler, Seviye Sistemi	Beş oyuncu türünün en az bir öğrenme etkinliğiyle ilişkili olduğu gözlemlenmiştir. Kişi ve çevre merkezli bakış açıları oyuncu türleriyle eşleştiği belirlenmiştir.
İnangil ve diğerleri (2022)	ARCS Motivasyon Modeli	Nicel	Kahoot, Puan, Liderlik Tablosu	Deney grubu öğrencilerinin motivasyon alt boyutları puanlarının daha yüksek olduğu belirlenmiştir.
Mystakidis (2020)	Öğrenci Katılım Taksonomisi	Nitel	Hikaye, Görevler, Puan, Karakter Seçimi, Wiki, Blog	Yapay zeka ajanlarının VR'a entegre edilmesinin öğrenen katılımına etki ettiği gözlemlenmiştir.
Velaora ve diğerleri (2022)	ARCS Motivasyon Modeli ve Malone Motivasyon Modeli	Nicel	Simülasyon ve sanal yaklaşımlar, oyun tabanlı yaklaşım, asenkron videolar	Uzaktan öğrenenlerin dikkat, ilgililik, güven ve memnuniyet düzeylerinin olumlu yönde etkilendiği sonucuna varılmıştır.

Özhan ve Kocadere (2020)	Akış Kuramı, ARCS Motivasyon Modeli ve Duygusal Katılım	Nicel	Liderlik Tablosu,Takımlar, Başarımlar, Puan, İçerik Açma, Boss savaşı, Seviye Sistemi, Koleksiyon.	Oyunlaştırılmış öğrenme ortamında akış deneyiminin ve duygusal katılımın motivasyon üzerinde oldukça önemli bir etkiye sahip olduğu belirlenmiştir.
Panis ve diğerleri (2020)	Oyunlaştırılmış Probleme Dayalı Öğrenme Tasarım Modeli	Nicel	Başarımlar, Avatarlar, Rozetler ve Liderlik Tablosu.	Teori ve uygulamanın etkililiği ve çekiciliğinin mükemmel sonuçlar gösterdiği Oyunlaştırılmış Probleme Dayalı Öğrenme Tasarım Modelinin uygulanabilir olduğu sonucuna varılmıştır.
Palaniappan ve Noor (2022)	Öz Yönetimli Öğrenme Modeli	Nicel	Quizler, Videolar, Görevlendirme, Puan, Rozetler ve Liderlik Tablosu.	Çevrimiçi öğrenme ortamında kullanılan oyunlaştırma stratejisinin kullanılmasından sonra öğrenenin akademik başarısı önemli ölçüde artmıştır.
Bai ve diğerleri (2022)	(GAFCC-F) modeli	Karma	Level-Up eklentisi, Seviye Sistemi, Rozetler, Görevlendirme, Quizler, Puan, Forumlar, Hikayeleştirme	GAFCC-F grubundaki katılımcılar, GAFCC grubundan daha yüksek öğrenme performansı göstermiştir.
Krishnan ve diğerleri (2022)	Tasarım ve Geliştirme Araştırması, ADDIE Modeli	Nitel	Classcraft, Görevlendirme, Seviye Sistemi, Performans Grafikleri, Avatarlar, Puanlar, Sertifikalandırma, Quiz, Tartışma Forumu	Çevrimiçi oyunlaştırılmış öğrenmeyi Classcraft entegrasyonu ile kullanan İngilizce öğretmenlerinin yetkinliklerini artırdığı gözlemlenmiştir.

Tablo 1. incelendiğinde, oyunlaştırma araştırmalarında farklı oyunlaştırma modellerinin kullanıldığı görülmektedir. Araştırmacılar çoğunlukla oyunlaştırma çalışmalarında puanlara ve liderlik tablolarına başvurmuştur.

TARTIŞMA VE SONUÇ

Bu çalışmada, açık ve uzaktan öğrenme süreçlerinde teoriden pratiğe oyunlaştırma araştırmaları incelenmiştir. Teoriden pratiğe yapılan araştırmalar, iyi tasarlanmış ve uygulanmış oyunlaştırmanın etkili sonuçlar verdiği yönündedir. Disiplinlerarası kuramlar ve modeller oyunlaştırma süreçlerinde kullanılabilir. Farklı oyunlaştırma araçları, uygulamaları ve ögeleri öğrenme hedeflerine dahil edilebilir.

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Uzaktan Eğitim Sistemi Üzerinde Global Ölçekli Salgının Yarattığı Dönüştürücü Etkiler ve Anadolu Üniversitesi Açıköğretim Fakültesi Modeli

Esra FIRATLI TÜRKER[1]

Özet

Koronavirüs salgını 2019 yılının sonlarında ortaya çıkarak dünyanın her yerinde sağlık başta olmak üzere demografik, ekonomik, sosyolojik, psikolojik, pedagojik bakımdan önemli değişimlere neden olmuştur. Global ölçekli bu salgın sürecinden etkilenen alanlardan biri de kuşkusuz eğitim sistemleridir. Yakın geçmişte gerçekleşmesi zor veya olanaksız olarak değerlendirilebilecek olan bazı deneyimler, 2020 yılının başından itibaren istisnasız tüm dünyada aniden yaşanmaya başlanmıştır. Pandemi kapsamında, dünya genelinde ortaya çıkan bu kriz durumunun yol açtığı kısıtlamalar doğrultusunda yüz yüze eğitim yürütülememiştir. Ortaya çıkan yeni ihtiyaçlara ve taleplere paralel olarak eğitim alanında ivedilikle uzaktan öğretim faaliyetlerine yönelinmiştir. Dünya genelinde, milyonlarca öğrenen uzaktan eğitim yoluyla eğitim görmeye başlamıştır. Değişen koşullar gereği açık ve uzaktan eğitim kavramının kapsamına çevrimiçi, zorunlu ve acil tanımlamaları da eklenmiştir. Bu bağlamda farklı seviyelerde ve tarzlarda uygulanan uzaktan eğitim, çoğu eğitim paydaşı tarafından bilinmezken, birden hayatın içine girerek vazgeçilmez bir konum kazanmıştır. Bu nedenle salgınla birlikte gelen sosyal izolasyon döneminde, öğrenenlerin uzaktan eğitime karşı yaklaşımlarında da önemli değişimler yaşanmıştır. Global ölçekteki bu beklenmedik ve hazırlıksız yakalanılan salgın sürecinde, Türkiye'de de bütün öğretim kademelerinde yüz yüze eğitime ara verilmiştir. 15 Mart 2020 tarihinde Kovid-19 salgını nedeniyle yüz yüze eğitim faaliyetleri durdurulmuştur. Uzaktan eğitim süreci başlatılarak ülke genelinde tüm öğrenciler için uzaktan eğitim sisteminin olanakları seferber edilmiştir.

Anadolu Üniversitesi Açıköğretim Sistemi tarihi gelişimiyle sadece ülke genelinde değil, dünya çapında özgün bir örnek model teşkil etmektedir. Sistem, kurulduğu yıldan günümüze gelene kadar dönemin güncel imkânlarını ve teknolojik unsurlarını öğrenenlerin hizmetine sunmayı hedeflemiştir. Açıköğretim sistemi öğrenen merkezli, esnek, erişilebilir ve teknoloji destekli niteliğini korumayı sürdürmüştür. Mega üniversite olarak uzaktan eğitim destek sistemleri ve yaşam boyu öğrenme olanaklarıyla öncü rolünü korumaktadır.

Bu araştırmada öğrenenlerin maruz kaldığı eğitsel kriz ortamında dahil oldukları uzaktan eğitim sistemine ilişkin genel düşünceleri belirlenmeye çalışılmıştır. Bu doğrultuda pandemi sürecinde öğrenenlerin uzaktan eğitim alanında karşılaştıkları yeni durumların tespit edilmesi ve bu olguların değerlendirilmesi amaçlanmaktadır. Araştırmada amaca yönelik verilerin elde edilebilmesi için nitel araştırma yöntemi çerçevesinde durum çalışması deseni kullanılmıştır.

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Araştırma bulguları, salgın döneminde öğrenenlerin uzaktan eğitim alanında gerçekleştirilen uygulamalar hakkında çoğunlukla olumlu düşündüklerini göstermektedir. Öğrenenlerin aktardıkları olumsuz görüşlerin neden kaynaklandığı hakkında bilgi edinebilmek için, nitel araştırma yönteminin sağladığı olanaklardan yararlanmaya çalışılmıştır. Araştırma sonucunda, çalışma kapsamında elde edilen bulgular ışığında, yüksek öğretim kurumları tarafından gerçekleştirilen uzaktan eğitim faaliyetleri için çeşitli önerilerde bulunulmuştur.

Anahtar Kelimeler: *Kovid-19 Salgını, Uzaktan Eğitim, Anadolu Üniversitesi Açıköğretim Sistemi, Durum Çalışması.*

GİRİŞ

Birkaç cümle ile kısaca pandeminin başlangıcına değinmek gerekirse, Koronavirüs salgını ilk kez 2019 yılının Aralık ayında Çin'in Hubei bölgesinin Wuhan kentinde görülmüştür. Dünya Sağlık Örgütü 7 Ocak 2020 tarihinde, başlangıçta SARS virüsüne benzetilen Koronavirüsün, korona ailesinden yeni bir virüs olduğunu açıklamıştır. 30 Ocak 2020 tarihinde hastalığı "Uluslararası Boyutta Halk Sağlığı Acil Durumu" olarak ilan edilmiştir. Virüs, 2020 yılının ilk aylarından itibaren hızla yayılarak başta Avrupa ülkeleri olmak üzere tüm dünya ülkelerini farklı yönlerden etkisi altına almıştır. Dünya Sağlık Örgütü tarafından 11 Mart 2020 tarihinde yaşanan bu global ölçekli durum "küresel salgın (pandemi)" olarak nitelenmiştir. Virüs dünya genelinde birçok ülkede farklı tarihlerde ortaya çıkmış ve her ülke hastalığa karşı korunma amaçlı çeşitli tedbirler almaya başlamıştır.

Pandeminin etkilerini azaltmak amacıyla uygulanan zorunlu karantina süreleri, sokağa çıkma yasakları, ülkeler arası giriş-çıkışların durdurulması, şehirlerarası seyahat kısıtlamaları, kalabalık ortamlarda fiziksel mesafenin korunamaması sebebiyle virüs bulaşma tedirginliği gibi etkenler, bireylerin davranışlarında ve yaşamsal pratiklerinde belirgin değişimleri beraberinde getirmiştir. Dünya genelinde pek çok alanda köklü değişimlere neden olan salgın süreci, eğitim alanındaki uygulamaları da kaçınılmaz şekilde etkilemiştir.

Salgının hızla yayılmasıyla gündeme gelen sokağa çıkma yasakları sonucu insanların evlere kapanmasıyla, teknolojinin sağladığı olanaklardan yararlanma ihtiyacının giderek arttığı gözlemlenmiştir. Günümüzde teknoloji, yaşamımız içinde geçmişle kıyaslandığında çok daha önemli bir konumdadır. Bilişim çağındaki hızlı yenilikler, teknoloji kullanımındaki hızlı gelişmeleri de beraberinde getirmiştir. İnternet kullanım yoğunluğu kayda değer oranda artmıştır. Günümüzde toplumun neredeyse her kesimi tarafından yaygın halde kullanılan internetin insanların yaşam biçimleri, davranışları, tutumları, alışkanlıkları ve tercih biçimleri üzerinde farklılaştırıcı etkisi olmuştur. Bu dijital dönüşümün etkileri, salgının yarattığı dönüştürücü etkilerle birleşerek yaşanan süreci bireylerin yaygın alışkanlıklarının epey dışında bir noktaya taşımıştır. Eğitim-öğretim sistemini yeniden yapılandırırken, eğitim paydaşlarının ve profesyonellerinin temel gereksinimleri göz önünde tutulmalıdır. Teknolojik olanakların sağladığı dönüşümlerle, bilgiye ulaşım kolaylaşmıştır. İhtiyaçlar doğrultusunda yeni eğitim ve öğrenme biçimlerinin üretilmesi, öğrenmeyi kolaylaştırmak için de yeni yöntemlerin

araştırılmasını gerektirir. Kullanıcı sayısı her geçen gün artan internet erişimiyle ve ortaya çıkan pandemiyle beraber, uzaktan eğitim, zorunlu ve acil olarak yararlanılan bir seçenek haline gelmiştir.

Eğitimin uygulanma şekli ne olursa olsun, öğrencilerden mezun olduklarında aynı bilgi ve beceri seviyesinde olmaları beklenmektedir. Uzaktan eğitim uygulamalarındaki etkileşim eksikliği teknolojik desteklerle giderilmeye çalışılmaktadır. Uzaktan eğitim sisteminin sağladığı olanaklar, eğitim için fizikî mekân ön koşulunun, başka bir ifadeyle "okul, sınıf veya amfi ortamı gereklidir" genellemesinin değişmesine yol açmıştır. Teknolojik gelişmeler sayesinde bilgi kaynakları herkes için daha kolay ulaşılabilir olmuştur. Böylelikle herkese açık olan ders malzemelerinin paylaşılabildiği elektronik bir ortam sunulmaktadır. Eğitimciler hiçbir karşılık beklenmeden, hazırladıkları ders malzemelerini öğrenenlerin kullanımına açmaktadır. Bu durum, teknolojik altyapıya sahip olma şartını taşıyan öğrenenlere eğitimde fırsat eşitliğini ve yaşam boyu öğrenme imkânını tanıtmaktadır.

Uzaktan eğitim, teknik ve içerik bağlamında çeşitlilik arz eden sistemleri bütünleştirebilen bir yapıya sahiptir. Bu kapsamlı kavram dijital öğrenme, e-öğrenme, çevrimiçi eğitim, mobil öğrenme nitelemeleriyle adlandırılarak günümüz teknolojilerinden destek alan formatları bir araya getirmektedir. Çevrimiçi kavramı ilk kez 1990'lı yılların ortasında öğrenme yönetim sistemi kurulduğunda kullanılmıştır. Eğitim içeriklerinin ve derslerin çevrimiçi olarak uzaktan sunulmasıyla birlikte teknoloji, senkron/asenkron öğrenme, fiziksel uzaklık gibi kavramlarla ilişkilendirilmiştir. Yapılan çalışmaların odağında ise öğretmen ve öğrenci arasındaki iletişimi etkinleştirmek için çevrimiçi uygulamalardan faydalanılması bulunmaktadır. Uzaktan eğitim-öğretim sistemlerinin erişilebilirliği ve kullanılabilirliği yükseköğretim kurumları için önemli bir alternatif haline gelmiştir.

Kovid-19 pandemisi yükseköğretimde uzaktan eğitim sistemlerinin gerekliliğini çarpıcı bir biçimde ortaya çıkartmıştır. Alınan karantina, izolasyon, fiziksel mesafe ve sosyal etkileşime ilişkin kısıtlama kararları, beklenmedik bir anda yüz yüze eğitimden uzaktan eğitime geçişi zorunlu hale getirmiştir. Yükseköğretim kurumları toplantıları, dersleri, seminerleri, sunumları, sınavları çevrimiçi haline getirmek durumunda kalmıştır. Bu süreç aynı zamanda, yükseköğretimin başvurduğu uzaktan eğitimin kalitesini çeşitli yönleriyle değerlendirmesini sağlamıştır. Yapılan çalışmalar genellikle çevrimiçi uygulamaları etkileyen kritik konuları incelemeye yoğunlaşmıştır. Yükseköğretimde çevrimiçi öğretim ve öğrenmenin geleceğinin olup olmadığına ilişkin süregelen tartışmalar bir anda geçerliliğini yitirmiştir. Pandemiyle birlikte oluşan anî değişimler karşısında geçmişteki tartışmalar yerini üniversitelerde uzaktan eğitimin nasıl yürütülebileceği arayışlarına odaklanmaya bırakmıştır.

Salgının, hayatın birçok alanını etkilediği gibi eğitim alanını da derinden etkilediği söylenebilir. 16 Mart 2020 tarihinden itibaren Milli Eğitim Bakanlığı (MEB) tarafından okullar tatil edilmiştir. Sokağa çıkma yasakları ve kısıtlamaları doğrultusunda MEB tarafından bütün okullarda yüz yüze eğitime ara verilip, uzaktan eğitime başlanmıştır. 23 Mart 2020 Pazartesi gününden itibaren uzaktan eğitime Eğitim Bilişim Ağı (EBA) canlı ders uygulamaları ve TRT EBA TV aracılığı ile başlanacağı açıklanmıştır.

Türkiye'de okulların kapanması kararı doğrultusunda MEB, dijital eğitim platformu olan EBA'nın ve TRT'nin işbirliğiyle uzaktan eğitime geçilmiştir.

İlk ve orta öğretim kurumları için Milli Eğitim Bakanlığı'nın yaptığı gibi; üniversiteleri ilgilendiren açıklamalar ve alınan kararlar Yükseköğretim Kurulu tarafından kamuoyuyla paylaşılmıştır. Bu doğrultuda Türkiye'deki birçok devlet ve vakıf üniversiteleri tarafından kendi öğretim platformları vasıtasıyla uzaktan eğitim süreci başlatılmıştır. Zorlayıcı koşullar dahilinde aniden verilen kararların ardından karşılaşılan özel durumların ve gerçekleştirilen öğretim sürecinin çeşitli aşamalarının gözden geçirilmesi gerekmiştir.

Uzaktan eğitim sistemi üzerinde global ölçekli salgının yarattığı dönüştürücü etkilerin araştırılmasına gereksinim duyulmaktadır. Bu durum uzaktan eğitimin farklı yönleriyle değerlendirilmesini sağlayabilir. Öğrenenlerin uzaktan eğitim hakkında çok farklı düşüncelere sahip oldukları gözlemlenmiştir. Bu düşüncelerden yola çıkılarak bu çalışmanın amacı, salgın sürecinde öğrenenlerin uzaktan eğitime ilişkin düşüncelerinin ve bakış açılarının araştırılmasıdır.

Koronavirüs salgını sürecinde üniversitelerin uzaktan eğitime adaptasyon başarılarının önceden oluşturdukları dijital alt yapıları ve teknik kapasiteleriyle doğrudan ilişkili olduğu ifade edilebilir. Bu bağlamda öğrenenlerin pandemi nedeniyle dahil oldukları uzaktan eğitim sistemleri ve çevrimiçi uygulamalar hakkındaki görüşlerinden elde edilecek veriler değerlendirilerek ortaya gerçekçi bir tablo sunulabilir. Böylelikle pandemi sonrasındaki dönemler için üniversitelerin uzaktan eğitim sistemlerinin işlevselliğine yönelik planlamalar yapılabilir.

Kovid-19 Döneminde Türkiye'deki Uzaktan Eğitim Süreci

11 Mart 2020 tarihinde Koronavirüsün Sağlık Bakanlığı tarafından Türkiye'de tespit edildiği açıklanarak, virüsün Türkiye'ye girmiş olduğu resmi kaynaklar tarafından ifade edilmiştir. Türkiye'de ilk vaka görüldükten sonra virüsle mücadele çalışmaları kapsamlı bir şekilde yapılmaya çalışılmıştır. Sağlık Bakanlığı'nın yönetiminde oluşturulan Bilim Kurulundaki akademisyenlerin ve uzmanların tavsiyeleri doğrultusunda, hastalığı önleyebilmek, yayılımını engelleyebilmek ve ölüm oranlarını azaltmak amacıyla hayati tedbirler alınmıştır. Uluslararası yolculukların durdurulması, havalimanlarının kapatılması, garlarda, otogarlarda müşteri kabulünün sınırlandırılması, toplu taşımada bazı kısıtlayıcı tedbirler alınması, sinema ve tiyatro salonlarının yanı sıra spor salonlarının faaliyetlerinin durdurulması, restoranların sadece gel-al servisleri ve evlere gönderim yapmaları, alışveriş merkezlerinde HES (Hayat Eve Sığar) kodlarının sorgulanması, ateş ölçümlerinin gerçekleştirilmesi, kapalı mekanlarda maske kullanımı zorunluluğu gibi tedbirler getirilmiştir.

Salgının neden olduğu ekonomik, çevresel, sosyal, fiziksel ve psikolojik etkenler doğrultusunda toplumsal açıdan önemli dönüştürücü etkiler gerçekleşmiştir. Bu dönemde, uzaktan eğitim sistemine yönelik önemli bir talep artışı olmuştur. Ayrıca, toplumda uzaktan eğitim hizmetlerinin önemi yeniden değerlendirilmeye ve anlaşılmaya başlamıştır. Salgın, uzaktan eğitimde sadece niceliğin değil, aynı zamanda niteliğin de önemli olduğunu göstermiştir. Salgının başlangıcından itibaren eğitim ve öğretim faa-

liyetlerinin her kademesinde çoğunlukla ilk kez yaşanan bu deneyimlerin nasıl anlamlandırıldığı, salgının yarattığı dönüştürücü etkileri belirlemesi açısından önemlidir.

Koronavirüs salgını, Türkiye'de uzaktan eğitim sisteminin içerik, altyapı, tasarım, erişim, uygulama, güvenlik ve mevzuat açıdan güçlendirilmesi gerektiğini göstermektedir. Bu noktada alanın öncülüğünü yapan akademik birikimden yararlanabilmek gerekmektedir. Salgınının başlangıcından günümüze kadar yaşanan bu zorlu süreçte, Kovid-19 ve eğitim bağlamında yaşanan yeni normal anlayışıyla Türkiye'deki mevcut uzaktan eğitim sistemini değerlendirme fırsatı yakalanmıştır. Bu sayede uzaktan eğitimin hangi alanlarında eksiklik olduğunun görülmesine ve elde edilen verilere göre araştırmalar yapılmasına katkı sağlanmaktadır.

Türkiye'de uzaktan eğitim sistemiyle ilgili olarak gerçekleştirilen çalışmaların ve uygulamaların kullanılması noktasında yapılanların zorunluluk ve aciliyet nedeniyle hayata geçirildiği gözlemlenmektedir. Koronavirüs ve uzaktan eğitim perspektifinde; salgından eğitimin temel özneleri olan öğrenenlerin nasıl etkilendikleri, salgın sürecini nasıl gördükleri, uzaktan eğitim uygulamaları hakkındaki görüşlerinin ve bakış açılarının neler olduğu, yeni normale nasıl uyum sağladıkları unsurlarının belirlenebilmesi araştırmanın önemini arttırmaktadır.

Yükseköğretim Kurulu, ilk olarak üniversitelerin 16 Mart 2020 tarihinde üç hafta tatil edildiğini duyurmuştur. Daha sonra üniversitelere derslerin uzaktan eğitimle gerçekleştirilmesi yönünde talimat verilmiştir. 2019-2020 eğitim-öğretim yılı bahar döneminde örgün eğitim yapılmayacağı açıklanmıştır. YÖK'ün almış olduğu kararlara göre, üniversitelerin 23 Mart 2020 tarihi itibarıyla olanakları doğrultusunda (uzaktan eğitim kapasitesine sahip olan bütün üniversitelerde dijital imkânlarla uzaktan öğretim süreci gerçekleştirilecektir) uzaktan eğitime başlamaları gerektiği belirtilmiştir.

Bu konuda YÖK Başkanının yapmış olduğu basın açıklamasının bir bölümü aşağıda verilmiştir (Saraç, 2020):

- Bu kapasiteye henüz sahip olmayan üniversitelerimiz için de yine aynı gün, 23 Mart tarihinde kısa süre içinde oluşturduğumuz açık ders malzemeleri havuzu bütün üniversitelerimize açılacaktır.
- Uygulamaya dayalı programlarda bulunan teorik derslerde dijital imkânlar ve uzaktan öğretim yöntemleri kullanılacak, uygulama dersleri ise yine üniversitelerimizce belirlenen takvimin uzatılması da dâhil en uygun zamanda verilecektir.
- Önlisans ve lisans düzeyindeki bu uygulama ve yaklaşıma, lisansüstü düzeyde de imkân tanınacak; denetlenebilir olma kaydıyla uzaktan öğretim ve dijital imkânlar kullanılarak bu süreçlerde de bir kesinti olmaması sağlanacaktır."

Yükseköğretim Kurulu Başkanı Saraç (2020) tarafından yapılan açıklama kapsamında; "Üniversitelerin senkron (eş zamanlı) ya da asenkron (eş zamanlı olmayan) uzaktan öğretim yöntemlerini kullanabilecekleri" vurgulanmıştır. Bu kararlar doğrultusunda ülke çapındaki tüm üniversitelerde yürütülen derslerin uzaktan eğitim yöntemiyle devam ettirilebilmesi için çalışmalar yapılmıştır. Birçok üniversite uzaktan eğitim sistemine yönelik çalışmalarını hızla tamamlamıştır. Bu sayede 23 Mart 2020 tarihinde

dersler uzaktan eğitim yöntemiyle verilebilmiştir. Ülke genelinde 123 üniversitede UZEM (Uzaktan Öğretim Uygulama ve Araştırma Merkezi) bulunmaktadır. Üniversiteler, olanaklarının elverdiği oranda "senkron", "asenkron" veya "hem senkron hem de asenkron" uzaktan eğitim yöntemlerini kullanabilmişlerdir. Altyapısı yetersiz üniversitelerde ise eksiklerin giderilmesi konusunda çalışmalar yapılmıştır. YÖK başkanı tarafından "Uzaktan eğitim sistemini kullanacak olan öğretim elemanlarıyla birlikte öğrencilerin eğitimlerinin de gerçekleştirilmesi gerekmiştir" bilgisi aktarılmıştır.

Yükseköğretim Kurulu Başkanı tarafından 18 Mart 2020 tarihinde yapılan basın açıklamasında ise "Kurulumuz tarafından üniversitelerimizde uzaktan öğretimin uygulanması sürecinde gerekli yol haritası belirlenmiş ve çerçeve çizilerek yetki devri kapsamında ve üniversitelerimize yetkinlikleri doğrultusunda uygulama imkânı sağlanmıştır. Kurulumuz bu süreçte etkin koordinasyon ve denetleme görevini yapmaya devam edecek olup ihtiyaç oldukça yeni düzenlemeler de yapılacaktır. YÖK'ün son yıllarda çok hızlı karar alabilme ve çevik yönetim sergileyebilme kapasitesi yüksek bir kurum halini almış olması, bu süreci kolaylaştırıcı bir unsurdur" ifadeleri dikkat çekmektedir.

YÖK (2020b) 3 Mayıs 2020 tarihinde resmî sitesinde uzaktan eğitim uygulamalarına ilişkin yayınladığı durum tespitinde 127 devlet üniversitesinin ve 62 vakıf üniversitenin rektörlüklerinden istedikleri verilerin sonuçlarını paylaşmıştır. Bu bilgilendirmeye göre, üniversitelerin uzaktan eğitime geçişlerinin oldukça hızlı gerçekleştiği, bahar dönemindeki derslerin %90,1'inin uzaktan öğretimle açıldığı, bu derslerin %22'sinde canlı sınıf uygulamalarının yürütüldüğü, uygulamalara en yoğun "sosyal bilimler" alanında geçiş sağlandığı, değerlendirme öğesinin ağırlıklı olarak ödev ve projeler aracılığı ile işletildiği, öğretim elemanı ve öğrencilere bilgilendirme ve destek hizmetlerinin sağlandığı belirtilmiştir.

YÖK tarafından Mayıs ayında, küresel Kovid-19 salgını sürecinde üniversitelerde başlatılan uzaktan öğretim süreçlerinin mevcut durumunu tespit etmek ve iyileştirilmesi faaliyetlerine katkıda bulunmak üzere bir veri analiz çalışması yapılmıştır. Çalışmada doğrudan üniversite rektörlüklerinden istenilen bilgiler sonucunda elde edilen veriler kullanılmıştır. Bu kapsamda "127 Devlet ve 62 Vakıf olmak üzere toplam 189 üniversiteden toplanan farklı alanlardaki bütün veriler değerlendirilerek analiz edilmiştir. Yapılan bu çalışma neticesinde ortaya çıkan sonuçlara göre: "Üniversitelerimiz uzaktan öğretime geçiş konusunda önemli gayretler göstermiş, birçok üniversite kısa süre içerisinde bu çalışmaları tamamlamıştır. 189 Üniversiteden 121'i (%64'ü) 23 Mart 2020 tarihinde (YÖK'ün üniversitelerde eğitime ara vermesinden bir hafta sonra), 41'i (%21,6'sı) ise 30 Mart 2020 tarihinde, 25'i ise (%13,2'si) 6 Nisan 2020 tarihinde uzaktan öğretim uygulamalarına başlamıştır". Bu sonuçlar üç aylık bir durum tespitiyle üniversitelerin çok kısa sürede uzaktan öğretime geçiş süreçlerini tamamladıklarını göstermektedir.

YÖK'ün 15 Ağustos 2021 tarihinde yaptığı basın açıklamasına göre;

Bilindiği üzere 2019 yılının sonlarında başlayan ve 2020 yılının ilk aylarına damgasını vuran COVID-19 küresel salgını ile birlikte yükseköğretim kurumlarımızda uzaktan eğitime geçilmiştir.

Uygulamalı eğitimlerin bir kısmına devam edilmesi ve özellikle harmanlanmış (hibrit) öğretimin de yaygınlaşması ile birlikte geçtiğimiz yıl "Küresel Salgında Yeni Normalleşme" çalışmaları yapılmıştır.

Salgının dinamik bir süreç olduğu göz önünde bulundurulduğunda, üniversitelerin ilgili kurulları tarafından salgının bölgesel ve yerel seyrine göre farklı programların farklı uygulamaları özelinde planlama yapılması gerektiği belirtilmiştir. Buna göre üniversitelerimizde "Koronavirüs Komisyonları" oluşturulmuş, hızlı karar mekanizmaları tesis edilmiştir.

2021-2022 Eğitim ve Öğretim döneminde, Yükseköğretim Kurulu olarak örgün programlarda "yüz yüze" eğitime başlanması için gerekli çalışmalarımız yürütülmektedir.

Salgının seyrine, alt yapı imkanları ve yerleşkelerin kapasitelerine göre, COVID-19 salgınına yönelik tedbirler kapsamında yükseköğretim kurumlarımız tarafından gerektiğinde program özelinde yüz yüze ve çevrimiçi öğretim yapılabilecektir.

Kamuoyuna saygıyla duyurulur.

Yükseköğretim Kurulu tarafından 15 Ağustos 2021 tarihinde hazırlanan "Küresel Salgında Eğitim ve Öğrenme Süreçlerine Yönelik Uygulamalar Rehberi"nde öncelikle yükseköğretim kurumlarının gözetmesi gereken bazı hususlara dikkat çekilmiştir. 2020 yılında düzenlenen kılavuzda bazı güncellemeler yapıldığı vurgulanmıştır. Kurul tarafından "Önümüzdeki dönemde artık yükseköğretimde uzaktan eğitim ve öğrenme kapsamında, uzaktan eğitim pedagojisi konusunun, gündemimizde daha fazla yer alacağı muhakkaktır" ifadesine yer verilmiştir. Kurulun hazırladığı rehberde ayrıca "Bu sürecin yükseköğretim sistemimiz açısından en önemli kazanımı, dünyanın ve ülkemizin zorlu bir süreçten geçtiği bu olağanüstü dönemde yükseköğretim kurumlarımız arasında gelişen dayanışma ve iş birliğidir. Bu bağlamda salgının devam etme temayülünde olduğu önümüzdeki dönemde de bütün kurum ve kuruluşlar arasında dayanışma ve iş birliği artarak devam etmelidir" görüşü paylaşılmıştır.

Uzaktan eğitim sisteminin uygulamaları dünyada ve Türkiye'de bir bütün olarak değerlendirildiğinde teknoloji altyapısı, yararlanılan platformlar, öğretim üyeleri ve öğrencilerden oluşan çok yönlü bir yapı olduğu görülmektedir. Global ölçekli salgının yarattığı dönüştürücü etkiler ile toplumdaki dijital dönüşüm ihtiyacına ilişkin yönelimler örtüşmektedir. Dönüştürücü etkileri olumlu hedeflere ulaşmak maksadıyla kullanabilmek için de eğitimin toplumsal işlevinin etkin çalışması zaruridir. Bu yapıların karşılıklı etkileşimi ve Kovid-19 pandemisi sürecindeki hızlı değişim ve adaptasyon gerekliliği bağlamında bir değerlendirme yapılması zorunlu hale gelmiştir. Başlatılan uzaktan eğitim süreci beraberinde pek çok avantaj getirdiği gibi kendine özgü birtakım dezavantajlar da ortaya çıkarmaktadır.

Kovid-19 Döneminde Anadolu Üniversitesi Açıköğretim Sistemi'ndeki Uzaktan Eğitim Süreci

Kovid-19 pandemi dönemi eğitimde sorunlar yaşanmasına neden olurken, eğitim sistemlerinin yeniden gözden geçirilmesini sağlamıştır. Hedeflerinden uzaklaşan veya

geçerliliği tartışılan yöntemlerin güncellenmesi için fırsat sunmuştur. Günümüzde her şeyin hızlı bir şekilde değişmesi söz konusudur. Gelişim ve değişimden anında haberdar olma gerekliliği günümüzün olmazsa olmazı haline gelmiştir. Geçmişte eksik ya da yetersiz gerçekleştirilen uygulamaların bugün daha da geliştirilerek zamana uydurulması, bilgi ve teknolojiden daha fazla yararlanılmasını gerektirmektedir.

Türk yükseköğretim sisteminde 40 yılını tamamlayan Anadolu Üniversitesi Açıköğretim Fakültesi, milyonlarca öğrencisi ve mezunuyla uzaktan eğitim yoluyla yüksek öğrenim olanağı sağlarken, eğitim sorunlarının aşılmasında öncü bir rol üstlenmektedir. "Eğitim Televizyonu" yayınlarıyla başlayan süreç artık çok kanallı destek hizmetlerine evrilmiştir. "Anadolu Mobil" gibi uygulamalar ve "e-Kampüs" gibi çevrimiçi öğrenme platformlarıyla sistem öncü bir model olduğunu kanıtlamıştır. Kuzey Amerika, Batı Avrupa, Balkanlar, Azerbaycan, Orta Asya ve Orta Doğu'ya kadar uzanan faaliyetleriyle milyonlarca öğrenene nitelikli yükseköğretim uygulamaları sunmaktadır.

6 Kasım 1981 tarihinde yürürlüğe giren ve Türk Yükseköğretimini yeniden düzenleyen 2547 sayılı kanunun 5. ve 12. Maddeleri gereğince, Türk Üniversitelerine "sürekli ve açıköğretim yapmak hakkı" tanınmıştır. Bilimsel birikim, akademik deneyim, nitelikli insan kaynağı ve teknolojik altyapıya sahip olan Anadolu Üniversitesi'ne 20 Temmuz 1982 tarihinde çıkartılan 41 sayılı Kanun Hükmünde Kararnameyle Açıköğretim modeli kurma görevi verilmiştir. İletişim Bilimleri Yüksekokulu ve sonrasında İletişim Bilimleri Fakültesi bünyesinde varlık gösteren Açıköğretim sistemi böylece ülke düzeyinde uzaktan öğretim hizmeti vermeye başlamıştır. Türkiye'de yüksek öğrenime olan taleple üniversitelere girebilen öğrenci sayısı karşılaştırıldığında, üniversiteler tarafından talebin ancak belli bir yüzdesi karşılanabilmiştir.

Anadolu Üniversitesi Açıköğretim Fakültesi 1982-1983 öğretim yılında, fırsat eşitliği ilkesiyle ve uzaktan eğitim sistemiyle eğitim veren ilk fakülte olmuştur. İlk yıl İktisat ve İş İdaresi lisans programlarına öğrencilerin kayıt yaptırmasına izin verilmiştir. Takip eden yıllarda Anadolu Üniversitesi'nin sunduğu Açıköğretim modelinin uygulamalarına ve hizmetlerine olan talep hızla artmıştır. Bu yıllar arasında sadece İşletme ve İktisat Lisans Programlarıyla yetinilmemiştir. Milli Eğitim Bakanlığı ile imzalanan protokol 109 gereğince öğretmenlere önlisans ve lisans tamamlama olanağı sunulmuştur. Ayrıca, KKTC'den de uzaktan eğitim programlarına öğrenci kaydına başlanmıştır. Sağlık Bakanlığıyla yapılan protokol gereğince iki yıllık Ebelik, Hemşirelik ve Sağlık Teknikerliği Önlisans Programları; Tarım ve Köy İşleri Bakanlığı ile yapılan protokol gereğince iki yıllık Tarım ve Veterinerlik Önlisans Programları açılmıştır.

1986 yılında Anadolu Üniversitesi tarafından Batı Avrupa Açıköğretim Programları başlatılmıştır. 1987 yılında ise, Batı Avrupa Projesi adı altında Avrupa'nın çeşitli ülkelerinde yaşayan Türk vatandaşlarına yönelik olarak düzenlenen lisans ve önlisans programları uygulanmaya başlanmıştır.

1989-1990 öğretim yılında Açıköğretim Fakültesi bünyesinde Bilgisayar Destekli Eğitim Birimi kurulmuştur. Birimin çalışmaları kapsamında araştırma, tasarım ve geliştirme faaliyetleri yürütülmüştür. Birim tarafından düzenlenen yazılımlar çeşitli illerdeki açıköğretim öğrencilerinin kullanımına sunulmuştur. Kurulan bu birim saye-

sinde bir anlamda Anadolu Üniversitesi Açıköğretim sistemi geleceğe yatırım yaparak, teknoloji-bilgisayar-internet döneminin kapıları aralanmıştır. Bu birim daha sonra Öğretim Teknolojileri Araştırma Geliştirme (ÖTAG) ismiyle nitelikli çalışmalarına devam etmiştir.

1993 yılına gelindiğinde Açıköğretim Sistemi, 496 sayılı Kanun Hükmünde Kararname ile günün eğitim gereksinimlerine göre yeniden yapılandırılmıştır. İktisat ve İşletme programları dört yıllık İşletme ve İktisat Fakültelerine dönüştürülmüştür. Bu Kanun Hükmünde Kararnameye göre Açıköğretim Fakültesi tarafından akademik danışmanlığın yanı sıra çeşitli sınav organizasyonları ve öğrenci işleri gibi hizmetler verilmiştir. Bununla birlikte Uzaktan Öğretim Sistemine uygun kitaplar yazılmasına ve radyo-televizyon programları hazırlanmasına başlanmıştır. Önlisans, lisans tamamlama, lisans ve her türlü sertifika programlarını yürütmekle görevlendirilmiştir. 1993 yılında ayrıca Anadolu Üniversitesi Açıköğretim Fakültesi'nde Uzaktan Eğitim Anabilim Dalı kurulmuştur.

1994 yılında Anadolu Üniversitesi Açıköğretim Sistemi'nde (AÖS) e-öğrenme hizmetleri; İşletme, İktisat ve Açıköğretim Fakültesi öğrencilerinin televizyon ve kitaplara paralel olarak bilgisayar etkileşimli ders çalışmalarını sağlamak amacıyla başlamıştır.

1993-1994 öğretim döneminden bu yana Açıköğretim Sistemi'nin benzersiz destek birimlerinden biri olan Staj Koordinatörlüğü faaliyete geçmiştir. Koordinatörlük ileriki yıllarda çalışma ekibinin deneyimlerinden yararlanılarak oluşturulan Staj Otomasyon Sistemi sayesinde verimli hizmetler vermeyi sürdürmektedir.

1993-1997 yılları arasında Açıköğretim Fakültesi bünyesinde kurulan Sosyal Bilimler, Ev İdaresi, Büro Yönetimi, Halkla İlişkiler gibi 17 önlisans programı geliştirilmiştir. ÖSYM tarafından yapılmakta olan Açıköğretim sınavları, 1996 yılından itibaren Anadolu Üniversitesi tarafından yapılmaya başlanmıştır. 1998 yılından itibaren değişen teknolojik koşullar ve eğitim gereksinimlerinin farklılaşması doğrultusunda yeni vizyonlar ve misyonlar belirlenmiştir. İletişim teknolojilerinin çok daha yoğun olarak kullanıldığı, uzaktan eğitim uygulama alanlarını mevcut işlevlerinin ötesine taşıyan yapılanmalarla birlikte yeni olanaklar sunulmuştur.

1999 yılında Anadolu Üniversitesi Uzaktan Eğitim Tezli Yüksek Lisans Programı başlatılmıştır. Aynı yıl Açıköğretim e-Öğrenme Portalı oluşturulmuş ve kullanıcıların erişimine açılmıştır.

2000 yılında Milli Eğitim Bakanlığı ile işbirliği yapılarak Açıköğretim Fakültesinde Okul Öncesi ve İngilizce Öğretmenliği Lisans Programları açılmıştır. Aynı yıl ülkemizde İngilizce olarak yayınlanan uluslararası ilk uzaktan eğitim dergisi olma özelliğini taşıyan TOJDE (The Turkish Online Journal of Distance Education) kurularak, alandaki önemli akademik dergilerden birisi haline gelmiştir.

2001-2002 öğretim yılında ülkemizde ilk kez Bilgi Yönetimi Önlisans Programı eğitim-öğretime başlamıştır. Bu gelişmeler paralelinde sağlanan yapılanmalarla internet üzerinden yürütülen açıköğretim ve uzaktan öğretim programlarının açılmasında öncülük etmiştir. Yine aynı öğretim yılında kendini farklı alanlarda geliştirmek isteyen

örgün bölümlerde okuyan ve halen bir yüksek öğretim programına kayıtlı olan ya da mezun olanlara yönelik olarak ikinci öğretim olanağı veren "İkinci Üniversite" uygulaması başlatılmıştır. Açıköğretimin, örgün yüksek öğretime uyum sağlaması amacıyla "Dikey Geçiş" uygulaması gerçekleştirilmiştir.

2003-2004 Öğretim yılında Jandarma ve Polis Önlisans Meslek Eğitimi Programlarıyla, Jandarma Genel Komutanlığındaki astsubayların ve Emniyet Genel Müdürlüğünde görev yapan polislerin eğitim düzeylerini yükseltmek amacıyla önlisans eğitimi programları başlatılmıştır.

2004-2005 öğretim yılında ise Kara, Hava ve Deniz Komutanlıkları Personeline Önlisans eğitimi verilmiştir. Bu bölümlerde okuyan öğrenciler için lisans tamamlamalarına yönelik çalışmalar yapılmıştır.

2005-2006 öğretim yılında "Birleşmiş Markalar Derneği" üyesi olan kuruluşların mezunlarını işe almada öncelik verecekleri "Perakende Satış ve Mağaza Yönetimi Önlisans Programı" eğitime başlamıştır.

2006 yılında Anadolu Üniversitesi Sosyal Bilimler Enstitüsünde Uzaktan Eğitim Anabilim Dalı'na bağlı Türkiye'nin ilk Uzaktan Eğitim Doktora Programı açılmıştır. 2007 yılında ise Anadolu Üniversitesi Açıköğretim Fakültesi tarafından Türkçe Sertifika Programı düzenlenmiştir.

2006-2007 öğretim yılında Adalet Bakanlığında çalışan lise ve dengi okul mezunlarına Meslek Eğitimi Önlisans Programı başlatılmıştır.

2007-2008 öğretim yılında öğretime başlamak üzere Sınıf Öğretmenliği lisans tamamlama programına ilişkin çalışmalar düzenlenmiştir.

2010 yılından itibaren teknolojinin olanaklarının öğrenenlerin kullanımına sunulabilmesi hedefiyle, Açıköğretim e-öğrenme içeriğinin tablet ve akıllı telefonlar gibi mobil iletişim sistemleriyle uyumlu hale getirilmesi amacıyla çalışmalar gerçekleştirilmiştir.

2013 yılında Anadolu Üniversitesi Açıköğretim Sistemi yine bir ilke imza atarak 'AKADEMA'yı öğrenmenin ufku en açık yolu olarak tanımlayarak, "Kitlesel Açık Çevrimiçi Dersleri" öğrenenlerin hizmetine sunmuştur.

2014 yılında Anadolu Üniversitesi Sosyal Bilimler Enstitüsünde Uzaktan Eğitim Anabilim Dalına bağlı olarak Türkiye'de ilk defa Uzaktan Eğitim Online Tezsiz Yüksek Lisans Programı yürütülmeye başlanmıştır.

2015 yılına gelindiğinde Açık ve Uzaktan Öğrenme disiplininin Üniversitelerarası Kurul tarafından Doçentlik alanı olarak kabul edilmesi söz konusudur. Aynı yıl Anadolu Üniversitesi Açıköğretim Uygulamaları ve Araştırmaları Dergisinin (AUAd) yayın hayatına başlaması sağlanmıştır. Yine aynı yıl içinde Anadolum e-Kampus sistemi sayesinde öğrenenler için öğrenme platformları hazırlanmıştır.

2016 yılında "Uzaktan Eğitim Sözlüğü"nün oluşturulması ve çevrimiçi olarak erişime açılması gerçekleştirilmiştir. İnsan ve bilgisayar etkileşimi sağlayan laboratuvar kurulmuştur. Açıköğretim Sistemine sosyal medya hesabı oluşturulmuştur.

2014-2018 yılları arasında uygulanması düşünülen Anadolu Üniversitesi Stratejik Planına göre; bilgi ve iletişim teknolojilerinin eğitim-öğretim sistemindeki etkinliğini artırarak öğrenenlere yarar sağlanması hedeflenmiştir. Dijital dönüşüm hedefleri doğrultusunda öğrenenlerle daha etkin iletişim kurabilmek için Açıköğretim Destek Sistemi oluşturulmuştur. Dijital kütüphane, eğitim-öğretim kaynaklarının sanal ortama aktarımı ve güncel tutulması, her türlü ortamda sunulan sertifika programlarıyla Mega Üniversite nitelemesini hak ettiğini kanıtlamıştır.

2019 yılında Anadolu Üniversitesi'nin 60. Kuruluş yıldönümünde 60 yeni e-sertifika programı düzenlenmiştir. Örgün eğitim yürüten Fakültelerin yararlandığı "Yaz Okulu" uygulaması, Açıköğretim Fakültesi tarafından açılmıştır. Açıköğretim Sistemi eğitim alanında "Barrier Free Informatics Award" isimli ödülü almıştır. Aynı yıl sistem YouTube'un gümüş ödülünü kazanmıştır.

Açıköğretim Sistemi İşletme Fakültesi, İktisat Fakültesi ve Açıköğretim Fakültesi'nden oluşmaktadır. Anadolu Üniversitesi Açıköğretim Sistemi eğitim verdiği farklı programlar sayesinde ulusal sınırları aşmayı başarmıştır. Kuzey Kıbrıs Türk Cumhuriyeti ve bazı Batı Avrupa ülkelerinde yaşayan Türk vatandaşlarına yönelik eğitim hizmetini deneyimli uzaktan eğitim sistemiyle ulaştırmaktadır.

Türkiye'deki üniversitelerde öğrenim gören öğrencilerin önemli bir yüzdesini Anadolu Üniversitesi öğrencileri oluşturmaktadır. Bunların bir kısmı; koşulları gereği örgün eğitime devam etme olanağı bulunmayan öğrenenleridir. Açıköğretim Uzaktan Eğitim Sistemi bu yönüyle fiziksel, işitme ve görme engeline sahip vatandaşlarla birlikte, cezaevlerinde hükmünü tamamlamaya çalışan Türkiye Cumhuriyeti vatandaşlarını da göz ardı etmeden yaşam boyu öğrenme ve engelsiz eğitim felsefelerini hayata geçirerek, eğitimde fırsat eşitliğini her koşulda sağlamayı başarmıştır.

Anadolu Üniversitesinin tüm akademik, teknik, yönetim birimleri Açıköğretim Sistemine Sistemin gelişme ve büyüme sürecinde etkin bir şekilde sorumluluk alarak sisteme katkı sağlamaya çalışmıştır. Temel öğretim materyali olan basılı kitaplar, e-öğrenme ortamları, danışmanlık hizmetleri, televizyon programlarının planlama ve hazırlama aşamaları sistemin yürütülmesini sağlamıştır. Bunların yanı sıra sınav ve büro hizmetlerinin yürütülmesinde de önemli görevler üstlenilmiştir. Açıköğretim Sistemi kapsamında bütün fakülteler ve birimler arasındaki paylaşımların yol açtığı iş birliğiyle verimlilik en üst düzeye ulaştırılmıştır.

YÖNTEM

Araştırmada nitel araştırma modeli benimsenmiş ve durum çalışması olarak desenlenmiştir. Durum çalışmasında bir ya da daha çok olay, ortam, program, sosyal grup, toplum, belirli bir öğrenci sınıfı veya diğer sınırlandırılmış bir sistemin derinlemesine analizi söz konusudur. Durum çalışması bütüncül bir sistemi ifade etmektedir. Diğer yandan analiz birimi sınırlı bir sistem olarak seçilmelidir. Durum çalışması açısından analiz birimi, öğrenenlerin tecrübeleri olacaktır. Eğer araştırmak istenilen konu ya da olgu özünde sınırlı değilse, bir durum çalışması gerçekleştirilemez. Bir öğretmen, öğrenci ya da yeni uygulanan bir program durumu oluşturabilmektedir Nitel araştırma

modeli kapsamında gerçekleştirilen "durum çalışması" güncel bir olgunun gerçek bağlamında araştırılması biçiminde tanımlanabilir.

Nitel araştırma desenleri araştırma uygulamalarının amaca uygun ve tutarlı bir biçimde gerçekleştirilmesi açısından araştırmacıya rehberlik etmektedir. Araştırmanın odağını, veri toplama ve analiz aşamalarını belirlemede araştırmacıya gerekli desteği sağlar. Diğer taraftan nitel araştırma modelleri sınırları kesin çizgilerle belirlenmiş bir yönlendirmede bulunmamaktadır. Araştırmacı yeri geldiğinde esnek davranabildiği için, üzerinde gereksiz baskı hissetmez. Böylelikle araştırmanın çeşitli aşamalarının birbiriyle tutarlı olmasına katkıda bulunabilir.

Dünya Sağlık Örgütü tarafından 11 Mart 2020 tarihinde Koronavirüsü (Kovid-19) pandemi olarak ilan edilmiştir. Bu global ölçekli sürecin kaynağı olan salgın, durum çalışması türleri içinden kritik olay durum çalışmasıyla incelenmiştir. Bu araştırma kapsamında yoğunlaşılan durumun bir taraftan genelleştirilebilirliğiyle ilgilenilirken, diğer taraftan da benzersiz bir durumun incelenmesine çalışılmıştır. Araştırmacı öncelikle araştırmanın yapılabilirliğini değerlendirmeye çalışmıştır.

Durum çalışmasının yapılandırılışını araştırmanın konusu kadar analiz birimi de belirlemektedir. Araştırmacı araştırma yapmayı planladığı ortamı ve hedef kitleyi belirleyerek araştırmaya odaklanır. Durum çalışması açısından araştırma konusunun Katılımcıların görüşlerine ilişkin bilgi vermek ve sürecin değerlendirilmesi amacıyla yarı yapılandırılmış sorular hazırlanarak, uzaktan eğitim sistemine dahil olan öğrenenlere sorulmuştur. Alınan yanıtlar nitel analiz yöntemleriyle incelenerek kod ve kategorilere ayrılmıştır.

Verilerin Toplanması ve Analizi

Araştırmacı; empatik, tarafsız ve farkındalık sahibi olmalıdır. Örneğin, mülakat gibi veri toplama süreçlerinde olaylara kişilerin gözünde tarafsız ve yargılamadan bakarak hassas, saygılı, açık, farkında ve uyumlu olmalıdır. Veri toplama sürecinde dikkat edilmesi gereken son nokta dinamik sistemdir. Sürece karşı ilgili olunmalı, odak (birey, kurum, topluluk, bütün kültür) ne olursa olsun değişimi devam eden bir süreç olarak varsaymalıdır. Bu yüzden, sistem ve durum dinamiklerine dikkatli ve özenli olunmalıdır (Akarsu ve Akarsu; 2019: 62).

Araştırmacı tarafından öncelikle durum çalışmasının gerçekleştirileceği öğrenen grubu ve gönüllük esasıyla araştırma verilerinin toplanmasına katkı sağlayacak olan katılımcılar belirlenmiştir. Daha sonra katılımcılardan araştırma için gönüllü katılım formu izni alınmıştır. Katılımcılar için araştırmaya dahil oluşlarıyla "Kişisel Gelişim" dersinin normal işlenişinden farklı durumlarla karşılaşmaları öngörülmemiştir. Araştırmanın katılımcıları riske sokmayacağı, herhangi bir zarar yaratmayacağı, katılımcı kimliklerinin gizliliğinin korunacağı yönündeki önlemler dolayısıyla "Bilgilendirilmiş Onam" alınmasına gerek görülmemiştir.

Nitel araştırmada en sık olarak karşımıza çıkan veri toplama yöntemleri; görüşme, odak grup görüşmesi, gözlem ve doküman incelemesidir (Yıldırım ve Şimşek, 2011: 89). Bu araştırma hazırlanırken ön hazırlık aşamasında veri toplama amacıyla görüş-

me yöntemi kullanılmıştır. Ardından düzenlenen yapılandırılmış görüşme formu yardımıyla veriler katılımcılardan yazılı olarak toplanmıştır.

Araştırmanın çalışma evreni olarak Anadolu Üniversitesi Yunus Emre Sağlık Hizmetleri Meslek Yüksekokulu Çocuk Gelişimi Programı'nda okuyan ve Kişisel Gelişim Dersini alan 47 öğrenci seçilmiştir. 2 öğrenci derse devamlılık yapmadığından çalışmanın evreni 45 öğrencidir. Örneklem olarak 10 öğrenci belirlemek hedeflenmiştir. Çalışma evreni içerisinden, yapılan bilgilendirmeler doğrultusunda gönüllü olmaya karar veren 8 katılımcı araştırmanın örneklemini sağlamıştır. Araştırma gerçekleştirilirken 1 gönüllü katılımcının özel mazereti nedeniyle çalışmaya gönüllü katılımı sonlandırılmıştır. Araştırma, 3'ü erkek olmak üzere 7 katılımcıyla () gerçekleştirilmiştir. Bu öğrenenlerin belirttiği görüşler bulgular kısmında (**Ö**) kısaltmasıyla ve sıra numaralarıyla aktarılmıştır.

Bu amaçla, öğrencileri uzaktan eğitime ilişkin görüşlerini ve beklentilerini değerlendiren "Görüşme Formu" geliştirilmiştir. Form, öncelikle çalışmada belirtilen problemi ve ulaşılmak istenen hedefleri ölçecek nitelikte hazırlanmıştır. Yıldırım ve Şimşek referans kitap olarak kabul edilmiştir (2018: 136-146). Görüşme formu geliştirilirken; kolay anlaşılabilecek sorular hazırlama, açık uçlu sorular sorma, yönlendirmeden, çok boyutlu soru sormaktan kaçınma, farklı türden sorular yazma ve soruları mantıklı bir biçimde düzenleme örnekleri doğrultusunda içerik şekillendirilmiştir.

Görüşme formun geliştirilmesinde soru havuzu oluşturulmuştur. 10 soru maddesinden oluşan taslak form araştırmanın veri toplama aşamasına yardım eden öğretim görevlisine ulaştırılmıştır. Araştırmacı tarafından yürütülen karşılıklı görüşmeler ve telefon konuşmaları sonrasında şekillenen görüşler doğrultusunda yapılandırılmış 7 soru maddesinde karar kılınmıştır.

Soruların tespitinde, verilecek yanıtların uzaktan eğitime ilişkin düşüncelerin paylaşılması ihtiyacını karşılayabilen nitelikte sorular olmasına dikkat edilmiştir. Çok uzun veya çok kısa olmayacak şekilde çalışmanın amacına uygun sorular seçilmeye çalışılmıştır. Sonuçta, görüşme formunun içerik geçerliliği adına, araştırmaya veri toplama aşamasında destek olan öğretim görevlisinin katkısıyla uygulanmaya hazır hale getirilmiştir.

Araştırma 21 Şubat-28 Mayıs 2022 tarihlerini kapsayan Anadolu Üniversitesi'nin 2021-2022 Akademik yılının Bahar döneminde şekillenmeye başlamıştır. Araştırmanın son haliyle gerçekleştirilmesi ise 2 Haziran 2022 tarihinde sağlanmıştır.

Evren ve çalışma grubu seçimi ile veri toplama aracının araştırmanın amaçlarına uygun olarak geliştirilmesinin ardından verilerin toplanması sürecine geçilmiştir. Araştırma belirtilen tarihte gönüllü katılımcıların isteği üzerine 60 dakikalık zaman aralığında görüşme formunda yer alan 7 soruyu yazarak cevaplandırmalarıyla uygulanmıştır. Elde edilen veriler aracılığıyla yürütülen uzaktan eğitimin nasıl ve ne şekilde gerçekleştirildiği betimsel analiz yoluyla açıklanmaya çalışılmıştır.

Betimsel analiz yaklaşımına göre; elde edilen veriler, daha önceden belirlenen temalara (kategorilere) göre özetlenir ve yorumlanır. Görüşülen ya da gözlenen bireylerin

görüşlerini çarpıcı bir biçimde yansıtmak amacıyla doğrudan alıntılara sık sık yer verilir (Yıldırım ve Şimşek, 2018: 239-241). Bu amaçla doğrudan alıntılara bulgularda yer verilerek araştırma katılımcılarının sorulara verdikleri cevaplar içeriğe yansıtılmıştır. Böylelikle tartışmalarda ve önerilerde çeşitlilik sağlanması hedeflenmiştir.

Analiz aşamasında görüşme formunda yer alan her soru için kodlama çalışması yapılmıştır. Verilerin kodlanması sürecinde araştırmacı genel bir çerçeve içinde yapılan kodlama biçimini kullanmıştır. Nitel araştırma sırasında araştırmacı araştırmanın verimliliği açısından kodların geçme sıklığıyla ilgilenirken, kodların birbirleriyle nasıl ilişkide olduğuyla da ilgilenmektedir. Sorular araştırmacı tarafından bağımsız olarak kodlanmış ve ortak kodlar dikkate alınarak temalandırılmıştır. Araştırma verileri toplanırken görüşme formundaki sorularla öğrenen görüşlerinin alınması hedeflenmiştir. Bu doğrultuda öğrenenlere 7 maddeden oluşan yapılandırılmış sorular sorulmuş, elde edilen veriler analiz edilmiştir.

Geçerlik

Nitel araştırmada daha çok "geçerlik" yani "inandırıcılık kaygıları ön planda gelir. Araştırmacının önyargılarından ve varsayımlarından arındırılmış verilere ulaşma ve bu verilerin doğasına uygun bir analiz yaklaşımı benimseyerek anlamlı sonuçlara ulaşma önemlidir (Yıldırım ve Şimşek, 2018: 284). Nitel yöntemlerle gerçekleştirilen araştırmalarda inandırıcılık araştırma bulguları doğrultusunda belirlenen kodlar, kategoriler ve yorumların gerçeği ne derece yansıttığıyla doğrudan ilgilidir. Araştırmacı, araştırmada inandırıcılığı kontrol altında tutabilmek için katılımcılarla etkileşim uzun sürmesi, verilerin derin odaklı bir şekilde toplanması gibi yardımcı yöntemlerden yararlanmalıdır. Nicel araştırmalardaki iç geçerlik kavramı, nitel araştırmalardaki inanılırlık kavramına tekabül etmektedir. Nicel araştırmalardaki dış geçerlik kavramı, nitel araştırmalardaki aktarılabilirlik kavramını karşılamaktadır. Başka bir ifadeyle araştırmacı tarafından elde edilen sonuçlar diğer kişilere ve durumlara uygun biçimde aktarılabilir mi? çekincesi giderilmeye çalışılır.

Güvenirlik

Verilerin analizinin güvenirliği yani tekrar edilebilirliği için Miles ve Huberman (2015) tarafından geliştirilen güvenirlik formülü [Güvenirlik=Görüş birliği sayısı / (Toplam görüş birliği + Görüş ayrılığı sayısı)] kullanılmıştır. Güvenirlik formül kullanılarak ve iki puanlayıcı arasındaki görüş birliği ile görüş ayrılığının tespiti için elde edilen değerin 100 ile çarpımından bir oran elde edilmiştir. Güvenirlik formülü yardımıyla iki kodlayıcı arasında görüş birliğine varılan ve ayrışılan noktalar üzerinden bütün veriler için ortalama %87 düzeyinde paralellik belirlenmiştir. Bu durum yapılan kodlamaların güvenilir olduğunu göstermektedir. %70 üzeri bir oran Miles ve Huberman (1984) ve Miles ve Huberman (1994) tarafından güvenilir kabul edilmektedir. İki kodlayıcı arasında görüş birliğinin olduğu veriler bulgulara böylelikle yansıtılmıştır.

Kodların güvenirliği amacıyla belirtildiği üzere iki kişi kodlama yapmıştır. Cohen'in Kappa (κ) katsayısı 0,84 olarak bulunmuştur. Kappa istatistiği 0 ile 1 arası değer almakta olup genellikle .40 ve üzeri değerler kabul edilebilir görülmektedir. Kodlar doygunluğa eriştiğinde, başka bir ifadeyle yeni kod yazılamadığında ve artık bir

düzen oluştuğunda kodlama süreci sonlandırılabilir. Bu çalışmada da yeni bir kod yazılamayacağı anlaşıldığında kodlar son şeklini almıştır. Elde edilen sonuçlar ve nedenleri araştırmacı tarafından irdelenerek rapor haline getirilmiş, toplanan veriler değerlendirilmiştir.

BULGULAR

Uzaktan eğitim alanı genelinden yola çıkarak "Global ölçekli salgının yarattığı dönüştürücü etkiler bağlamında Anadolu Üniversitesi Açıköğretim Sistemi" özeline odaklanarak süreçte yer alan öğrenen düşünceleri değerlendirilmek istenmiştir. Farklı öğrenen görüşlerini farklı ifadelerle alabilmek amacıyla toplam 7 adet yapılandırılmış soru yöneltilmiştir. Analiz yapılırken, sorulara verilen cevaplardaki söylemlerden elde edilen kavramlar kodlara ve kategorilere ayrılmaya çalışılmıştır. Buna göre araştırma kapsamında aşağıdaki sorulara cevap aranmıştır:

1. Salgın sürecinde gerçekleştirilen uzaktan eğitim faaliyetleri yeterli miydi?
2. Dahil olduğunuz uzaktan eğitim süreci eğitiminiz için verimli oldu mu?
3. Uzaktan eğitim sürecine uyum sağlayabildiniz mi?
4. Uzaktan eğitim uygulamalarındaki teknolojiyi benimseyebildiniz mi?
5. Üniversitenizin uzaktan eğitim sisteminde yaşadığınız durumlar nelerdir?
6. Uzaktan eğitim sisteminde derslere katılımınızı nasıl değerlendirirsiniz?
7. Uzaktan eğitim sistemine ilişkin ileriye yönelik önerileriniz nelerdir?

1. Salgın sürecinde gerçekleştirilen uzaktan eğitim faaliyetleri yeterli miydi?

Ö1: "…Uzaktan eğitim söz konusu olduğunda Anadolu Üniversitesi kuruluşundan başlayarak Açıköğretim Fakültesi sayesinde öncü konumda. Bizler de bu çatı altında toplanan öğrenciler olarak şanslıyız. Salgın sürecinde yürütülen çalışmaların başarılı olduğunu rahatlıkla söyleyebilirim."

Ö2: "…Öncesinde bu tarz bir deneyimim olmamasına rağmen, salgın sürecinde gerçekleştirilen uzaktan eğitim faaliyetlerinin oldukça yeterli olduğuna inanıyorum. Salgının başlangıcından itibaren internetin erişilebilirliği, çevrimiçi derslerin yürütülmesi açısından pek fazla sorun yaşadığımız söylenemez. Yöneticilerimiz, okuldaki hocalarımız bize hep destek oldu."

Ö3: "…Uzaktan eğitim uygulamalarının benim için tamamen yabancı olması yüzünden eğitimimi yüz yüze koşullarda sürdüremediğim için endişelenmiştim. Ancak üniversitemiz ve meslek yüksekokulumuzun yürüttüğü salgın sürecindeki dijital eğitim faaliyetlerinin desteğiyle endişelerimin yersiz olduğunu görmüş oldum."

Ö4: "…Üniversitelerin uzaktan eğitimin gerekliliklerini yerine getirebilmeleri için belli kapasitelerinin ve deneyimlerinin olması gerektiğini düşünüyorum. Bu açıdan bizler şanslıydık."

Ö5: "…Beklenmeyen bir anda dahil olmak durumunda kaldığımız uzaktan eğitim uygulamaları üniversitemizde öğrenen odaklı gerçekleştirildiği için yapılanlar yeterliydi."

Ö6: "…Çevrimiçi eğitim uygulamalarının son yaşadıklarımızı hesaba katarsak yükseköğretimin ayrılmaz bir parçası haline geldiği söylenebilir. Bu yüzden bizim de bir parçası olduğumuz uzaktan eğitim çalışmaları olması gerektiği gibi yapıldı."

Ö7: "…Uzaktan eğitim sürecine ilişkin önyargılarım vardı. Ne kadar şanssız bir dönemde öğrenci olduğumu düşünürken, sistemimizden derslerimiz başlayınca düşüncelerim değişmeye başladı. Elbette bir öğretmen adayı olarak hocalarımla karşılıklı olmayı tercih ederdim. Ancak eğitimimizin zor koşullara rağmen farklı biçimlerde de yürütülebiliyor olması önemliydi.

2. Dahil olduğunuz uzaktan eğitim süreci eğitiminiz için verimli oldu mu?

Ö1: "…Eğitimci olabilmek için okuyorum. Zaten Yunus Emre Meslek Yüksekokulu'ndaki programımdan mezun olduktan sonra, Dikey Geçiş sınavını kazanarak eğitimime devam etmek istiyorum. Yaşadığımız uzaktan eğitim süreci bizler için verimli geçti. Kişisel gelişim dersinde öğrendiklerim doğrultusunda, uzaktan eğitim alarak farklı alanlarda da kendimi geliştirmek istiyorum."

Ö2: "…Dijital ve teknolojik uygulamalara meraklıyım. Her fırsatta bu becerilerimi kullanmaya ve ilerletmeye çalışıyorum. Uzaktan eğitim sürecimizin bizler için yararlı ve verimli olduğunu gözlemledim. Uzaktan eğitim döneminde derslerimiz düzenli bir şekilde yapıldı. Yüz yüze işlediğimiz derslerde not tutmazsak veya öğretmenimiz ders notu sağlamazsa ne yapacağımızı şaşırıyorduk. Uzaktan eğitimle derslerin kaydedilme özelliğiyle süreç çok verimli oldu."

Ö3: "…Başarılı bir bilgisayar kullanıcısı değilimdir. Teknolojiye olan mesafem bazen gündelik yaşamımı zora sokmuştur. Uzaktan eğitim sürecimizde de bir şeyleri doğru şekilde yapabilecek miyim? Süreci değerlendirebilecek miyim? gibi endişelerim hep vardı. Sistemimizin uygulamaları sayesinde dahil olduğum sürecin verimliliğini bire bir yaşamış oldum. Kendimdeki gelişmelerin de farkına varmış oldum."

Ö4: "…Kesinlikle verimliydi. Kendi açımdan bir değerlendirme yapmam gerekirse ilerleyen yıllarda mutlaka bu yapıya tekrar dahil olmalıyım. Açıköğretim Fakültesi'nin programlarından seçeceğim birinde okur ve mezun olursam bu bana gerçekten katkı sağlayabilir."

Ö5: "…Üniversitemizin geçmişteki ve gelecekteki vizyonlarını araştırmıştım. Öğrenen odaklı yaklaşımlarıyla, yaşam boyu öğrenme ilkesini benimsiyor. Bu gelenekle hazırlanan uzaktan eğitim süreçlerinin etkin ve verimli olmasına şaşmamak gerek."

Ö6: "…Süreç eğitimimiz için olabildiğince verimli yürütüldü. Tabii bunda Açıköğretim Fakültesi'nin geçmişten günümüze üstlendiği sorumluluklarının belirgin bir payı olduğu gerçek. Eğitimlerimizin ne olursa olsun engellememesi için yapılanların daha ileri noktalara taşınabilmesi gerekir."

Ö7: "…Dahil olduğumuz uzaktan eğitim süreci sandığımdan daha verimli oldu. Yine de aldığım eğitim için yüz yüze eğitim sürecinin daha verimli olabileceğini düşündüğüm zamanlar oluyor. Her şeye rağmen benim için belirsizlikle başlayan bu süreç gelişimime çeşitli yararlar sağladı diyebilirim."

3. Uzaktan eğitim sürecine uyum sağlayabildiniz mi?

Ö1: "…Kolay uyum sağladığımı düşünüyorum. Uzaktan eğitim sürecinin üniversiteler, öğretim görevlileri ve öğrenciler için sağladığı fırsatlar göz önüne alındığında gördüğü ilgi şaşırtıcı değil bence. Uzaktan eğitim zaman ve mekân açısından sınırlama getirmiyor. İstediğin yerde ve istediğin zaman çalışmalarını yapabilmek büyük avantaj. Bu esnek koşullar büyük rahatlık. Son gelişmelerle ortaya çıkan talepler sonucunda, eğitim kurumlarının odağını uzaktan eğitim sürecini kullanmaya kaydırması kaçınılmaz olmuştur. Bizler de bu gelişmelere mutlaka uyum sağlamalıyız."

Ö2: "…Uyum sağlamada fazla zorlanmadım. Sadece sağlık durumlarımıza ilişkin endişelerim vardı. Bizler için aşı da gündemde değildi. Bağışıklığımı destekleyecek vitaminler aldım. Beslenmeme, uykuma dikkat ettim. Üşütmemeye çalıştım. Uzaktan eğitim sürecimizle ilgili hiç endişelenmedim. Zorlandığım birkaç noktada çevrimiçi dersteysek, hocalarıma sordum. Bazen sistem sayesinde arkadaşlarımızla da bildiklerimizi paylaşmaya çalıştık. Gerçekten zorlanan arkadaşlarımıza yardımcı olundu. Eğitim söz konusu olduğunda özellikle yükseköğretimde alternatiflere açık olunmalı. Bu durumda uyum sağlamak her kademe için kolaylaşır."

Ö3: "…Salgının başlangıcından itibaren 'yeni normal' anlayışına alışma güçlüğü yaşadım. Üniversite kampüsüme ve okuluma gidememek, arkadaşlarımla kantinimizdeki ve yemek hanemizdeki paylaşımlarımızı yapamamak zorumuza gitti. Tam üniversiteli olmanın nimetlerinden yararlanacakken, adeta ev hapsinde kaldık. Bir de kendi sağlığımızı, ailemizin ve yakınlarımızın sağlığını düşünmek zorunda kaldık. Moral bozukluğuyla, depresyonun eşiğindeyken Açıköğretim sistemimizin uzantısı olan uzaktan eğitim olanaklarımızla derslerimize devam etmeye başladık. Sanki daha önce varlığını bile bilmediğimiz bir kapı aralandı önümüzde. Önceleri bu gelişmeye ayak uydururken bocaladım. Teşviklerle ve motivasyonlarla eğitimimi uzaktan da olsa yapabilir oldum. Şimdi geriye dönüp, baktığımda gerçekleştirdiklerimize inanamıyorum. Demek ki uzaktan da olsa eğitim aldığımız alanlarda çalışılabiliyormuş. Uyum sağlamam zaman alsa da geldiğim noktadan memnunum."

Ö4: "…Öncelikle alınan önlemlerin ve yapılan eğitim biçiminin sağlığımızı tehdit eden faktörleri engellemek için olduğunu kabul etmeye çalıştım. Bir anlamda içinde olduğumuz süreç sadece eğitimle sınırlı değildi. Kaotik bir dönemin ya da kriz sürecinin yönetilmeye çalışılmasıydı. Okuduğum şehrimden, memleketime dönmek zorunda kaldım. Psikolojimi bozmamak ve moralimi yüksek tutabilmek için üniversiteme olan aidiyet duygumu güçlendirdim. Aslında bu yaşananlar beni kamçıladı diyebilirim. Daha çok çalışmaya, kendi kişisel gelişimimi sağlamak için daha fazla okumaya başladım. Beni teşvik eden hocalarıma teşekkür ederim. Sonuç olarak uzaktan eğitim sürecine uyum sağlayabildiğim gibi, notlarımı da yükseltmiş oldum."

Ö5: "…Uyum sağlamak o kadar da zor değildi aslında ama zor olan kendimizi eski alışkanlıklarımızı ararken ve karşılaştırmalar yaparken bulmaktı. Sağlığımız için ne yapmamız gerektiğini bilememek de bocalamamıza neden oldu. Üniversite ortamında, dersliklerimizde olmak varken, ev ortamının karmaşasında bir anlamda öğrenci olduğumuzu sürekli kendimize hatırlatmak ve ders çalışmaya çalışmak zorunda kaldık."

Ö6: "…Başlangıçta hemen her şeyden endişeleniyorduk. Bu yüzden derslerimize odaklanamıyorduk. Belirsizlik ortamı geleceğe ilişkin hayallerimizi, umutlarımızı köreltmişti. Şimdi düşünüyorum da aldığımız eğitim bizim için tutunacak dal oldu. Olanaklar elverdiğince bizlere nitelikli eğitim verildiğini düşünüyorum. Eğitim süresince yaşadığımız olumsuz süreci atlatmamız konusunda psikolojik olarak destek verilmeye çalışıldı. Yalnız olmadığımız hissettirildi. Bu çabalarla devam ettirilmeye çalışılan eğitimimiz, aslında uzak kavramını yakın hale dönüştürmüş oldu. Uyum sağlamamız için çok şey yapıldı."

Ö7: "…Sağlık durumumla ilgili ben de önceleri ne yapacağımı bilemedim. Zaman içinde bilgilenmeye başlayınca kendimi daha iyi hissettim. Derslerime odaklanmak da bana iyi geldi. Önceden öğrenci olarak edindiğimiz deneyimlerle, uzaktan eğitim sürecinde edindiğimiz deneyimleri karşılaştırdığımda çok farklı kazanımlarımızın olduğunu fark ediyorum. Kampüs yaşamının ve yüz yüze eğitimin bizlere katkıları yadsınamaz. Gerçekçi olmam gerekirse eğitimime zorunluluklarla uzaktan devam etme fikri bana itici gelmişti. Bu durum zaman zaman ders çalışırken motivasyonumu etkiledi. Diğer taraftan sistem o kadar işlevsel düzenlenmişti ki, uyum sağlamamak neredeyse imkansızdı. Bu sayede psikolojim düzeldi. Zamanla uzaktan eğitim sürecine hem uyum sağladığımı hem de yaptıklarımızdan keyif aldığımı fark ettim."

4. Uzaktan eğitim uygulamalarındaki teknolojiyi benimseyebildiniz mi?

Ö1: "…Üniversitemizin online sisteminin güncel gelişmelere uygun yapıda olması, derslerimi ve içeriklerini takip etmemi kolaylaştırdı. Teknolojinin ne kadar önemli olduğunu, teknolojik uygulamaların eğitim alanına nasıl katkı sağlayabileceğini deneyimlemiş olduk. Sistemimizin öğrencinin konuşmasını ve derse katılımını ön planda tuttuğu kanısındayım. Derslerimizle ve ödevlerimizle ilgili ciddi sorunlar yaşamadık. Evet, bizlere sunulan teknolojiyi benimsedik."

Ö2: "…Eğitim kurumlarında teknolojik gelişmelere ve dönüşümlere direnilmemeli. Teknoloji günümüzde birçok alanda oldukça önemli bir rol oynamaktadır. Bu rol pandemi boyunca yüzleşmek durumunda kaldığımız gibi gün geçtikçe artmaktadır. Teknoloji eğitim ortamlarının yapısını yeniden şekillendirebilen ve yönlendirebilen bir unsurdur. Bu nedenle eğitim ve teknoloji birbirleriyle ilişkilendirilmesi gereken kavramlardır. Teknolojinin kullanımının kolaylaşması ve öğrenenlere yönelik uygulamaların çoğalmasıyla daha yaygın bir duruma gelmiştir. Yüz yüze eğitim süreçlerimde olduğu gibi uzaktan eğitim süreçlerimde de karşılaştığım teknolojik öğeleri rahatlıkla benimsedim. Hazırlamam gereken ödevleri sisteme rahatlıkla yükleyebildim."

Ö3: "…Bize sunulan uzaktan eğitim uygulamalarındaki teknolojiye alışma ve benimseme sürecinde bazı sorunlar yaşadım. Zaman geçtikçe daha iyi olduğumu düşünüyorum. İlk başlarda alışık olmadığım bir süreçti ancak uzaktan eğitim teknolojisi sayesinde çözümler bulmayı başardım. Derslerime daha kapsamlı çalışabildim. Uzaktan eğitim sürecinin esnekliği, bu yeni sürece adapte olmamızı kolaylaştırdı."

Ö4: "…Teknolojinin yükseköğretimde aktif olarak kullanılmasıyla uzaktan eğitim ve öğretimin erişilebilirliği ve kullanılabilirliği artmıştır. Bu durum uzaktan eğitimin artan önemine işaret etmektedir. Tüm bu teknolojik gerekliliklerin farkında olduğum

için dijital uygulamalara yakın sayılırım. Arkadaşlarıma elimden geldiğince sisteme ödevlerini gönderirken yardımcı oldum. Bu nedenlerle uzaktan eğitim sürecine ve çevrimiçi derslere adaptasyonumda da doğal olarak hiç zorlanmadım."

Ö5: "…Uyum sağlamanın ötesinde uzaktan eğitim sistemi kendi sınırlarımı ve dijital becerilerimi keşfetmem için bana fırsat verilmiş oldu. Biz öğrenenler için üretilen çevrimiçi içeriklere ulaşabilme becerimi geliştirmiş oldum. Gelecekte mesleğimi yürütürken kişisel gelişimimi bu yönde devam ettirmeye gayret edeceğim."

Ö6: "…Üniversitemizin uzaktan eğitim sürecimizi yürütme biçimi deneyiminden kaynaklı sürdürülebilir özellikteydi. Sürece uyum sağlamamız için var olan uzaktan eğitim teknoloji altyapısı temel alınarak biz öğrencilere uygun şekilde sunuldu. Derslerle, projelerimizi ve ödevlerimizi hazırlamayla ilgili, staj süreçlerimiz hakkındaki yönlendirmeler sürekli yapıldı. Böyle olunca Mergen sistemini benimsedik."

Ö7: "…Yeni bir şeyler öğrenmek ve öğrendiklerini uygulayabilmek zaman alan bir olgu. Teknolojinin kazanımlarının uzaktan eğitim vasıtasıyla öğrencilere yeterince ulaşıp ulaşmadığı konusu beni tedirgin etti. Sonra uzaktan eğitim teknolojisini merak etmeye başladım. Sistemden yürütülen derslerimizin sonradan da izlenebilme gibi avantajlarını keşfettikçe teknolojiye ısınmış oldum."

5. Üniversitenizin uzaktan eğitim sisteminde yaşadığınız durumlar nelerdir?

Ö1: "…Dakikalarca bilgisayar ekranı karşısında durmak ve konsantrasyonunu bozmadan ders dinlemek epey zorlayıcı oldu. Bunu her dersin için yapman gerektiğinde uzaktan eğitimin benim için tek olumsuz yönü buydu. Çevrimiçi ve uzaktan eğitim, son yıllarda yükseköğretimde giderek popülerleşti. Salgın sürecindeki zorunlu ve acil uzaktan eğitim durumları da birden uzaktan eğitim uygulamalarını devreye soktu. Bildiğim kadarıyla çoğu yükseköğretim kurumu ve ülkemizdeki üniversiteler bu öğretim yönteminin yükseköğretimin geleceği olacağına inanmaktalar."

Ö2: "…İletişim konusunda bir problem yaşamadık. Canvas tabanlı sistem üzerinden derslerimiz yürütülürken yeri geldiğinde bizlere de söz hakkı verildi. Sonuna kadar aynı saygıyla uzaktan yürütmeye çalıştığımız derslerimizi devam ettirerek süreci sürdürdük. Genelde dersler esnasındaki etkileşimi karşılıklı olarak sağladık. Kişisel Gelişim dersimizdeki gibi bazı derslerimizde öğretmen adayı olarak bizlere "dijital okuryazarlık" farkındalığı verildi. Ben zaten bu bilinçteydim. Öğrenen kitlesi olarak kendi aramızda dijital okuryazarlık düzeylerimizdeki farklılıklar belirlenerek, olumlu ivmeyle geliştirilmeye çalışıldı."

Ö3: "…Bizler öğrenen kitlesi olarak daha az zorlandık çünkü bir anlamda bizim için hazırlanan ders içeriklerinden fazla emek harcamadan faydalanabildik. Öğretmen adayı olduğum için empati kurabiliyorum. Eğitimcilerimizin işi daha zordu. Yüz yüze iletişimin anlık geribildirimlerini göremediler. Öğrenci-eğitmen etkileşimi bakımından arada kopukluklar yaşandı. Uzaktan eğitimde öğrencilerin tek tek kontrolünün mümkün olmadığı için nasıl dinliyor, dinlerken bilgisayarda başka bir ekranda başka bir işle mi uğraşıyor durumunu tespit etmek zordu. Sınıf ortamında anlık yaşanan anlama ya da anlamama reaksiyonlarına uzaktan eğitim süresince yeterince vakıf oluna-

madı. Dijital öğretim ortamının tasarlanmasında ve öğretim materyallerinin hazırlanmasında daha uzun süreli ve emek gerektiren hazırlıklar yaptılar. Hakları ödenmez."

Ö4: "…Üniversitemizin uzaktan eğitim sistemi öğrenciler tarafından genel olarak benimsendi ve takip edildi. Uzaktan eğitim sisteminde öğrenci olarak kendimi daha özgür hissettim. Zaman ve mekân kısıtlaması olmadan istediğim zaman derslerimle ilgilenebildim. Uzaktan eğitimin gelecekte de devam etmesi benim gibi düşünen öğrenci arkadaşlarım için uygun koşullar sağlayacaktır."

Ö5: "…Üniversitemizde hibrit öğrenme kavramı yüz yüze eğitim ya da uzaktan eğitim gibi sistemler yerine her ikisini bir araya getiren bir yöntem olarak değerlendirilmektedir. Hibrit öğrenme esneklik ve öğrencinin kendi temposunda öğrenmesi gibi avantajlar sağlamaktadır. Ayrıca çevrimiçi ortamlarda alternatif olarak yaparak deneyerek öğrenme yaklaşımlarının benimsenmesi öğrenenlerin uzaktan eğitimi tercih edişini sağlamış olabilir."

Ö6: "…Bizim sistemimiz dört dörtlüktü. Ülke genelinde aynı nitelikte yürütülen uzaktan eğitim uygulamalarından söz edilebilir mi? Emin olamıyorum. Kişisel gelişim dersimizde bahsettiğimiz dijital uçurum kavramıyla, çeşitli kısıtlardan dolayı öğrenenin teknolojiye ulaşmasının engellendiğini öğrenmiş oldum. Bu durum gerçekten can sıkıcı. Bence bizim Üniversitemizin deneyimli Açıköğretim modeli örnek alınmalı. Diğer Üniversitelerde de standartların ötesine geçilerek uzaktan eğitime destek veren birimler oluşturulmalı ve teknik destek personeli yetiştirilmeli. Sonuçta sürece uyum sağlayamayan öğrencilere yönelik bilgilendirmeler yapılabilmeli. Uzaktan eğitim alanındaki hedefler günün koşulları göz önünde bulundurularak yeniden belirlenmeli."

Ö7: "…Salgın döneminde eğitim sürecinde yaşanan olumsuzluklar arasında sayılabilecek durumlar değerlendirildiğinde, önde gelen sorunların öğrenme güçlüğü, okulu bırakma oranlarının artması ve fırsat eşitsizliklerinin ortaya çıkması olarak görülmektedir. Üniversitemde öğretime uygun teknoloji olanakları seçildiği için, uzaktan eğitim amacının sağlanmasının yanı sıra bireysel farklılıklara uygun teknoloji olanaklarının tercih edilmesi önem kazandı. Çünkü bizim örneğimizde olduğu üzere planlı yürütülen uzaktan eğitim sisteminin olanakları etkili biçimde kullanılırsa, öğrenenlerin kişisel gelişimleri olumlu yönde etkilenmektedir."

6. Uzaktan eğitim sisteminde derslere katılımınızı nasıl değerlendirirsiniz?

Ö1: "…Uzaktan Eğitim sürecinin en önemli problemlerinden biri öğrencinin sistemde kalması ve devamlılığının sağlanabilmesidir. Bu durumun başlıca nedenleri, diğer birçok faktörün yanı sıra öğrencilere sağlanan program, ders içeriği ve öğretim elemanının yetkinliğine bağlanabilir. Üniversitemizin Canvas tabanlı kullandığı Mergen sisteminden yürüttüğü uzaktan eğitim sistemindeki çeşitli imkanların öğrencilerin derslere katılımını sağladığını söyleyebilirim. Süreç boyunca ben de derslerime yüksek oranda katıldım. Bu durumun benim eğitim-öğrenim dönemimdeki kazanımlarımı arttırdığını düşünüyorum."

Ö2: "…Dijital okuryazarlık olgusu pandemiyle daha fazla fark edilen teknolojinin dönüşümünü hızlandırdığı bilgi çağının gerekliliklerindendir. Dijital ortamlarda eğitim

faaliyetlerini yapmak ve problemleri çözmek için teknik beceriler kadar iletişim becerilerini de kullanabilmek önemlidir. Bizler uzaktan eğitim sistemimizin güvenilir bilgi içeriklerine ulaşabilme ve kullanabilme ayrıcalığına sahiptik. Sisteme katılımlarımızla birlikte, dijital okuryazarlık becerilerimiz de yeterli düzeye ulaşmış oldu."

Ö3: "…Öğrenme değişkenleri açısından uzaktan eğitim sistemlerinin yöneldiği hedef kitleler değerlendirildiğinde dijital uçurum söz konusuydu. Çeşitli coğrafi veya ekonomik kısıtlardan dolayı öğrenenlerin teknolojiye ulaşamaması durumuyla karşılaşıldı. Sonradan çözülse de bu durumu biraz yaşadım. Üniversitem, bölümüm ve arkadaşlarımın desteğiyle çabucak yaşadığım sorunlara ilişkin çözümler sağlandı. Benim derslere katılımım aldığım desteklerle gerçekleşmiştir. Gönülden teşekkür ediyorum."

Ö4: "…Üniversitemizin uzaktan eğitim sisteminin öğrenciler tarafından genel olarak benimsendiğini ve takip edildiğini belirtmiştim. Açıkçası ben de uzaktan eğitim sisteminde öğrenci olarak kendimi rahat hissettim. Böyle olunca derslere katılımım bir o kadar rahat oldu. Bazen çevrimiçi katıldığım dersleri, daha sonra sistemden tekrar katılımla çalışabildim."

Ö5: "…Uzaktan eğitim sistemlerinin sahip olduğu teknolojik imkanların, pandemi sürecinde eğitimin sürdürülmesinde tüm eğitim kurumlarının imdadına yetiştiği söylenebilir. Bizler de buna paralel olarak üniversite eğitimlerimiz sırasında gelecekteki mesleklerimize hazırlık yaparken farklı bir eğitim uygulamasıyla tanışmış olduk. Teknoloji yakın olanlarımız kolayca bu duruma ayak uydurdu. Ben de o gruptanım. Derslerimi takibim ve katılımım üst düzeydeydi."

Ö6: "…Derslere katılımım gayet iyiydi ve olması gerektiği gibiydi. Fakat her öğrenci arkadaşım aynı kriterlerde katılım sağlamamış olabilir. Elimden geldiğince sadece sistemde olarak katılım yapmadım. Sorular sorarak aktif olamaya çalıştım."

Ö7: "…Uzaktan eğitim sisteminin teknolojik özelliklerine karşı tedirginliğim olduğu için başlangıçta mecburi katılımım olmuştu. Sistemi merak edip, tanımaya başlayıp, nimetlerinden yararlandıkça içim ısınarak katılımda bulundum."

7. Uzaktan eğitim sistemine ilişkin ileriye yönelik önerileriniz nelerdir?

Ö1: "…Uzaktan eğitim sürecinde öğrenenlerin çoğunluğu sisteme dahil olduklarında yeni teknolojiler ve ortamlarla tanışmak zorunda kalmışlardır. Salgın dolayısıyla yürütülen uzaktan eğitim sürecinde yeniliklerin yayılımına bakıldığında kimi öğrenenler bu durumu çabuk ve hızlı kabul etmiş, kimileri ise yeniliği kabul etmede zorlanmıştır. Üniversitemizdeki sistem örneğinde olduğu gibi, ülke genelindeki üniversitelerin sistemlerini gözden geçirerek eksiklerini gidermelerinin yararlı olacağı görüşündeyim."

Ö2: "…Dijital okuryazarlık bireylerin ya da öğrencilerin dijital ortamda bilgiyi arama, değerlendirme, güvenilir bilgiye ulaşma, güvenilir bilgiyi seçme, bir araya getirme ve işleme yeterlikleri olarak değerlendirilebilir. Özellikle üniversitelerin uzaktan eğitim sistemlerini bu yönde güncelleştirmeleri gerekli. Sadece öğrenenler açısından değil, eğitimcilerin de her kadroda dijital okuryazarlık becerilerini geliştirmeleri için meslek içi eğitimler yapılabilir."

Ö3: "…Uzaktan eğitim doğası gereği eğitim alanında var olan eşitsizlikleri ortadan kaldırmayı hedeflemektedir. Pandemiyle birlikte çevrimiçi verilen eğitimlere erişmede fırsat eşitsizliği olan öğrenciler özellikle gelişmekte olan ülkelerde ortaya çıkan önemli bir sorundur. Bu sorun üzere itinalı bir şekilde yoğunlaşılması lazım."

Ö4: "…Uzaktan eğitim sistemlerinin travma farkındalıklı olarak planlanabilmesi gerekliliğini vurgulamak isterim. Salgın döneminde "empati", kurumlar, öğretenler ve öğrenenler için akılda bulundurulması gereken bir kavram olarak belirmektedir. Öğrenme-öğretme yaklaşımları kategorisindeki öne çıkan kavramlar genel olarak incelendiğinde öğrenen merkezli, öğrenenler için yüksek oranda esnek ve geçiş döneminde kesin kısıtlara dayanmayan yaklaşımların ön plana çıktığı gözlenmiştir."

Ö5: "…Benim zaten teknolojik olarak yeniliklere açık, öğrenmeyi, araştırmayı seven ve onları anında uygulayan bir yapım vardı hep. Bir de uzaktan eğitim sürecine girince iyice okudum, araştırdım, online eğitimlere katıldım, tek başıma uygulamalar yaptım, yeni şeyler keşfettim. Teknolojiyi benimsemede ve etkili kullanmada zorluk yaşamadığım gibi kendimi geliştirmemde süreç yararlı oldu. Dijital ortamlarda çalışabilmek için teknik destek sağlanabilmesi gerekir. Sanırım üniversitemizde Açıköğretim öğrencileri için hazırlanmış Açıköğretim Destek birimi var. Bu yapılanmanın bütün üniversitelerde olması yükseköğretim kurumlarının nitelikli eğitimleriyle dünya standartlarını yakalamalarına yardımcı olabilir."

Ö6: "…Etkileşimsel ve duygusal uzaklığın yanı sıra otokontrol konusunda sorunlar yaşandı. Öğrenme isteği ve disiplini olmayan öğrencilerde salgın gibi kriz anlarında yersiz bir özgürlük hissi olabiliyor. Aslında yüz yüze eğitimde yaşanan sorunlar uzaktan eğitimde de sorun oluşturdu. Yüz yüze eğitimde ödev sorunu yaşatan öğrenciler uzaktan eğitim sürecinde de sorun yaşattılar. Derse katılım durumları için de durum benzerdi. Bazı öğrencilerin uzaktan eğitime karşı çeşitli adaptasyon sorunları gelişti. Bir de derslere ilgisiz katılma olayı vardı. Derse ilgisiz olan öğrencileri derste sadece online gördük. Bu nedenle uzaktan eğitim alanında çalışmalar yapılırken sadece teknik destek yetersiz kalabiliyor. Uzaktan eğitim sistemleri tarafından psikolojik ve pedagojik destekler de verilebilmeli."

Ö7: "…Belirsizlikler insanı yorar, korkutur, tedirgin eder. Öğrenenler-öğretenler arasındaki etkileşimsel ve duygusal uzaklığın yer aldığı çevrimiçi öğrenme süreçlerinde, beklenen öğrenme ediniminde zorluklar yaşanabilir. Bu bağlamda çevrimiçi toplulukların öğrenen-öğreten grupları arasında aidiyet hissi yaratılmasına yardımcı olması için çalışmalar yapılmalıdır. Uzaktan eğitim sistemlerinin iletişim, etkileşim ve paylaşım özelliklerinin gözden geçirilmesi yararlı olacaktır."

Görüşmelerin Değerlendirilmesi

Bu nitel araştırmayla ortaya çıkan durumlara ilişkin kodlar ve kategoriler; salgın sürecindeki kısıtlamalara ilişkin oluşan psikolojik sorunlar, uzaktan eğitim sürecinde karşılaşılabilecek teknolojik sorunlar, uzaktan eğitimde öğrenme-öğretme süreciyle ilgili sorunlar, eğitimde eşitlik ilkesini ortadan kaldıran dijital uçurum başlıkları altında toplanmıştır. Salgın döneminde ortaya çıkan fırsatlara ilişkin kodlar ve kategoriler; uzaktan eğitimin esnek yapısı, yeni uzaktan eğitim deneyimleri, uzaktan eğitim sis-

temlerinin deneyimli yapılanmaları, uzaktan eğitim sürecinde gelişen öğrenme-öğretme becerileri, üniversitenin salgın kaynaklı uzaktan eğitim odaklı kriz sürecini yönetim becerileri başlıkları altında toplanmıştır. Sonuç olarak global ölçekli salgın süreci beraberinde eğitim açısından engellemeler getirmekle birlikte bu duruma uzaktan eğitim uygulamalarıyla çözüm yollarının aranması yeni fırsatlar oluşturmuştur. Süreçte karşılaşılan sorunlar, uzaktan eğitimin işlevlerini yeniden düşünerek, ortaya çıkan yeni uzaktan eğitim uygulamalarıyla alternatif uzaktan eğitim sistemleri yapılanmalarına olanak tanımaktadır.

Elde edilen bulgulara göre genel olarak öğrenenlerin uzaktan eğitim sürecine uyum sağladıklarını, teknolojiyi zaman alsa da benimsediklerini, yüz yüze olamama ve sürekli ekran başında olma gibi olumsuzluklara rağmen, derslerine katılım sağladıklarını, dersleri dikkatle dinlediklerini, eğitimcilerin daha kapsamlı ders içerikleri hazırladıkları gibi olumlu yönlerinin olduğunu belirtmişlerdir.

Araştırma sonuçlarına göre öğrenenlerin genel olarak salgın sürecinde gerçekleştirilen uzaktan eğitime ilişkin olumlu düşüncelere sahip oldukları görülmüştür. Öğrenenler uzaktan eğitim sürecinin başarıyla yürütüldüğünü vurgulamışlardır. Salgının neden olduğu olumsuz koşulları dile getirmekle beraber, uzaktan eğitim uygulamalarının bu süreçte kendilerine destek olduğunu açıklamışlardır. Ayrıca salgının başlangıç döneminde psikolojilerini olumsuz etkilediğini, günlük yaşam biçimlerini değiştirdiğini, can kayıpları yaşanmasının ciddi toplumsal boyutlarının olduğunu fark ettiklerini belirtmişlerdir.

Katılımcıların pandemiyle ilgili öne çıkan bir diğer düşünceleri ise, Üniversite öğrencilerinin sosyalleşmede problem yaşamaları, derslere yeteri kadar motive olamamaları, öğrencilerin büyük bir bölümünün uzaktan eğitim yerine okulda eğitim almayı tercih ettikleri düşüncesini dile getirmeleridir. Üniversite öğrencilerinin uzaktan eğitime ilişkin görüşlerinin incelendiği nitel araştırmada öğrenciler uzaktan eğitimi, rahatlık ve kolaylık sağlayan bir sistem, zaman ve mekândan bağımsız esnek eğitim biçimi şeklinde tanımlamışlardır. Uzaktan eğitim sisteminde öğrencilerin kendilerini daha özgür hissettikleri gözlemlenmiştir.

Uzaktan eğitim uygulamalarının eşitlik işlevini yerine getirmeye çalışırken ülke genelinde eşit şartlarda yürütülemeyen, dijital uçuruma yol açan bir sistem olduğunu gözlemlediklerini ifade etmişlerdir. Araştırmaya katılan öğrencilerin salgın süreci öncesinde uzaktan eğitim sistemiyle deneyimleri olmamasına rağmen, uzaktan eğitime ilişkin olumlu düşüncelere sahip oldukları saptanmıştır. Öğrenenler, üniversitelerinin uzaktan eğitim sistemi üzerinden verilen derslerine ve ödevlerine ilişkin genel olarak problem yaşamadıklarını belirtmektedir. Ders içeriklerini takip ederken ve uygulamalar yaparken fazla zorlanmadıkları, işlenen konuları yeterli düzeyde anladıklarını söylemişlerdir. Derslerine düzenli katılım sağlarken, derslerin düzenli olarak sisteme yüklenmesinin, ders içeriklerinin kaliteli olmasının, tekrar izlenebilmesinin kendileri için şans olduğunu belirtmişlerdir.

Salgın sürecinde öğrencilerin üniversitelerindeki uzaktan eğitim sistemine yönelik geribildirimlerinin değerlendirildiği araştırmada, web tabanlı uzaktan eğitimin dijital

okuryazarlık becerilerine katkı sağladığı vurgulanmıştır. Bu sayede meslekî uygulama becerilerine ve kişisel gelişimlerine olumlu etki sağlandığını ifade etmişlerdir. Öğrencilerin çoğunluğu uzaktan eğitimin örgün eğitim kadar etkili olduğunu, öğretim elemanlarıyla iletişim kurmada problem yaşamadıklarını, uzaktan eğitimle sürecinde çözümsüz teknik problemler yaşamadıklarını aktarmışlardır. Kritik bir dönemde dahil oldukları uzaktan eğitimin, kendileri için yeni olanaklar sunabileceğini fark ettiklerini belirtmişlerdir. Uzaktan eğitimin esnek koşullarda öğrenmeyi gerçekleştirdiği, ders çalışmaya teşvik edici özelliği olduğu, paylaşımcı bir şekilde öğrenmeyi arttırdığı ve özgüven duygusunu geliştirmede katkılar sağladığı yönünde ifadeler yer almaktadır.

Araştırma kapsamındaki katılımcılar salgın sonrasında da uzaktan eğitim sistemlerinin yükseköğretimde bir gereklilik olduğu şeklindeki düşüncelerini dile getirmektedir. Araştırmaya katılan her iki cinsiyet grubundaki öğrenenlerin üniversitelerindeki sistem ve uzaktan eğitim uygulamaları hakkındaki memnuniyet düzeylerinin yüksek olduğu belirlenmiştir. Araştırmadan elde edilen bir diğer bulgu; uzaktan eğitim sisteminin etkililiği, öğrenme koşulları, verilen psikolojik ve teknik destekler, katılımcıların gelecekte de uzaktan eğitim sistemlerine dahil olmaya sıcak baktıklarını tespit etmiştir.

Sınırlılıklar

Araştırmanın kapsamının ve sınırlılıklarının belirlenmesi, araştırmanın yürütülebilirliği açısından son derece önemlidir. Bu araştırmanın da bazı sınırlılıkları bulunmaktadır. Bunlardan en önemlisi genel perspektifte Türkiye'deki üniversitelerin uzaktan eğitim sistemleri üzerinde Kovid-19 salgınının yarattığı dönüştürücü etkiler, Anadolu Üniversitesi'nin salgın sırasında uygulamalarından yararlandığı Açıköğretim Sistemi özelinden elde edilen çıkarsamalar doğrultusunda belirlenmeye çalışılmıştır.

Çalışmanın diğer önemli sınırlılığı Anadolu Üniversitesi Yunus Emre Sağlık Hizmetleri Meslek Yüksekokulu Çocuk Gelişimi Programı'nda okuyan ve Kişisel Gelişim dersine devam eden 45 öğrenciden, araştırmaya gönüllü katılım sağlayan 7 öğrenciyle yapılmış olmasıdır.

Araştırmaların belli bir süre içinde yürütülmesi araştırmaların tamamlanabilmesi açısından önemlidir. Bu araştırma 21 Şubat-28 Mayıs 2022 tarihlerini kapsayan Anadolu Üniversitesi'nin 2021-2022 Akademik takviminde yer alan Bahar döneminde şekillendirilmiştir. Araştırmanın gerçekleştirilmesi ise 2 Haziran 2022 tarihinde sağlanmıştır.

Bu araştırmanın çerçevesinin ve sınırlılıklarının belirlenmesini sağlayan bir diğer unsur araştırmanın yöntemi olan nitel araştırmayla desenlenmesidir. Böylelikle araştırmanın sonucunda elde edilen bulgular doğrultusunda katılımcı olan belirli sayıdaki öğrencinin görüşü Anadolu Üniversitesi öğrencilerinin ve ülke genelindeki diğer üniversitelerin öğrencilerinin görüşlerine genellenemez. Araştırmacı araştırma sonucunda ancak sınırlı genellemeler yapabilir.

Tartışma ve Öneriler

Araştırmadan elde edilen sonuçlar çerçevesinde eğitimin en ayrıcalıklı ve nitelikli konumunda bulunan üniversitelerin salgın sürecinde gerçekleştirdikleri uzaktan eğitim

faaliyetlerinde karşılaştıkları sorunlarının giderilmesine yönelik önerilerde bulunulması hedeflenmektedir. Uzaktan eğitim alanında yürütülen eğitim-öğretim faaliyetlerinin verimli ve işlevsel olarak sürdürülebilirliği konusunda araştırma sonuçları önem arz etmektedir.

Global ölçekli salgın döneminde yaşananların uzaktan eğitim sistemleri üzerindeki dönüştürücü etkilerinin değerlendirilmesi gerekmektedir. Bunların en önemlisi uzaktan eğitim uygulamalarının yeniden düzenlenmesi fırsatıdır. Eğitim fırsatları olarak ayrıca, karma öğrenme yaklaşımlarının daha fazla kullanılması, kaliteli öğretim ve öğrenme materyallerinin çevrimiçi içerik üretimine dahil edilmesi, uzaktan eğitim alanında deneyimi olan kurumları ve uzmanlar arasındaki iş birliğinin artması gösterilebilir.

Dijital ortamlarda eğitimin çalışmalarını gerçekleştirebilmek için bilişsel becerileri kullanabilme gerekliliği fark edilmiştir. Dijital okuryazarlık kavramıyla dijital imkanları belirleme, ulaşma, yönetme, değerlendirme becerilerini kullanabilmenin önemi belirlenmiştir. Bir diğer kavram olan dijital uçurum öğrencilerin dijital okuryazarlık düzeylerinde ve uzaktan eğitime erişim imkanlarında önemli farklılıklar olduğunu ortaya koymuştur. Araştırmanın verilerini oluşturan öğrenen görüşleri ışığında bu tür yeterliliklerin salgın sürecinde ne kadar önemli olduğu anlaşılmıştır. Bahsi geçen nedenlerle üniversitelerde dijital okuryazarlığın öğrenen ve öğreten taraflar açısından arttırılmasını destekleyen birimler oluşturulmalıdır.

Salgın nedeniyle sağlık ve hijyen konusunda daha hassas olan, zorunlu ihtiyaçlar dışında sosyalleşmeyi azaltan, fiziksel mesafeyi aşmaktan çekince duyan psikolojideki bireylerle karşı karşıya kalındığını söylenebilir. Salgının yarattığı dönüştürücü etkilerle evde çalışma ve evde eğitim görme gibi kavramlardan söz edilir olmuştur. Salgın sonrasında eski alışkanlıklara geri dönüleceği düşünülse de edinilen birtakım alışkanlıkların kalıcı olabileceği öngörülmektedir. Pandemi sürecinde hayatımıza yerleşen bazı yeni normal olgularının, pandemi süreci sonrasında da hayatımızın bir parçası olarak kalacağı varsayılabilir. Bu olguların eğitim alanına yansımalarının olabileceği göz ardı edilmemelidir.

Araştırma doğrultusunda, akademisyenlerin uzaktan eğitim sistemine hazırlıklı olduklarını göstermektedir. Ek olarak, akademisyenlerin uzaktan eğitimin kullanımına hızlı bir şekilde adapte olduklarını, üniversitelerinin alt yapılarının uzaktan eğitim için yeterli olduğu ve hatırı sayılır sayıdaki akademisyenin Kovid-19 salgını sonrasında da uzaktan eğitim sistemini kullanmayı düşündüklerini ifade etmişlerdir. Öğrencilerin Kovid-19 salgını hakkındaki bilgi kaynaklarına ilişkin yeni araştırmaların yapılmasına ihtiyaç duyulmaktadır. Uzaktan eğitim sisteminin öğrenciler tarafından benimsendiği, takip edildiği ve uzaktan eğitim sisteminde öğrencilerin kendilerini daha özgür hissettikleri saptanmıştır. Ayrıca öğrencilerin, uzaktan eğitimin gelecekte de devam edeceği öngörüsünde bulundukları görülmüştür.

Üniversitelerde salgın nedeniyle yüz yüze eğitime ara verilmesi sonucu uygulanan uzaktan eğitim faaliyetleri öğrenenlerin öz düzenleme becerilerine sahip olmaları gerekliliğini ortaya çıkarmıştır. Bunun yanı sıra disiplinli, otokontrolü olan, bağımsız

karar verebilen, yeniliklere uyum sağlayabilen, sorumluluk sahibi ve farkındalığı olan bireysel özelliklerin desteklenmesi ile öğrenenlerin öz güvenleri arttırılabilir. Dolayısıyla salgın sonrasındaki dönemde de yükseköğretimde öğrenenlere kendi kendine öğrenme becerilerinin kazandırılması ve öğrenme motivasyonlarının desteklenmesi yönünde çalışmalar yapılabilir.

Gerek maliyet avantajıyla gerekse zaman ve mekân kısıtlaması olmaksızın eğitim olanaklarından yararlanılabilmesi, uzaktan eğitim uygulamalarının tercih edilirliğindeki artışın önemli etkenleridir. Salgının dönüştürücü etkisiyle kullanılmaya başlanan yeni normal kavramında "evde eğitim" anlayışıyla yürütülen uzaktan eğitim doğrultusunda online kanalları kullanabilen ve internetten gelişmeleri takip etmeyi tercih eden bir öğrenen profiliyle karşı karşıya kalındığını göstermektedir. Salgın sonrasında eğitim alanında eski sistemlere ve alışkanlıklara geri dönüleceği düşünülse de birtakım uygulamaların kalıcı olması öngörülmektedir.

Tüm dünyayı etkisi altına alan pandemi dünyanın dört bir yanında ve hayatın pek çok alanında değişikliklere sebep olmuştur. Global ölçekli salgının yarattığı dönüştürücü etkiler öğrenenlerin davranışlarını da etkilemiş ve etkilemeye devam etmektedir. Uzaktan eğitimle ilgili değişen yaklaşımlar doğrultusunda yeniden düzenlenen uygulamalar, yeni araştırmalar yapılması gerekliliğini de beraberinde getirmiştir.

Amacına uygun uzaktan eğitim faaliyetlerini gerçekleştirebilmek için öğrenen-öğrenme sürecindeki öğrenen deneyimlerinin mümkün olduğunca objektif kriterlerle belirlenmeye çalışılması gerekir. Salgın döneminde eğitim alanında yaşanan durumların bilimsel olarak araştırılması, sürece ilişkin tecrübe eksikliğini giderebilir. Ayrıca olası yeni durumlarda ortaya çıkabilecek olan sorunlar için hazırlıklı olunmasını sağlayabilir. Bu sorunların belirlenmesi için akademik ve sektörel tabanlı araştırmalar yapılabilir. Araştırmalar sonucunda elde edilen veriler genel durumun anlaşılması bakımından yararlı biçimde değerlendirilebilir. Salgının yarattığı dönüştürücü etkilerden ders alınarak yükseköğretimin geleceğinin planlanmasında bu tecrübelerden yararlanılabilir.

Kovid-19 salgını süresince ve sonrasında eğitimin yönetilmesi için farklı seviyelerdeki öğrencilerin ihtiyaçlarının karşılanması, uzaktan eğitim için pratik yaklaşımların geliştirilmesi, müfredatın hazırlanması, periyodik olarak değerlendirmelerin yapılması ve salgın süreci sonrasına hazırlık çalışmalarının yürütülmesine dönük çalışmalara ihtiyaç duyulduğu belirtilebilir. Bu süreçte eğitime erişimde sorunlar yaşayan ve daha fazla sosyo-psikolojik problemler yaşamaları muhtemel özel eğitime muhtaç öğrencilerle ilgili araştırmaların yapılması ayrı bir önem arz etmektedir.

Alanda çalışan uzmanların salgın süreciyle ilgili daha geniş öğrenen grupları üzerinde çalışmalar yapmaları yerinde olacaktır. Ayrıca bazı araştırmacıların önerdiği gibi yenilikçi ve katılımcıları yönlendirmeyen araştırmalar yapmak, elde edilecek verilerin kullanılabilirliğine katkı sağlayabilir. Diğer taraftan salgının eğitimciler üzerindeki etkilere yönelik az sayıda araştırmanın olduğu görülmektedir. Bu bilgi doğrultusunda farklı bakış açılarından salgın sürecini öğretim elemanlarının nasıl gördükleri ve eğitimci olarak nasıl değerlendirdikleriyle ilgili araştırmaların yapılması yerinde olacaktır.

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Metaverse Platformlarının Web İçerik Analiziyle Özelliklerinin Karşılaştırılması

Ceren GÜVEN[1], Hakan ALTINPULLUK[2]

Özet

Bu çalışmada, Metaverse platformlarının çeşitli özellikleri incelenerek birbiriyle bazı bileşenler bağlamında benzer ve farklı yönlerinin karşılaştırılması amaçlanmaktadır. Bir içerik analizi türü olan Web içerik analizi tekniği kullanılarak, Metaverse platformlarının web siteleri çeşitli yönlerden incelenmiştir. Bu bağlamda, Metaverse platformlarıyla ilgili bilgiler ve bazı teknik terimlerin açıklamaları da çalışmaya eklenmiştir. Elde edilen bulgular tablolaştırılmış ve tek boyutta görüntüleme imkanı sağlanmıştır. Çalışmada, yoğun kullanıcıya sahip Decentraland, The Sandbox, Horizon Worlds, Over, Axie Infinity, Next Earth, Sensorium Galaxy ve Victoria AR'dan oluşan 8 Metaverse platformunun web sitesi incelenmiştir. Verilerin toplanması ve Web içerik analizi 20 Haziran 2022 ile 6 Temmuz 2022 tarihleri arasında gerçekleştirilmiştir.

Anahtar Kelimeler: *Metaverse, web içerik analizi, NFT, blok zincir, Web 3.0.*

GİRİŞ

Teknolojinin ve internetin bilgisayar sistemleri ile yapılandırıldığı, otomatik kodlama sistemine sahip Web 3.0 dönemi *"semantik web dönemi"* olarak da adlandırılmaktadır. Web 3.0 ayrıca yapay zekâ kavramı ile gündelik yaşamın sanal temsilini mümkün kılan merkeziyetsizliğin teknolojisi olarak da düşünülebilir (Badgers, 2021). Thomas Friedman'a (2009) göre, yeni dijital dünyada yaşayan insanlar, etkileşimi geliştirmeye yardımcı olan ağlar ve tüketici ihtiyaçlarına doğrudan bağlantı sağlayan yazılım uygulamaları ile yapay zekanın erişilebilen analizleri doğrultusunda her geçen gün yenilenmektedir. Web 3.0'ın büyük temsillerinden biri olan, *"sanal dünya"* olarak tanımlanan Metaverse platformlarının web sitelerinin ve ilgili kavramların gün geçtikçe şekillenmekte olduğu ve bu şekillenmelerden meydana gelen soyut ve somut çıktılar ile dijital dünyayı yeniden şekillendireceği öngörülmektedir. Metaverse için bahsedilen uzun soluklu dijital senaryoların tanımlanması ve doğru tanımlar kapsamında ortamın niteliklerine uygun çalışmalar yapılabilmesi adına öne çıkan özelliklerin karşılaştırılması ve kullanıcılara bilgi sunulması, Metaverse platformlarının kullanımını bilinçli hale getirecek ve eğitim, sağlık, pazarlama gibi alanlardaki fırsatlara kılavuzluk edecektir. Bu araştırma, henüz web tarayıcıları, mobil uygulamalar ve akıllı gözlükler üzerinden erişim sağlanan Metaverse platformlarının web siteleri ile web sitelerinde bulunan kavramların kullanım alanlarının anlamlandırılması gerekliliğinden doğmuştur. Web 3.0 adı altında geliştirilen özelliklerin ne anlama geldiği, Metaverse platformlarının web sitelerinde hangi teknolojilerin yer aldığı karşılaştırma yapılarak bir tablo üzerinden sunulmuştur.

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Dijitalleşmenin Günümüze Yansımaları

Özellikle 2010 ve 2020 yılları arasında gerçekleşen, dijitalleşmenin birbirinden farklı disiplinlerde getirdiği büyük dönüşümlerden söz etmek mümkündür. Teknolojik gelişmelerdeki dijitalleşmenin günümüzde sunduğu özelliklerden en önemlisi sayılabilecek kullanıcı etkileşimi, teknolojinin programlanabilir yapısından doğan esnekliği nitelemektedir. Kullanıcılar arasında geri bildirime açık, doğrusal olmayan ve özelleştirilebilir dijital içerikler, teknolojinin çeşitli olanakları ile doğrudan hedef kitlenin yönetimindedir. Manovich'e (2001) göre dijitalleşme, yaratılan ve sunulan içeriklerin kalıcı nesne formatında saklanabilme özelliğinin yanı sıra erişilebilir olmasıdır. Dijitalleşme, sürekli olarak teknolojilerle güçlenen bir kavramdır (Schallmo ve Williams, 2018). Dünya genelinde yaşanan dijital gelişmelerin son durağı, nesnelerin interneti, makine öğrenmesi ve blok zincir gibi çeşitli teknolojilerin işlevleri ile yayılan Web 3.0'ın üç boyutlu sanal platformları olduğu söylenebilir. Üç boyutlu sanal platformların temsili olarak da Metaverse teknolojisinden söz edilebilir.

Metaverse'ün Gelişimi

COVID-19 pandemisi ile çevrimiçi sanal ortamlara olan rağbetin arttığı, daha fazla sanal deneyim paylaşımının büyük bir gereksinim haline geldiği görülebilmektedir. Bu durumun sonucunda ise Metaverse ortamlarının toplumun bazı katmanlarında benimsenmesini kolaylaştırmakta olduğu söylenebilir. Bütünleştirici ve özerk ağların önemli bir rol oynadığı 5G'den blok zincire, sanal gerçeklik (VR) uygulamalarından artırılmış gerçekliğe (AR) kadar çok farklı teknolojik dönüşümler ile tanımlanan Metaverse, kullanıcılara geniş bir kullanım alanı sunma potansiyelindedir (Park ve Kim, 2022). "Metaverse" kavramı, fiziksel ve dijital dünyayı birleştiren merkeziyetsiz bir yapı olarak tanımlanabilir. Metaverse kelimesi, *"meta"* ve *"universe"* (evren) kelimelerinin birleşimiyle meydana gelmiştir. Başka bir deyişle, Metaverse bir gerçeklik sonrası evren, fiziksel gerçekliği dijital sanallıkla birleştiren sürekli ve kalıcı çok kullanıcılı bir ortamdır. Metaverse kurgusu ilk olarak 1992 yılında Neil Stephenson tarafından yazılan "Snow Crash" adlı bilim kurgu romanında bahsedilmiştir. Sonrasında ise 2003 yılında piyasaya sürülen Second Life isimli oyun, Metaverse'ün ilk izlenimlerini vermektedir. "Second Life", 2000'li yıllarda dijital ekonomiler, dijital gayrimenkul ve çok katılımcılı çevrimiçi oyunları mümkün kılmıştır. Tarihteki bu oluşumlardan sonra üç boyutlu sanal ortamların tekrardan gündeme gelmesi, 2021 yılında en çok aratılanlar listesine giren "Metaverse" sözcüğünün, Facebook'un kurucusu Mark Zuckerberg'in Facebook'u "Meta" markasıyla duyurması ile bir bağlantısı olduğu düşünülmektedir. Ball'a (2021) göre Metaverse, internetin somutlaştırılmış halidir. Daha çok oyun endüstrisiyle iç içe geçmiş kişiselleştirilmiş avatarlara benzer şekilde Metaverse platformlarında da belirli bir kullanıcı kimliği oluşturmanın sanal, artırılmış ve karma gerçeklik teknolojilerinin kullanımıyla daha etkileyici olacağı düşünülmektedir.

Metaverse İle İlgili Kavramlar

Metaverse platformlarının anlaşılabilmesi ve daha etkin kullanılabilmesi için ilgili kavramları tanımak önemlidir. Yapay zekâ, etkileşimli teknoloji ve bulut bilişim sistemleri Metaverse'ü destekleyici teknolojilerdir (Ning vd., 2021). Bilgi işlem altyapısının ve

bilgi yazılımlarının birleştirildiği, ağlar ve aygıtlar aracılığıyla ortak organize edebilme özelliğine sahip sistematik özellikleri özdeşleştiren nesnelerin interneti *IoT (Internet of Things)* (Madakam, Ramaswamy ve Tripathi, 2015); Dağıtılmış veri yapısı sayesinde tek bir blok içinde bilgileri ve eylemleri depolayan, değiştirilemez ve kaybedilemez veri tabanı *blok zincirler* (Anascavage ve Davis, 2018); Dijital bir varlığın benzersizliğini ve birbirinin yerine geçemeyeceğini niteleyen, blok zincir teknolojisinde depolanabilen dijital veri birimi olan *NFT (non-fungible-token*) (Wang vd., 2021) ve dünya çapında internet aracılığıyla hızlı ve güvenli ekonomik bağlantı sunan dijital para biçimi olan *kripto paralar* (Gabrowski, 2019), Metaverse ortamlarındaki yapıların daha iyi tanımlanması için araştırılması gereken önemli kavramlar olarak öne çıkmaktadır.

Bu kavramların yanı sıra artırılmış gerçeklik, sanal gerçeklik ve karma gerçeklik teknolojileri Metaverse platformlarının gerçek ve sanal dünya arasındaki oluşumunu sağlayan, gerçek dünyadaki çevrenin dolaylı olarak algısal gereklerini veren (ses, görüntü vb.), giyilebilir teknolojiler ile desteklenen ve bilgisayar tarafından geliştirilen görünürlüğü somut bir işlev olarak sunan teknolojilerdir (Fernandez, 2017). *Sanal gerçeklik (VR),* fiziksel dünyadaki ortamın tamamen dijitale yansımasıdır. Sanal gerçeklik, artırılmış gerçeklikten farklı olarak fiziksel gerçeklikten destek almamakta, tamamen yapay, sanal, sentetik bir ortamda gerçekleşmektedir. Görme, işitme gibi duyuların dijital cihazlar ile algılanabilir hale gelmesi ve fiziki çevrenin sanal gerçeklik teknolojisi ile yeni yapay ortamda deneyimlenmesi olarak söz edilebilmektedir (Wohlgenannt, Simons ve Stieglitz, 2020). *Artırılmış gerçeklik (AR),* genellikle video, resim, grafik gibi içeriklerin sanal ortamda katmanlanmış bir boyut yaratmasıdır. Fiziksel dünyadaki deneyimlerin gerçek zamanlı olarak sanallaştırılarak zenginleştirilmesiyle kullanıcıya sunulmasıdır. Kullanıcı gerçek dünyada görebildiği ve işitebildiği dolayısıyla algılayabildiği ortam ile etkileşime girebilir. *Karma gerçeklik (MR)* ise, sanal ve artırılmış gerçeklikten farklı olarak her ikisinin de bulunduğu gerçek dünyadaki nesnelerin dijital ortamda gerçek zamanlı olarak etkileşime girmesidir. Karma gerçeklik teknolojisinde holografik cihazlar ve kameralar yardımıyla gerçek dünya ile bağlantı kurulabilmektedir (Milman, 2018).

Metaverse Uygulama Alanları

Ticari ve ekonomi bağlamında incelendiğinde geleceğin dijital iletişim platformu potansiyeline yönelik yapılan araştırmalarda, 2025 yılına kadar olan süreçte Metaverse'ün markalara, kurumlara, kişilere ve topluluklara sunduğu yüksek iletişim, işbirliği, paylaşım ve etkileşim barındıran yeni sanal uygulamaların çok yüksek fırsatlar yaratacağı sonucuna varılmaktadır. Facebook'un kurucusu Mark Zuckerberg sanal dünyaların birbirine bağlı yapılarına dikkat çekerek Metaverse için gelişen giyilebilir teknolojiler ile çok kapsamlı, sonsuz bir topluluk oluşturabileceğinden söz etmiştir. Metaverse inşasındaki görüşlere paralel olarak Lee vd. (2021), Metaverse'ün teknoloji ve ekosistemin birleştiği yüksek avantajlar içerdiğini belirtmiştir. Literatürdeki araştırmalarda Metaverse; fırsatlardan tehditlere, markaların pazarlama faaliyetlerinden turizme, modern tüketim kültüründen eğitimdeki ve sağlıktaki yeni fırsatlara kadar pek çok farklı alanda araştırma konularına dahil edilmiştir.

Metaverse ve Eğitim

Günümüzde öncelikli olarak eğitim alanında sıkça deneyimlenen sanal gerçeklik ve artırılmış gerçeklik uygulamaları, eğitimi düzenleyen bir yapı olarak kabul edilmektedir. Andrews vd. (2019)'ne göre Metaverse'teki öğrenme süreçlerinin iyileştirilerek deneyimleneceği, sanal gerçeklik ve artırılmış gerçekliğin birleşimi olan karma gerçeklik aracılığıyla öğrenme süreçlerine katkı sağlayacağı söz konusudur. Özellikle karma gerçekliğin eğitim alanında ilgi çekici bir konu haline geldiğini belirten Lee (2012), araştırmalarda bu teknolojiler sayesinde öğrencilerin eğitimdeki olanaklarının gelişebileceğinden söz etmiştir. COVID-19 pandemisi sonucunda uzaktan eğitimin değeri artmış ve eğitim alanına yeni uygulamalar entegre edilmiştir. Bu kapsamda, fiziksel dünyadaki sınırlı eğitim olanaklarını değiştireceği öngörülen Metaverse ortamlarının eğitimde çok önemli bir araç haline geleceği beklenmektedir. Duan vd. (2021)'ne göre, dünya genelinde insan nüfusunun ve buna paralel olarak eğitim ihtiyacının hızla arttığı günümüzde Metaverse eğitim alanında büyük bir potansiyele sahiptir.

Metaverse ve Sağlık Hizmetleri

Özellikle COVID-19 pandemisi sonrası sağlık hizmetlerinde dönemin gerekliliklerine paralel olarak geliştirilen yeni uygulamalar, Metaverse platformlarının getireceği benzersiz deneyimlerin benimsenmesini kolaylaştıracak niteliktedir. Uzaktan muayene, konsültasyon, dijital tele-sağlık hizmetleri gibi deneyimler çevrimiçi uygulamaları arttıracak ve benzersiz kılacaktır. Metaverse platformlarının, etkileşimli tıp eğitiminden tedavi uygulamalarına kadar pek çok düzeyde sağlık yönetimini iyileştirecek fonksiyona sahip olduğu düşünülmektedir (Skalidis, Muller ve Fournier, 2022). Artırılmış, sanal ve karma gerçeklik teknolojilerinin tıp eğitimi için öğrenciler arasında etkileşimli bir fırsat olmasının yanı sıra, yakın gelecekte doktor ve hasta arasında gerçekleşecek sanal muayenelerin bu teknolojiler ile daha etkili yürütülmesinin mümkün olacağı tartışılmaktadır (Kye vd., 2021). Fizik tedavi, robotik cerrahi, fitness, psikiyatri gibi alanlarda Metaverse'ün uzaktan takip, izleme, yönlendirme, terapi ve erken teşhis gibi işlemsel bir hizmet sunabileceği söz konusudur.

Metaverse ve Pazarlama

Metaverse'ün popülerleşmeye başladığı günden itibaren pek çok dünya markası Metaverse platformlarına dahil olarak çeşitli pazarlama faaliyetleri gerçekleştirmeye başlamışlardır. Büyük pazarlama alanı oluşturan Metaverse platformlarının, çeşitli sektörlerde hizmet sunan markaların ilgisini çekmeyi başarmış olduğu söylenebilir (Han, Hey ve You, 2021). Samsung'tan Adidas'a, Hyundai'den Calvin Klein ve Dior'a kadar onlarca dünya markası Metaverse platformlarına dahil olmuştur. Beymen ve Gucci gibi büyük markalar Metaverse avatarları için dijital koleksiyondan oluşan ürün tanıtımları hazırlamış ve sunmuşlardır (Vogue, 2021). Ayrıca özellikle Decentraland ve Sandbox gibi, Metaverse dünyasının en popüler platformlarından sayılan sanal evrenlerde, alanında uzman isimlerin katılımıyla sürdürülen pek çok pazarlama zirvesi gerçekleştirilmiş ve halen gerçekleştirilmektedir (GQ, 2021). Bu örnekler, Metaverse platformlarının markalar açısından büyük ticari potansiyeller vaat ettiğini göstermektedir.

Metaverse ve Modern Tüketim Kültürü

Metaverse'te tüketim kültürünü yeniden şekillendirecek yatırımların yapıldığını ve bu konuda kullanıcıların benlik sunumlarının artık bu merkez üzerinden de gerçekleşeceğini belirten Türk vd., (2022), markaların Metaverse avatarları için tasarladıkları yeni dijital ürünlerini piyasaya sürdüklerinden ve güncel olarak ürün geliştirdiklerinden söz etmiştir. İnsan ilişkilerinin fizikselden dijitale kopyalanacağı Metaverse ortamında kullanıcılar, bulundukları bu ortamda kendilerini değerli hissetmek ve ait olabilmek için benlik sunumlarını avatar teknolojisi üzerinden gerçekleştireceklerdir.

Metaverse ve Turizm

Otel işletmelerinde misafir memnuniyeti, kültürel deneyimler, otele gitmeden önce Metaverse'te gerçekleşecek keşif turları, etkileşimli odalar gibi alternatifler Metaverse'ün turizm açısından da değerli olacağını ortaya koymaktadır (Ghare, 2022). Metaverse sayesinde otele olan güven duygusu artacak, tereddütlü yaklaşımlar ortadan kalkacaktır. Bu sayede turizm işletmelerinin gelirlerinin iyileşeceği yönünde görüşler vardır. Metaverse'te yer edinen oteller, çeşitli sanal turlar gerçekleştirerek rakiplerinden daha önde olacak ve müşteri katılımını arttırabileceklerdir.

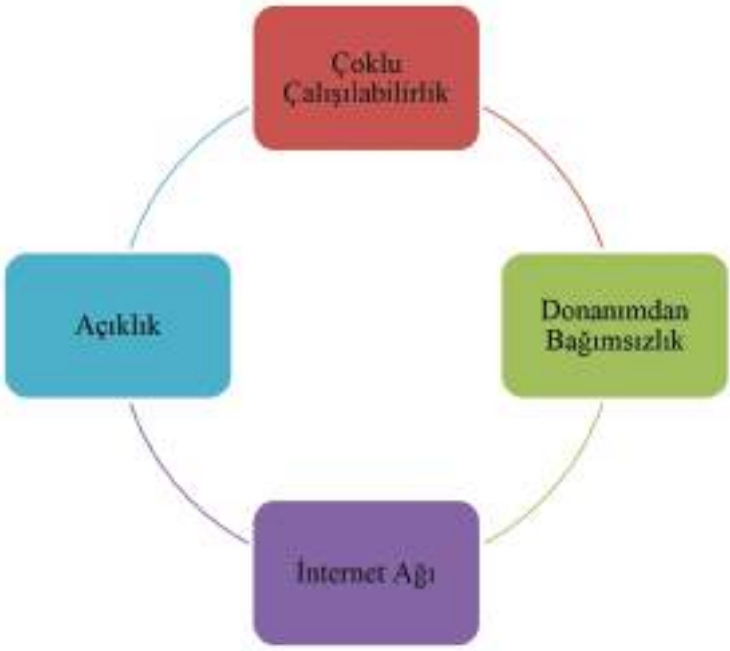
Metaverse, Sanat ve Eğlence

Sanal dünyaların en önemli alternatiflerinden biri de dijital sanat eserlerinin büyük bir pazar alanı oluşturuyor olmasıdır. NFT gibi benzersiz sanat içeriklerinin ve fiziksel içeriklerin dijital formlarının sınırsız ulaşılabiliyor olması kayda değer piyasa değeri sunmaktadır. Sanat içeriklerinin yanı sıra eş zamanlı gerçekleşen konserler, zaman ve mekan ayrımı olmaksızın gezilebilen sergi ve müzeler yeni işbirliklerine yol açabilecek potansiyeldedir. Bu işbirlikleri eğlence organizasyonlarının sanal dünyadaki inşası niteliğindedir. Sanat, eğlence, işbirliği, marka ürünleri, sanat eserleri, sergiler, galeriler, müzeler Metaverse dünyasında hiçbir kısıtlama olmaksızın geniş kitlelerce erişilebilecektir (Forbes, 2021). Ek olarak Metaverse'teki çok kapsamlı etkileşimin kullanıcılarla bütünleşmesi üzerine, özellikle Z kuşağının yoğun ve yenilikçi teknoloji kullanımına atıfta bulunularak yapılan tanımlamaların Metaverse için çekici bir alan ortaya koymakta olduğu söylenebilir.

Metaverse İlkeleri

Mystakidis (2022) tarafından Metaverse ortamlarının barındırması gereken ilkeler öne sürülmüştür. Bu ilkeler çoklu çalışılabilirlik, açıklık, donanımdan bağımsızlık ve internet ağıdır. *Çoklu çalışılabilirlik,* Metaverse ortamında bulunan kullanıcıların birlikte çalışabilmesine, eş zamanlı değişiklik yapabilmesine ve çoklu katılımlara imkan sağlayan bir yaşam alanı sunmaktadır. Bu sayede ortama katılım sağlayan tüm kullanıcılar herhangi bir ayrım olmaksızın aynı ekosistemin birer parçası durumunda olacaklardır. *Açıklık ve donanımdan bağımsızlık* ilkelerinin birbirleriyle ilişkili olduğu söylenebilir. Gerek ekonomik gerek sosyo-kültürel boyutta tüm kullanıcıların sürekli olarak kullanımına izin veren bir ortamın mevcudiyetini temsil etmektedir. Herhangi bir ayrımcılık olmaksızın kullanıcıların hem teknolojik hem ekonomik hem de donanımsal

(bilgisayar, tablet, akıllı cep telefonu vb.) olarak Metaverse ortamlarına erişebilmesini nitelemektedir. Son olarak *internet ağından,* donanımsal bütünlüğü sağlayan internet erişimi ile cihazlar arasında bağlantı kurmayı hedefleyen bir ilke olarak bahsedilebilir. Daha iyi bir internet hızı deneyimleri olumlu etkileyecektir.



Şekil 1. *Metaverse İlkeleri (Mystakidis, 2022)*

Metaverse Platformlarının Web Sitelerinde Yer Alan Bazı Kavramlar ve Tanımları

Kripto Para Birimi

Günümüzde dünya genelinde ticari hareketliliğin dijital ortamlarda karşılığını bulması sonucunda dijital para birimlerine olan ihtiyaç artmıştır. Finansal sistemde güvenli bir ekonomik bağlantı kurmayı sağlayan, elektronik para birimi olan kripto para kavramının Türkçe karşılığı "şifreli para"dır. Merkeziyetsiz ve dağıtık bir sistemin parçasıdır. Dolayısıyla herhangi bir fiziksel mevcudiyeti yoktur (Greenberg, 2011).

DAO - Merkezi Olmayan Otonom Organizasyon (Decentraland Autonomous Organization)

Yönetimi merkezi olmayan, kendi kendini yöneten ve kullanıcıların kendilerini koordine etmelerine dayanan DAO, blok zincir tabanlı bir sistemdir. Bir nevi örgüt teorisine dayanan DAO yönetim sisteminin temelinde, merkezi olmayan örgütlerin oluşturduğu yönetimsel ilkelerin mevcutluğundan bahsedilebilir. Gerçekleştirilen tüm hareketler, finansal kayıtlar, dijital etkileşimler bilgisayar programları ile kodlanmış sistem aracılığıy-

la korunur ve kaydedilir. Kişisel verilerin kontrolü ve kullanıcı kimlikleri DAO yönetiminde blok zincir ve bulut bilişim teknolojisinde denetlenmektedir. Bu sistem üzerinden kaydedilmiş bilgiler herhangi bir üçüncü şahısla paylaşılmaz. Yönetim, NFT kullanan yetkililer tarafından oylama sistemi ile seçilir. Ek bir bilgi olarak 2015 yılında piyasaya sürülen Ethereum kripto parası, ilk DAO yönetim sistemini mümkün kılmış, blok zinciri üzerinde geliştirilmiş bir dijital para birimidir (Hassan ve Filippi, 2021; Jentzsch, 2016).

DeFi – Merkeziyetsiz Finans (Decentralized Finance)

DeFi; merkezi olmayan finansmanı temsil eden, anonim, özgürce denetlenebilir bir blok zincir teknolojisine dayanmaktadır. Werner vd. (2021)'ne göre DeFi; açıkça denetlenebilir, var olan finansal hizmetler ile yeni finansal ürünleri birleştirebilir, kullanıcı tarafından tam kontrole sahip ve etkileşime açıktır. DeFi'nin ortaya çıkış amacı, dünya genelinde daha fazla kullanıcıya hitap etmek ve daha demokratik bir finans yapısı oluşturmaktır. DeFi'den gün geçtikçe küreselleşen dünya şartlarında büyük bir gereksinim haline gelen para transferlerinin dünyanın bir ucundan öbür ucuna, daha hızlı, az maliyetli ve güvenli bir hale gelmesini sağlamakta olan bir yapı olarak söz edilebilir (Bitlo, 2021).

Teknik Doküman (White Paper)

Belirli bir teknik incelemeyi detaylı olarak açıklayan ve hedef kitlenin sorgulayabileceği her türlü sorunun çözümünü sunan kılavuzdur. Bir projenin (örneğin, kripto para projesi) piyasaya sunacağı ürünün veya hizmetin amacına yönelik detaylarını yayınladığı dokümandır. Teknik bir dil ile yazılan bu doküman genel anlamda projenin gelecekte getireceği hareketlilikler, projenin amacı ve kapsamı hakkında bilgi sunar. Ekim 2008 tarihinde, Satoshi Nakamoto tarafından yayınlanan Bitcoin projesinin bilgileri, White Paper olarak sunulmuştur. Bir White Paper belgesinde kripto para birimin amacı ve kuralları, proje ekibi, feragatname metni gibi bilgiler yer almaktadır. White Paperlar B2B (business to business - işletmeden işletmeye) pazarlamasına hizmet etmek amacıyla piyasa sürülmüştür. Bu pazarlama anlayışı ile hizmet veren, hizmet alan ve ortaklık sağlayan kuruluşlar arasındaki ağı oluşturmaktadır. Özerk kripto para birimleri dahil olmak üzere Metaverse platformlarına ait dijital para birimlerinin satın alma işlemleri, dağılımı, transfer işlemleri, grafikleri gibi detayların bu White Paperlarda açıklandığı gözlemlenmiştir. Genellikle pazarlama kapsamında direkt olarak hizmet vereceği kitleye şeffaf bir bilgi akışı sunmayı ve etkilemeyi amaçlamaktadır (Indeed, 2021; Techopedia, 2013).

Yol Haritası (Road Map)

Metaverse platformlarının web sitelerinde sıklıkla karşılaşılan Road Map teriminin kullanım amacı, Türkçe anlamıyla da anlaşılabileceği gibi projenin neler planladığını belirli bir yol haritası üzerinden sunmaktır. Genellikle teknolojiyle bağlantılı ürünlerin projelerinin tanımında ve planlanmasında kullanılan bu terim, Metaverse platformları için geliştirilen kripto para birimleri ve NFT projeleri hakkında da gerçekçi vaatlere tanıklık etmektedir. Proje geliştiricilerin kripto para birimleri ve NFT projeleri için hangi vaatlerde bulunduklarını, sunulan vaatleri hangi zaman aralıklarında gerçekleştirecekleri gibi bilgiler Road Map'te verilmektedir. Road Map'te proje ekibinin daha önce gerçekleştirdiği projelerden de örnek gösterilerek kullanıcıya güven sunulabilmektedir.

MetaMask Cüzdanı

MetaMask cüzdanı, kripto para birimlerini güvenli bir şekilde kullanabilmek, koruyabilmek ve hizmetlerden yararlanabilmek adına, yapılan işlemler arasında doğrudan etkileşim kurmayı sağlayan bir sanal cüzdan görevi görmektedir. Hesapları iç içe aktaran ve başka bir hesaba geçişi sağlayan blok zincir temelli araçtır (Lee, 2019: s.93-94). MetaMask cüzdanı kullanıcı bilgilerini, hareketlerini güvenli bir sistem üzerinden korumayı hedefler. İki tür kripto para cüzdanından bahsedilmektedir: Sıcak ve soğuk cüzdanlar. Sıcak cüzdanlar, işlemlerin imzalandığı, saklandığı ve herkesin erişebileceği yapıya sahip olan "özel anahtar" olarak bahsedilen yapıya erişilmesini sağlayan, internet tarayıcısı üzerinden gerçekleştirilen aktif eklentileri kapsamaktadır. Soğuk cüzdanlar ise herhangi bir internet bağlantısı gerekmeksizin işlemlerin çevrimdışı olarak gerçekleştirilmesine olanak sunmaktadır. Soğuk cüzdanların sıcak cüzdanlara göre daha az işleve sahip olduklarından bahsedilse de güvenlik unsurlarına bakıldığında, soğuk cüzdanların daha çok tercih edilir oldukları söylenebilir. MetaMask cüzdanı bir sıcak cüzdandır. Herkesin erişim sağlayabileceği, başlangıçta Ethereum ağı üzerinden çalışan ancak kripto para piyasasının yoğun rağbet görmesi ile diğer kripto para birimlerinin de saklanmasını sağlayan çok yönlü bir ağ yapısını içermektedir. MetaMask cüzdanının merkeziyetsiz finans olmasına ek olarak Firefox, Chrome ve Brave tarayıcıları ile Android ve iOS mobil uygulamaları üzerinden de desteklenmekte olduğu görülmektedir (Investopedia, 2022).

Poligon Ağı (Polygon Network)

Poligon (Matic) ağ sistemi en temelde blok zincir ağlarının güvenliğini ve sürdürülebilirliğini desteklemek amacıyla oluşturulmuştur. Ethereum destekli altyapının çok katmanlı geçişlerini sorunsuz kılmayı hedefleyen, işbirliğine dayalı bir altyapıdır. Krito para birimi MATIC'tir. Poligon ağı sayesinde blok zincire dayalı sistemler birbirleri ile entegre olabilmekte, ortak veri kaynağı oluşturabilmektedir. Poligon ağ ile Ethereum ağından farklı olarak ölçeklenebilir aktivasyonlar düzenlemek mümkündür. Dijital para birimleri ile uyumludur. Hızlı ve düşük maliyetli kullanma ücretine sahiptir (Investopedia, 2022).

YÖNTEM

Veri Toplama Süreci

Bu çalışmada 20 Haziran 2022 ile 6 Temmuz 2022 tarihleri arasında 8 Metaverse platformunun web sitesi incelenmiştir. Metaverse platformlarının web sitelerindeki bilgiler belirli kategorilerde ayrılarak toplanmış ve tabloya eklenmiştir. Toplanan veriler belirtilen süre içerisinde günlük olarak not alınmış ve güncelliğinden emin olmak adına sürekli olarak kontrol edilmiştir. İncelenen web sitelerinin karşılaştırması tek bir tablo üzerinden sunulmuştur.

Verilerin Analizi

İçerik analizi, metinler ve görüntüler gibi sembolik içeriği bazı yapısal ve anlamsal özellikleri kapsamında temalandırmak ve kodlamak için kullanılan sistematik bir tekniktir (Bauer, 2000). Web içerik analizi, ise içerik analizinin bir türü olarak web sayfalarındaki içeriklerin yorumlanmasıdır (Herring, 2009). Web tabanlı sistemlere dayalı içeriklerin analizinde pek çok fırsata değinilmektedir. Örneğin, karma çoklu ortam metin, animasyon, video, grafik ve ses vb. gibi merkeziyetsiz yapılar farklı perspektiflerden analiz edilerek yorumlanabilir. Ek olarak web siteleri, hiper bağlantıların bir parçası olduğundan dolayı sürekli olarak gelişebilmekte ve dönüşebilmektedir. McMillan'ın (2000) yaptığı bir çalışmada web içeriklerinin sürekli olarak yenilenebilmesi göz önüne alındığında, web içerik analizi için yapılacak veri toplama aşamasının yaklaşık bir ila iki ay arasında gerçekleşmesinin daha sağlıklı sonuçların elde edilmesini sağladığı öne sürülmüştür. Bu çalışmada ise web sitelerindeki hızlı dönüşümler dikkate alınarak veri toplama ve veri analizi yaklaşık bir ayda tamamlanmıştır. Metaverse platformları için araştırmalarda öne çıkan ve platformların içeriğinden keşfedilen temel kavramlar dikkate alınarak toplamda 8 web sitesi 15 farklı kategoride karşılaştırılarak analiz edilmiştir.

Tablo 1. Metaverse Platformlarının Web Sitelerinin Karşılaştırılması.

	Decentraland	The Sandbox	Horizon Worlds	Over	Axie Infinity	Next Earth	Sensorium Galaxy	Victoria VR
Geliştiriciler	Decentraland Vakfı	Animoca Brands	Meta, Inc.	Davide Cuttini, Diego Di Tommaso ve Azure (Kurucu Üyeler)	Sky Mavis	Gabor Retfalvi (Ortak Kurucu ve CEO)	Mikhail Prokhorov	Ondrej Dobrusky
İlk Sürüm	20 Şubat 2020	29 Kasım 2021	9 Aralık 2021	2021	Mart 2018	2021	2021	2021
Uygun Dil	İngilizce	İngilizce, Türkçe, Çince, Japonca, Korece	İngilizce, Çekçe, Yunanca, Danca, Almanca, İspanyolca, Fransızca, Çince, Romanca, Japonca *(ve 15 dil daha)*	İngilizce	İngilizce, Türkçe, Fransızca, Çince	İngilizce	İngilizce	İngilizce
Tür	Sanal dünya	Sanal dünya	Sanal dünya	Sanal dünya	Sanal dünya	Sanal dünya	Sanal dünya	Sanal dünya
Dijital Para Birimi	MANA	LAND VE SAND	HZN	OVR	AXS	NXTT	SENSO	VR
Yönetim	DAO *(Web sitesinde mevcut)*	DAO *(Web sitesinde mevcut değil)*	Horizon Protocol *(Web sitesinde mevcut değil)*	DAO *(Web sitesinde mevcut değil)*	DAO *(Web sitesinde mevcut değil)*	DAO *(Web sitesinde mevcut)*	DAO *(Web sitesinde mevcut değil)*	DAO *(Web sitesinde mevcut)*
Market (Marketplace)	Web sitesinde mevcut	Web sitesinde mevcut	Web sitesinde mevcut	Web sitesinde mevcut	Web sitesinde mevcut	Web sitesinde mevcut	Web sitesinde mevcut	Web sitesinde mevcut

	MetaMask Sanal Cüzdanı	Polygon Ağ Kapsamı	Teknik Doküman (White Paper)	Yol Haritası (Road Map)	Ana Erişim	Sosyal Ağ	Sohbet ve Haberleşme Topluluklar	Mobil Uygulamalar
	Gerekli	Evet	Web sitesinde mevcut değil	Web sitesinde mevcut değil	Web Sitesi, Mobil Uygulama	Twitter	Discord, Telegram, Reddit	Android, iOS
	Gerekli	Evet	Web sitesinde mevcut	Web sitesinde mevcut	Web Sitesi, Mobil Uygulama	Facebook, Twitter, Instagram, Youtube	Discord, Telegram, Twitch, Reddit	Android, iOS
	Gerekli	Evet	Web sitesinde mevcut değil	Web sitesinde mevcut değil	Sanal Gerçeklik Gözlüğü (Oculus Quest 2)	Facebook, Twitter, Instagram, Youtube	Twitch	Mevcut değil
	Gerekli	Evet	Web sitesinde mevcut	Web sitesinde mevcut	Mobil Uygulama, Sanal Gerçeklik Gözlüğü	Facebook, Twitter, Instagram, Tiktok	Discord, Telegram ve Rebbit	Android, iOS
	Gerekli	Evet	Web sitesinde mevcut	Web sitesinde mevcut	Web Sitesi, Mobil Uygulama	Facebook, Twitter, Instagram, Tiktok	Discord ve Reddit	Android, iOS
	Gerekli	Evet	Web sitesinde mevcut	Web sitesinde mevcut	Web Sitesi	Facebook, Twitter, Youtube	Telegram ve Reddit	Mevcut değil
	Gerekli	Evet	Web sitesinde mevcut değil	Web sitesinde mevcut değil	Mobil Uygulama, Sanal Gerçeklik Gözlüğü	Facebook, Twitter, Instagram, Youtube, Tiktok	Mevcut değil	Android, iOS
	Gerekli	Evet	Web sitesinde mevcut	Web sitesinde mevcut değil	Web Sitesi, Sanal Gerçeklik Gözlüğü	Facebook, Twitter, Instagram, LinkedIn	Discord ve Telegram	Mevcut değil

SONUÇ VE ÖNERİLER

Çalışmada, Metaverse platformlarından olan Decentraland, The Sandbox, Horizon Worlds, Over, Axie Infinity, Next Earth, Sensorium Galaxy ve Victoria VR'ın web siteleri incelenmiştir. İncelenen özellikler "Geliştiriciler, İlk Sürüm, Uygun Dil, Tür, Dijital Para Birimi, Yönetim, Market (Marketplace), Metamask Sanal Cüzdanı, Poligon Ağ, Teknik Doküman (White Paper) Yol Haritası (Road Map), Ana Erişim, Sosyal Ağ, Sohbet ve Haberleşme Toplulukları ve Mobil Uygulamalar" şeklinde sıralanmaktadır. Çalışmada gerçekleştirilen analiz sonucunda bir tablo oluşturulmuştur. Genellikle İngilizce dilinde faaliyet gösteren web siteleri, başta yirmi beş dil farklı dile uyarlanabilen Horizon Worlds platformu olmak üzere, The Sandbox ve Axie Infinity platformlarının da birden fazla farklı dil seçeneği sunduğu görülmüştür. Her bir platformun özel dijital para biriminin bulunduğu, web sitelerinde grafiksel verilerin ve kendi marketlerinde NFT ürünlerinin satın alma işlemlerinin gerçekleştirilebileceği alanlar olduğu gözlemlenmiştir. Geliştiricisi Meta olan Horizon Worlds, yönetimde "Horizon Protokol"ünü benimsemiş, incelenen diğer platformların ise "DAO" yönetiminde sürdürüldüğü görülmüştür. Bu platformların web sitelerinde çoğunlukla DAO yönetim kılavuzunun yer almadığı dikkat çekmiştir. Yol Haritası (Road Map) özelliği, platformların web sitelerinde genellikle yer edinmiş olsa da direkt geçiş sağlanabilecek bağlantı sekmesinde olmadığı ve dolayısıyla kullanıcıların web sitesinde yol haritasına ulaşabilmeleri için inceleme yapmaları gerektiği sonucuna varılmıştır. İncelenen web sitelerinde Metaverse platformlarına ana erişim birbirinden farklıdır. Örneğin Decentraland, The Sandbox ve Axie Infinity için ana erişim web sitesi ve mobil uygulamalar ile sağlanmaktayken Next Earth platformunun ana erişimi yalnızca web sitesidir. Over ve Victoria VR platformuna erişim mobil uygulama ve sanal gerçeklik gözlüğüyle mümkün olmaktadır. Bu platformlardan farklı olarak Sensorium Galaxy'e erişim mobil uygulama ve sanal gerçeklik gözlüğü, Horizon Worlds için ise sanal gerçeklik gözlüğü (Oculus Quest 2) ile sağlanmakta olduğu analiz edilmiştir. Önceleri "Facebook Horizon" olarak bilinen Horizon Worlds'ün kendi dünyasına göre entegre edilmiş, diğer platformlara göre farklı özellikler geliştirdiği görülmektedir. Örneğin platforma yalnızca kendi uygulamalarına ait sanal gerçeklik gözlüğü Oculus Quest 2 ile girilebilmektedir. Son zamanlarda yapılan açıklamalarda ise Horizon Worlds'ün mobil uygulama ve web sitesi üzerinden de erişiminin sağlanacağı, bunun üzerine çalışmalar yapıldığı duyurulmuştur (Androidcentral, 2022). Mobil uygulamalar üzerinden incelendiğinde Horizon Worlds, Next Earth ve Victoria VR platformlarının Android ve iOS uygulamasına sahip olmadığı web siteleri aracılığıyla analiz edilmiştir. İncelenen Metaverse platformlarının web sitelerinde sosyal ağ hesaplarının direkt bağlantılı olarak yer edindiği gözlemlenmiştir. Genellikle Facebook, Twitter ve Youtube ağlarına tanımlı hesaplar mevcut olsa da Instagram, LinkedIn ve Tiktok bağlantılı hesaplara yer veren platformların da olduğu görülmüştür. Büyük toplulukları bir araya getirme kapasitesine sahip Discord, Telegram ve Reddit ile Metaverse kullanıcılarının birbirleriyle haberleştiğini ve gelişmeleri takip ettiğini söylemek mümkündür. Decentraland,

The Sandbox, Axie Infinity ve Next Earth platformlarının web sitelerinde direkt aynı web sayfasından erişilebilen "Discord grubuna katıl" sekmesi olduğu görülmüştür. Bu çalışma ışığında, Metaverse platformları hakkında düşünülen ortak özelliklerin aslında birbirinden farklı ve karşılaştırılması gereken önemli detaylar olduğu analiz edilmiş ve halihazırda Metaverse platformuna katılan veya katılmayı düşünen kullanıcılara temel farklar bir tablo üzerinden özetlenmiştir. Metaverse için ifade edilen genel tanımlamaların yanı sıra incelenen platformlar için gerçekleştirilen özelleştirilmiş analizlerin Metaverse fırsatlarına katkı sunacağı kadar tehditlerine de farkındalık sağlayacağı düşünülmektedir. Metaverse platformlarının günbegün değişim gösterdiği göz önüne alındığında bu çalışmadaki bulguların da farklılık gösterebileceği ve yeni çalışmalarla güncellenmesi gerektiği belirtilebilir.

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Abstracts (Turkish)

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Çevrimiçi Öğrenme Ortamlarında Ruh Sağlığının Desteklenmesi: Kitlesel Açık Çevrimiçi Dersler

Nilay ÖZER[1], Muhammet Recep OKUR[2]

Özet

Bu çalışmanın amacı Kitlesel Açık Çevrimiçi Ders (Kaçd) Platformlarında yer alan kişisel gelişim kategorisindeki ruh sağlığını desteklemeye yönelik derslerin SWOT analizi ile incelenmesidir. Özellikle Covid- 19 pandemi süreciyle birlikte ruh sağlığı problemlerinden artış yaşandığı görülmektedir. Bu kapsamda çevrimiçi yaklaşımların açık, erişilebilir hizmetler sunarak bireylerin kendi kendini desteklemesine yönelik önemli bir potansiyel barındırdığı görülmektedir. Bu yaklaşımlardan biri olarak Kaçd platformları ve bu platformlardaki kişisel gelişim kategorisinde bulunan ruh sağlığına yönelik ders içerikleri öne çıkmaktadır. Bu içeriklerin tek başına bireyin ruh sağlığını destekleme kapasitesi, psikolojik yardım alan bireylere yönelik ek kaynak sağlaması ve psikolojik destek hizmetlerinde kullanılabilirliğinin incelenmesi açık ve uzaktan öğrenme sistemleri, öğrenciler ve ruh sağlığı çalışanları bakımından önem taşımaktadır. Çalışmanın yöntemini nitel araştırma desenlerinden dokuman analizi oluşturmaktadır. Bu kapsamda çalışmada, belirli ölçütlere göre belirlenen beş farklı kaçd platformunda yer alan kişisel gelişim kategorisindeki dersler ruh sağlığı, psikoloji, iyi oluş, kariyer anahtar kavramları kullanılarak taranmıştır. Ölçütlere uyan, katılımcılar tarafından en çok tercih edilen 15 ders içeriği belirlenmiştir. Ulaşılan ders içerikleri öğrenen sayısı, hedef kitle, ders süresi, temaları ve kullanılan etkinlik türleri bağlamında incelenmiş ve betimsel bir analiz gerçekleştirilmiştir. Çalışmada elde edilen bulgular ruh sağlığı literatürü ve uzaktan eğitim literatüründe yer alan bilgiler ışığında SWOT analizi ile incelenerek tartışılmıştır. Sonuçlar kitlesel açık çevrimiçi derslerin ruh sağlığına yönelik potansiyel destekleyici eğilimi, kariyer gelişimi ve kendi kendine yardım uygulamaları çerçevesinde belirli çıkarımlar sunmaktadır. Araştırma incelenen kaçd platformları ve kriterlere bağlı olarak seçilen derslerle sınırlıdır. Çalışma sonucunda öğrenenlere, öğretim elemanları, tasarımcı ve ruh sağlığı uzmanlarına yönelik öneriler getirilmiştir.

Anahtar Kelimeler: *Ruh Sağlığı, Kitlesel Açık Çevrimiçi Ders, Kendi Kendine Yardım, Psikolojik Destek, Swot*

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Uzaktan Eğitim Ortamlarında Çalışma Grubu Önerilerinin Oluşturulmasında Kullanılabilecek Kriterlerin Belirlenmesi

Sezer SEVEN[1], Güler KARAMAN[2]

Özet

2020 yılında başlayan ve tüm dünyayı etkisi altına alan Covit-19 salgını ile beraber yüz yüze eğitime ara verilmiştir. Bu durumdan ötürü öğrenciler, fiziksel olarak yapılacak grup çalışmaları konusunda olumsuz etkilenmiştir. Olası bir salgın veya afet durumunda öğrencilerin fiziksel olarak bir araya gelememe durumlarına yönelik olarak tedbirler alınması gerekmektedir. Uzaktan eğitim ortamlarında öğrencilerin bir arada çalışabilecekleri ortamlar sunulabilir. Bu durum, benzer özellik gösteren öğrencilerin akranları ile beraber uzaktan eğitim ortamlarında çalışabilecekleri grupların önerilebileceği konusunda çalışmanın motivasyonunu oluşturmuştur.

Yapılan alanyazın taramasında uzaktan eğitim ortamlarına yönelik olarak geliştirilen öneri sistemleriyle ilgili çalışmalar incelenmiştir. Bu incelemeye göre geliştirilen öneri sistemleri genellikle üniversiteye hazırlık döneminde olan öğrencilere yönelik olarak öğretmen, kaynak, kişiye özel çalışma programı ve konu veya soru olarak öğrencinin eksiklerini belirleyerek kişiselleştirilmiş önerilerde bulunan sistemler geliştirilmiştir. Fakat uzaktan eğitim ortamlarında çalışma grubu önerilmesine yönelik olarak yapılan bir çalışmaya rastlanılmamıştır.

Bu bulgudan yola çıkılarak yapılan bu çalışmada, öğrencilere uzaktan eğitim ortamlarında çalışabilecekleri uygun çalışma gruplarının önerilmesine yönelik olarak tasarlanabilecek öneri sistemlerinde dikkat edilecek kriterlerin belirlenmesi amaçlanmıştır. Çalışmadan elde edilen bulgular neticesinde, sistemin tasarlanmasında bilgi seviyesi ve kişilik özelliği kriterlerinin dikkate alınabileceği ortaya çıkmıştır.

Anahtar Kelimeler: *Uzaktan Eğitim, Mobil Öğrenme, Öneri Sistemi, Çalışma Grubu*

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Açıköğretim Sistemine Yönelik Eğitimde Yapay Zeka Uygulaması Tasarlanması Geliştirilmesi ve Değerlendirilmesi

Emine TUTSUN[1], Cengiz Hakan AYDIN[2]

Özet

Teknolojideki hızlı gelişim hayatın her alanını olduğu gibi eğitim alanını da etkilemektedir. Eğitsel sorunlara getirilecek çözüm arayışları, yeni uygulamaların eğitime kazandırılması ve eğitim kalitesinin artırılması gibi birçok konuda güncel teknolojilere başvurulmaktadır. Yapay zeka araştırmaları günümüzde bu teknolojik çözüm arayışlarının başında gelmektedir. Eğitimde yapay zeka uygulamaları araştırmalarında alanyazında yoğun olarak çalışılan temalar arasında öğrenci profillerinin çıkarılması, uyarlanabilir sistem tasarımları, ölçme değerlendirme uygulamaları ve akıllı öğreten sistemleri gibi alanlar yer almaktadır. Bu alanlarda ortaya konan eğitimde yapay zeka uygulamaları örneklerinin öğrenme süreçleri üzerindeki olumlu etkileri bu uygulamalara yönelik araştırmaların gelecekte de hızla devam edeceğine işaret niteliğindedir.

Eğitimde yapay zeka uygulamaları özellikle büyük öğrenci kitlelerinin yer aldığı, geleneksel açık ve uzaktan öğrenme sistemlerinde önemli bir potansiyele sahiptir. Bu sistemlerde öğrenci öğrenme kaynakları ile baş başadır ve genellikle yol gösterici bir eğitici desteği yeterli düzeyde bulunmamaktadır. Öğrenciler ders çalışma planlarına ve ders malzemelerine kendileri karar vererek öğrenme süreçlerinin bütün sorumluluğunu üstlenmek durumundadırlar. Ancak bu sistemlerde yer alan tüm öğrenciler kendi öğrenme süreçlerini planlama ve sürdürme konusunda yüksek öz yönelim yeteneğine sahip olmayabilir. Bu tür öğrencilerin desteklenmesi ve öğrenme süreçlerine yardımcı olunması gerekir. Kitlesel açık ve uzaktan öğrenme sistemlerinde, akademik destek sağlayacak insan kaynağını bulmak ve yönetmek oldukça güç ve maliyetlidir. Bu noktada kurumlar öğrencilere destek sağlamak için bir yapay zeka teknolojisi olan akıllı öğreten sistemlerinden yararlanmaktadır. Akıllı öğretim sistemleri bir insan eğitmenin olmadığı sistemlerde öğrencilere ders çalışma planları ve ders malzemeleri konusunda bireyselleştirilmiş geri bildirimler verip öğrenmeye yardımcı olan sistemlerdir. Bu sistemlerin geliştirilmesinde başta öğrenen özellikleri ve çevresel faktörler olmak üzere farklı değişkenlerin, -bir başka deyişle bağlamın- göz önüne alınarak bir algoritmanın geliştirilmesi öncelikli adımlardan biridir. Devamında bağlama göre geliştirilen algoritma kullanılarak uygulamanın geliştirilmesi, ilgili öğrenme yönetim sistemine entegrasyonu ve bağlam çerçevesinde etkililiğin incelenmesi sistem geliştirme sürecinin takip eden başlıca ve önemli adımlarıdır.

Anadolu Üniversitesi Açıköğretim Sistemi de esasında kitlesel açık ve uzaktan öğrenme imkanı sunan bir yapıdır. Her yıl 1 milyon öğrenci sistemden aktif biçimde yararlanmaktadır. Daha önce sözü edilen bireysel akademik destek vermede yaşanan güçlükler, Açıköğretim Sisteminde de gözlemlenmektedir. Bu çalışma, Anadolu Üniversitesi Açıköğretim Sistemi öğrencilerine yönelik akademik desteğin bir akıllı öğretim sistemi yardımıyla sağlanmasına yönelik akıllı öğreten koçu uygulaması geliştirmeye odak-

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lanmaktadır. Çalışma kapsamında ilk olarak özellikle öz yönelimi düşük Açıköğretim öğrencilerine bireysel ders çalışma planları sunacak, bu planları izleyecek ve bireysel geribildirimler verecek yapay zeka destekli bir akıllı öğreten koçu uygulamasının algoritması uzman görüşlerine, literatürdeki uygulama ve araştırmalara dayalı olarak geliştirilecektir**.** Devamında ise, geliştirilen algoritma kullanılarak bir yapay zeka uygulaması ortaya konacak, bu uygulama gerçek bir öğrenme ortamına entegre edilerek etkililiği sınanacaktır. Böylelikle açıköğretim sistemlerinde kendi süreçlerini planlama ve sürdürme konusunda zorluk yaşayan öğrencilere kişiselleştirilmiş geri bildirimler vererek öğrenme süreçlerine destek olmak hedeflenmektedir. Türkiye'de sunulan açık öğretim sistemlerine özgü bir algoritmanın ortaya konacak olması bu algoritmanın bir yapay zeka uygulamasına dönüştürülecek olması ve bu uygulamanın gerçek hayat verileri ile sınanacak olması bu çalışmayı özgün bir noktaya taşımaktadır.

Anahtar Kelimeler: *Eğitimde Yapay Zeka, Akıllı Öğreten Sistemleri, Açık ve Uzaktan Öğrenme*

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İlkokulda Ters Yüz Sınıf Modeli Üzerine Yapılan Araştırmaların Sistematik Bir Derlemesi

Nesibe AĞIRMAN[1], Muhammet Hanifi ERCOŞKUN[2]

Özet

Ters yüz sınıf (TYS), bir konunun basit ve teorik kısımlarının eğitim teknolojileri aracılığıyla ders dışı zamanda öğrenilmesine ve daha üst düzey çalışmaların ders içi zamanda yapılmasına dayanan bir öğretim modelidir. Bu araştırmanın amacı ilkokulda ters yüz sınıf modeli üzerine yürütülen araştırmaların eğilimlerini, amaçlarını, sonuçlarını ve önerilerini inceleyerek konu ile ilgili literatürün sistematik bir derlemesini ortaya koymaktır. Bu kapsamda sistematik derleme prosedürüne uygun olarak 2000-2020 yılları arasında Web of Science, ERIC, Scopus, Science Direct, ProQuest Dissertations & Theses Global, ULAKBIM TR Dizin ve Türkiye Yükseköğretim Kurulu Tez Merkezi veri tabanlarındaki yayınlardan uygunluk kriterlerini karşılayan 20 yayın ile araştırma yürütülmüştür.
Araştırmaların eğilimlerine ilişkin bulgular incelendiğinde bu konudaki ilk araştırmanın 2014 yılında yayınlandığı, araştırmaların en çok 4. sınıfta yürütüldüğü ve 1. sınıf öğrencileri ile yürütülen araştırma olmadığı dikkat çekmektedir. Araştırmaların ülke olarak en çok Türkiye'de ve Amerika'da, ders olarak en çok dil ve sonrasında matematik eğitiminde yürütüldüğü belirlenmiştir. Dijital öğrenme materyali olarak en çok araştırmacı öğretmen tarafından hazırlanan videoların kullanıldığı, içerik paylaşımının ağırlıklı olarak çevrimiçi ortamlarda yapıldığı, özellikle araştırmacılar tarafından oluşturulan web siteleri üzerinden içerik paylaşımı yapmanın sıklıkla tercih edildiği belirlenmiştir. Araştırmalarda en çok incelenen amaç, akademik başarı ve sonrasında sırasıyla öğrenci, veli, öğretmen görüşü ve TYS'nin faydalarının ve zorluklarının ortaya çıkarılması konularıdır. TYS'nin akademik başarı üzerindeki etkisinin incelendiği çalışmaların tamamında, ilkokul öğrencilerinin akademik başarıları üzerinde olumlu etkilerinin olduğu sonucuna ulaşılmıştır. Diğer sonuçlar bir bütün halinde değerlendirildiğinde TYS'nin etkili öğrenme sağladığı en sık ifade edilen öğrenci, öğretmen ve veli görüşü olarak belirlenmiştir. Ayrıca TYS'nin eğlenceli öğrenme sağladığı, öğrenci-öğrenci etkileşimini artırdığı, öğrencilerin derse ilgisini artırdığı, aktif katılım sağladığı ve işbirlikli çalışma becerisini geliştirdiği sık rastlanan olumlu sonuçlar olarak belirlenmiştir. Öğrenci açısından ders dışı süreçlerde veli desteğine ihtiyaç duyma, öğretmen açısından dijital öğrenme materyali hazırlama ve bulmanın öğretmene iş yükü getirmesi ve veli açısından çeşitli endişelerin olması, araştırmalarda en sık ortaya konan olumsuz sonuçlardır. Araştırmalarda en sık yapılan öneri, araştırmacılar yönelik uzun süren araştırmaların yapılması ve sonrasında öğretmenlere ilk uygulama öncesi veli eğitimi ve süreçte veli ile işbirliği yapılması olarak belirlenmiştir. Araştırma sonuçları bir bütün olarak değerlendirildiğinde ilkokulda TYS'nin kullanımı konusundaki araştırmaların sınırlı olduğu; fakat bu araştırma sonuçlarından hareketle ilkokulda TYS'nin uygulanabilir ve birtakım sınırlılıklarına rağmen pek çok katkısının olması dolayısıyla uygulamaya değer bir model olduğu ifade edilebilir. Araştırma sonuçlarından hareketle birtakım önerilerde bulunulmuştur.

Anahtar Kelimeler: *Ters Yüz Sınıf, İlkokul, Sistematik Derleme*

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Açık ve Uzaktan Öğretim Fakültesi'ndeki Video Ders Çekim Türlerinin Uzman Görüşleri Açısından İncelenmesi

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Özet

Bu çalışmada, Atatürk Üniversitesi Açık ve Uzaktan Öğretim Fakültesi'nde okuyan öğrenciler için geliştirilen video ders çekim türlerinin uzman bakış açısıyla değerlendirilerek incelenmesi amaçlanmaktadır. Bu amaç doğrultusunda seçilen bir dersin bir ünitesi üzerinden hazırlanan çeşitli video çekim türleri uzmanlara izlettirilerek hangi çekim türü ve biçiminin daha faydalı olduğu yönünde inceleme yapılmıştır. Bu çalışmada nitel araştırma yöntemlerinden tasarım tabanlı araştırma kullanılmıştır. Çalışma grubunu 5 iletişim ve 5 öğretim tasarımı uzmanı olmak üzere toplamda 10 uzman oluşturmaktadır. Seçilen uzmanlar mesaj tasarımı, öğretim tasarımı ve kurgu aşamalarında çalışmış, hem video tasarımı hem de öğretim tasarımı kısmında etkin kişilerden oluşmaktadır. Veri toplama aracı olarak gözlem formu kullanılmıştır. Uzmanlara Ata'nın geliştirdiği (2020) "Görsel, İşitsel ve Öğretimsel Gözlem Formları" gösterilerek form yeniden geliştirilmiş ve oluşan bu form aracılığıyla da video tasarlanmıştır. Tasarlanan video uzmanlara izlettirilerek görüşleri alınmıştır. Uygulama sürecinde çeşitli türlerde çekilmiş ve tasarımlanmış olan görüntüler bir ünitede birleştirilerek uzmanlara sunulmuştur. "Dijital Ses ve Görüntü Düzenleme Teknikleri" adlı dersin "Dijital Ses Ve Görüntü Düzenlemede Temel Kavramlar" adlı ilk ünitesi için tasarlanan video, uzman görüşleri çerçevesinde çıkan sonuçlara yönelik olarak sonrasında diğer ünitelere de uygulanabilecektir. Bu dersin seçilmesinin sebebi ders içeriğinde tasarlanabilecek çok fazla görsel olması ve uygulamaya yönelik konuların bulunmasıdır. Bu özellikler dikkate alınarak ünite içeriğinin senaryosu oluşturulmuş ve video çekimi sanal stüdyoda yapılmıştır. Video görsel olarak çekim ölçekleri, derse eklenen unsurlar ve görüntü geçişleri başlıkları göz önünde tutularak bu ünitenin içeriğine uygun olarak konulacak resim, fotoğraf, arşiv video, animasyon ve yazı gibi içerikler tasarlanmıştır. İşitsel olarak müzik ve söz başlığı altında incelemeler yapılmış ve ilgili kısımlara eklenmiştir. Öğretimsel unsurlarda da yazılı ve çekicilik katan unsurlar üzerinde durulmuştur. Video görüntüleri ve tasarlanan materyaller senaryoya uygun olarak yerleştirilmiş ve video tasarımı gerçekleştirilerek örnek bir video oluşturulmuştur. 7 aşamadan oluşan tasarım tabanlı araştırma olan bu çalışmada öncelikle video dersin bir ünitesinin geliştirilmesi belli aşamalarla gerçekleştirilmiş sonraki aşamalarda da ikinci geliştirilen video dersin uzmanlara sunulması ve verilerin toplanması işlemleri gerçekleştirilmiştir. Uzman görüşleri ve gözlem formları aracılığıyla tasarlanan video baştan sona kadar değerlendirilmiştir. Çekim ölçekleri başlığı altında omuz, göğüs ve bel çekim kullanılmış, derse eklenen unsurlar başlığı altın-

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Anahtar Kelimeler: *Video Ders, Tasarım Tabanlı Araştırma, Gözlem Formu, Uzman Görüşü, Dijital İletişim.*

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Öğrenenlerin Çevrimiçi Öğrenme Ortamlarına İlişkin Memnuniyeti: Açıköğretim Sistemi Anadolum Ekampüs Platformu Örneği

Öznur ÖZTÜRK[1], Özlem ERORTA[2], Emel GÜLER[3], Yusuf Zafer Can UĞURHAN[4]

Özet

Günümüzde bilgi-iletişim teknolojilerinin sağlamış olduğu imkânlar neticesinde çevrimiçi ortamlarda öğrenme daha hızlı ve kolay bir hâle gelmiştir. Öyle ki öğrenenler, internet destekli çeşitli araçlar vasıtasıyla çevrimiçi öğrenme ortamlarına giriş yaparak kendilerine sunulan metin tabanlı içeriklerin yanı sıra görsel, işitsel ya da görsel-işitsel öğrenme malzemelerine zaman ve mekân sınırlaması olmaksızın her an ulaşabilmektedir. Bununla birlikte çevrimiçi öğrenme ortamlarının etkileşimli yapısı, öğrenmeyi fiziksel sınırların ötesine taşımakta ve öğrenen-öğrenen, öğrenen-içerik ve öğrenen-öğreten arasındaki etkileşimi, öğrenme sürecinin bir uzantısı haline getirmektedir. Sonuç olarak çevrimiçi öğrenme ortamlarında öğrenme hem etkileşim temelli gerçekleşmekte hem de öğrenme-öğretme sürecinin öğrenen odaklı olması mümkün olmaktadır. Ayrıca bu ortamlarda öğrenenler kendilerini bir topluluğun parçasıymış gibi hissedebilmektedir. Söz konusu his, öğrenme ortamlarının etkileşimli yapısıyla birleştiğinde öğrenen başarısını artırabilmektedir. Öte yandan, çevrimiçi öğrenme ortamlarının görece maliyet düşüklüğü ile öğretenlerin zaman ve mekân sınırlarına maruz kalmadan öğrenenlere eğitim hizmeti sunarak öğrenme sürecini desteklemesi gibi hususlardan ötürü eğitim ve öğretim hizmeti sunan birçok kurum, çevrimiçi öğrenme ortamlarını tercih etmektedir. Açık ve uzaktan eğitim hizmeti sunan bir kurum olarak Anadolu Üniversitesi Açıköğretim Sistemi'nin Anadolum eKampüs platformu da bir çevrimiçi öğrenme ortamıdır. Platform, öğrenme ve iletişim teknolojileri üzerine odaklanmakta ve etkileşimi üst düzeye çıkararak öğrenen motivasyonunu artırmayı amaçlamaktadır. Öğrenenler bu platformda öğrenme süreçlerini takip edebildiği gibi kendilerine sunulan öğrenme malzemelerine de erişebilmektedir.

Nicel araştırma yönteminin kullanılacağı bu çalışmada kesitsel tarama modelinden yararlanılacaktır. Çalışmada Anadolu Üniversitesi Açıköğretim Sistemi'nde 2020 yılında ilk kez uygulanmış olan ve 2022 yılı itibarıyla üçüncüsü gerçekleştirilen Yaz Okulu döneminde, öğrenenlerin Açıköğretim Sistemi Anadolum eKampüs platformu memnuniyeti incelenecektir. Araştırma verisi Açıköğretim Sistemi'nde her akademik dönem sonunda Anadolum eKampüs platformunda çevrimiçi olarak dolaşıma konularak gerçekleştirilen ve Anadolum eKampüs'ü en az bir kez kullanmış öğrenenlerin doldurduğu Anadolum eKampüs Memnuniyet Anketi verisinden çekilecektir. Böylelikle bir taraftan öğrenenlerin Anadolum eKampüs'e ilişkin mevcut memnuniyetlerinin ortaya konulması amaçlanırken diğer taraftan, söz konusu üç yıl boyunca karşılaştırma da yapılarak Yaz Okulu memnuniyetinin yıllara göre nasıl değişim gösterdiği irdelenecektir. Açıköğre-

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tim Sistemi'nin en önemli paydaşlarından biri olarak öğrenenlerin Yaz Okulu sürecinde Anadolum eKampüs platformuna ilişkin memnuniyetlerinin belirlenmesi neticesinde elde edilecek bulgular itibarıyla hem akademik hem de yönetsel önerilerde bulunulması planlanmaktadır. Zira yapılacak bu önerilerin sistem içerisinde Anadolum eKampüs özelinde gerçekleştirilen araştırma geliştirme faaliyetleri açısından önemli bir yol haritası sunabileceği değerlendirilmektedir.

Anahtar Kelimeler: *Açıköğretim Sistemi, Öğrenenler, Çevrimiçi Öğrenme Ortamları, eKampüs, Memnuniyet.*

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E-Öğrenme Nesnelerinde Kültürlerarası Kullanılabilirlik: "Ana-Dil Türkçe" Örneği

Burak SÖZER[1], Nilgün ÖZDAMAR[2], Hülya PİLANCI[3]

Özet

Bu çalışmanın amacı yabancı dil olarak Türkçe öğretimi için hazırlanan "Ana-Dil Türkçe" e-öğrenme sistemindeki e-öğrenme nesnelerinin kültürlerarası kullanılabilirlik boyutunda incelenmesidir. E-öğrenme sistemleri ve nesneleri, zaman ve mekân sınırlılığını ortadan kaldırarak kullanıcılara esnek öğrenme olanakları sunmaktadır. Bir e-öğrenme sistemi, amacı doğrultusunda içeriklerini kullanıcılara verimli, etkileyici, hızlı ve güncel bir şekilde sunabilmelidir. Bunun yanı sıra e-öğrenme sistemi kullanıcıları için teknik anlamda kolay bir şekilde kullanılabilmeli, hatırlanabilir ve keyif verici olmalıdır. Öğrenme nesneleri, teknolojinin gelişmesiyle birlikte web tabanlı alt yapılar üzerinden kullanıcılara farklı biçimlerde sunulmaya başlamıştır. Araştırmacılar, e-öğrenme nesnelerinin teknolojiyle birleşerek geliştiği dönemlerde ilk olarak e-öğrenme nesnelerini teknik boyutta değerlendirmiştir. Kullanılabilirlik çatısında birleşen bu değerlendirmeler, özellikle teknik ve pedagojik kullanılabilirlik boyutunda ele alınmıştır. Ancak küreselleşen dünyada özellikle yabancı dil öğretimi için hazırlanan e-öğrenme sistemlerinde kültür göz ardı edilemeyecek kadar önemli bir boyut hâline gelmiştir. Kültürün web tabanlı e-öğrenme sistem ve nesnelerindeki değerlendirme boyutu "kültürlerarası kullanılabilirlik" kavramı olarak ortaya çıkmıştır. Böylece kültürel öğrenme nesneleri, bir e-öğrenme sistemi için oldukça önemli bir unsur hâline gelmiştir. Bu çalışma, yabancı dil olarak Türkçe öğretimi için hazırlanan Ana Dil Türkçe e-öğrenme sistemini kültürlerarası kullanılabilirlik bağlamında ele alacaktır.

Çalışma, karma yöntem araştırma desenlerinden yakınsayıcı paralel yöntem ile desenlenmiştir. Araştırma kapsamında nicel ve nitel veriler eş zamanlı toplanmış, anket ve görüşme veri toplama araçları olarak kullanılmıştır. Anket kapsamında elde edilen nicel veriler, görüşme sonucundaki nitel verilerle birlikte yorumlanmıştır. Nitel veriler içerik analizi ile tema ve kodlar üzerinden incelenmiş, nicel veriler tarama yöntemi ile değerlendirilmiştir. Çalışmada; kullanıcıların demografik bilgileri toplanmış, çevrim içi Türkçe öğrenme deneyimleri ve bilgisayar okuryazarlıkları değişken olarak ele alınmış ve kültürlerarası kullanılabilirlik üzerindeki ilişkileri korelasyon analizi ile değerlendirilmiştir. Çalışma grubundaki doğu ve batı dil ailelerine mensup katılımcıların görüşleri karşılaştırmalı olarak incelenmiştir. Araştırma öncesinde gerekli etik kurul izinleri alınmıştır.

Ana Dil Türkçe e-öğrenme nesnelerinin kültürlerarası kullanılabilirlik bağlamında ele alındığı çalışmada, sistemin kültürel öğrenmeye uygun olarak tasarlandığı ancak kültür aktarımı konusunda e-öğrenme nesnelerinin sayısının ve içeriklerinin artırılması gerektiği ortaya çıkmıştır. Anket maddeleri ve görüşme verilerinin karşılaştırmalı olarak analiz edildiği bu karma yöntem çalışmasında, nicel ve nitel veriler birbirini

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desteklemektedir. Katılımcıların görüşlerini derinlemesine ele almak amacıyla yapılan çevrim içi görüşme verileri sonucunda, kullanıcıların Ana Dil Türkçe e-öğrenme nesnelerinin Türk kültürüne içerik ve sayı bakımından daha fazla ağırlık vermesi gerektiği ortaya çıkmıştır. Çalışma sonucunda katılımcıların özellikle Türk kültürüne ait hangi ögelerin zenginleştirilmesi gerektiğine ilişkin görüş ve önerileri de tespit edilerek değerlendirilmiştir.
Çalışma, Türkiye'de yabancı dil olarak Türkçe öğretimi için hazırlanan e-öğrenme nesnelerini kültürlerarası kullanılabilirlik boyutunda inceleyen ilk çalışma özelliğini taşımaktadır. Araştırmada elde edilen verilerin, yabancı dil olarak Türkçe öğretimi için hazırlanan e-öğrenme nesneleri hakkında ilerleyen çalışmalara kültürlerarası kullanılabilirlik kavramında katkı sağlaması ön görülmektedir.

Anahtar Kelimeler: *E-Öğrenme, Kültürlerarası Kullanılabilirlik, Yabancılara Türkçe Öğretimi*

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E-Öğrenmede Kullanım Niyeti ve Kullanım Davranışı Devamlılığını Etkileyen Faktörler: Anadolum E-Kampüs Örneği

Abdulvahap SÖNMEZ[1], Nilgün ÖZDAMAR[2]

Özet

Teknoloji ve öğrenme-öğretme süreçlerinin karşılıklı etkileşimleri sonucu meydana gelen e-öğrenme, endüstri devrimiyle oluşan öğrenme-öğretme paradigmasının kırılmasına, daha önceden başlayan açık ve uzaktan öğrenmenin yeni bir paradigma oluşturmasına zemin hazırladı. Bu yeni paradigma yer ve zaman zorunluğunun esnetildiği ya da tamamen ortadan kalktığı, öğrenenin ilgi ve ihtiyaçlarının merkezde olduğu yaşam boyu süren bir süreci ifade etmektedir. Bu sürecin devamlılığını sağlayan adeta damar görevini gören ise öğreneni öğrenme ortam ve malzemesine ulaştıran e-öğrenmedir.

E-Öğrenme, öğrenenlerin bireysel ya da kurumsal performansları için gerekli ortam ve bilgi ihtiyaçlarının dijital cihazlar aracılığıyla eş zamanlı ya da eş zamansız sağlandığı öğrenme biçimini ifade eder. E-Öğrenme sadece birtakım zorunluluklardan dolayı zaman ve mekân kısıtlamasının olmadığı tek bir öğrenme türünü değil teknolojik olanaklarla sağlanan bütün öğrenmeleri ifade eder. Savaş, salgın ve doğal felaketler gibi zorunluluktan kullanıldığı gibi yaşam boyu öğrenme, ikinci üniversite hem bir işte çalışıp hem öğrenen olma gibi öğrenenlerin keyfi tercihleri durumunda da kullanılmaktadır.

Öğrenenlerin ihtiyaçlarını ve dışsal zorunlulukları önemseyen ve ona göre öğrenme sürecini belirleyen e-öğrenme sistemleri, eğitim kurumları tarafından hem öğrenme sürecini zenginleştirmek hem de öğrenenin motivasyonunu artırarak sürece katılım devamlılıklarını sağlamak için sıklıkla kullanılmaktadır. Öğrenenlerin e-öğrenme teknolojilerini kullanım niyeti ve kullanım davranışı devamlılıklarını araştırmadan ve öğrenenlerin kültürel farklılıklarını dikkate almadan yapılan teknolojik yatırımların istenilen sonuçları sağlama konusunda yetersiz kalabileceği dikkate alınmalıdır. Ülkemizde e-öğrenme kullanım niyeti ve kullanım davranışı devamlılığını bir bütün olarak ele alıp Teknoloji Kabul Modeli temelli araştıran, bu yönde bir ölçme aracı geliştirip kurulan modeli test eden bir araştırmanın yapılmamış olması bu alanda bir araştırma yapılmasını gerektirmektedir.

Açıköğretim Sistemi öğrenenlerin e-öğrenmeyi kullanım niyetleri ve kullanım davranışı devamlılıklarına etki eden faktörlerin incelenmesi, değişkenler arası olası ilişkilerin bir model önerisi ile değerlendirilmesi ve modelin yordama gücünün belirlenmesi amacıyla bir bilimsel çalışma gerçekleştirildi. Bu çalışmanın yürütülmesi için de Anadolu Üniversitesi Açıköğretim Sistemi öğrenenlerin hizmetine sunduğu Anadolum E-Kampüs platformu seçildi. Daha sonra alanyazın taraması sonucunda öğrenenlerin e-öğrenme kullanım niyeti ve kullanım davranışı devamlılıklarını etkileyen faktörlerin olduğu kuramsal bir model geliştirildi. Model doğrultusunda geliştirilen ölçme aracının kapsam geçerliği sağlandıktan sonra Anadolu Üniversitesi Açıköğretim Sistemi 2002 öğrenenine çevrimiçi anket uygulandı. Elde edilen verilerle SPSS ile açımlayıcı ve AMOS ile

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doğrulayıcı faktör analizleri gerçekleştirildi. Analizler sonucunda 11 faktör ve toplam 42 maddeden oluşan bir ölçek geliştirildi. Elde edilen ölçekle yapılan son uygulamada ise 1314 Anadolu Üniversitesi Açıköğretim Sistemi öğreneninden veri toplandı.
Kısmı en küçük kareler yapısal eşitlik modellemesi işlemleri sonucunda, 11 yapılı modelin algılanan yararın 49.8%'sini, algılanan kullanım kolaylığının 30.3%'sini, kullanım niyetin 39.4%'ini ve kullanım davranışı devamlılığının 52.4%'sini açıkladığını tespit edildi. Kuramsal modelde belirtilen faktörler arası 12 hipotezin tamamının desteklendiği görüldü. Ayrıca geliştirilen modelin ortalama üstü bir yordama gücüne sahip olduğu belirlendi. Geliştirilen modelle öğrenenlerin e-öğrenme kullanım niyeti ve kullanım davranışı devamlılığı özelliklerinin belirlenebileceği sonucuna varıldı.

Anahtar Kelimeler: *Öğrenenler, E-öğrenme, Teknoloji Kabul Modeli, Açıköğretim, Açık ve Uzaktan Öğrenme, Anadolum E-Kampüs*

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KAÇD'lerin Zirve Noktasının Üzerinden Geçen On Yıl: Değişimin İtici Güçlerinin Belirlenmesi

Sezan SEZGİN[1], Vesile Gül BAŞER GÜLSOY[2], Osman EROL[3], Onur SEVLİ[4], Neşe SEVİM ÇIRAK[5]

Özet

Amaç: Kitlesel açık çevrimiçi dersler (KAÇD) yüksek kaliteli açık ders malzemelerinin geniş kitlelere açıklık felsefesiyle ulaştırılmasını ve bu bağlamda öğrenenlerde kaliteli eğitsel tecrübeler yaratmayı hedefleyen öğrenme kaynaklarıdır. İlk olarak 2008 yılında ortaya atılan KAÇD kavramı, eğitim dünyasında büyük ilgi uyandırmış, bu ilgi 2012 yılında tavan yaparak KAÇD'ler popüler bir öğrenme yöntemi olarak kabul görmüştür. 2012 yılı eğitim alanyazınında "KAÇD'lerin yılı" olarak nitelendirilmiş, bu popülerlik yükseköğretimde bir standart olarak benimsenen "Gartner Hype Cycle" da onaylanmıştır. Alanyazında KAÇD'lerin uygulanışı ve iş modelleri üzerine birçok tartışma yer almakla birlikte KAÇD'lerin ilk ortaya çıktığı dönemdeki KAÇD modeli de zamanla değişikliğe uğramaya başlamıştır. Birçok farklı ders içeriği ve pedagojik yaklaşımın denendiği KAÇD'lerin sayısı ve çeşitliliği her geçen yıl artmaktadır. Bu çalışma KAÇD'lerin son on yıldaki durumlarını ve gelişimlerini incelemeyi amaçlamaktadır. Bu kapsamda ilgili yıllarda KAÇD'leri konu edinen akademik makaleler içeriksel ve bibliyometrik olarak analiz edilmiş, ilgili değişimin yönü belirlenmeye çalışılmıştır.
Metodoloji: Araştırma sistematik bir alanyazın taramasıdır. Sistematik alanyazın taramaları spesifik bir alanda gerçekleştirilen araştırmaların önceden belirlenen sorular aracığıyla tanımlanmasını, keşfedilmesini ve keşfedilen bulguların özetlenmesini amaçlayan küçük ölçekli bağımsız araştırmalardır. Araştırma kapsamında önceden belirlenen kriter ve sorgulama başlıkları kapsamında eğitim ve eğitim araştırmaları bağlamlı, Web of Science-SSCI dergilerde yayınlanmış, İngilizce araştırma makaleleri analiz edilmiştir. Bu kapsamda araştırmaya 546 araştırma makalesi dahil edilmiştir. İçerik analizi ve bibliyometrik analizi tekniklerinden yararlanılan araştırmada elde edilen veriler bütüncül ve tümevarımsal bir yöntemle değerlendirilmiştir.
Bulgular: Araştırmada kapsamında gerçekleştirilen bibliyometrik analiz ve içerik analizi sonucunda öne çıkan bazı çalışma konularının öğrenme analitikleri, öz düzenlemeli öğrenme, eğitsel veri madenciliği, makine öğrenmesi, motivasyon ve adanmışlık, öğrenme toplulukları, bağlantılıcılık olduğu belirlenmiştir. Bununla birlikte son on yılda çeşitli küçük/düşük katılımlı özelleşmiş çevrimiçi dersler (SPOCs), yükseköğretim, ölçme değerlendirme yöntemleri ile ilgili çalışmalar da göze çarpmaktadır. Bununla beraber 2012-2022 periyodunda, araştırma konularının alandaki tanımlardan, özelleşmiş konulara doğru evrildiğine ilişkin ipuçları elde edilmiştir. Bunlara ek olarak tanımlayıcı veriler incelendiğinde son on yılda KAÇD tabanlı araştırmaların sayıca giderek arttığı

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belirlenmiştir. "International Review of Research in Open and Distributed Learning" en çok KAÇD çalışmasının yayınlandığı akademik dergi olurken USA ve Çin en çok yayın yapan ülkeler olarak göze çarpmıştır.
Özgünlük/Sonuç: Alanyazında KAÇD'lerin özellikle yükseköğretimde önemli bir paradigma değişikliğine neden olduğuna ilişkin fazlaca söylem yer almaktadır. Bununla beraber KAÇD'lerin popülerliğinin üst noktaya taşındığı 2012 yılından itibaren, sayılarının ve çeşitliliklerinin yıldan yıla arttığına ilişkin veriler de bulunmaktadır. Bu noktada çalışmada, uzaktan eğitimde değişimin öncüsü olarak nitelendirilebilecek KAÇD'lerin, özelleşmiş bireysel öğrenme deneyimleri sunabilen modellere doğru evrildiğine ilişkin bulgulara ulaşılmıştır.

Anahtar Kelimeler: *Kitlesel Açık Çevrimiçi Dersler, KAÇD, İçerik Analizi, Bibliyometrik Analiz*

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Atatürk Üniversitesi Öğretim Elemanlarının Dijital Yeterliliklerinin DigCompEdu Çerçevesine Dayalı Olarak Değerlendirilmesi*

Meva BAYRAK KARSLİ[1], Sevda KÜÇÜK[2]

Özet

Günümüzde dijital teknolojilerin hayatımızın hemen her alanında ciddi anlamda yer edinmesiyle birlikte bireylerin dijital yeterlilikleri de giderek önem kazanmaktadır. Bireylere dijital yeterliliklerin kazandırılması noktasında eğitim kurumlarına ve eğitimcilere önemli görevler düşmektedir. Eğitimcilerin dijital yeterlilik düzeylerinin değerlendirilmesi de bu noktada önem taşımaktadır. Bu doğrultuda bu çalışmada Atatürk Üniversitesi öğretim elemanlarının dijital yeterlilik seviyeleri "Eğitimciler için Dijital Yetkinlikler (DigCompEdu) Çerçevesi"ne dayalı olarak incelenmiştir. Çalışma kapsamında öğretim elemanlarının öğretim süreçlerinde mevcut dijital teknolojilerin kullanımına yönelik bireysel durumları ve kurumsal değerlendirmeleri de ele alınmıştır. Çalışmada nicel araştırma yöntemlerinden tarama araştırması deseni kullanılmıştır. Çalışmaya Atatürk Üniversitesi'nde mühendislik ve doğa bilimleri, sosyal bilimler, tıp ve sağlık bilimleri olmak üzere farklı disiplin alanlarında görev yapan ve ders veren 848 öğretim elemanı (295 kadın, 553 erkek, 25-65 yaş arası) katılmıştır. Veriler, "Eğitimcilerin Dijital Yeterlilikleri için Avrupa Birliği Çerçeve Çalışması" kapsamında geliştirilen "DigCompEdu Check-In Tool" adlı değerlendirme aracı ile toplanmıştır. Çalışmadan elde edilen bulgulara göre, öğretim elemanlarının büyük bir çoğunluğunun derslerini Öğrenme Yönetim Sistemleri (ÖYS) aracılığıyla yürüttükleri, sunum ağırlıklı olmak üzere video/ses türündeki farklı çoklu ortam materyallerine başvurdukları ortaya çıkmıştır. Öğretim elemanlarının ÖYS'ler tarafından sağlanan dijital sınavlar ve anketleri de yaygın olarak kullanıldıkları tespit edilmiştir. Ancak farklı türlerde dijital içerik geliştirme olanağı sağlayan ve nispeten daha üst düzey dijital beceriler gerektiren blog, wiki, kavram haritası ve poster gibi dijital teknolojilerin kullanımının ise sınırlı olduğubelirlenmiştir. Öğretim elemanlarının öğretim süreçlerinde dijital teknolojilerin kullanımına ilişkin kurumsal değerlendirmeleri incelendiğinde ise kurum tarafından sağlanan gerek teknik olanakların gerekse akademik ve teknik destek gibi teşvik edici unsurların yeterli düzeyde görüldüğü ortaya çıkmıştır. Öğretim elemanlarının dijital yeterlilik seviyeleri incelendiğinde ise üst yeterlilik seviyelerinden biri olan C1 (Lider) seviyesinde daha fazla sayıda öğretim elemanının olduğu tespit edilmiştir. Öğretim elemanlarının alt alanlara yönelik yetkinlikleri incelendiğinde; dijital kaynak kullanımına yönelik yetkinlik alanında C1 (Lider) seviyesinde çok sayıda öğretim elemanı yer alırken, mesleğinde dijital becerilerin kullanımı, öğretme ve öğrenme, değerlendirme, öğrencilerin güçlendirilmesi ve öğrencilerin dijital yetkinliklerinin desteklenmesine yönelik alt yeterlilik alanlarında B2 (Uzman) seviyesinde daha fazla sayıda öğretim elemanı olduğu görülmüştür. Çalışmada en alt yeterlilik seviyeleri olan A1 (Başlangıç) ve A2 (Kâşif) seviyelerinde oldukça az sayıda öğretim elemanı olmakla birlikte bu seviyedeki öğre-

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tim elemanlarının özellikle değerlendirme alanında kendilerini daha yetersiz gördükleri dikkat çekmiştir. Öğretim elemanlarının dijital yeterlilikleri disiplin alanlarına göre incelendiğinde mühendislik ve doğa bilimleri alanındaki öğretim elemanlarının büyük çoğunluğunun C2 (Öncü) ve C1 (Lider) seviyesinde oldukları, sosyal bilimler alanındaki öğretim elemanlarında ise B1 (Bütünleştirici) ve A2 (Kâşif) seviyelerinin diğer disiplin alanlarına göre daha belirgin düzeyde olduğu görülmüştür. Yaş gruplarına göre dijital yeterlilik seviyeleri incelendiğinde 30-39 yaş grubundaki öğretim elemanlarının C1 (Lider) ve C2 (Öncü) seviyesi oranlarının diğer yaş gruplarına göre daha yüksek olduğu ortaya çıkmıştır. Çalışmadan elde edilen sonuçlara göre, öğretim elemanlarının büyük çoğunluğu dijital teknolojileri eğitim süreçlerine pedagojik ve profesyonel uygulamalar eşliğinde entegre edebilme yeterliliğine sahiptir. Ancak öğretim elemanlarının da özellikle yenilikçi ve karmaşık dijital teknolojilerin eğitime entegrasyonu konusunda mesleki uygulamalı eğitim gibi faaliyetlerle desteklenmeleri gerektiği söylenebilir. Çalışma kapsamında elde edilen sonuçlar bu yönde detaylı olarak değerlendirilerek çeşitli önerilerde bulunulmuştur.

Anahtar Kelimeler: *Dijital Yeterlilikler, Öğretim Elemanlarının Dijital Yeterlilikleri, Digcompedu, Yükseköğretim, Dijital Dönüşüm*

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Anlatı Deneyim Tabanı Yaklaşımıyla Video Anlatı Ağı Çizgesi Oluşturma

Mehmet Emin MUTLU[1], Ayşe PERİ MUTLU[2]

Özet

Amaç: Anlatı ağları (narrative networks) anlatıları oluşturan öğelerin ve aralarındaki ilişkilerin ağ grafikleri biçiminde görselleştirilmesini ve incelenmesini amaçlayan bir araştırma alanıdır. Öykü, roman, film, tiyatro oyunu, çizgi roman, bilgisayar oyunu vb. farklı formatlardaki anlatıların yapısında bulunan aktörler, eylemler, mekânlar, varlıklar vb. öğelerin belirlenmesi ve anlatının zamansal akışına göre çözümlenerek düğümler ve bağlantılar biçiminde görselleştirilmesi sonucunda karmaşık anlatıların kullanışlı bir modeli elde edilmiş olur.

Anlatı deneyim tabanı, öğrenme deneyimleri yönetimi araştırmaları kapsamında kavramsallaştırılmış olan deneyim bağlamlarından yararlanılarak oluşturulan bir veri tabanıdır. Bu veri tabanı anlatıdaki aktörlerin yaşadığı deneyimler ve deneyimleri çevreleyen yer, kişi, olay, varlık vb. bağlamların tümünün hiyerarşik bir bağlı liste halinde modellenmesiyle elde edilir. Önceki bir çalışmada öykü anlatıları için anlatı deneyim tabanının elde edilmesi ve etkileşimli bir anlatı ağı çizgesinin görselleştirilmesi süreci tasarlanarak bir öykü üzerinde başarıyla uygulanmıştır. Bu çalışmada ise anlatı deneyim tabanlarının farklı medyalar için uygulanabilirliğinin araştırılması ve video anlatı ağı çizgesinin elde edilmesi sürecinin belirlenerek denenmesi amaçlanmıştır.

Yöntem: Araştırmada tasarım tabanlı araştırma yöntemi uygulanmıştır. Bu kapsamda anlatı deneyim tabanı yaklaşımı çözümlenmiş, video anlatıları için anlatı ağı çizgesi (videograf) oluşturma süreci tasarlanmış ve bu süreç örnek bir video üzerinde uygulanmıştır. Kodlama sonucu elde edilen örnek videoya ait anlatı ağı çizgesi kullanıcı deneyimi özellikleri ve modelin sağladığı olanaklar açısından değerlendirilmiştir.

Bulgular: Geliştirme aşamasında iki saat uzunluğundaki örnek videonun bir web tarayıcısı üzerinde etkileşimli olarak kullanılabilen 19 aktör ve 75 sahneden oluşan bir anlatı ağı çizgesi elde edilmiştir. Kullanıcılar geleneksel yaklaşımda ancak doğrusal bir deneyim ile izleyebildikleri videoya videograf aracının sunduğu üst bakışla iki boyutlu erişim sağlayabilmektedirler. Etkileşimli çizgede görüntülenen sahne ve aktör düğümleri aracılığıyla bir aktörün tüm sahneleri ya da bir sahnedeki tüm aktörler listelenebilmekte ve oynatılabilmektedir. Böylece özellikle uzun, çok aktörlü ve çok sahneli videoların kullanıcılar tarafından gözden geçirilerek incelenmesi ve seçili bir aktörün sahnelerine ya da bir sahnenin kendisine odaklanılması kolayca gerçekleştirilebilmektedir. Video anlatı ağı çizgesi oluşturma süreci sonucunda elde edilen videograf aracının kavramsal temelleri anlatı deneyim tabanı yaklaşımına dayanmaktadır ve bu yaklaşımın metin tabanlı öykü anlatılarında olduğu kadar video anlatıları için de başarıyla uygulanabildiği gösterilmiştir.

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Özgünlük / etkileri: Videograf aracının öykü anlatılarında olduğu gibi video anlatılarında da etkileşimli bir öğrenme aracı olarak kullanılma potansiyeli bulunmaktadır. Bu araç yardımıyla öğrenenlerin e-öğrenme ortamlarında edebiyat eserleri ve filmlerin üzerinde eğitsel çalışmalar yapmalarına yönelik etkinlikler tasarlamak mümkün olabilecektir.
Etkileşimli anlatı ağı çizgesi geliştirme sürecinde öykü anlatıları ve video anlatıları üzerinde elde edilen başarılı çalışmalar diğer anlatı türleri için de benzer süreçlerin araştırılmasına yol gösterecektir. Anlatı deneyim tabanı yaklaşımıyla anlatı ağı çizgelerinin elde edilmesi sürecinin farklı medyalarda üretilmiş farklı anlatı türleri için genelleştirilmesi "medyagraf" adı verilen genel anlatı ağı çizgesi aracının elde edilmesine olanak sağlayabilir.

Anahtar Kelimeler: *Anlatı Ağları, Anlatı Deneyim Tabanı, Videograf, Video Anlatı Ağı*

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Medya Zenginliği Kuramı Çerçevesinde Kitlesel Açık Çevrimiçi Derslerin Öğreten Görüşlerine Göre Değerlendirilmesi: AKADEMA Örneği

Tevfik Fikret KOLOĞLU[1], Berrin ÖZKANAL[2]

Özet

Amaç: Kitlesel Açık Çevrimiçi Dersler (KAÇED) uzaktan eğitimde açıklık kavramının bir uzantısı olarak ortaya çıkan ve öğrenmek isteyen bireylere merak ettikleri alanla ilgili daha önceden hazırlanmış olan içeriklere erişim olanağı sağlayan bir öğrenme yöntemi olarak değerlendirilmektedir. KAÇED'ler her ne kadar günümüzde eğitsel anlamda sağladığı fırsatlardan dolayı tercih edilen bir öğrenme yaklaşımı olsa da, katılımcıların belirli bir noktadan sonra öğrenimlerini devam ettirmemeleri, öğretenlerin belirli bir standartta değil bireysel yaklaşımlarla süreci gerçekleştirmeleri, kullanılmakta olan platformlara alışma güçlüğü ve öğrenen-öğreten etkileşimlerinin zayıf olması gibi sebeplerden dolayı sınırlılıkları da olduğu bilinmektedir.

Bu çalışma, Anadolu Üniversitesi AKADEMA platformunda yer alan kitlesel açık çevrimiçi derslerin (KAÇED) medya zenginliği kuramının etkileşim, iletideki fikrin taşınması, ana dil kullanımı ve kişiselleştirme boyutları doğrultusunda öğretici görüşlerine göre değerlendirilmesini amaçlamaktadır. Bu genel amaç doğrultusunda çalışmada; öğretenlerin AKADEMA platformunun etkileşim özelliklerine ilişkin görüşlerinin neler olduğu, platformda iletideki fikrin taşınmasında öğretenlerin hangi araçları (görsel, işitsel, görsel-işitsel) kullandıkları, öğretenlerin platformun anadil kullanımı ve kişiselleştirme ile ilgili özelliklerine ilişkin görüşlerinin neler olduğu belirlenmeye çalışılmıştır.

Yöntem: Çalışma nitel araştırma yöntemlerinden temel nitel araştırma yaklaşımıyla gerçekleştirilmiştir. Temel nitel yaklaşımla bir süreç, bir olgu veya ilgili katılımcıların konuya yönelik görüşleri anlaşılıp keşfedilmeye çalışılarak kişilerin perspektiflerini ortaya koymak hedeflenmektedir. Çalışma grubunun belirlenmesinde amaçlı örneklemenin bir türü olan, temelinde olasılık olmayan örneklem türü olan ölçüt örneklemeden yararlanılmıştır. Ölçüt örnekleme ile sürece dahil olan katılımcılar, kitlesel açık çevrimiçi derslere yönelik öğrenme-öğretme platformu olan MERGEN Öğrenme Yönetim Sistemi içerisindeki AKADEMA platformunda içerik geliştiren ve yürüten 21 öğreten katılımıyla yürütülmüştür. Araştırma verilerinin toplanmasında çevrimiçi görüşme yönteminden yararlanılmış ve görüşme soruları yarı yapılandırılmış görüşme formu aracılığıyla toplanmıştır. Verilerin analizinde içerik analizi yönteminden yararlanılarak temalar ve bunlara ilişkin kodlar tablolar şeklinde ifade edilmiştir.

Bulgular: Araştırmada elde edilen bulgular sonucunda; ortam zenginliği olarak da ifade edilen medya zenginliği kuramının dört farklı boyutu olan; etkileşim, iletideki fikrin taşınması, ana dil kullanımı ve kişiselleştirme boyutlarının KAÇED uygulamalarında önemli bir yere sahip olduğu görülmüştür. Medya zenginliği kuramının etkileşim boyutunda geri bildirimin en önemli unsur olduğu ortaya çıkmıştır. İkinci boyut olan iletide fikrin taşınmasında yazılı bildirimin ağırlıkta olduğu ve bunun görsel-işitsel olanaklarla

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desteklenmesinin iletideki fikrin taşınmasında etkili bir yaklaşım olduğu görülmüştür. Üçüncü boyut olan ana dil kullanımına ilişkin olarak; kurulan her türlü iletişimde resmi olmayan, sade ve anlaşılabilir bir dilin kullanılmasının önemli olduğu belirtilmiş ve kullanılan ortamların bunun için yeterli olduğu görüşü ortaya çıkmıştır. Kişiselleştirme boyutunda ise kişiselleştirmenin iletişimde önemli bir unsur olduğu ve kişiye özel uygulamaların medya zenginliğine katkı sağladığı anlaşılmıştır. Medya zenginliği kuramının tüm boyutlarında geri bildirimin ortak ve önemli bir unsur olduğu ortaya çıkmıştır.
Özgünlük /Öneriler: Bu çalışma AKADEMA platformunda verilen derslerin medya zenginliği kuramı doğrultusunda değerlendirilmesi açısından özgün bir çalışmadır. Bundan sonra yapılacak çalışmalarda bu değerlendirmelerin de dikkate alınarak, ders platformlarının zenginleştirilmesinin verimli bir öğrenmeye katkı sağlayacağı düşünülmektedir. Ayrıca konuyla ilgili yapılan çalışmaların kısıtlı olması nedeniyle literatüre katkı sağlayarak araştırmacılara yol göstereceğine, sadece AKADEMA platformunda değil, kullanılan tüm KAÇED uygulamalarında ve uzaktan eğitim yoluyla yürütülmekte olan tüm öğrenme içeriklerinin oluşumunda araştırmacı ve geliştiricilere kılavuzluk edeceği öngörülmekte olup, benzer çalışmaların yapılmasıyla daha somut sonuçlar elde edileceği düşünülmektedir.

Anahtar Kelimeler: *Uzaktan Öğretim, Açık Eğitim, KAÇED, Medya Zenginliği Kuramı*

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İlköğretimde Uzaktan Öğretimle Oyunlaştırma Uygulamalarına İlişkin Öğrenci Görüşleri - Eş Anlamlı Kelimeler Örneği

Tülay GÜNEŞ[1], Serap UĞUR[2]

Özet

Teknolojide yaşanan gelişmeler sonucu eğitimde teknoloji kullanımı ve beraberinde çevrim içi öğrenme ortamlarının kullanım sıklığı artmıştır. Bu ortamlar her ne kadar dijital teknolojilerle desteklense de öğretmenlerin yaşadıkları en büyük sorunlardan birisi öğrencilerin yeteri kadar motive olamamaları ve öğrenme ortamlarına yeteri kadar dâhil edilememeleridir. Öğrencilerin öğrenme ortamlarına olan bağlılığı, onların öğrenme süreçlerini kolaylaştırarak kalıcı öğrenmeler gerçekleştirmelerini sağlamaktadır. Ancak pek çok öğrenme süreci, bu özellikleri barındırmayıp öğrenciler için yeteri kadar verimli olamamaktadır. Günümüzde içinde bulunduğumuz küresel boyutta etkili olan Covid-19 pandemisi birçok alanda olduğu gibi eğitim alanında da değişikliklere neden olmuştur. Covid-19 sonrası dünyada yaşananların yeni normal ve yeni paradigmalar oluşturarak yeni bir dünya düzeni kuracağını söylemek mümkün hale gelmiştir. Okullarda pandemi ile başlayan uzaktan eğitim sürecinde öğretmen-öğrenci, öğrenci-öğrenci etkileşimleri ve öğrenme yöntemleri de değişiklik göstermiştir. Bu bağlamda, çevrim içi uzaktan eğitim uygulamalarında etkili ve verimli öğrenmeler gerçekleştirilebilmesi için motive edici yöntemler önem kazanmıştır. Eğitim ortamlarındaki sorunlara bir alternatif olarak ortaya çıkan oyunlaştırmanın, öğretim programlarına göre planlanabildiği, öğrencilerin öğrenme ortamlarına katılımlarını ve motivasyonlarını arttırdığı görülmektedir. Ayrıca oyunlaştırma bireylerden hızlı geri bildirimler almayı, onların sorumluluklarını artırarak ulaşılmak istenen hedefi ilgi çekici hale getirmeyi sağlar. Oyunlaştırmanın eğitimde kullanılmasının amacı, öğrenme ortamlarında oyun elementlerinin kullanılarak öğrenenlerin motivasyonunu artırmaktır. Başka bir ifade ile rozet, lider tahtası, seviye gibi oyun elementlerini öğrenme ortamlarına uyarlayarak öğrenmeyi dikkat çekici ve eğlenceli bir şekle getirmek ve anlamlı öğrenmeler gerçekleştirmektir.

Araştırmada öğrencilere Eş anlamlı kelimeler için oyunlaştırılmış bir uygulama hazırlanarak öğrencilerle paylaşılmış, ders içi etkinliklerden ayrı olarak kullanmaları istenmiştir. Araştırma verileri; test sonuçları ve öğrencilere uygulanan ankete verilen yanıtlardan oluşmaktadır. Hazırlanan Eş Anlamlı Kelimeler Testi Eğitim Bilişim Ağı (EBA) platformunda öğrencilere ödev olarak gönderilmiştir. Testte yer alan aynı eş anlamlı kelimeler ile V-Fabrika uygulaması ile iki sanal oyun hazırlanmıştır. Her iki sanal oyunda da testteki aynı eş anlamlı kelimeler kullanılmıştır. Hazırlanan sanal oyunlar testte olduğu gibi EBA platformu üzerinden öğrenci hesaplarına çalışma olarak gönderilmiştir. Öğrencilerin sanal oyun başarı değerlendirmesi 0 ile 100 puan arasında puanladırılmıştır. Sanal oyun başarı puanları EBA'dan alınan raporlarla listelendirilmiştir.En son olarak da öğrencilere yapılan test ve sanal oyunlar ile ilgili öğrencilere anket yapılmıştır.

Çevrim içi öğrenme ortamlarında kullanılan oyunlaştırma elementlerinin değerlendi-

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rildiği çalışmalarda ele alınan metodolojik eğilimlerin ve oyunlaştırma elementlerinin bulgular üzerindeki etkilerini incelemek ve bu ortamlarda kullanılan oyunlaştırma elementlerinin tasarımında dikkat edilmesi gereken unsurları ortaya koymak amacıyla yapılan bu çalışmada; ulaşılan sonuçlara dayanarak uygulayıcılara, oyunlaştırma tasarımcılarına ve araştırmacılara yönelik öneriler getirilmiştir. Ayrıca bu bölümde yer verilen öneriler, çalışma sonuçlarından elde edilen bulgular ile çalışmaların kendi vermiş oldukları öneri ve sınırlılıklarından yola çıkılarak yapılmıştır.

Anahtar Kelimeler: *Oyunlaştırma, Oyun, E-öğrenme, Eş anlamlı kelimeler*

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Pandemi Sürecinde Eğitim Bilişim Ağı (EBA) Aracılığıyla Gerçekleştirilen İngilizce Öğretiminin Niteliği (Erzurum İli Örneği)*

Şeyma KARABACAK[1], Bilge ÇAM AKTAŞ[2]

Özet

Amaç: Pandemi dönemi uzaktan eğitim sürecinde Türkiye, yaygın olarak devlet destekli eğitim platformu olan EBA'yı uygulamaya koymuştur. K12 sınıfları için EBA'da tüm branşların yanı sıra İngilizce için canlı dersler verilmiş aynı zamanda EBA TV aracılığıyla da eşzamansız olarak ders videoları yayınlanmıştır. İngilizce öğretimi, birçok becerinin aynı anda kazandırılmasını hedefleyen ve bu bağlamda çeşitli öğretim yöntem ve yaklaşımların eklektik olarak kullanılmasını vurgulayan karmaşık bir yapıdadır. Dolayısıyla teknolojiyle bütünleşen bir dil öğretimi öğrenenlerin hedef dile maruz kalmalarını sağlamış olup öğrenenlere ve öğretmenlere bu anlamda zengin olanaklar sunmaktadır. Öte yandan uzaktan eğitim sürecinde yaşanılabilecek erişim sıkıntısı, teknik sorunlar ya da farklı problemlerin de olası olduğu gerçeğini göz ardı etmemek gerekmektedir. Keza İngilizce öğretiminin pandemi öncesinde süregelen mevcut sorunları da dikkate alındığında pandemi döneminde gerçekleştirilen İngilizce öğretimini mercek altına yatırmak bir ihtiyaç haline gelmiştir. Bu gereksinimden yola çıkarak pandemi sürecinde gerçekleştirilen uzaktan İngilizce öğretimi faaliyetlerini etraflıca incelemek ve olası problemleri gün yüzüne çıkararak bunlara ilişkin çözüm önerileri getirebilmek İngilizce öğretiminin niteliğini güçlendirmek adına oldukça önemlidir.

Bu araştırmanın amacı, pandemi döneminde EBA aracılığıyla gerçekleştirilen İngilizce öğretimine ilişkin öğretmenlerin, öğrencilerin ve velilerin görüşlerinin incelenmesidir. Bu amaçla çalışmada yanıt aranan sorular şunlardır:

Pandemi sürecinde EBA aracılığıyla gerçekleştirilen İngilizce öğretimine ilişkin

1. Ortaokul kademesinde görev yapan İngilizce öğretmenlerinin görüşleri nelerdir?
2. Ortaokul kademesinde öğrenim gören öğrencilerin görüşleri nelerdir?
3. Ortaokul öğrenci velilerinin görüşleri nelerdir?

Yöntem: Araştırmada nitel araştırma yöntemlerinden fenomenoloji (olgubilim) kullanılmıştır. Bu araştırmanın olgusu pandemi sürecinde EBA aracılığıyla gerçekleştirilen ingilizce öğretimidir.

Araştırmanın çalışma grubu, benzeşik örnekleme ile oluşturulmuştur. Benzeşik örnekleme, amaçlı örnekleme yöntemlerinden biri olup benzer olguların veya grupların araştırıldığı çalışmalarda kullanılan bir örnekleme türüdür (Patton, 2002). Bu araştırmanın çalışma grubunu oluşturan katılımcıların ortak özelliği ise EBA aracılığıyla yapılan derslerden etkilenen ve bu dersleri etkileyen öğretmen, öğrenci ve veliler olmalarıdır. Araştırmanın çalışma grubu; Erzurum'da ortaokul kademesinde görev yapan 10 İngilizce öğretmeni, 10 öğrenci ve ortaokul kademesinde öğrenim gören çocuğu olan 10 veli olmak üzere toplam 30 gönüllü katılımcıdan oluşmaktadır.

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Araştırmanın verileri her bir katılımcı grubu için ayrı olarak hazırlanmış görüşme formları ile yapılan yarı yapılandırılmış görüşmeler ile toplanmıştır. Görüşmelerde öğrenciler için veli izni, diğer katılımcılar için kendi izinleri alınmıştır. Görüşmeler pandemi dönemi nedeniyle online ortamda zoom aracılığıyla gerçekleştirilmiş ve hem ses hem de görüntü kaydı alınmıştır. Elde edilen veriler içerik analizi yöntemiyle analiz edilerek temalaştırılmıştır

Bulgular: Araştırma sonucunda öğretmenlerin derslerde öğretim programlarına bağlı kaldıkları, bilgisayar destekli öğretim ve eğitsel oyunlara yer verdikleri, materyal olarak ders kitaplarını, etkileşim kitaplarını ve videoları kullandıkları, gözden geçirmeye dayalı ödevler verdikleri, sürece dayalı değerlendirme yaptıkları ve öğretici rolünde oldukları tespit edilmiştir. Velilerin bu dönemde sorumluluklarının arttığı; öğrencilerin derslere katılımının yetersiz olduğu ve akademik başarılarının düştüğü, öğrencilerin İngilizce dil becerilerinden dinleme ve okuma becerilerinin geliştiği; yazma ve konuşma becerilerinin ise gelişmediği görülmüştür. Öte yandan öğrencilerin uzaktan eğitimdeki rollerine, derse tutumlarına ve ders sürelerine ilişkin eğitim paydaşları arasında bir fikir birliğine varılamamıştır. Uzaktan eğitimde internet sorunları, teknolojik yetersizlikler ve öğrencilerin motivasyonlarının düşük olması sorunları tespit edilmiştir. Ayrıca bu süreçte veli-öğrenci ve öğretmen iletişiminin sağlandığı ve uzaktan eğitimin tüm olumsuzluklara rağmen faydalı bulunduğu görülmüştür.

***Anahtar Kelimeler*:** *Covıd-19 Pandemi Süreci, Eğitim Bilişim Ağı, İngilizce Öğretimi*

*Bu çalışma birinciyazarın yüksek lisans tezinden üretilmiştir.

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Tıp Eğitiminde Dijitalleşme Uygulamaları: Yenidoğan Sağlığı Alanında Öğretim Teknolojileri Uygulamalarının İncelenmesi

Halilcan ÜLKER[1], Gökhan İÇTEN[2], Özge ALTUN KÖROĞLU[3], Alev ATEŞ ÇOBANOĞLU[4], Yasin ÖZARSLAN[5]

Özet

Eğitimde dijitalleşme uygulamaları, son yıllarda özellikle sanal gerçeklik, artırılmış gerçeklik gibi sürükleyici öğrenme teknolojilerindeki gelişmelerle birlikte sıkça gündeme gelmektedir. Eğitimde farklı alanlarda dijitalleşme uygulamalarının öğrenme-öğretme sürecine katkıları öğretim teknolojisi ve alan uzmanları tarafından incelenmektedir. Alanyazın taramasına dayalı bu çalışmanın amacı ise; tıp eğitiminde dijitalleşme uygulamaları kapsamında özellikle yenidoğan sağlığı konusundaki öğretim teknolojileri uygulamalarına odaklanarak alanyazındaki boşluğu ortaya koymak ve bu boşluğu gidermeye yönelik öğretim tasarımı önerileri geliştirmektir. Ek olarak, geleceği şekillendirecek bir unsur olarak görülen açık ders kaynaklarının tıp eğitimindeki örneklerini ele almak ve açıklık felsefesinin bu alanda da yayılmasını teşvik etmek çalışmanın hedefleri arasında yer almaktadır. Sistematik tarama niteliğindeki bu çalışmada PRISMA modeli kullanılmıştır. 2017-2022 yılları arasında SSCI, SCI-E, ESCI endeksli dergilerde yayımlanan açık erişimli makaleler incelenmiştir. Bu makalelerden anahtar sözcükleri arasında "neonatal", "education" ve "technology" sözcükleri olan çalışmalar filtrelenmiştir. İlgili filtrelemeler sonucunda 58 makale veri setine dahil edilmiştir. Edinilen bulguların, özellikle yenidoğan sağlığı konusunda eğitim almakta olan tıp öğrencileri ve yenidoğan uzmanı çocuk doktorları için sağlanan öğretim teknolojilerine örnek teşkil edeceği ve tıp eğitiminde dijitalleşme çalışmalarına bu yönden katkı getireceği düşünülmektedir.

Anahtar Kelimeler: *Yenidoğan Sağlığı, Tıp Eğitimi, Açık Ders Kaynakları, Eğitimde Dijitalleşme, Öğretim Teknolojileri*

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Pandemi Sonrası Dönemde Öğretmen Adaylarının Uzaktan Eğitim Deneyimleri*

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Özet

COVID 19 ile sosyal hayatta birçok değişiklik söz konusu olmuş ve peşi sıra pandeminin boyutundan ötürü küresel çapta kapanmalar meydana gelmiştir. UNESCO verilerine göre söz konusu pandemi dolayısıyla yaklaşık 160 ülkedeki farklı kademelerde yayılımın engellenmesi bağlamında okullar da kapanmak zorunda kalmıştır (UNESCO, 2020). Kapanmanın ardından eğitim alanı da diğer alanlar gibi alışılmışın dışında etkilenmiştir. Şüphesiz ki bu değişikliklerden bazıları uluslararası ve ulusal birçok kaynağın yayıncısı tarafından erişilebilir hale getirilmiştir. Ekonomik Kalkınma ve İşbirliği Örgütü (OECD), Birleşmiş Milletler Eğitim, Bilim ve Kültür Örgütü UNESCO ve Avrupa Üniversiteler Birliği (EUA) gibi kuruluşlar sosyal bilimler başta olmak üzere farklı çalışma alanları için hazırlanmış katalogları, fasikülleri, modülleri ve dosyaları internet kullanıcıları için elektronik kaynak olarak açık erişim haline getirmişlerdir (Vidal, 2021). Pandemi döneminde kamuya açılan bu elektronik kaynakların birçok araştırmacının ilgisini çektiği düşünülmektedir. Eğitim bağlamında ise planlı ve programlı olarak yürütülen uzaktan eğitim zorunluluk dolayısıyla yerini Acil Uzaktan Eğitime bırakmıştır (Ferri, Grifoni & Guzzo, 2020). Acil Uzaktan Eğitime geçilmesiyle bu elektronik kaynaklar kullanılmaya başlanmıştır. Bunun yanı sıra Acil Uzaktan Eğitimin uygulanması beraberinde internet ve altyapı eksiklikleri (Outhwaite, 2020), evde okul ortamını oluşturmaya dair bazı sorunlar (Bol, 2020), akademik anlamda öğrencilerin temel becerileri edinmeleri arasındaki farklar (Doyle, 2020), sosyo-ekonomik bağlamda dezavantajlı çocuklarda eğitim başarısında belirgin kayıplar (Eyles, Gibbons, Monthebruno, 2020) ve çevrimiçi ortamda ders yapmanın getirmiş olduğu yalnızlık (Kaufmann & Vallade, 2020) gibi sorunları da doğurmuştur.

Bu bağlamda, Acil Uzaktan Eğitimin pandemi şartlarında uyarlanması konusunda uzmanlar, öğretmenler, öğrenciler yeni arayışlar içine girmişlerdir ve farklı uygulamalara başvurmuşlardır. Ayrıca, pandemi sonrası devam eden uzaktan eğitim ve/veya hibrit eğitimde de bu farklı uygulama arayışının sürdüğü düşünülmektedir. Bunun bir sonucu olarak söz konusu durumun öğrenim kalitesine ve öğrenci deneyimine de etkileri olmuştur.

Bu çalışma pandemi sonrası dönemde hibrit eğitime geçen Marmara Üniversitesinde tamamen uzaktan eğitim yoluyla verilen bir derste öğrenci deneyimini gözlemlemek amacıyla yapılmıştır. Bu araştırma, söz konusu dersi alan öğrencilerin dersi almadan önce uzaktan eğitim ile ilgili deneyimlerini, yüz yüze eğitim ve Acil Uzaktan Eğitim ile ilgili görüşlerini saptamayı hedeflemektedir. Mevcut çalışma için Atatürk Eğitim Fakültesi Yabancı Diller Eğitimi Bölümü Fransız Dili Eğitimi Ana Bilim Dalı'ndaki "Structure

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de la langue française II" adlı dilbilgisi dersi farklı uzaktan eğitim modelleri göz önünde bulundurularak uzaktan eğitime uyarlanmıştır. Söz konusu ders 5 hafta boyunca tamamen uzaktan eğitim yoluyla verilmiştir. İlgili çalışmanın evren ve örneklemini derse kayıt yaptıran 28 öğretmen adayı oluşturmaktadır. Çalışmanın deseni durum çalışması olup nitel veriler katılımcılardan anket yoluyla toplanmıştır. Toplanan veriler Maxqda nitel veri analiz programı ile analiz edilmiştir. Bulgular ve çalışmanın alana katkısı çalışmanın amacı doğrultusunda sunulacaktır.
**İlgili çalışma doktora tez çalışmasının bir parçasını oluşturmaktadır.*

Anahtar Kelimeler: *Uzaktan Eğitim, Pandemi, Covıd 19, Öğretmen Adayı, Öğrenci Deneyimi, Fransızca Öğretimi*

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Çevrim İçi Ters-Yüz Sınıf Yöntemine Yönelik Çalışmaların Bibliometrik Analiz Yöntemi ile İncelenmesi

Hamza POLAT[1],

Özet

Amaç: Covid-19 salgın sürecinde öğretim faaliyetleri genellikle çevrimiçi öğrenme ortamları üzerinden yürütülmüştür. Bu süreçte derslerin verimli bir şekilde yürütülmesi ve öğretim programlarının zamanında yetiştirilebilmesi için çevrim içi öğretim süreçlerinin yeniden gözden geçirilmesi gerekmiştir. Salgın sürecinde çevrim içi öğretimin etkinliğini artırmaya yönelik önerilen stratejilerden birisi de ters-yüz sınıf modelinin çevrim içi öğretim sürecine uyarlanmasıdır. Bu çalışmanın amacı oldukça yeni olan bu yöntemi bibliometrik yöntemlerle analiz ederek yeni çalışmalara yön göstermektir.
Yöntem: Çevrim içi ters-yüz sınıf modeline yönelik çalışmalar yazar, yayın, anahtar kelime, dergi ve ülke gibi faktörler bağlamında incelenmiştir. İlgili çalışmalara ulaşmak için Scopus veri tabanında 8 Temmuz 2022 tarihinde tarama yapılmıştır. Arama ifadesinde ("online flipped" OR "e*flipped") anahtar kelimeleri kullanılmıştır. Arama sonucunda 2013-2022 arasında yayımlanmış toplam 86 çalışmaya ulaşılmıştır. Elde edilen çalışmalar VOSviewer yazılımında analiz edilmiştir.
Bulgular: Arama sonucunda yazarlara yönelik 8 kümeli bir sonuca ulaşılmıştır. En fazla yayının Adawi, Demaziere, Stöhr ve Tsai tarafından yapıldığı gözlemlenmiştir. En çok çalışmanın Ming Chuan Universitesi'nde yapıldığı tespit edilmiştir. Yapılan çalışmaların bağlantıları açısından en fazla ilişkiye Çin ve Tayvan'da rastlanmıştır. En çok Computer & Education dergisindeki çalışmalara referans verildiği anlaşılmıştır. Konuya yönelik en fazla referans verilen yazarın Hew K.F olduğu tespit edilmiştir. Anahtar kelimelerin birbiriyle ilişkili üç küme etrafında birleşmiştir. Bu kümeler derinlemesine incelendiğinde temelde eğitsel meselelerin, çevrim içi öğretim ve ters-yüz sınıf süreçlerinin ve öğrencilere yönelik çözümlerin ön plana çıktığı belirlenmiştir. Yazarların kullandıkları anahtar kelimelerin ise "ters-yüz sınıf", "Covid 19", "çevrim içi öğrenme", "ters-yüz öğrenme", "çevrim içi ters yüz sınıf", "çevrim içi ters yüz öğrenme" olduğu görülmüştür.
Özgünlük: Araştırma amacı doğrultusunda 2013 ile 2022 yılları arasında 86 çalışmaya ulaşılmıştır. Özellikle son yıllarda konuya yönelik yeni çalışmaların yürütüldüğü gözlemlenmiştir. Bu durum konunun oldukça yeni bir çalışma alanı olduğu göstermektedir. Bu araştırmanın sonuçlarının çevrim içi ters-yüz sınıf modeli kullanmayı planlayan araştırmacılara nereden başlanacağı konusunda yön gösterebilir. Ayrıca, araştırmacılara çevrim içi ters yüz sınıf kavramlarıyla ilgili gelecek çalışmaları planlamada yardımcı olacak bir araştırma gündemi önerilmektedir.

Anahtar Kelimeler: *Çevrim İçi Ters Yüz Sınıf, Bibliyotektik Analiz, Çevrimiçi Öğrenme*

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Covid-19 Dönemi Boyunca İngilizce Öğretiminde Çevrimiçi Öğretim ile İlgili Yapılan Çalışmaların Türkiye Perspektifinden Değerlendirilmesi

Tuğba BABACAN[1]

Özet

2020 yılında başlayıp tüm dünyanın belli sürelerde kapanması ile devam eden COVID-19 salgınının yarattığı kriz etkisiyle eğitim-öğretim faaliyetleri acil olarak çevrimiçi eğitimle gerçekleştirilmiştir. Dünyada özellikle COVID-19 dönemi sürecinde duyulan bu ani ihtiyaç sonucunda çevrimiçi öğretimin süreci doğrudan yönetmesi ile eğitim platformunda olağandışı bir dönüşüm yaşanmıştır. Türkiye'de yabancı dil öğretimi sorunsalına pandemi krizinin de eklenmesiyle akademik alanda yapılan çalışmaların nasıl odaklandığı merak konusu olmuştur. Bu çalışmada pandemi döneminden şu ana kadar yapılan İngilizce öğretiminde çevrimiçi öğretim çalışmalarında söylemlerin nasıl olduğunu Türkiye perspektifinden ortaya çıkarmak amaçlanmaktadır. Araştırma, sistematik literatür taraması yapılarak nitel yaklaşımda betimsel bir çalışmadır. Değerlendirmeye "çevrimiçi öğretim", "İngilizce öğretimi", "Türkiye", "COVID-19 dönemi" ve "pandemi" anahtar kelimeleri ile ulaşılabilen araştırmalar dahil edilmiştir. Yurtiçi ve yurtdışı alanyazında yapılan İngilizce öğretiminde çevrimiçi öğretime yönelik çalışmalara ULAKBİM (Ulusal Akademik Ağ ve Bilgi Merkezi), Yükseköğretim Kurulu Ulusal Tez Merkezi, SCOPUS, Web of Science, ERIC ve Google Akademik veri tabanlarından ulaşılmıştır. Çalışmada, 2020-2022 yılları arasında; İngilizce öğretiminde çevrimiçi öğretim konulu ve Türkiye bağlamında yürütülmüş çalışmalar değerlendirmeye alınarak ölçüt örnekleme yönteminden yararlanılmıştır. Çalışmanın örneklemi 55 adet makale ve 10 tezden oluşmaktadır. Ulaşılan dokümanlar, belirli kriterlerde değerlendirilerek analiz edilmiştir. Değerlendirmede araştırma türü, yayın yılı, yayın yeri, araştırma yöntemi, örneklem, örneklem belirleme yöntemi, veri toplama araçları, değişken özellikleri ve ulaşılan sonuçlar incelenerek sınıflandırılmıştır. Değerlendirilen çalışmaların, % 85'inin makale türünde yazıldığı; %55'inin yurtdışı literatürde yayınlandığı; örneklemin %43'ünün İngilizce öğretmenliği bölümünde öğrenim gören öğrenciler olduğu; %55'inde net bir örneklem belirleme yöntemi yazılmadığı; %54'ünün 2021 yılında yayınlandığı; %48'inin nitel; %37'sinin görüşmeler aracılığıyla veri topladığı ve %27'sinin cinsiyet değişkenini incelediği tespit edilmiştir. Değerlendirilen çalışmalarda pandemi sürecindeki işleyişin öğrenen ve öğretici paydaşlarda pedagojik, psikolojik ve teknik boyutlarda olumlu ve olumsuz etkiler bıraktığı belirlenmiştir. Çevrimiçi öğretim sürecinde konuşma ve yazma becerisini geliştirmede sorun yaşandığı, güvenilir olmayan değerlendirme yöntemlerinin gerçek sonuçları yansıtmadığı, öğreticilerin genelinin çevrimiçi eğitim konusunda herhangi bir deneyime ve profesyonel desteğe sahip olmadıkları, yaşamla çalışma hayatının iç içe geçmesinin öğreticileri olumsuz etkilediği, öğrenenlerin sosyal ortamda olmamalarıyla motivasyon ve tutumlarının düştüğü, öğreticilerin öğretim-teknikleri çeşitlendirmedikleri için öğrenenlerin derse katılmadıkları, teknik ve imkana dayalı yetersizliklerin fırsat

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eşitsizliğine sebep olduğu gibi sorunlar pandemi dönemindeki çevrimiçi dil öğretiminin olumsuz etkileridir. Öte yandan, öğreticilerin profesyonel kimlik algılarını geliştirmek zorunda hissettikleri, öğrenenlerin kendi hızlarında ilerlemelerine imkan tanıması, yer ve zaman açısından ekonomik olması, çeşitli kaynaklara ulaşılabilmesi, anında dönüt sağlanabilmesi gibi durumlar olumlu etkileridir. Çevrimiçi dil öğretiminde Web 2.0 araçları olarak Quizlet gibi interaktif etkinliklerin yapılmasının, e-kitap kullanımının, MOODLE, Edmodo gibi uygulama tasarımlı çalışmaların öğretime entegre edilmesinin ve teknopedagojik yeterliliklerin artırılmasına destek olunmasının İngilizce öğretimine katkı sağladığı tespit edilmiştir. İngilizce öğretiminde zaten yaşanan sorunlara ek olarak acil çevrimiçi eğitime geçilmesi ile yabancı dil eğitim çıktılarında kısa bir süre içinde daha ciddi sorunlar ile karşılaşabiliriz. Pandemi dönemi sürecinde bilim insanlarının ilgili konuda edindikleri bulguların bir bütün olarak sunulmasının, ihtiyaç duyulan nitelikli eğitim anlayışının yapılandırılmasına katkı sağlayabileceği düşünülmüştür. Çevrimiçi öğretimden etkili bir şekilde yararlanıldığında İngilizce öğretiminin verimli hale geldiği yapılan çalışmalarda vurgulanmıştır. Bu sebeple özellikle teknik, alt yapı gibi alanların donanımlaştırılması, program içeriğinin, tasarlamanın profesyonel olarak desteklenmesi, öğreticilerin vizyoner rol üstlenmelerine destek olunması ile eğitimde fırsat eşitliğini tam anlamıyla gerçekleştirmiş oluruz.

Anahtar Kelimeler: *İngilizce Öğretimi, Çevrimiçi Öğretim, Türkiye'de Pandemi Süreci*

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Matematik Öğretmen Adaylarının Kitlesel Açık Çevrimiçi Ders Alma Motivasyonlarının İncelenmesi

Katibe Gizem YIĞ[1]

Özet

Amaç: Bu çalışmanın amacı matematik eğitimi alanında öğrenim gören öğretmen adaylarının gönüllü olarak katıldıkları kitlesel açık çevrimiçi derslere (KAÇD) kaydolma/katılım motivasyonlarının belirlenmesidir. KAÇD'ler ilk ortaya çıkışlarından itibaren giderek popülerleşen ve sayıları artan açık derslerdir. KAÇDler genellikle yükseköğretim kurumları tarafından farklı platformlar aracılığıyla öğrenenlere sunulurlar. Bu derslerle ilgili literatürde çeşitli tartışmalar olsa da var olan eğitsel potansiyelleri bu derslere olan ilgiyi giderek arttırmaktadır. Class central verilerine göre 2021 yılı itibariyle dünya genelinde yaklaşık 19400 KAÇD üretilmiştir (Çin hariç). Literatürde öğrenen görüşlerine göre katılımcı motivasyonlarını inceleyen farklı araştırmalar bulunmaktadır. Hew ve Cheung' in (2014) öğrenenlerin KAÇD'lere kaydolma nedenlerini sorguladıkları çalışmalarında; yeni bir konu öğrenme veya var olan bilgilerin arttırılması isteği, KAÇD'leri merak etme, kişisel mücadele ve bitirme sertifikaları toplama isteği gibi motivasyonlar belirlenmiştir. Yine benzer çalışmalarda yeni bilgiye ulaşmada KAÇD'lerin ilginç gelmesi, günlük yaşamla ilgili beceriler elde edebilmeye imkan vermesi, yüz yüze eğitimde aldıkları benzer derslerdeki bilgilerini destekleme (Abeer ve Miri, 2014), geleceğe hazırlanma, meraklarını giderme ve yeni insanlarla bağ kurma (Zheng vd., 2015) gibi motivasyonlar tespit edilmiştir. Bununla birlikte farklı gruplardan KAÇD katılımcılarının arasında bu derslere katılım motivasyonları da farklılaşabilmektedir (Türkay vd., 2017). Bu doğrultuda bu çalışmada matematik eğitimi öğretmen adaylarının KAÇD katılım motivasyonları/nedenleri incelenerek bu derslerin planlanmasıyla ilgili yeni bakış açıları sunulması hedeflenmiştir.
Metodoloji: Araştırma nitel bir durum çalışması olarak desenlenmiştir. Araştırma katılımcılarını Araştırmanın çalışma grubunu 30 matematik öğretmeni adayı oluşturmaktadır. Katılımcıların tamamı çevrimiçi ders tecrübesine sahip ve daha önce bir KAÇD'e kaydolmuş adaylardır. Katılımcılarla gerçekleştirilen yarı-yapılandırılmış görüşme transkriptleri içeriksel olarak analiz edilmiş, bu yolla katılımcıların KAÇD'lere kaydolma motivasyonları/nedenleri hakkında detaylı bir anlayışa sahip olunmaya çalışılmıştır.
Bulgular: Araştırmada kapsamında gerçekleştirilen içerik analizi sonucu 12 farklı KAÇD katılım motivasyonu belirlenmiştir. Bu motivasyonlar arasında ilk sırada, katılımcıların matematik eğitimi alanında merak edilen/faydalı olacağı düşünülen bilgileri edinme isteği bulunmaktadır. Bunu sırasıyla öğretmenlik becerilerinin-alanlarıyla ilgili pedagojik bilginin geliştirilmesi isteği, dersin adının/açıklamasının ilgi çekici olması, yüz yüze formal eğitim sürecine destek sağlama isteği, farklı konularda kişisel gelişim sağlama, var olan çeşitli bilgilerini pekiştirmek/geliştirmek, kişisel meydan okuma, gündelik hayatta fayda sağlama beklentisi, dersi veren öğretim üyelerinin fotoğrafları-akademik kariyerleri ve dersin ünlü üniversiteler tarafından verilmesi, dersle ilgili önceki yorumların çok olumlu olması, çevrimiçi pedagojiyi öğrenme isteği, arkadaş önerisi gibi motivasyonlar-katılım nedenleri izlemektedir.

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Özgünlük/Sonuç: Çalışma, spesifik bir katılımcı grubu olan matematik eğitimi öğretmen adaylarının KAÇD'lere katılma motivasyonlarını incelemektedir. Bu bağlamda çalışma sonuçları alan bağımlı bir anlayışla yorumlanabilir. Bulgulara göre öğretmen adaylarının KAÇD katılım motivasyonları literatürdeki benzer çalışmalara göre katılımcı grubunun özelliğine göre farklılık göstermektedir. KAÇD'lerin öğretmen yetiştirilmesi ve hizmet içi öğretmen eğitiminde kullanımları ilgi görse de henüz genel kabul gören bir öğrenme-öğretme yöntemi değildir. Bu açıdan bakıldığında çalışma sonuçlarının KAÇD'lerle ilgili eğitsel planlamalar ve yaşam boyu öğrenme kapsamında öğretmenlerin kişisel ve profesyonel gelişimlerine katkıda bulunabileceği düşünülmektedir.

Anahtar Kelimeler: *Kitlesel Açık Çevrimiçi Dersler, Katılım Motivasyonları, Matematik Öğretmen Eğitimi, Yaşam Boyu Öğrenme, Öğretmen Profesyonel Gelişimi*

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Otomatik Makale Değerlendirme Sistemlerinin Eğilimlerinin Belirlenmesi

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Özet

Günümüzde yabancı dil öğretiminde çok çeşitli öğretim teknolojilerinden faydalanıldığı görülmektedir. Özellikle Web 2.0 araçlarında yaşanan gelişimlerin ve bu araçların çeşitlenmesinin öğretim aşamasında çok fazla kullanılmasında etkili olduğu söylenebilir. Ancak geniş kitlelerin açık uçlu sorular ile değerlendirme süreçlerinde bazı sınırlılıkların olduğu görülmektedir. Özellikle açık ve uzaktan öğretim süreçlerinde açık uçlu soruları kullanan ölçme – değerlendirme araçlarına ve bu araçların etkililiğine ve kapsamlarına yönelik bazı soru işaretleri bulunmaktadır. Bu bağlamda yabancı dil öğrenimi özelinde bakıldığında yazma eğitiminin gerçekleştirilmesi uzun soluklu ve zor bir süreci beraberinde getirmektedir. Bu sürecin uygulamalı yürütülmesi, yanıtların teker teker okunması ve değerlendirilmesi ise öğretim elemanlarının üzerinde büyük bir iş yükü oluşturmaktadır. Etkileri uzun süre hissedilen COVID-19 pandemi sürecinde uygulaması ve değerlendirilmesi zor olan bu süreci daha da karmaşık bir hale getirmiştir. Özellikle uygulamalı aktivitelerin çok fazla olduğu yazma eğitiminde öğretim teknolojilerinden yararlanmak ve üst düzey katkı almak mümkün görülmekte ve 1966 yılından bu yana araştırmacıların üzerinde sürekli çalıştığı bir konu olduğu görülmektedir. Bu bağlamda yazma etkinlikleri içinde değerlendirme süreçlerinin özellikle öğrenenlerin süreç içerisinde bulunabilmeleri açısından oldukça önemli olduğu görülmektedir. Ancak bu sürecin çok zor ve zahmetli olması, anlık geribildirimlere ihtiyaç duyulması, öğrenen sayısının fazlalığı ve becerinin gelişimi için sürekli uygulama yapılması gerekliliği gibi durumlar alternatif değerlendirme araçlarının gelişmesine ve öğrenme ortamlarında kullanılmasına olan ihtiyacı artırmaktadır. Bu anlamda alanyazında "Automated Essay Grading/Scoring/Assessor System" olarak adlandırılan "otomatik makale değerlendirme sistemlerinin" varlığı mevcut değerlendirme yaklaşımlarında destek sağlamaktadır. Bu araştırmada otomatik makale değerlendirme sistemlerinin öne çıkan özelliklerine yönelik eğilimleri incelemeyi amaçlamaktadır. Bu amaç için, "Automated Essay Grading/Scoring/Assessor System" anahtar kelimeleri ile Google Scholar üzerinden taramalar gerçekleştirilmiştir. Yayınlanan akademik çalışmalar sistematik olarak analiz edilerek öne çıkan otomatik makale değerlendirme sistemleri belirlenmiştir. Bu bağlamda; (1) bu sistemlerin kullandığı analiz yöntemlerinin ne olduğu, (2) uygulamaların eğitilmesi için ne kadar veriye ihtiyaç duyduğu, (3) makale değerlendirilmesini hangi özelliklere göre yaptığı, (4) değerlendirmenin odak noktasının ne olduğu, (5) sistemin geribildirim verip vermediği ve (6) geribildirimin nasıl verildiği gibi sorulara yanıtlar aranmıştır. Araştırma kapsamında elde edilen sonuçlar; otomatik makale değerlendirme araçlarının daha çok yapay zeka ve doğal dil işleme yöntemlerini kullanıldığı, uygulamaların eğitimi

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için uç değerler bulunsa da ortalama 100-300 metine ihtiyaç duyulduğu ve makale değerlendirmeleri için genellikle içerik, gramer, mekanizma, şekil gibi özelliklerin öne çıktığı görülmüştür. Otomatik makale değerlendirme sistemlerinin özelliklerindeki eğilimleri belirlemenin, yazma eğitimi veren öğretim üyelerine, öğretmenlere, uzaktan eğitim sürecindeki bu dersleri zenginleştirmek isteyen yöneticilere, özel kurumlara, araştırmacılara ve sistem geliştiricilere rehberlik etmesi beklenmektedir.

Anahtar Kelimeler: *Otomatik Makale Değerlendirme, Açık ve Uzaktan Öğrenme, Otomatik Makale Puanlama, Ölçme ve Değerlendirme*

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İngilizce Öğretmenlerinin Uzaktan Eğitim Sürecinde Teknolojik Öz Yeterlik Algıları

Meral GÜVEN[1], Soykan UYSAL[2]

Özet

2019 yılı sonlarında Çin'de ortaya çıkan COVID-19 salgını eğitimde uzun yıllardır kullanılan uzaktan eğitimin tüm seviyelerde ve tüm dersler için yaygınlaşmasını zorunlu hale getirmiştir. Uzaktan eğitimin geçmişten bugüne mektup, radyo, kitap, gazete vb. araçlarla yürütülmekte olmasına rağmen günümüzde internetin yardımıyla sanal sınıflar ile çok daha etkili olduğu söylenebilir. Fakat bu süreçte etkileşimin oldukça önemli olduğu İngilizce dersleri için sınıf içi sunum ve etkileşim sanal sınıflara taşınmak zorunda kalmış ve bu süreçte İngilizce öğretmenlerinin teknolojik yeterlikleri ön plana çıkmıştır.

Çalışmanın Amacı: Bu çalışmada İngilizce öğretmenlerinin teknolojik öz yeterlik algıları nitel bir araştırma deseninde belirlenmeye çalışılmıştır.

Çalışmanın Yöntemi: Veriler yarı yapılandırılmış görüşme formu ile toplanmıştır. Araştırmanın çalışma grubu amaçlı örnekleme tekniği ile seçilen 12 İngilizce öğretmeni oluşturmuştur. Verilen içerik analizi yöntemiyle analiz edilmiş ve tablolar ve grafiklerle sunulmuştur. Veriler öğretmenlerin görüşmede verdiği cevaplar örnek gösterilerek desteklenmiştir.

Çalışmanın Bulguları: Çalışmanın sonuçlarına bakıldığında öğretmenler her ne kadar kendilerini teknoloji kullanımı konusunda yeterli görseler de uzaktan eğitim sürecinin öğretmenlerin teknolojik yeterliklerine büyük katkılar sağladığı açıkça görülmüştür. Öğretmenler bu süreçte teknolojik olarak gelişmiş, bunun yanında bu gelişimlerini yüz yüze sınıf ortamlarına da aktaracakları görüşünü iletmişlerdir. Öğretmenler bu süreçte eğitimde teknolojik gelişmelerden haberdar olmuşlar ve sınıf ortamında kullanmaya cesaret edemedikleri teknolojik alet, uygulama (z kitap), program vb. zorunlu olarak öğrenmiş ve bu konuda daha çok cesaretlenmişlerdir. Salgın döneminde uzaktan eğitime geçilmesiyle birlikte teknoloji öğretileni pekiştiren değil eğitim-öğretimin bir parçası haline gelmiştir. Araştırmaya katılan öğretmenler İngilizce öğretiminde bundan böyle teknolojiyi sınıf ortamlarında, eğitim öğretim süreçlerinde hedef ve amaca uygun olarak ve değerlendirme süreçlerinde mutlaka kullanacaklarını belirtmişlerdir.

Anahtar Kelimeler: *Uzaktan Eğitim, Teknolojik Öz Yeterlik, İngilizce Öğretimi*

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Hibrit ve Harmanlanmış Öğrenme Modellerine Yönelik Uygulama Önerileri

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Özet

Covid-19 pandemisi ile yüksek öğretimde acil uzaktan eğitime geçilmiş ve bunun sonucunda uzun yıllardır yüz yüze eğitim ile devam eden programlarda zorunlu şekilde dersler uzaktan eğitim yöntemleri ile gerçekleştirilmeye başlamıştır. Pandeminin durumuna bağlı olarak, derslerde tamamen çevrimiçi yöntemlerden harmanlanmış ve hibrit yöntemlere geçiş yaşanmıştır. Bu süreçte üniversitelerde seyreltilmiş, harmanlanmış, hibrit ve tersyüz öğrenme modelleri yaygınlaşmaya başlamıştır. Harmanlanmış öğrenme, çevrimiçi eğitimin geleneksel eğitim ile birleştirildiği bir model olarak tanımlanmaktadır (Colis ve Moonen, 2001). Benzer şekilde, hibrit öğrenme de öğrencilerin hem yüz yüze hem de uzaktan öğrenme etkinliklerine katılabildikleri bir model olarak karşımıza çıkmaktadır. Pandemi riskini en aza indirmek amacı ile de üniversitelerde öğrenci sayılarının azaltılmasına yönelik seyreltilmiş öğrenme ortamları oluşturulmaya çalışılmıştır. Bu modeller ile etkin şekilde kullanılabilen ve modellerden elde edilen verimi artırabilecek ters yüz öğrenme modelinde, öğrenmenin kuramsal kısmı sınıf dışında ve genellikle asenkron araçlar ile gerçekleştirilirken sınıf içi uygulamalarda öğrencinin çok daha aktif olduğu problem çözme, proje, tartışma, uygulama gibi aktiviteler gerçekleştirilmektedir.

Amaç: Bu çalışmanın amacı üniversiteler tarafından pandemi döneminde uygulanan ve pandemi sonrasında da uygulanmaya devam edilebilecek uygulama modellerinin özelliklerinin çeşitli kriterler bağlamında ortaya konması ve örneklendirilmesidir. Her bir modele ilişkin kullanım amaçları ve üstünlükleri, modellerle birlikte kullanılabilecek teknolojik araçlara ilişkin bilgiler ve bu araçların avantaj ve dezavantajları, gerçek durumlarda uygulama önerileri ve ders tasarımları ele alınmıştır.

Method: Tarama modelinde gerçekleştirilen araştırmada pandemi döneminde ve sonrasında yükseköğretimde kullanılabilecek modeller incelenerek kullanım önerileri sunulmaya çalışılmıştır. Ters yüz öğrenme modeli, seyreltilmiş sınıf modeli, hibrit öğrenme modeli ve harmanlanmış eğitim modeli çalışma kapsamında incelenmiştir. Ters yüz öğrenme modelinde dersler, teorik kısımların sınıf dışında eş zamansız şekilde aktarımı ve yüz yüze oturumlarda tartışma, proje, grup çalışması gibi etkinliklerin gerçekleştirilmesi şeklinde tasarlanmaktadır. Seyreltilmiş model grubun birden fazla gruba ayrılarak dönüşümlü şekilde yüz yüze katılım sağlamasına ve katılım sağlanmayan zamanlarda eş zamansız çalışmalara dayanmaktadır. Hibrit öğrenme modelinde ise her hafta yüz yüze eğitim devam etmekte ancak öğrenenler derse eşzamanlı olarak uzaktan da bağlanabil-

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mektedir. Bu modelde öğrenen katılımı tamamen öğrenenin kendisine bırakılabileceği gibi öğreten tercihine bağlı olarak da dizayn edilebilmektedir. Harmanlanmış öğrenme modelinde derslerin bir kısmı sınıf dışında eş zamanlı olarak bir kısmı da sınıf ortamında yüz yüze gerçekleştirilmektedir.

Bulgular: Elde edilen bulgularda, modellerin birlikte kullanılmasıyla etkili sonuçlar elde edilebileceği düşünülmektedir. Özellikle pandeminin yoğun olduğu dönemlerde alternatif uygulama önerileri olarak, seyreltilmiş hibrit model ve seyreltilmiş harmanlanmış model önerilmiştir. Seyreltilmiş hibrit modelde büyük gruplar birden fazla gruba bölünerek yüz yüze derslerde öğrenci sayısının kontrol altına alınması ve tüm öğrenciler için eşzamanlı eğitim uygulamaları gerçekleştirilmesi ortaya çıkmıştır. Seyreltilmiş harmanlanmış modelde ise hibrit uygulamanın gerçekleştirilemediği durumda öğrenci sayısını kontrol altına almak amaçlanmıştır.

Özgünlük: Pandemi gibi beklenmeyen bir durumda acil uzaktan eğitime geçilmesi üniversitelerin plansız bir şekilde uzaktan/harmanlanmış/hibrit öğrenme modellerine geçmelerine sebep olmuş ve bu nedenle de uygulamada bazı zorluklarla karşılaşılmıştır. Bu araştırmada ilgili modellerin çeşitli özellikleri incelenmiş ve bazı uygulama önerileri sunulmuştur. Bu çalışmanın pandemi sonrası dönemde ve ilerde oluşabilecek beklenmeyen durumlarda üniversitelere uygulanabilecek modeller bağlamında yol göstereceği düşünülmektedir.

Anahtar Kelimeler: *Hibrit Öğrenme, Harmanlamış Öğrenme, Tersyüz Öğrenme, Seyreltilmiş Öğrenme, Öğrenme Modelleri*

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Anadolu Üniversitesi Açıköğretim Sistemi Yurt Dışı Programı Mezunlarının Deneyimleri ve Düşünceleri

Erdem ERDOĞDU[1], Merve UÇAR[2]

Özet

Anadolu Üniversitesi Açıköğretim Sistemi, Yurt Dışı programları kapsamında 1986'dan beri Türkiye dışındaki ülkelerde hizmet vermeye başlamıştır. 2022 yılına gelindiğinde, Batı Avrupa, Balkanlar, Orta Doğu, Orta Asya ve Kuzey Amerika programları ile hem Türk vatandaşlarına, hem farklı ülke vatandaşlarına hizmet sunmaktadır. Bu ülkelerin çoğunda sınavlar yüz-yüze, basılı ortamda ve gözetimli olarak yürütülmektedir. Arapça (1), İngilizce (4) ve Türkçe (55) dilinde toplamda 60 program sunulmaktadır. Bu çalışma kapsamında araştırmaya katılmaya gönüllü olan mezun öğrenciler ile yarı yapılandırılmış görüşmeler yapılmış, Açıköğretim Sistemindeki deneyimleri ve mezuniyet sonrası görüşleri değerlendirilmiştir. Durum çalışması olarak tasarlanan araştırmada, öğrencilerle yapılan görüşmelerin analizinden ortaya çıkan kategori ve temalar sunulmuştur.

Anahtar Kelimeler: *Anadolu Üniversitesi Açıköğretim Sistemi, Uzaktan eğitim, Mezun öğrenciler, Diploma*

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Geçmişten Günümüze Uzaktan Eğitimde Öğreten Rolleri

Mine KAYA[1]

Özet

Bu çalışma uzaktan eğitimde yaşanan dijital değişim ve dönüşüm, paradigma değişimi, 21.yüzyıl becerileri, pandemi etkisi gibi eğitimin geleceğine yön veren faktörlerle birlikte değişen öğreten rollerinin belirlenmesi amacıyla yapılmıştır. Dijital değişim ve dönüşüm her alanda olduğu gibi eğitim alanında da kaçınılmaz hale gelmiştir. Son 30 yılda internet ve mobil telefonların kullanımının her alanda hızla ilerlemesiyle bilgisayar teknolojileri gelişmiş ve bu gelişmeler ışığında herkesin bilgiye ulaşma şekli ve hızı da değişmiştir. Tüm Dünya'da yaşanan Covid-19 pandemisi ile birlikte çevrimiçi programların ve ders sunumlarının sayısındaki artışlar, çevrimiçi öğretim için daha fazla öğreten ve destek personelinin gerekli görüldüğü, öğretenlerin rolünün ve öğretimin doğasının değiştiği söylenebilir. Geleneksel yüz yüze öğretmeden çevrimiçi öğretme modeline geçilerek, öğretme artık yerini öğrenmeye, öğreten merkezli eğitim, öğrenen merkezli hatta bireyselleşmiş öğrenmeye bırakmıştır. Dolayısıyla yüz yüze eğitim veren öğretenler uzaktan öğreten rolüne bürünmüş ve bu değişime bağlı olarak yeni roller üstlenmişlerdir. Öğreten rollerindeki değişiklikleri geçmişten günümüze ortaya koymak amacıyla eğitimin geleceğini etkileyen faktörlerde, genel eğitim teorilerinde, uzaktan eğitim teorilerinde, uzaktan eğitimde tarihsel süreç boyunca kullanılan teknolojilerde, alanyazında öğreten rollerine yönelik yapılan çalışmalarda ve kurumlar bağlamında öğreten rolleri incelenmiştir. Nitel araştırma kapsamında yapılan bu çalışmada, alanyazında uzaktan öğreten rollerine yönelik yapılan çalışmalarda belirlenen temalar ele alınarak ortak ve farklı roller betimsel analiz ile belirlenmiştir. Uzaktan eğitimin ilk yıllarında sadece öğretici rolünde olan öğreten, öğretim yöntemleri ve teknolojinin gelişimiyle beraber kolaylaştırıcı, danışman-rehber, koç, mentör, değerlendirici, araştırmacı, içerik yazarı, teknoloji uzmanı, tasarımcı, editör, öğrenme toplulukları lideri, iletişim uzmanı, dijital kaynak sağlayıcı ve sistem yöneticisi gibi rollere evrilmektedir. Alan yazında yapılan çalışmaları incelediğimizde öğreten rolleri için bütünsel bakış açısıyla değerlendirme yapanların daha çok kabul gördüğünü söylemek mümkündür çünkü pedagojik, teknik, sosyal, yönetsel rollere neredeyse bütün çalışmalarda yer verildiği görülmüştür.

Anahtar Kelimeler: *Uzaktan eğitim, Çevrimiçi eğitim, Öğreten rolleri*

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Sınıf Öğretmenlerinin Uzaktan Uzman Öğretmenlik Eğitimleri Hakkındaki Görüşlerinin Belirlenmesi

Eyüp YILMAZ[1]

Özet

14 Şubat 2022'de Öğretmenlik Meslek Kanunu'nun yayımlanması ile birlikte öğretmenlere kariyerlerinde ilerleme imkânı tanıyan uzman öğretmenlik ve başöğretmenlik yolu açılmıştır. Buna göre öğretmenlere Öğretmen Bilişim Ağı (ÖBA) üzerinden 180 saat süren videoya dayalı uzaktan eğitimler verilecek ve bu eğitimlerin sonunda öğretmenler yazılı sınava tabi tutulacaklardır. Öğretmenlerin uzman öğretmen olabilmeleri için yazılı sınava başvuru tarihinin son günü itibarıyla adaylık dâhil öğretmenlikte 10 yıl hizmetine sahip olmaları ve söz konusu sınavdan başarılı olmaları (yüksek lisans derecesine sahip öğretmenler hariç) gerekmektedir. Milli Eğitim Bakanlığının, uzman ve baş öğretmenlik eğitimleri için uzaktan eğitim yolunu seçmiş olması, alanyazınında sıklıkla vurgulanan "Covid 19 pandemisinden sonra uzaktan eğitimin ülkelerin eğitim sistemlerinin vazgeçilmezi haline geleceği" görüşünü pekiştirmektedir. Uzman ve başöğretmenlik eğitimi için geliştirilen videolarda alanında uzman akademisyenler yer almakta; ancak özellikle sosyal medyada video içeriklerine yönelik çeşitli eleştirilerle karşılaşılmaktadır. Eleştiriler, içeriklerin niteliği, akademisyenlerin anlatım şekli, etkileşimin yetersizliği vb. konularda yoğunlaşmaktadır. Dolayısıyla 18 Temmuz 2022'de ÖBA üzerinden başlayan eğitimler hakkında öğretmenlerin görüşlerinin incelenmesinin, eğitimlerin niteliği ve iyileştirilmesine yönelik ipucu sağlayacağı düşünülmektedir. Bu bağlamda bu araştırmanın amacını, sınıf öğretmenlerinin ÖBA Platformunda verilen uzman öğretmenlik eğitimlerine yönelik görüşlerinin incelenmesi oluşturmaktadır. Araştırmanın nitel araştırma desenlerinden durum deseninde yürütülmesi planlanmaktadır. Bu sayede sınıf öğretmenlerinin uzman öğretmenlik eğitimi durumuna yönelik görüşlerinin derinlemesine irdelenebilmesi imkânı bulunacaktır. Araştırma verileri araştırmacı tarafından geliştirilecek olan "Uzman Öğretmenlik Eğitimine Yönelik Görüşme Formu" aracılığıyla toplanacaktır. Alanyazın taraması sonucunda oluşturulacak görüşme soruları uzaktan eğitim uzmanı, dil uzmanı ve sınıf eğitimi alanında görev yapan iki alan uzmanına gönderilecek ve dönütler doğrultusunda gerekli düzenlemeler yapılarak forma son hali verilecektir. Görüşme formunun hazırlanmasının ardından forma varsa eksikliklerin ve ortalama görüşme süresinin belirlenmesi adına asıl uygulamaya dâhil edilmeyecek en az iki sınıf öğretmeni ile pilot görüşme gerçekleştirilecek ve bu kapsamda tespit edilen eksiklikler olursa giderilmeye çalışılacaktır. Görüşme formuna son halinin verilmesinin ardından ana uygulama yapılacaktır. Çalışma grubu belirlenirken amaçlı örnekleme yöntemlerinden birisi olan ölçüt örnekleme yönteminden faydalanılacaktır. Katılımcıların aktif olarak sınıf öğretmenliği yapıyor olmak, en az 10 yıllık bir deneyime sahip olmak ve uzaktan uzman öğretmenlik eğitimlerini almış olmak kriterlerini sağlamış olmalarına dikkat edilecektir. Belirlenen kriterleri sağlayan sınıf öğretmenleriyle yüz yüze ya da uzaktan görüşmeler gerçekleştirilerek veriler toplanacaktır. Bu işlem verilerin tekrar etmeye başlaması yani doygunluğa ulaşmaya başlamasına kadar deva edecektir. Katılımcılardan elde edilecek veriler Microsoft Word belgesine aktarılacak MAXQDA 2020 paket programı aracılığıyla içerik analizine tabi tutulacaktır. Ulaşılan kodlardan hareketle kategoriler elde edilecek ve bulgular yorumlanacaktır. Elde edilen bulgulardan hareketle öneriler sunulacaktır.

Anahtar sözcükler: *Sınıf Öğretmenliği, Uzman Öğretmenlik, Uzaktan eğitim,*

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Sağlık Eğitimine Yönelik Geliştirilen Sanal Laboratuvarın Kullanılabilirliğinin Değerlendirilmesi

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Özet

COVİD-19 salgını döneminde uzaktan eğitime geçilmesi durumundan en çok etkilenen alanlardan biri de sağlık eğitimi olmuştur. Sağlık eğitiminde pratiğe dayalı öğretim süreçlerinin çok olmasına rağmen uzaktan eğitime entegrasyonuna yönelik materyallerin ve çalışmaların yeteri kadar olmaması uygulamalı eğitimlerde önemli sorunları ortaya çıkarmıştır. Diğer yandan sağlık eğitiminde kullanılan cihazların maliyetlerinin yüksek olması birçok laboratuvarda cihaz eksikliğine yol açarken bu da eğitim süreçlerini olumsuz olarak etkilemektedir. Bu çalışmada hem uzaktan eğitim süreçlerinde aktif olarak kullanılabilecek hem de cihaz ve materyal eksikliği olan laboratuvarların sorunlarını azaltmaya yönelik olarak sanal sağlık laboratuvarı geliştirilmiştir. Laboratuvarın geliştirilme sürecinde Unity 3D yazılımı kullanılarak laboratuvar ortamı, malzemeler, cihazlar ve hastalar üç boyutlu olarak modellenmiştir. Öğrenciler laboratuvara kullanıcı adı ve şifreleriyle giriş yapmakta, ardından açılan ekranda girmek istedikleri laboratuvarı seçmektedirler. Laboratuvarların her birinde farklı bir sağlık uygulaması yapılmaktadır. Bu çalışmada Fizyoterapi ve Rehabilitasyon bölümüne yönelik olarak geliştirilen laboratuvarın kullanılabilirliğinin değerlendirilmesi amaçlanmıştır. Öğrenciler bu sanal laboratuvarda gerçek hayatta bir hastayı tedavi etmek için yapılması gereken tüm işlemleri gerçekleştirebilmektedir. Öğrencilerin yapması gereken işlemler görev listesi olarak öğrenciye verilmekte, görevlerin doğru yapılıp yapılmadığı anlık geri bildirim olarak sunulmaktadır. Tüm görevler doğru bir şekilde yapılmadan tedavi başlamamaktadır. Ayrıca laboratuvarın öğretim amaçlı versiyonlarının yanında ölçme-değerlendirme amaçlı versiyonu da bulunmaktadır. Bu versiyonda öğrenciler cihaz ve hastalarla birebir uygulama yapabilmektedir. Uygulama sınavı sonunda öğrencilerin tüm sınav raporları eğitmene çevrim içi olarak iletilmektedir. Geliştirilen laboratuvar, İstanbul Üniversitesi–Cerrahpaşa Sağlık Bilimleri Fakültesi Fizyoterapi ve Rehabilitasyon Bölümü'nde öğrenim gören 72 öğrencinin kullanımına sunulmuş ve ardından laboratuvarın kullanılabilirliğine yönelik hazırlanan anket ile öğrencilerden veri toplanmıştır. Anket dört bölümden oluşmaktadır. Birinci bölümde demografik ve temel bilgiler, ikinci ve üçüncü bölümde üç boyutlu ortamlar ve sanal sağlık laboratuvarının kullanılabilirliğine yönelik anket maddeleri ve son bölümde öğrenci görüşlerinin açık uçlu olarak alındığı kısım bulunmaktadır. Anket sonuçlarına göre öğrencilerin sanal sağlık laboratuvarının kullanılabilir olduğunu, bu ve benzer laboratuvarların kullanımının kendilerini motive

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ettiğini, tekrar tekrar pratik yapmanın kendileri açısından faydalı olduğunu, sanal sağlık laboratuvarının öğrenmeyi ilginç hale getirdiğini, konu ve içerikleri anlama noktasında katkı sağladığını, akademik başarılarına katkı sağlayacağını ve bu uygulamayı sık sık kullanmak isteyeceklerini belirtmişlerdir. Ayrıca öğrenciler sanal sağlık laboratuvarda uygulama süresince keyifli vakit geçirdiklerini belirtmişlerdir. Eğitimciler tarafından özelleştirilebilen ve gerçek zamanlı veri akışı sağlayabilen bu sanal sağlık laboratuvarı canlı bir yapı sistemi üzerine kurulmuş ve bu canlı yapı sayesinde kurulacak olan ekosistemle sağlık ve uzaktan eğitim alanına önemli katkılar sağlayacağı düşünülmektedir.

Anahtar Sözcükler: *Sağlık eğitimi, uzaktan eğitim, sanal laboratuvar*

Açıköğretimde Podcast Yayıncılığı

Güzin Kıyık Kıcır[1]

Özet

Çağımızın baş döndürücü değişim hızı tüm alanları olduğu gibi radyo yayıncılığı sektörünü de etkilemektedir. Karasal yayıncılık anlayışından, internet teknolojilerine kadar birçok bağlamda radyolar adapte olma becerisi ile bu değişimi yönetebilmiştir. Podcast sistemi de dinleyiciye kolaylık ve maliyet avantajı sağlayan yenilikçi yayın sistemleri arasındadır. Radyo alanına farklı bir boyut ekleyen podcast kültürü, dinleyiciye zaman ve mekandan bağımsız olarak programlara erişim imkanı tanımaktadır. Amerika Birleşik Devletleri başta olmak üzere dünyanın birçok ülkesinde ilgiyle takip edilen podcast yayıncılığı kendisine alternatif bir hedef kitle oluşturmuştur. Podcast yayınları müzik ve eğlence programları kadar eğitici programlarda da önemli bir güce sahiptir. Eğitim podcastlerine ait ses dosyalarını öğrenenler, ders materyali olarak istedikleri anda dinleyebilmektedir. Bu çalışmanın amacı eğitici podcast programlarla ilgili içerik analizi yapmak ve radyo yayıncılığında podcast sisteminin eğitim amaçlı kullanımını ülkemizdeki uygulama örnekleri üzerinden irdelemektir. Podcast yayıncılık içinde bulunduğumuz dijital dünyada istikrarlı yükselişini sürdüren alternatif bir medya platformudur. Geleceğin dünyasında yerini alacağı kabul gören bu yayıncılık anlayışını doğru çözümlemek, eğitim gibi önemli bir alanda kullanımını etkinleştirmek amaçlı gerçekleştirilen bu araştırma gerek uygulama alanı olan açıköğretim disiplini gerekse yayıncılık alanı için değerlidir. Nitel araştırma metoduyla gerçekleştirilen çalışmada, uygulama alanı Türkiye'de açıköğretim faaliyetlerinin ilk ve köklü uygulayıcısı olan Anadolu Üniversitesi bünyesinde hazırlanan radyo podcast yayınlarıdır. Araştırmada öncelikle gerekli literatür taramaları yapılmış, ardından ders anlatımına ilişkin hazırlanan 'Ders Zili' programlarından seçilen yayınların podcastleri deşifre edilerek veriler toplanmıştır. Bulgular kısmında öncelikle podcast program üreticisi ve dinleyicisi tanımlanmaktadır. Programa ilişkin genel bilgiler, senaryo ve öğrenme teknikleri ortaya koyulmuştur. Sonrasında ise podcast yayınlar hazırlanırken kullanılan yapım ve içerik unsurları açısından temalar oluşturularak içerik analizi gerçekleştirilmiştir. Araştırma sonucunda; Anadolu Üniversitesi bünyesinde hazırlanan radyo podcastlerinin müzik, söz ve efekt unsurunu programlarda başarılı şekilde kullandığı ve yayın içeriğinin giriş, gelişme ve sonuç döngüsüne uygun olarak tasarlandığı görülmüştür. Program süreleri kısaltılarak ve ses kayıtları video gibi görsel materyallerle desteklenerek dinleyicilerin takibi ve yayın zenginliği güçlendirilebilir. Ayrıca drama, oyun, hikaye anlatımı gibi tekniklerden de ders anlatımlarını ilgi çekici kılmak için faydalanılabilir. Alternatif medya araçlarından kabul edilen podcast yayınların güçlendirilmesi ve hedef kitlenin büyümesi sonucunda açıköğretim gibi kitlesel bir mecra için değer yaratılması ve sürdürülebilir fayda sağlanması mümkündür.

Anahtar Kelimeler: *Radyo Yayıncılığı, Eğitim Podcasti, İçerik Analizi*

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E-değerlendirme Araştırmalarının Eğitim Alanındaki Eğilimlerinin İncelenmesi: 1993-2021

Betül TONBULOĞLU[1]

Özet

Etkili öğrenme için temel bileşenlerden biri olan ve tüm eğitim seviyeleri için hayati bir rolü bulunan değerlendirme süreci, öğrencilerin bilgi, beceri ve anlayışlarının belirlenmesinin yanı sıra öğrenmenin teşvik edilmesini ve amaçlanan öğrenme çıktılarına erişimin sağlanmasını amaçlamaktadır. Ayrıca eğitim kalitesini güçlendirmekte ve sunulan eğitimin farklı kurumlarda tanınırlığını kolaylaştırmaktadır. Bilgi ve iletişim teknolojileri (BİT) kullanılarak gerçekleştirilen tüm değerlendirme süreçleri e-değerlendirme olarak adlandırılmakta, e-öğrenme süreçlerinin hız kazanmasıyla birlikte e-değerlendirme uygulamaları da giderek yaygınlaşmaktadır. E-değerlendirmenin etkililiği, sınavların adilliği, e-değerlendirme prosedürü ve pedagojik ilkeler gibi birçok alanda araştırmalar yapılmakta, ancak bu araştırmalara genel bir bakış sunmayı ve araştırma eğilimlerinin genel haritasını oluşturmayı amaçlayan çalışmalar son derece sınırlı sayıda kalmaktadır. Bu araştırma, eğitim bilimleri alanındaki e-değerlendirme çalışmalarının eğilimini bilimsel haritalama ve bibliyometrik analizler yoluyla ortaya koymayı amaçlamaktadır. Bu amaç doğrultusunda eğitim bilimleri alanı kapsamında e-değerlendirme araştırmalarının yıllara, yayın türüne ve ülkelere göre sayıca dağılımı, en çok alıntılanan dergiler, yazarlar, kurumlar ve ülkeler, e-değerlendirme çalışmalarının araştırma temaları ve yıllara göre trend konuların değişimi araştırılmıştır. İncelenecek yayınların seçimi için Web of Science veritabanı kullanılmış, yayın taraması PRISMA modeline göre şekillendirilmiştir. 911 araştırma analize dâhil edilmiş, veri analizinde VOSviewer ve Biblioshiny programlarından yararlanılmıştır. Araştırma sayısının yıllara göre dağılımı incelendiğinde 2005 yılından itibaren bariz bir artışın yaşandığı ve en çok çalışmanın 2021 yılında üretildiği görülmüştür. Yayın türleri olarak %52 oranla makale, %41 oranla konferans bildirisi yayınlanmıştır. Bu konuda en çok yayın üreten ve en çok atıf alan ülkeler Amerika, İngiltere, Avustralya olmuştur. En çok yayın üreten dergiler International Journal of Emerging Technologies In Learning, Assessment & Evaluation In Higher Education ve British Journal Of Educational Technology iken; en çok atıf alan dergiler ise Computers & Education, British Journal Of Educational Technology ve Assessment & Evaluation in Higher Education olmuştur. En çok atıf alan yazarlar Ebner, Nicol, Gaytan ve Mcewen olmuş; en çok atıf alan kurumlar ise Graz University of Technology, University of Strathclyde ve National Taiwan University of Science and Technology olarak bulunmuştur. Ortak kelime analizinde en çok tekrarlanan anahtar kelimelerin e-değerlendirme, çevrimiçi değerlendirme, e-öğrenme, yüksek öğretim, biçimlendirici değerlendirme olduğu görülmüş, VOSviewer ile oluşturulan anahtar kelime haritası analiz edildiğinde teknoloji ve motivasyon, harmanlanmış öğrenme ve işbirliği, etkileşim ve yenilikçi yaklaşımlar, geçerlik ve güvenirlik, yükseköğretim çalışmaları, kalite, temel disiplinler ile Covid-19 temalarının çalışmalarda üzerinde durulan hususlar olduğu bulgulanmıştır. Yıllara göre trend konular analiz edildiğinde ise 1993-

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2010 aralığında e-değerlendirmeyle ilgili trend konuların e-portfolyo, işbirlikli öğrenme, bilgisayar destekli değerlendirme, soru ve test birlikte çalışabilirliği (QTI) ve öğrenme tasarımı gibi konuları kapsadığı, ancak 2010- 2021 arasında trend konu dağılımının covid-19, akademik dürüstlük, katılım, hile, durum çalışması ve yükseköğretim gibi konuları kapsayacak şekilde değişim gösterdiği görülmüştür. Tüm bu bulgular, e-değerlendirme faaliyetlerinin gelişen teknolojiden, yaşanan salgın sürecinden, e-öğrenmenin yaygınlaşmasından, iletişim olanaklarının genişlemesinden ve birçok faktörden etkilenerek zaman içinde geliştiğini ve dönüşüm gösterdiğini ortaya koymaktadır. Bu çalışmanın, e-değerlendirme araştırmalarının genel eğiliminin anlaşılması, literatürün güncel durumunun geniş bir değerlendirmesinin yapılabilmesi ve literatürdeki değişikliklerin izlenebilmesi açısından katkı sağlayacağı düşünülmektedir.

Anahtar Kelimeler: *E-değerlendirme, çevrimiçi değerlendirme, e-öğrenme, bibliyometri*

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Anadolu Üniversitesi Açıköğretim Fakültesi Çağrı Merkezi Hizmetleri Ön Lisans Programının Bağlam, Girdi, Süreç ve Ürün Modeline Göre Değerlendirilmesi

Yağmur Tuç[1], Nejdet Karadağ[2]

Özet

Bu çalışmada, açık ve uzaktan eğitim yoluyla yürütülen Anadolu Üniversitesi Açıköğretim Fakültesi Çağrı Merkezi Hizmetleri Ön Lisans Programı'nın Stufflebeam'in Bağlam, Girdi, Süreç, Ürün (CIPP) Değerlendirme Modeli çerçevesinde öğrenen görüşlerine göre değerlendirilmesi ve programın geliştirilmesine yönelik önerilerde bulunulması amaçlanmıştır.

Karma yöntem desenlerinden Açıklayıcı Sıralı deseninin (NİCEL→nitel) kullanıldığı araştırmada; nicel veri toplamak amacıyla "Anadolu Üniversitesi Çağrı Merkezi Hizmetleri Ön Lisans Programı Değerlendirme Anketi" hazırlanmıştır. Anket, Anadolu Üniversitesi Açıköğretim Fakültesi Çağrı Merkezi Hizmetleri Ön Lisans Programı'ndan mezun olmuş öğrenenlere çevrimiçi olarak uygulanmıştır. Nitel veri toplamak için ise yarı yapılandırılmış görüşme soruları kullanılmıştır.

Nicel verilerin yorumlanmasında yüzde ve frekans tabloları, ortalama ve standart sapma değerleri kullanılarak ölçme aracında yer verilen dört boyutta (Bağlam, Girdi, Süreç ve Ürün) alınabilecek ortalama puan ile katılımcıların bu boyutlardaki ortalama puanları karşılaştırılıp yorumlanmıştır. Ayrıca alt boyutlarda elde edilen ortalama puan değerleri cinsiyet, yaş, medeni durum ve çalışma durumu değişkenleri açısından incelenerek yorumlanmıştır. Cinsiyet, medeni durum ve çalışma durumu değişkenlerine göre puan farklarının test edilmesi için tek örneklem t-testi, yaş değişkeni için ise tek yönlü varyans analizine (ANOVA) başvurulmuştur. Nitel verilerin çözümlenmesinde betimsel analiz yöntemi kullanılmıştır.

Elde edilen sonuçlar, program amaçlarının öğrenenlerin beklentilerine uygun olarak belirlendiğini, öğrenme kaynaklarının amaçlara uygun olarak tasarlandığını, öğrenme etkinliklerinin katılımcıların beklentilerine uygun olarak gerçekleştirildiğini ve programda öğrenme çıktılarına ulaşıldığını ortaya koymuştur. Bununla birlikte bazı boyutlarda; cinsiyet, medeni durum, çalışma durumu ve yaş değişkenlerine göre farklılıklar görülmüştür. Ayrıca yapılan görüşmeler sonucunda anket sonuçlarıyla farklılık gösteren durumlarla karşılaşılmıştır.

Anahtar Kelimeler: *Açık ve uzaktan öğrenme, program değerlendirme, açıklayıcı sıralı desen*

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Kitlesel Açık Çevrimiçi Derslerde Öğretmenlerin Öz Yönetimli Öğrenme Becerilerinin İncelenmesi – Öğretmen Bilişim Ağı Örneği

Alper ATLAY[1] , Buket KİP KAYABAŞ[2]

Özet

Amaç: Bilgi edinme, öğrenme insanların yaşamları boyunca duydukları önemli ihtiyaçlardan biridir. Teknolojinin hızla geliştiği ve değiştiği günümüzde bireylerin öğrenme ihtiyaçlarının doyurulması doğrudan onlara bilginin aktarılması şeklinde değil; onlara bilgiye erişme yollarının kazandırılması ile sağlanma eğilimindedir. Dolayısı ile öğrenenin bilgiye erişiminde zaman ve mekandan bağımsız, kendi hızında erişimi günümüzde son derece önemli bir hal almıştır. Bu bağlamda değerlendirildiğinde teknolojik gelişmelere paralel olarak ortaya çıkan Kitlesel Açık Çevrimiçi Dersler (KAÇED) bireylere zaman ve mekandan bağımsız ve kendi hızlarında öğrenme imkanı sunan derslerdir. Chua vd. (2015) videolar, ödevler, sınavlar gibi etkinlikleri içeren, öğrenenlere tartışma alanları ve diğer çevrimiçi süreçleri sunan öğrenme ortamları olarak tanımlamışlardır. Bilginin serbestçe paylaşıldığı, öğrenmenin demografik, coğrafik, ekonomik sınırlara takılmadan gerçekleştiği, eğitimde açıklık anlayışına dayanan KAÇED'lere farklı bireysel özelliklere, alışkanlıklara, tercihlere sahip kişiler katılabilmekte ve bu derslerden faydalanabilmektedirler (Kayabaş, 2017, s. 35). Buna karşılık, KAÇED'ler sağladıkları üstünlüklerin yanı sıra bir dizi sınırlılığa da sahiptir. Bu sınırlılıklardan biri sistemden ayrılma oranlarının yüksek olmasıdır (Bozkurt, 2015, s. 43-44; Jordan, 2014, s.133-160; Jordan, 2015, s.341-358). Örneğin, KAÇED tamamlama ile ilgili gerçekleştirilen bir araştırmada %10'dan az tamamlama oranı olduğu belirtilmektedir. Yüksek sistemden ayrılma ve düşük tamamlama oranlarının birçok değişkenden kaynaklandığı düşünülmektedir. Bu bağlamda farklı değişkenler ile bağlantılı olan KAÇED'lerdeki öz-yönetimli öğrenme becerilerinin farklı değişkenler açısından incelenmesi, öz-yönetimli öğrenmeyi destekleyecek ortamların geliştirilmesi ve öz-yönetimli öğrenme becerilerinin arttırılmasına yönelik etkinliklerin tasarımlanması açısından önem taşımaktadır. Bu araştırmanın amacı, öğretmenlerin öz-yönetimli öğrenme becerilerini belirlemek ve bu becerilerin alan(branş), cinsiyet, kıdem, öğrenim düzeyi, yaş, taltif durumları arasında nasıl bir ilişki gösterdiğini ortaya koymaktır. Öz-yönetimli öğrenme bireylerin kendi öğrenme ihtiyaçlarını belirlemeleri, kendi hedeflerini ortaya koymaları, buna uygun olan öğrenme yollarını seçmeleri ve sonucunda da öğrenmelerini değerlendirmeleri anlamına gelmektedir.

Yöntem: Araştırmada nicel veri toplama yöntemi olan tarama yöntemi kullanılmıştır. Tarama yöntemi genel olarak bir örneklem grubuna ait belirleyici özellik, tutum ve davranışlar hakkında çıkarımlar yapmak için kullanılır (Creswell, 2008, s.157). Araştırma Milli Eğitim Bakanlığı Geleneksel KAÇED (xMOOC) platformu olan ÖBA içerisindeki öğretmenler ile gerçekleştirilmiştir. MEB verilerine göre 2021-2022 Eğitim Öğretim yılında bakanlık bünyesinde 999, 563 öğretmen bulunmaktadır. ÖBA platformu üzerinde 2021-2022 Eğitim öğretim yılında 15 KAÇED bulunmaktadır. Öğretmenler bu

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KEÇED'lerden istediklerine erişim sağlayabilmektedirler.

Araştırma kapsamında evren içerisindeki her katılımcının çalışmaya katılım şansının eşit olarak bulunduğu yansız (tesadüfi) örneklem kullanılmıştır. Araştırmada Koçdar, Karadeniz, Bozkurt ve Büyük (2018) tarafından geliştirilen "Kendi Hızında Öğrenmeye Dayalı Derslerde Öz-Yönetimli öğrenme Becerileri ölçeği" ile nicel veriler toplanmıştır. **Bulgular:** Araştırmada elde edilen ilk sonuçlara göre, öğretmenlerin öz-yönetimli öğrenme becerileri cinsiyete göre farklılık göstermiştir. Bayan öğretmenlerin erkek öğretmenlere göre öz yönetim becerileri daha yüksek çıkmıştır. KAÇED'ı tamamlayan öğretmenlerin öz-yönetimli öğrenme becerileri KAÇED tamamlayamayan öğretmenlerin öz yönetimli öğrenme becerilerinden yüksek çıkmıştır. Öğrenenlerin öz-yönetimli öğrenme becerileri yaşa göre farklılık göstermiştir. Buna göre 35 yaş ve altı yaş grubundaki öğrenenlerin öz-yönetimli öğrenme becerileri diğer yaş grubundaki öğrenenlerin öz-yönetimli öğrenme becerilerinden daha yüksektir. Benzer olarak kıdem yılı 15 ve altı olan öğretmenlerin öz yönetim becerilerinin diğerlerine göre daha fazla olduğu görülmüştür. Öğretmenlerin taltif durumları açısından öz yönetim becerilerinin de değiştiği görülmektedir. Buna göre başarı, üstün başarı veya ödül alan öğretmenlerin öz-yönetim becerilerinin daha yüksek olduğu görülmüştür.

Anahtar Kelimeler: *KAÇED, Öz- Yönetimli Öğrenme, xMOOC, MEB*

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Okul Yöneticilerinin Covıd 19 Pandemi Deneyimi ve Geleceğe Yönelik Çıkarımlar

Sadegül Altun[1]

Özet

Bu çalışmanın amacı COVID 19 salgınında okul yöneticileri ile ilgili yapılan araştırmalara dayalı olarak bu süreçte okul yöneticilerinin deneyimlerinin ne olduğunu öncelikle açıklamaktadır. Buna paralel olarak bu çalışmada, okul yöneticilerinin görüşlerine göre pandemi krizinin yarattığı fırsatların ne olduğu, onların bu süreçte neler öğrettikleri açıklanacaktır. Ayrıca, yine pandemide okul yöneticilerinin ne tür sorunlar yaşadıkları ve bu sorunlara ne tür çözüm önerilerinde bulundukları açıklanacaktır. Bunlara ek olarak, süreç boyunca okul yöneticilerin yaşadıkları krizler ve bu krizlerle baş etme süreçleri belirtildikten sonra, gelecekte ne tür değişimlerin olması gerektiği araştırmalara dayalı olarak bu çalışmada açıklanacaktır.

Anahtar Kelimeler: *Okul yöneticisi, COVID 19, Deneyimler, kriz yönetimi, Geleceğe yönelik öneriler*

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Çevrimiçi ve Kitlesel Açık Çevrimiçi Derslerde Transkültürel Unsurlar

Nazife Şen Ersoy[1], Evrim Genç Kumtepe[2], Elif Toprak[3]

Özet

Özellikle internetin yaygın kullanımı ile web-tabanlı çevrimiçi dersler de zamanla yaygınlaşmıştır. Bu derslerde pek çok farklı bireysel özelliğe sahip heterojen bir öğrenen kitlesi söz konusudur. Ancak geleneksel öğretimin aksine, çevrimiçi derslerde heterojenlik daha belirgindir ve kontrol altına alınamamaktadır. Kontrol altına alınamayan değişkenlerden biri de kültürdür. Çevrimiçi derslerin yaygınlaşmasıyla dünyanın her tarafından pek çok farklı özelliğe sahip birey aynı dersi alabilme olanağı bulmuş, bu da çok-kültürlü dersler ve kültürlerarası etkileşim için bir zemin oluşturmuştur. Bu tür öğrenme ortamlarında, farklı kültürler ve farklı öğrenenler arasındaki etkileşimin bir sonucu olarak yeni bir transkültürün ortaya çıkması hayli olanaklıdır. Kültürleri kendi içinde inceleyen ya da birbirinden kopuk gören bazı yaklaşımların aksine transkültür yeni ve hibrid/melez bir kültür doğuran ilişkilerin kolektif bir ürünüdür. Transkültür oluşum sürecinde, iki ya da daha fazla kültürden birey, grup ya da topluluğun etkileşimi ile bazı kültürel özelliklerin değişikliğe uğraması, bazılarının ortadan kaybolması ve bazı tamamen yeni kültürel özelliklerin de ortaya çıkması söz konusudur (Welsch, 1999; Murray, 2010).

Bu çalışmada çevrimiçi ve kitlesel açık çevrimiçi derslerde kültürel unsurlar incelenerek transkültür varlığına ilişkin göstergeler belirlenmeye çalışılmıştır. Çalışma transkültür olgusu çerçevesinde öğretim tasarımı ve ders yapısı, öğrenen özellikleri ve öğrenme deneyimleri ve öğreten özellikleri ve öğretim sürecindeki deneyimleri bağlamlarında ele alınmıştır. Bütüncül çoklu durum çalışması deseninin uygulandığı çalışmanın örneklemini lisansüstü düzeyde örgün bir çevrimiçi ders ile bir xMOOC oluşturmaktadır. Araştırmanın kuramsal altyapısını Sosyal Konstrüktivizm ve Ağ Toplumu Kuramı; kavramsal altyapısını ise kitlesel açık çevrimiçi dersler oluşturmaktadır. Bu kuramsal ve kavramsal altyapı çerçevesinde araştırma sorularına cevap ararken sistematik alanyazın taramasının yanı sıra yapılandırılmış ve yarı-yapılandırılmış görüşme, gözlem ve doküman incelemesi tekniklerinden yararlanılmıştır. Araştırmanın bunların dışındaki veri kaynaklarını tartışma forumu gönderileri, öğrenme yönetim sistemi mesajları, e-postalar, sosyal medya gönderileri, geribildirim örnekleri, etkileşimlilik raporları ve derse yönelik dış kaynaklardan elde edilen katılımcı görüşleri oluşturmaktadır. Veri analizi için Nvivo nitel veri analizi yazılımı kullanılmıştır. Veri analizinin sonucunda her iki duruma ilişkin transkültür oluşumunu destekleyen unsurlar topluluk ve yapı olmak üzere iki ana tema ve bu temaları oluşturan yedi kategori ve yedi alt-kategori etrafında biçimlendirilmiştir.

Araştırma sonuçlarına göre, Durum 1'de transkültür oluşumu Durum 2'ye kıyasla daha yoğun hissedilmektedir. Bunun sebepleri arasında kuralların fazla olmasına rağmen açık ve anlaşılır olması, dersin hayli yapılandırılmış olmasına karşın öğrencilerin diğer öğrenenlerle birlikte öğrenmelerini yapılandırabilecekleri tasarım öğelerinin dahil edilmesi, ve ortak çıkar/amaçlar ile işbirliği ve ortak çalışma gerektiren etkinliklerin fazla olması, bunun sonucunda da topluluk duygusu, ortak çalışma kültürü ve kimliğin oluşabilmesi gösterilebilir.

Anahtar Sözcükler: *Transkültür, MOOC, Topluluk, Yapı*

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Açık Kaynak Kodlu Bir Öğrenme Yönetim Sistemi Olan Moodle'ın Uzaktan Eğitime Entegrasyonu

Devkan KALECİ[1], Esra Barut TUĞTEKİN[2], Battal GÖLDAĞ[3], Halil KAYADUMAN[4]

Özet

Bu araştırmada harmanlanmış ve uzaktan eğitim faaliyetlerinde kullanılabilecek açık kaynak kodlu bir Öğrenme Yönetim Sistemi (ÖYS) entegrasyonu yapmaya yönelik işlem adımları açıklanmıştır. ÖYS ve çevrimiçi öğrenme ortamlarının kullanım yöntemlerinin eğitim sürecine olumlu katkılarının olduğu ve sunulan eğitim kalitesinde önemli bir fark yarattığı düşünülmektedir (Bekele & Menchaca, 2008; Pituch & Lee, 2006). Bu doğrultuda hem harmanlanmış hem de uzaktan öğretim faaliyetlerinin etkili şekilde yürütülmesinde ÖYS'lerin rolünün büyük öneme sahip olduğunu anlaşılmaktadır. Pek çok açık kaynak kodlu veya ticari yapıda geliştirilmiş ÖYS olmakla birlikte Moodle, açık kaynak kodlu ÖYS'lerin en başında gelen yazılımlardan biridir. Barındırdığı özellikler ve geniş bir geliştirici destek ağına sahip olması nedeniyle dünyada ve Türkiye'de birçok eğitim kurumu tarafından tercih edilmektedir. Bu araştırma kapsamında ÖYS olarak Moodle'ın üniversiteye entegrasyonu ile harmanlanmış öğrenme ortamının oluşturulmasının yanında, üniversite genelinde standartları belirlenmiş çoklu ortam içerikleri ve dijital materyallerin geliştirilmesine katkı sunulması amaçlanmaktadır. Böylelikle, üniversite bünyesindeki sunuculara entegre edilebilen açık kaynak kodlu bir ÖYS, üniversite genelinde hem örgün hem de uzaktan eğitim faaliyetlerinde kullanılabilme imkanı verecektir. Kurumların sunucularında barındırılan ÖYS'ler, kurumlara daha fazla kontrol ve özelleştirme olanağı sağlamaktadır. Dolayısıyla, Moodle entegrasyonu ile üniversite geneli eğitim ve öğretim faaliyetleri yürütülmekte, öğretici ve öğrenci boyutunda, zamansal ve mekânsal sınırlar ortadan kaldırılmakta, erişilebilirliği artırılmaktadır. ÖYS entegrasyonunun ilk aşamasında gerekli sunucu altyapısı hazırlanmış, donanım ve yazılım malzemeleri tedarik edilmiştir. ÖYS'lerin temelinin dijital materyaller ve içerikler olduğu göz önüne alınacak olursa dijital materyaller ve içerikler için öncelikle standartların oluşturulması gerekir. Bu standartlar oluşturulduktan sonra ÖYS içinde uzaktan eğitim araçlarının yer aldığı örnek dersler oluşturulmuştur. ÖYS'nin eğitim ve öğretim faaliyetlerine yayılımını sağlayabilmek amacıyla ise, öncelikle üniversite bünyesinde akademisyen ve öğrencilerin ÖYS dijital okuryazarlık becerilerini artırma çalışmalarına başlanmıştır. Bu bağlamda hem eğitimcilerin hem de öğrencilerin Moodle sistemini etkili bir şekilde kullanabilmelerine yönelik eğitimler tasarlanmış ve bunlar üniversite çapında yüz yüze ve çevrimiçi olarak uygulanmaya başlanmıştır. Yine tüm kullanım adımları için etkileşimli içerikler, videolar ve animasyonlar hazırlanmıştır. Diğer yandan Moodle kullanımı konusunda öğrenci ve eğitimcilere farklı yollarla canlı destek hiz-

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meti sunulmuştur. ÖYS alt yapısında dijital çoklu ortam materyallerinin geliştirilmesi ile öğrenme araçlarının çeşitliliğinin sağlanması uzaktan ve harmanlanmış öğrenme kalitesinin artırılması planlanmıştır. Böylelikle uzaktan eğitim sürecinde kullanılan öğrenme malzemeleri artırılarak farklı şekillerde öğrenebilen bireylere yardımcı olabilecek alternatif araçlar sunulmasıyla öğrenen başarısının yükseltilmesi düşünülmektedir. Sonuç olarak hizmet içi eğitimler, kurum destek hizmetleri ve çoklu ortam materyalleri ile Moodle oryantasyonu gerçekleştirilmiş ve ÖYS'nin örgün ve uzaktan eğitim süreçlerine entegrasyonu sağlanarak etkili kullanımı için gerekli alt yapı sunulmuştur. Bu araştırma sonucunda uzaktan eğitim ortamına entegre edilen Moodle ÖYS'ye yönelik kullanım kolaylığının sağlandığı, etkili uzaktan öğrenme ortamının hazırlandığı dijitalleşme yolunda önemli adımlar atıldığı düşünülmektedir. Araştırmanın ilerleyen sürecinde ise Moodle kullanım sonuçlarına yönelik verilerin toplanarak kullanım analizlerinin yapılması planlanmaktadır.

Anahtar Kelimeler: *Öğrenme yönetim sistemleri, uzaktan öğrenme, Moodle*

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Etkili Canlı Ders Yürütme Becerilerinin Kazandırılmasına Yönelik Sunulacak Eğitim Programının Yapı ve İşleyişinin Belirlenmesi*

Sinem ÇİLLİGÖL KARABEY[1], Selçuk KARAMAN[2]

Özet

Başarılı bir uzaktan eğitim programının kilit bileşeni öğreticilerin uzaktan eğitim ortamlarında ders vermeye hazırlıklı olmalarıdır. Ancak öğreticilerin, uzaktan öğretim ortamlarında etkili ders verme deneyimine hazırlanmaları noktasında bazı müdahalelere ihtiyaç duydukları görülmektedir. Öğretimin etkinliğini sağlamak için onlara uygulanacak en iyi müdahalelerin kapsamlı ve ihtiyaçlara uygun, iyileştirmeye fırsat veren özelliklere sahip eğitim programları olduğu çalışmalarda görülmektedir. Uzaktan öğretici yeterliklerinin geliştirilmesine yönelik yapılan eğitimlerin iletişim ve etkileşim, öğrenme ve öğretim, yönetim ve idare, teknoloji kullanımı şeklinde konu başlıklarına göre yapılandırılması büyük önem arz etmektedir. Bu doğrultuda çalışma kapsamında, öğreticilerin etkili canlı ders ilkelerine uygun bir şekilde ders yürütebilmelerine yönelik uygulanacak eğitimin genel yapısı ve eğitimde kullanılacak materyallerin sahip olması gereken özelliklerin incelenmesi amaçlanmıştır. Bu amaçla çalışmada nitel araştırma desenlerinden Durum Çalışması yöntemi kullanılmıştır. Odak grup görüşme yöntemi kullanılarak uzaktan eğitim alanında uzmanlıkları bulunan, çeşitli üniversitelerde doktor derecesine sahip, akademik kadroda görev yapan ve canlı ders yürüten 12 öğretim üyesinden veriler toplanmıştır. Çalışma grubunu oluşturan öğreticiler belirlenirken kolay ulaşılabilir durum örnekleme yöntemine başvurulmuştur. Odak grup görüşmelerinde etkili canlı ders yürütme becerileri temel alınarak belirlenen öğretim hedeflerine uygun tasarımların neler olacağı görüşülmüş, sunulacak eğitimin yapısı ve eğitim kapsamında kullanılacak materyallerin özelliklerine yönelik görüşler alınmıştır. Odak grup görüşmeleri toplam altı çevrimiçi oturumda gerçekleştirilmiş ve her bir toplantı katılımcıların izinleri dahilinde kayıt altına alınmıştır.

Çalışma sonuçlarına göre etkili canlı ders becerileri kazandırılması amacıyla öğreticilere uygulanacak eğitimin asenkron bir öğrenme ortamında, canlı ders desteğiyle yürütülmesine, eğitimin tüm öğreticilerin erişimine açık kurumsal bir öğrenme yönetim sistemi üzerinden sunulmasına karar verilmiştir. Eğitim kapsamında sunulacak materyallerin e-kitap, video animasyonlar, örnek canlı ders uygulamaları, sunumlar, teknik bilgilerin yer aldığı rehber ve kılavuzlardan oluşmasına karar verilmiştir. Eğitim materyallerinden e-kitabın, canlı derslerin etkili yürütülmesine yönelik ortaya çıkan boyutları kapsayacak nitelikte, örneklerle zenginleştirilmiş, kısa ve öz bilgileri barındıran, örnek senaryolar ve uygulanacak adımlar şeklinde organize edilmesi, video animasyonların e-kitapta yer alan bölümlerin kısa özetlerini senaryolar eşliğinde canlandıracak, kısa, gerçek ortam ve karakterleri yansıtıcı videolardan oluşması, eğitimi destekleyici ve örnek uygulamaların sergilendiği, alan uzmanları

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tarafından bölümlendirilerek canlı ders oturumlarına yer verilmesi, eğitimin özellikle teknik bilgilerinin kılavuz ve rehberlerle zenginleştirilmesine yönelik öneriler ortaya çıkmıştır. Alan uzmanları, uzaktan öğreticilere sunulan eğitimin web tabanlı olması, materyal çeşitliliğine sahip olması, alan uzmanlarının eğitimlerde yer alması ve etkileşim düzeyinin yüksek olması durumlarının öğreticilere uzaktan ders alma deneyimi yaşatarak öğrencilerin kendilerinden beklentilerini daha kolay anlamalarını sağlayacağını öne sürmüşlerdir. Aynı zamanda alan uzmanları, bu tür eğitimlerin sertifikalandırılmasının, belirli periyotlarda bu eğitimlerin güncellenerek sunulmasının, uygulamalı oturum sayısının artırılmasının uzaktan öğreticilerin bu tür eğitimlere katılımlarını artıracağını ve eğitimleri daha cazip hale getireceğini düşünmektedir.

Anahtar Kelimeler: *Uzaktan Eğitim, Uzaktan Öğretici, Eğitici Eğitimleri, Etkili Canlı Ders*

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Test Merkezli Standart Belirleme Yöntemlerinin Açıköğretim Sınavlarında Kullanılabilirliğinin İncelenmesi

Hakan BARAN[1], Murat AKYILDIZ[2]

Özet

Açıköğretim fakülteleri bünyesinde öğrenci başarısının değerlendirilmesinde, kesme puanlarına dayalı olarak yapılan geçti-kaldı, başarılı-başarısız şeklindeki değerlendirmeler milyonlarca öğrenciyi ve açıköğretim sisteminin kalitesini etkilemektedir. Açıköğretim öğrencilerinin lisans ya da önlisans diploması almaya hak kazanabilmeleri geçme notuna göre belirlenmektedir. Standart belirleme, sınavlarda bir veya daha fazla kesme puanı oluşturma sürecini ifade etmektedir. Kesme puanları ise sınava girenlerin test performanslarının dağılımını iki veya daha fazla kategoriye bölmektedir. Standartlar uygun bir şekilde belirlenemediyse değerlendirme sonuçları kuşku doğurabilmektedir. Bu nedenle standart belirleme, test geliştirme süreci için temel bir unsur niteliğindedir (Bejar, 2008). Test merkezli yöntemlerde uzmanlar ölçülen özellik bakımından test maddeleri ile ilgili yargıda bulunmaktadırlar. İlgili alanyazında standart belirleme yöntemleriyle ilgili çalışmalara bakıldığında, test merkezli yöntemlerin çok daha fazla kullanıldığı görülmektedir.

Bu araştırmanın amacı farklı standart belirleme yöntemlerine göre açıköğretim sınavlarında bir güvenirlik kanıtı olarak uzmanlar arası puanlayıcı iç tutarlılıklarını belirlemektir. Uzmanlar arası puanlayıcı iç tutarlılıkları Angoff ve Nedelsky yöntemleri kullanılarak incelenen bu araştırma betimsel araştırma niteliği taşımaktadır. Araştırmanın çalışma grubunu Acil Durum ve Afet Yönetimi Programı, Temel Afet Bilgisi dersi kitabının yazarları ile bu dersi yürüten eğitmenlerden oluşan 15 uzman oluşturmuştur. Uzman görüşlerinin belirlenmesi amacıyla kullanılan veri toplama aracı Uzman Görüşleri Formu olmuştur.

Kesme puanlarının belirlenmesinde Angoff ve Nedelsky yöntemleri kullanılarak uzmanlar arası puanlayıcı iç tutarlılığının hesaplanmasında Sınıf (Küme) içi Korelasyon Katsayısı (Intraclass Correlation Coefficient) istatistiğinden yararlanılmıştır. Bu katsayı uzmanların veya değerlendiricilerin yaptıkları değerlendirmenin güvenirliğini belirlemek için kullanılmıştır. Sınıf içi korelasyon katsayısı, bir kişiye ait gözlem değerlerinin diğer kişilerin gözlem değerlerine ne ölçüde benzer olduğunu göstermektedir. Sınıf içi korelasyon katsayıları yapılan ölçmenin niteliğine ve araştırmanın modeline göre değişmektedir. Ölçmenin sürekli olduğu ilk durumda, gözlemci-içi (intra-rater), ikinci durumda ise gözlemciler–arası (inter-rater) sınıf içi korelasyon katsayısı ya da uyum ilişki katsayısı kullanılarak değerlendirilmektedir (Lin, 1989). Sınıf-içi korelasyon katsayısı 0,0 ve 1,0 değerleri arasında değişebilmektedir (Shrout ve Fleiss, 1979).

Araştırmadan elde edilen bulgular, Angoff yöntemine göre kesme puanı belirlemede incelenen sınıf içi korelasyon katsayılarının dönem sonu sınavı ve ara sınav için sırasıyla 0,885 ve 0,887 şeklinde olduğunu göstermiştir. Benzer şekilde, Nedelsky yöntemine göre kesme puanı belirlemede incelenen sınıf içi korelasyon katsayıları ise dönem sonu sınavı

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ve ara sınav için sırasıyla 0,929 ve 0,877 şeklinde olmuştur. Fraenkel, Wallen ve Hyun'a (2012) göre, uyum durumu sınıf içi korelasyon katsayısına göre, <0.70 "uyumsuz"; 0.70-0.84, "iyi"; 0.84-0.94, "yüksek"; 0.94-1, "mükemmel" şeklinde yorumlanmaktadır. Bu doğrultuda, araştırma sonuçları hem Angoff hem de Nedelsky yöntemleri için uzman kararları arası uyumun yüksek olduğunu ve açıköğretim sınavlarında Angoff ve Nedelsky yöntemleriyle geçme puanı belirleme sürecinin güvenirliğinin yüksek olduğunu göstermiştir. Test merkezli standart belirleme yöntemleriyle belirlenen kesme puanlarının açıköğretim sınavlarında kullanımının uygun olduğu görülmektedir.

Anahtar Kelimeler: *Uzaktan Eğitimde Ölçme Değerlendirme, Kesme Puanı, Angoff Standart Belirleme Yöntemi, Nedelsky Standart Belirleme Yöntemi*

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Öğreticinin Görüntüsünü İçeren Eğitsel Videoların Çeşitli Demografik Değişkenler Açısından İncelenmesi

Hamza POLAT[1]

Özet

Amaç: Eğitsel video tasarımında son yıllarda üzerinde sıklıkla durulan konulardan birisi videolardaki öğreticinin varlığının ve niteliğinin nasıl olması gerektiğidir. Yapılan çalışmaların bir kısmı öğreticinin görüntüsüne yönelik pozitif bulgular sunarken, bazıları öğreticinin görüntüsünün öğrenme çıktılarını etkilemediğini hatta olumsuz etkilediğini belirtmiştir. Bu durumda öğreticinin görüntüsünü içeren videoların etkinliğinin bağlama göre değişebileceği sonucu yaygınlaşmaya başlamıştır. Bu çalışmanın amacı öğreticinin görüntüsünü içeren eğitsel videoları demografik bileşenler açısından irdelemektir. Araştırma sonuçlarının öğreticinin görüntüsünü içeren eğitsel videoların tasarımına ve çevrimiçi öğretime yönelik çeşitli ipuçları içerebileceği düşünülmektedir.
Yöntem: Araştırmada sistematik tarama yöntemi kullanılmıştır. Web of Science ve EBSCO dijital veri-tabanları kullanılarak Mart 2022 de bir arama yapılmıştır. Arama ifadesinde ("instructor* face" OR "instructor* gaze" OR "instructor* head" OR "instructor* presence" OR "video modeling" OR "face in video" OR "social cue") AND ("video") anahtar kelime kombinasyonu kullanılmıştır. Arama sonucunda toplam 5768 kayda ulaşılmıştır. Tekrar eden 2974 listeden çıkarılmıştır. Kalan 2794 çalışma yıl (2015-2022), dil (İngilizce), kaynak (makale) ve makale seçim kriterleri (öğreticinin görüntüsünü içerme ve eğitsel bir amaç gütme) bağlamında incelenmiştir. Makale başlığı ve özet taraması sonucunda 45 çalışmanın tam metin olarak incelenmesine karar verilmiştir. Bu çalışmalardan 9'u nitelik kriterlerine uymadığı için çalışma kapsamından çıkarılmıştır, dolayısıyla toplam 36 çalışma değerlendirmeye alınmıştır. Makalelerin özellikle metot bölümleri incelenerek, videoların öğrenme açısından etkisini değiştirebilecek demografik bileşenler çıkarılmıştır. Tanımlayıcı istatistiksel yöntemlerle veriler analiz edilmiştir.
Bulgular: Araştırma sonuçları öğrenen özellikleri ve video özellikleri olmak üzere iki başlık altında ele alınmıştır. Öğrenen özellikleri açısından bakıldığında katılımcıların %55'inin lisans öğrencilerinden oluştuğu, %44'ünün konuya yönelik ön-bilgisinin olmadığı ve %91'inin öğrenme sitilinin raporlanmadığı görülmüştür. Diğer taraftan, videoların demografik özellikleri ise video uzunluğu, videoda anlatılan bilginin türü, video stili ve sözel olmayan ipuçlarının kullanım durumu başlıklarında değerlendirilmiştir. Video uzunluğu açısından videoların %42'sinin 5 ile 10 ve %27'sinin 10 ile 15 dakika aralığında olduğu anlaşılmıştır. Bilgi türü açısından genellikle açıklayıcı bilgiye (%58) odaklanıldığı, videoların %28'inde ise yöntemsel bilginin ele alındığı tespit edilmiştir. Video stilleri görüntü-üstüne görüntü (%51), ders videosu (%27), seslendirme (%17) ve gösterim videoları (%5) şeklinde gruplandırılmıştır. Görüntü üstüne görüntü videoları hazırlanırken genellikle öğreticinin görüntüsünün ders sunumları ile birleştirildiği, ders videolarında ise genellikle geleneksel tahta karşısında ders anlatımının yapıldığı belirlenmiştir. Ayrıca öğreticinin görüntüsü ile birlikte farklı

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türden sözel olmayan ipuçlarının kullanıldığı gözlemlenmiştir. Bu ipuçları arasında en fazla göz hareketlerinin olduğu (%56), bunu jest/mimikler (%28) ve yüz ifadelerinin (%18) takip ettiği anlaşılmıştır.
Özgünlük: Araştırma amacı doğrultusunda 2015 ile 2022 yılları arasında yayımlanmış 36 çalışma değerlendirmeye alınmıştır. Bu çalışmaların sonuçları incelendiğinde genellikle birbiriyle çelişen bulguların yer aldığı görülmüştür. Bu tutarsızlığın nedenleri arasında öğrenen özellikleri ile videoların demografik özelliklerinin olabileceği değerlendirmesi yapılmıştır. Bu bağlamda ilgili faktörlere yönelik herhangi bir çalışmaya rastlanmamıştır. Araştırma sonucunda ortaya çıkan bulguların bundan sonraki çalışmaların planlanmasına katkı sağlayabileceği düşünülmektedir. Sonuç olarak, hangi durumda öğreticinin görüntüsünün öğrenme süreçlerine nasıl katkı sağlayabileceğini açıklama açısından yeni çalışmalara yön gösterici olacaktır.

Anahtar Kelimeler: *Eğitsel Video, Öğreticinin Görüntüsü, Sistematik Tarama*

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Ölçme Değerlendirme Sürecinde Otomatik Kısa Cevap Derecelendirme Sistemleri: Sistematik Alanyazın Taraması

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Özet

Bilgi toplumuna geçişle birlikte bireylerden beklenilen yeterliliklerde çeşitliliğin artması, eğitim ihtiyaçlarının karşılanmasında yenilikçi yaklaşımlar üzerinde çalışmalara yol açmıştır. Bu bağlamda günümüzde açık ve uzaktan öğrenme (AUO) ve uygulamalarının ön plana çıktığı görülmektedir. Başarılı AUO uygulamaları için temel unsurlardan birisi ölçme değerlendirme sürecinin etkili yürütülmesidir. AUO uygulamalarının ölçme değerlendirme süreçleri incelendiğinde genellikle çoktan seçmeli soru türlerinin tercih edildiği görülmüştür. Yazılı yanıt sisteminin tercih dışı kalmasında zorlayıcı ve zaman alıcı olma önemli nedenler olarak göze çarpmaktadır. Bu durum genellikle kalabalık gruplardan oluşan AUO derslerinde derin ve anlamlı öğrenmelerin tespitini güçleştirmektedir. Öte yandan son yıllarda doğal dil işleme, makine öğrenmesi, derin öğrenme gibi yapay zekâ bileşenlerinde yaşanan gelişmelerle birlikte kısa yanıt isteminin otomatik değerlendirilmesine yönelik araştırmalara olan ilginin arttığı görülmektedir. Tüm bu gelişmelere bağlı olarak bu araştırmada otomatik kısa cevap derecelendirme (OKCD) sistemlerinin uluslararası alanyazındaki mevcut durumunun incelenmesi ve anlaşılması amaçlanmıştır. Bu amaç doğrultusunda çalışmada sistematik alanyazın taraması yapılmıştır. Veri grubu seçimi çevrimiçi WoS veritabanı taraması ile sınırlı tutulmuştur. Alanyazında sürecin bilgisayar tabanlı kısmı otomatik süreç olarak belirtilmiş ve temel kavramlar automatic ve automated olarak tespit edilmiştir. Değerlendirme kavramı için assessment, scoring, marking, grading gibi terimlerin kullanıldığı görülmüştür. Araştırma konumuzun odağını oluşturan kısa yanıtlar için ise yanıtın türü belirtilirken short, text, response, answer gibi kavramların kullanıldığı tespit edilmiştir. Bu bağlamda tarama sürecinde konu ile doğrudan ilişkili bu terimler, anahtar sözcükler, eş, yakın anlamlı sözcükler şeklinde bir dizi düzenlemeden geçirilmiştir. Tarama neticesinde tam erişim izni olan otuz iki makaleye ulaşılmıştır. Bu makaleler araştırma odağına göre ön incelemeden geçirilerek odak dışı olanların tespiti gerçekleştirilmiş ve 18 araştırma incelenmek üzere seçilmiştir. OKCD uygulamalarına yönelik incelenmek üzere belirlenen makaleler; yayın yılı, ülkesi, konu alanları, sistem geliştirme modeli, doğal dil işleme özellikleri, veri seti özellikleri ve alınan değerlendirme sonuçları bağlamında incelenmiştir. Bulgular araştırmaların sayısının son yıllarda arttığını, özellikle ABD ve Almanya'da çalışmalara ilginin diğer ülkelere göre daha yüksek olduğunu göstermektedir. Araştırmaların bilgisayar bilimleri ve fen bilimleri alanlarında yoğunlaştığı tespit edilmiştir. Ham verilerin sözcük temsillerinde word2vec temsil yönteminin, benzerlik metriklerinin kullanıldığı çalışmalarda kosinüs benzerliğinin, model geliştirme sürecinde ise LSA modelinin öne çıktığı görülmüştür.

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Model eğitiminde uzman puanlarının, konu ile ilgili derlem kullanımına kıyasla daha çok tercih edildiği görülmüştür. Az çalışmada ise her iki eğitim yaklaşımının bir arada kullanıldığı görülmektedir. Veri setlerinin büyük çoğunluğunun İngilizce dilinde olduğu tespit edilmiştir. Veri setleri benzersiz 1000 içerik üstü ve altı şeklinde incelenmiş olup iki kullanımında dengeli olduğu gözlenmiştir. Geliştirilen OKCD sistemleri genellikle doğruluk, güvenilirlik, kesinlik gibi ölçütlerle incelenmiş olup, oldukça iyi sonuçlar elde edildiği görülmüştür. İncelenen araştırmalarda farklı veri setlerinin kullanılmış olması çalışmaların model düzeyinde kıyaslanamamasına neden olmuştur. Kapsamın sadece WoS indeksi ile sınırlandırılması bu duruma neden olmuş olabilir.

Anahtar Kelimeler: *Otomatik Değerlendirme, Açık ve Uzaktan Öğrenme, Kısa Cevap, Skor, Otomatik Derecelendirme*

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Bir Açık ve Uzaktan Eğitim Aracı Olarak Digicomp Kısa Filmleri

Hakan AYDIN[1], Vahit İLHAN[2]

Özet

Türkiye Ulusal Ajansı tarafın yürütülmekte olan Erasmus+ Programı Yetişkin Eğitimi Stratejik Ortaklıklar eylemi kapsamında finanse edilen DigiComp kısa adıyla "Dijital Göçmenler için Dijital Yeterlilikleri Artırma: Dijital Bölünme ve Dijital Sosyal Eşitsizlikle Mücadele" Projesi kapsamında hazırlanan bu çalışma, "Kısa Filmler Yoluyla Spesifik Dijital Yetkinlikler" konseptiyle hazırlanan 5 kısa filmi konu edinmektedir. https://digicomp.erciyes.edu.tr/ adresinde "Dijital Ebeveynlik", "Popüler Dijital Riskler", "Dijital Tüketici Nosyonu", "Dijital Ortamlarda Kişisel Verilerle İlgili Yükümlülükler" ve "Dijital Ortamlarda Bilgi" başlıklarıyla yayınlanan kısa filmler, 2 boyutlu infografik video tekniği ile ve evrensel kabul görmüş imge ve içerikler üzerine yapılandırılmıştır. Güvenilirlik, akılda kalıcılık ve anlaşılabilirlik gibi özellikleriyle infografik videoların, aktarılmak istenen düşünceyi hedef kitleye en etkili şekilde ulaştırması bakımından tercih edildikleri söylenebilir. Grafik animasyonun, hedef kitlenin duygusal, sosyal ve kültürel değerler gelişimini olumlu yönde etkilediği ilgili pek çok çalışmada tekrarlanmaktadır. Bu haliyle filmler güncel, anlaşılır ve yenilenebilir bir yapıda hazırlanmıştır. Filmlerin temel amacı, dijital ortamlarda gündelik hayat pratiklerinin iyileştirilmesi ve geliştirilmesidir. Bu filmler sayesinde özellikle dijital göçmen kategorisinde yer alan yetişkinlerin, film adlarında vurgulandığı şekliyle dijital okuryazarlık becerilerinin geliştirilmesi ve bunlara ilişkin bilinçli farkındalığının artması hedeflenmektedir. Bu bildiri; örnek bir kısa film tasarımından yola çıkarak DigiComp kısa filmlerinin, öğrenme kuramları ışığında, açık ve uzaktan eğitim aracı olma vasfını ele alacak, inceleme ve değerlendirme sürecinde bulgulanan yeterlilik düzeylerini irdeleyecektir.

Anahtar Kelimeler: *Yetişkin Eğitimi, Dijital Göçmenler, DigiComp Projesi, Dijital Okuryazarlık*

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Türkiye Üniversitelerinin Uzaktan Eğitim için Kullandıkları Öğrenme Yönetim Sistemlerinin, Canlı Ders Uygulamalarının ve Verdikleri Destek Hizmetlerinin Belirlenmesi

Özgür ÖRÜN[1], Ozan FİLİZ[2], Fevzi İnan DÖNMEZ[3], Mesut TÜRK[4], Fatih YAMAN[5]

Özet

Yaşamın birçok alanında gerçekleşen gelişmelere paralel olarak eğitim alanında da hızlı gelişmeler yaşanmaktadır. Teknolojik gelişmeler eğitim alanında gerçekleşen gelişmelere yardımcı olmakta ve bir tür örgün öğrenme olarak da bilinen uzaktan eğitimin gelişmesine katkı sağlamaktadır. Uzaktan eğitim, öğrenen, öğreten, öğrenme materyali ve içeriklerin farklı ortamlarda bulunmasına rağmen iletişim teknolojilerini kullanarak bütün paydaşların bir araya gelmelerine dayalı eğitim faaliyetidir. Uzaktan eğitim, öğreneni zamandan ve mekândan bağımsız kılar, içerik öğreten tarafından teknoloji aracılığıyla öğrenene iletilir ve öğrenen ile öğreten arasındaki iletişim de teknoloji aracılığıyla gerçekleşir. Türkiye'de uzaktan eğitim süreci üniversitelerde uzaktan eğitim merkezlerinin açılması kararı ile başlamıştır. Pandemi sürecinde önem kazanan uzaktan eğitim merkezleri üniversitelerde ön lisans, lisans ve lisansüstü düzeylerde sürece katkıda bulunmaktadır.

Bu bağlamda bu çalışmanın amacı uzaktan eğitim sürecinde Türkiye'deki üniversitelerin kullandıkları öğrenme yönetim sistemlerinin, canlı ders uygulamalarının ve verdikleri hizmetlerin belirlenmesidir. 129 devlet ve 79 vakıf üniversitesinin kapsama alındığı çalışmada, verilerin toplanması için üniversitelerin uzaktan eğitim merkez web sitelerindeki ve YÖK Atlas veri bankasındaki bilgiler kullanılmıştır. Elde edilen veriler, doküman analizi tekniği ile analiz edilmiştir. Çalışma sonucunda hem devlet hem de vakıf üniversitelerin büyük çoğunluğunun Moodle ve ALMS sistemlerini kullandığı, açık kaynak kodlu öğrenme yönetim sistemlerinin sıklıkla tercih edildiği, diğer bir çözüm yolunun ise kapalı kaynak sistemlerine yönelik hizmet alımına gidilmesi olduğu belirlenmiştir. Canlı ders uygulamalarının dağılımı incelendiğinde devlet üniversitelerinde en çok kullanılanların sırasıyla Perculus, Microsoft Teams, Zoom ve BigBlueButton olduğu, vakıf üniversitelerinde ise en çok sırasıyla Zoom, Microsoft Teams ve Perculus uygulamalarının tercih edildiği görülmüştür.

Üniversitelerde kullanılan öğrenme yönetim sistemlerinin ve canlı ders ortamlarının sorunsuz bir şekilde kullanılabilmesi için öğrencilere ve öğretim elemanlarına uzaktan eğitim merkezleri tarafından çevrimiçi eğitimler verildiği gibi video ya da yazılı içerikler de hazırlanmış ve hem öğrencilerle hem de öğretim elemanları ile paylaşılmıştır. Bu bağlamda çalışmada, gelecekte yapılacak çalışmalara yönelik öneriler sunulmuştur.

Anahtar Kelimeler: *Uzaktan Eğitim, Öğrenme Yönetim Sistemi, Canlı Ders Ortamları*

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Ortak Dersleri Yürüten Öğretim Elemanlarının Küresel Salgın Öncesi ve Sonrası Uzaktan Eğitime İlişkin Görüşleri: Adü Örneği

Ayşenur Tatlı[1], İbrahim Gökdaş[2], Cumali Öksüz[3], Şerife Ak[4], Fulya Torun[5], Çetin Ayvaz[6], Yunus Sarıca[7]

Özet

Yükseköğretim kurumlarında öğrencilerin almalarının zorunlu olduğu ortak derslerin yürütülmesinde öğrenci ve öğretim elemanı tarafınca çeşitli deneyimler elde edilmektedir. Bu derslerin sorumlu öğretim elemanları -özellikle küresel salgın sürecinde- uzaktan eğitim sistemlerini kullanmak zorunda kalmıştır. Bu bağlamda Aydın Adnan Menderes Üniversitesinde ortak dersleri yürüten öğretim elemanları küresel salgın öncesinde de Uzaktan Eğitim Araştırma ve Uygulama Merkezi (ADÜZEM) uzaktan eğitim portalını kullandıkları için uyum sorunu yaşamamışlardır. Küresel salgın sürecinde kazanılan deneyimlerin ve ADÜZEM portalda yapılan kullanıcı dostu güncellemelerin öğretim elemanlarının bu derslerin uzaktan eğitimle yürütülmesine ilişkin görüşlerini ve portal kullanım becerilerini etkilemiş olabileceği düşünülmektedir. Ortak dersler halen bu portal üzerinden yürütülmekte olup, kullanıcı deneyimleri ön planda tutularak portalın kullanılabilirliği üst düzeye çıkarılmaya çalışılmaktadır. ADÜZEM portal sayesinde öğretim elemanları; öğrencileri ile birlikte eş zamanlı canlı dersleri gerçekleştirebilmekte, ders dokümanlarını ve ödevleri eş zamansız olarak paylaşabilmekte, şubelerine göre özelleştirilebilir sorulardan ve çevrim içi kitapçıklardan oluşan uzaktan sınavlar yapabilmektedir. Eş zamanlı bini aşkın öğrenci, sorunsuz bir şekilde bu sınavlara bilgisayarları veya taşınabilir elektronik cihazlarıyla, (telefon, dizüstü bilgisayar, tablet) herhangi bir konumdan dahil olabilmektedir. Bu sayede sistem üzerinden hızlıca değerlendirilebilir çevrim içi sınavlar kısa süre içerisinde Öğrenci Bilgi Sistemi'ne (OBİS) işlenmektedir. Üniversite bünyesinde ortak dersler küresel salgın öncesi, küresel salgın sırası ve küresel salgın sonrasında uzaktan eğitimle yürütüldüğünden bu dersleri yürüten öğretim elemanlarının küresel salgın öncesi ve küresel salgın sonrası uzaktan eğitime ilişkin görüşlerinin incelenmesinin küresel salgın sürecinin etkileri ve ADÜZEM portalın gelişimine ilişkin önemli bilgiler sağlayacağı düşünülmektedir. Bu bağlamda elde edilen deneyimlerin öğretim elemanlarının bakış açısı ile değerlendirilmesi önemli görülmektedir. Bu amaçla yapılan bu araştırmada ADÜ bünyesinde ortak derslerden sorumlu olan öğretim elemanları ile küresel salgın öncesi ve sonrası ortak derslerin uzaktan eğitimle yürütülmesine yönelik görüşler alınmıştır. Araştırmada yarı-

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yapılandırılmış görüşme formu kullanılmıştır. Bu kapsamda elde edilen nitel bulgular içerik analizi ile değerlendirilmiştir. Araştırma sonuçlarına dahilinde kurumsal olarak kullanılan uzaktan eğitim sisteminin genel durumu ortaya konulmuş olup, alanyazın da incelenerek yükseköğretim kurumları için önerilerde bulunulmuştur.

Anahtar Kelimeler: *Uzaktan Eğitim, Ortak Dersler, Öğretim Elemanı Görüşleri, COVID-19, Küresel Salgın*

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Bilgisayar Ağları Konusu Öğretiminde Okul Ortaklığı Projesi Örneği

Işıl GÜLMEZ[1]

Özet

Bu araştırmanın amacı ortaokul Bilişim Teknolojileri ve Yazılım dersi öğretim programı kazanımları arasında yer alan "bilgisayar ağları" konusundaki temel kavramların öğretiminde okul ortaklığı projesi kullanımının değerlendirilmesidir. Bu amaç doğrultusunda Fransa'dan ve Türkiye'den iki ortak okul arasında "A Human Network That Shares Its Knowledge To Better Understand The Internet" isimli eTwinning okul ortaklığı projesi oluşturulmuştur. Projenin etkinlikleri ortak okulların bilgisayar öğretmenleri tarafından planlanmıştır. Proje kapsamında eTwinning sayfası oluşturulmuş, yapılan etkinlikler bu sayfada paylaşılmıştır. Proje ile öğrencilerin bilgisayar ağları konusundaki kavramları öğrenmelerini kolaylaştırmak için insanlar arası ağlar ve bilgisayar ağları arasındaki benzerliklerden yola çıkılarak web 2.0 araçları kullanılarak bilgisayar ağ yapısının temsilinin oluşturulması, animasyon veya oyunların geliştirilmesi hedeflenmiştir. Projede ayrıca öğrencilerin takım halinde çalışma ve iş birliği becerilerinin geliştirilmesi hedeflenmiştir. Proje tabanlı öğrenme yaklaşımının kullanıldığı bu çalışmada insanlar arası ağlar ve bilgisayar ağlarını karşılaştıracak bir tasarım oluşturulmaya çalışılmıştır. Okullar arası işbirliğinin sağlanması için Twinspace, forum, Padlet ve e-posta gibi bilişim teknolojileri araçları kullanılmıştır. Proje iki ay boyunca ortak okullarda uygulanmıştır. Projenin yürütülmesinin kolaylaşması için çalışmalar aşamalara ayrılmış ve aşamaların ortak okullar tarafından tamamlanabilmesi için yeterli süre verilmiştir. İlk aşamada her iki ortak okulda proje görevlerinin yürütülmesi için öğrenci takımları oluşturulmuştur. Oluşturulan takımlar bilgisayarlar arası ağları temsil etmek üzere kelime bulutlarını kullanmış, kelime bulutlarına takım üyeleri isimleri eklenmiştir. Oluşturulan kelime bulutları proje sayfasında paylaşılmıştır. Öğrenciler birbirlerinin çalışmaları üzerinde gözlem ve değerlendirmelerde bulunmuştur. Sonraki aşamada öğrencilere bilgisayar ağ topolojileri konusunda içerikler sunulmuş, örnekler verilmiştir. Daha sonra öğrenci takımları kendi gruplarını temsil eden bir ağ topolojisi seçmiştir. Takımlar, bir önceki aşamada oluşturdukları kelime bulutuna seçtikleri ağ topolojisine uygun bir arka plan görüntüsü eklemiştir. Sonraki aşamada takımlar Scratch aracını kullanarak bilgisayar ağ yapılarını görselleştiren animasyonlar tasarlamıştır. Takımlar animasyonlarını geliştirmek için kodlamayı kullanmıştır. Hazırlanan animasyonlar projeye ait bir dosyada çevrimiçi olarak kaydedilmiştir. Son aşamada her takım, Scratch uygulamasını kullanarak bilgisayar ağları konusunda soru ve cevaplar önermiştir. Takımlar en az üç sorudan oluşan kısa değerlendirmelere hazırlamıştır. Hazırlanan değerlendirmeler ortak okullar arasında paylaşılmış, öğrenciler farklı grupların değerlendirmelerine katılarak sorularını cevaplamıştır. Proje boyunca öğrencilerin bilgisayar ağları ile ilgili ortaklaşa hazırlamış oldukları temsili görseller ve Scratch aracını kullanarak oluşturdukları oyun ve animasyonlar ortaklar tarafından web tabanlı kelime işlemciye eklenmiştir.

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Yapılan çalışmalar elektronik bir kitapta bir araya getirilmiştir. Proje sonunda projenin değerlendirilmesi için öğrencilerle görüşme yapılmıştır. Görüşme sonucunda yapılan değerlendirmelerde öğrencilerin projeyi eğlenceli ve öğretici buldukları, yeni konular öğrendiklerini düşündükleri ortaya çıkmıştır. Ayrıca öğrenciler işbirlikli projeleri sevdikleri ve akranlarından öğrendiklerini değerlendirmelerine eklemiştir. Yapılan çalışmanın bilişim teknolojileri konusunda okul ortaklıkları projelerinin geliştirilmesine katkı sağlayacağı düşünülmektedir.

Keywords: *Bilgisayar Ağları, eTwinning, Scratch*

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Ters-Yüz Sınıf Sistemi ve Sosyal-Duygusal Öğrenme İlkeleri ile Zenginleştirilmiş Eğitim Ortamlarına Dair Bir Vaka İncelemesi

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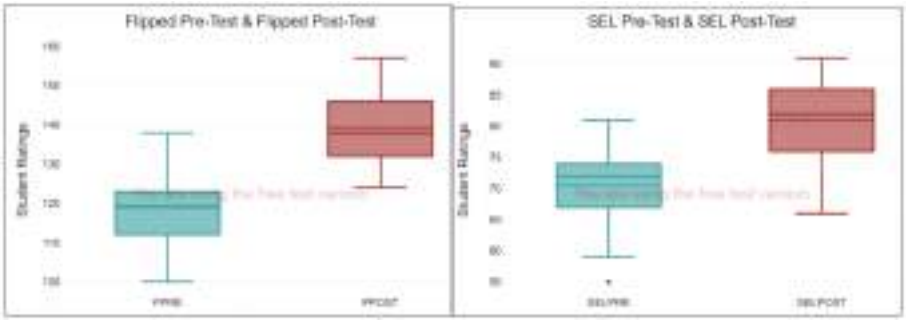
Özet

Amaç: Son zamanlarda, ters-yüz sınıf sistemi ve SDÖ ilkeleri, çeşitli eğitim kurumlarında uygulanmaktadır (Strelan, Osborn & Palmer, 2020; Jones, S.M. & Kahn, J., 2017). Bu bağlamda, 'ters-yüz sınıf sistemi ve SDÖ ilkeleri uygulama alanlarında ne anlamda fark yaratmaktadır?' araştırma sorusu önem kazanmaktadır. Bu araştırma, öncelikle bu sistemi ve ilkeleri, deneysel bir vaka incelemesi olarak ele alarak, ilgili tartışma boyutlarına zemin hazırlamayı ve SDÖ temelli ters-yüz sınıf sistemini, "ödev" olgusu ile şekillenen ders-içi ve dışı çalışmaları ve bu çalışmalara dair öğrencilerin algı ve düşüncelerini incelemeyi hedeflemektedir.

Yöntem: Bu araştırmada amaçlı örnekleme yöntemlerinden ölçüt örnekleme kullanılmıştır. Ölçüt örnekleme kullanılan araştırmalarda gözlem birimleri belli niteliklere sahip kişiler, olaylar ya da durumlardan oluşabilir (Büyüköztürk ve diğerleri, 2009; Patton, 2002). Bu araştırma kapsamında Ankara Yıldırım Beyazıt Üniversitesi örneklem olarak alınmıştır. Çalışmaya katılımcı olmanın ölçütü katılımcının bir yükseköğrenim kurumunda öğrenim görüyor olması ve SDÖ ilkelerinin entegre edilebildiği ters-yüz uygulamalar yapılan dersler alıyor olması olarak belirlenmiştir. Araştırmada, SDÖ temelli ters-yüz sınıf sisteminin içerik edinme ve uygulama becerileri ediniminde "ödev" olgusunun oynadığı rolü ortaya çıkarmak hedeflenmiştir. Bu hedef çerçevesinde, araştırmacılar tarafından, öğrencilere, karmaşıklık, koşullar ve zorluk derecesi açısından çeşitlendirilmiş 10 ödev serisi verilmiş ve bu ödevlerle ilgili iki ayrı veri toplama aracı vasıtasıyla görüş bildirmeleri istenmiştir: (1) ölçek uygulaması, (2) odak grup toplantısı. Katılımcılara iki ölçek uygulanmıştır: Tang ve Chaw (2013)'ın karma eğitime (blended learning) hazır bulunuşluk düzeylerini belirleyen tutum ölçeği ve Karacan-Özdemir ve Büyükçolpan (2021)'ın Sosyal Duygusal Öğrenme Ölçeği – Genç Yetişkin Formu. Araştırmadan elde edilen veriler betimsel testlere ve Wilcoxon işaretli sıralar testine tabi tutulmuştur. Öğrenciler ters-yüz öğrenme ve sosyal-duygusal öğrenme ilkelerine dair algı ve düşüncelerini göz önünde bulundurarak odak grup görüşmesine katılım sağlamışlardır. Yanıtları araştırmacılarca kodlanmış, sınıflandırılmış ve öne çıkan ana temalar SDÖ yaklaşımı, ters-yüz sınıf sistemi ve ödev olgusu çerçevesinde değerlendirilmiş ve yorumlanmıştır (Creswell, 2012).

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Bulgular (Ön bulgular)
Ölçek Bulguları:



Ters-yüz sınıf sistemine yönelik düşünce ve algıyı yansıtan ölçek uygulamasında son teste (*Mdn* = 138) kıyasla ön testte (*Mdn* = 119) daha düşük değer elde edilmiştir ve Wilcoxon testine göre bu fark anlamlıdır ($p < .05$). Benzer şekilde, SDÖ ilkelerine yönelik düşünce ve algıyı yansıtan ölçek uygulamasında son teste (*Mdn* = 82) kıyasla ön testte (*Mdn* = 72) daha düşük değer elde edilmiştir ve Wilcoxon testine göre bu fark anlamlıdır ($p < .05$).
Odak Grup Toplantısı Bulguları: Öğrenciler uygulamayı verimli ve etkili bulmuşlardır. Bir grup öğrenci uygulama öncesi süreçte çevrim içi eğitimi yetersiz ve kısıtlayıcı bulduklarını, ancak uygulama sonrası fikirlerinin değiştiğini ifade ederken, bir grup öğrenci de uygulama öncesi de karma eğitimi sevdiğini, ancak uygulamayla birlikte çok daha verimli kullandığını, yeni avantajlarını fark ettiğini belirtmiştir. Öğrencilere göre, bu sistem pratik, anlaşılır, erişilebilir ve eğlencelidir. Kendilerini sürekli akışta ve dil öğrenme süreciyle iç içe ve motive hissetmişlerdir. Ayrıca zaman kaybını önlediğini ve maddi açıdan da masraflarının azalması suretiyle daha avantajlı olduğunu öne sürmüşlerdir. Kimi öğrenciler ise kaybettikleri öğrenme motivasyonunu yeniden inşa ettiklerine değinmişlerdir. Bu noktada öğretmenlerinin ve sınıf arkadaşlarının özellikle çevrim içi platformlar üzerinden yönelttikleri soruları ve başlattıkları tartışmaları zihin açıcı bulmuşlar birbirlerinden/akranlarından öğrenmenin etkililiğine vurgu yapmışlardır. Bu suretle, öğrenme sürecinde gelişim gösterdiklerini, gelişmeye ve başarmaya dair umutlarının arttığını dile getirmişlerdir.
• Özgünlük: Temelde, "deneyimsel öğrenme" kuramı (Kolb, 1984) ile yakından ilgili olan bu sistem ve ilkelerin, ülkemizde, sınıf içi vaka çalışmaları ile soyut bir kavram olmaktan çıkarılıp, gerçek öğrenme ortamlarında yakından ilgili olduğu faktörler çerçevesinde incelenmesi, program geliştirmede ve eğitimde değişik uygulamalarla hedeflenen kalite artırma faaliyetlerine hizmet edecektir.

Anahtar Kelimeler: *Ters-Yüz Eğitim, Sosyal-Duygusal Öğrenme, Ödev Olgusu*

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Çevrimiçi Eğitimde Öğrenen Destek Hizmetlerinin Kalite Bileşenleri: Akademik Destek Boyutu

Emin ÖZEN[1]

Özet

2020 yılı itibariyla çevrimiçi uzaktan eğitime ilgi ve talebin sürekli artarak devam ettiği görülmektedir. Çevrimiçi eğitimin zamandan ve mekândan bağımsız öğrenme ortamları sunması, gelişen teknoloji ile birlikte farklı öğrenme deneyimleri sağlaması gibi birçok etken bu artan ilginin sebepleri arasında gösterilebilir. Ayrıca yaşanan Covid-19 salgını bağlamında çevrimiçi eğitim veren kurumların ve bu kurumlarda öğrenim gören öğrenenlerin sayısındaki artışın sonucunda nitelikli çevrimiçi eğitim ihtiyacı sıkça gündeme gelmektedir. Kaliteli bir çevrimiçi eğitim verebilmek için öğrenen destek hizmetlerinde de niteliğin artırılması önem arz etmektedir. Çevrimiçi eğitimde öğrenen destek hizmetlerine ait önemli öğeleri, kavramları, terimleri, sınıflamaları ve kalite boyutlarını tanımlamanın; kalitenin ve standartların yükseltilmesi açısından önemli olduğu söylenebilir. Bu bağlamda, destek hizmetlerinin kapsamının ve boyutsal yönlerinin tanımlanmasının, bu hizmetlerin öğrenenlere etkin ve verimli bir şekilde sunulması için kritik olduğu düşünülmektedir. Bu çalışma niteliksel araştırma yöntemiyle desenlenmiş olup; çevrimiçi eğitimde öğrenen desteği kalite boyutlarının belirlenmesi için detaylı alanyazın taraması ve doküman analizi yapılmaktadır. Doküman analizi, basılı ve elektronik tüm dokümanların incelenmesi ve değerlendirilmesi için kullanılan sistematik bir teknik olarak ifade edilmektedir. Kısaca araştırma konusu ile ilgili olarak başka bir kişi veya kuruluş tarafından yazılmış, hazırlanmış veya oluşturulmuş çeşitli eser, belge, yapı veya emanetlerin toplanması ve incelenmesi olarak kabul edilmektedir. Bu aşamada uzaktan ve çevrimiçi eğitimde deneyim sahibi eğitim kurum, kuruluş, üniversite, dernek, birlik, oluşum vb. belirlediği standartlar ve boyutlar, alanyazında yapılan çalışmalar, öğrenen desteğine yönelik sınıflamalar ve üniversitelerdeki mevcut uygulamalar doküman analizi yapılarak incelenmekte ve temalar ortaya konulmaktadır. Çevrimiçi eğitimde kalite boyutlarından yola çıkarak öğrenen desteğinin kalite boyutlarını belirlemek adına genelden özele mevcut analizler aşamalı olarak gerçekleştirilmektedir. Çalışmanın sonucunda: Öğrenen destek hizmetlerinde kalitenin akademik destek boyutunun; öğrenme ve danışmanlık hizmetleri, öğrenenlere sunulan öğrenme kaynakları, materyal, içerik, öğretim, tavsiye, öğrenmenin oluşması için geribildirim, iyileştirme ve her türlü eğitim hizmetlerini kapsadığı görülmektedir. Ayrıca öğrenen destek hizmetlerinin akademik destek boyutunun; *dersi açıklama, öğretim, öğrenme sürecini takip etme ve beceri ve motivasyon geliştirme* olmak üzere 4 kategoriye ayrıldığı görülmektedir. Çalışmada belirlenen öğrenen destek hizmetleri kalite boyutlarının belirlediği çerçeve ile çevrimiçi eğitim veren kurum ve kuruluşların öğrenen destek yapılarını yeniden gözden geçirmeleri daha nitelikli eğitim hizmetini sunmaları açısından ortaya konulan yapıyı dikkate almaları önerilmektedir. Çevrimiçi uzaktan eğitim veren kurumlarda öğrenen drop-out (bırakma, ayrılma) durumlarını azaltmak adına kaliteli öğrenen destek hizmetleri sunmak önem arz etmektedir. Bu

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bağlamda kurumların üstüne düşen görevler; öğrenenlere yönlendirme ve ek destek sağlamak, akademik, sosyal, teknik, mali ve yönetsel olarak ihtiyaçlarına cevap vermek, eğitimler sunmak gibi birçok etkinlik gerçekleştirilmesi olarak sıralanabilir. Son olarak kurumların öğrenen desteğinde proaktif hareket etmeleri tavsiye edilmektedir.

Anahtar Kavramlar: *Çevrimiçi Eğitimde Kalite, Öğrenen Destek Hizmetleri, Akademik Destek*

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Açık ve Uzaktan Eğitim Kurumları İçin Kriz Dönemi Kurumsal İmaj Yönetimi: Covid 19 Pandemisinde Anadolu Üniversitesi Örneği

Serhat KOCA[1], Serap UĞUR[2]

Özet

Aralık 2019 itibariyle Çin'de görülen Koronavirüs-2019 (COVID-19), kısa sürede tüm dünyayı etkisi altına almış ve Dünya Sağlık Örgütü (WHO, 2020) tarafından pandemi olarak ilan edilmiştir. Takip eden iki yıl boyunca hızla tedbirler alınan COVID-19 koronavirüsünün yetkilediği en önemli alanlardan birisi de eğitimdir. Türkiye'de 2020 yılı Mart ayında ilk vakanın görülmesinden itibaren günlük yaşam rutininde değişimler meydana gelmiştir. Türkiye'de 11 Mart 2020 tarihinde görülen ilk vakadan sonra okulöncesi, ilk, orta, lise ve yükseköğretim kademelerinde eğitime kısa bir süre ara verilmiştir. Daha sonra 23 Mart 2020 tarihinde Milli Eğitim Bakanlığı ve YÖK tarafından alınan karar uygulamaya geçirilerek yüz yüze eğitim yerine acil durum uygulaması olarak uzaktan eğitim sürecine geçilmiştir.

Kurumsal kimlik genel tanımıyla bir kuruluşun görsel ve fiziksel özellikleriyle kurum kültürü, kurum felsefesi gibi soyut niteliklerinden meydana gelmektedir. İmaj ise görsel bütünlük anlatılarının algılanışını ifade etmektedir. Kurumsal kimlik ve imaj çalışmaları bu bağlamda önemlidir çünkü tüketici zihninde varsa mevcut olumsuz bilgi ve inançları yıkmak, değiştirmek çok zordur. Zihinlerde oluşan ve imaj olarak tanımlanan görüntüler, kurumların amaçlarını gerçekleştirme süreçleri için önemli katkı gücüne sahiptir (Ertekin, 1978). Strateji, bir amaç ya da hedefe ulaşmak için yapılan plandır. Bir kurumun tüm iletişim faaliyetlerini kapsayarak, kurum paydaşları ile içerde bir bütünleşme ve dışarda ise yüksek bir imaja sahip olma uygulamalarına 'kurum kimliği stratejisi' denir.

Farklı birçok alanda olduğu gibi yükseköğretimde de küreselleşme ve dijitalleşme gerçekleşmektedir. Yükseköğretim kurumlarının örgün öğretim faaliyetlerini de uzaktan eğitim ile yapılandırmaları ile birlikte paydaşlar arası iletişimi dijital platformlarda organize etmek ihtiyacı doğmuştur. Pandemi öncesinde de hem örgün hem uzaktan eğitim veren kurumlar için bu iletişimi koordine etmek kritik bir önem taşımaktadır. Kurumsal kimliğin zarar görmemesi, kurum imajı ve itibarının korunmasına yönelik stratejiler geliştirilmesi ve uygulanması bu bağlamda önem taşıyan diğer hususlar olarak öne çıkmaktadır.

Bu araştırmanın amacı; pandemi ile meydana gelen kriz döneminde açık ve uzaktan öğrenme hizmeti sunan yükseköğretim kurumlarının uzaktan eğitim-öğretim faaliyetlerine yönelik kurumsal iletişim strateji ve uygulamalarını belirleyerek geleceğe yönelik öneriler geliştirmektir.

Türk Yükseköğretiminde 1982 yılından itibaren Açıköğretim sistemi ile uzaktan eğitim hizmeti sunan Anadolu Üniversitesi, bu süreci gerek içerik, gerek öğrenme yönetim sistemi, gerek ölçme değerlendirme, gerek öğreten ve öğrenen destek servisleri

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gibi hizmetleri ile başarılı bir şekilde yönetmiştir. Gerek açıköğretim gerekse örgün eğitim verdiği fakültelerinde pandeminin oluşturduğu koşullara göre yapılandırma faaliyetlerini hayata geçiren Anadolu Üniversitesi, kriz döneminde kurum imajı ve eğitime yönelik iletişim faaliyetlerinin organizasyonunu da etkili ve verimli bir şekilde yönetmek için stratejiler geliştirerek uygulamıştır.
Vaka çalışması olarak desenlenen bu araştırmada web sitesi ve sosyal ağ verileri ile yarı yapılandırılmış görüşme verileri kullanılacaktır. Analizi yapılan verilerin sonuçları ile pandemi sürecinde kriz yönetimi için uygulanan stratejilere yönelik genel durum değerlendirilerek gelecekte yaşanabilecek kriz dönemleri için öneriler geliştirilecektir.

Anahtar Kelimeler: *Açık ve Uzaktan Eğitim, Kriz Dönemi, Kurumsal İmaj, Sosyal Medya, Algı Yönetimi*

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Öğrenenlerin Kendi Videolarını Çekmelerinin Başarılarına Etkisi

Ömer ARPACIK[1], Mete YAĞANOĞLU[2], Turgay DEMİREL[3]

Özet

Bu çalışmanın amacı uzaktan eğitim ile verilen programlama derslerinde öğrencilerin ekran kaydı ile kendi videolarını çekerek verilen algoritmaları/görevleri anlatmalarının başarılarına etkisinin incelenmesidir. Programlama derslerinde öğrencilerin zorlandıkları ve terklerin yaşandığı bir çok çalışmada ortaya konulmuştur (Iqbal Malik & Coldwell-Neilson, 2017; Vihavainen, Airaksinen, & Watson, 2014). Programlama öğrenilmesi zor bir konudur ve öğretme ve öğrenmeye yönelik bir çok araç geliştirilmiştir (Cheah, 2020). Bu çalışmada programlama derslerine yönelik olarak öğrencilerin ders kapsamında konuları çeşitli senaryolar oluşturarak anlatması ve ekran kaydı alarak bu anlatımları çevrimiçi ortamda paylaşması üzerine etkinlikler yaptırılmış ve bu etkinliklerin başarıya etkisi incelenmiştir. Birey öğrettiği bir şeyi daha iyi öğrenecektir (Ancess, Rogers, Duncan Grand, & Darling-Hammond, 2019). Dolayısıyla video çekmeleri daha iyi öğrenmelerini sağlayacağı düşünülmektedir. Literatüre göre öğrenenlerin kendi ekran kayıt videolarını çekerek programlama dersi uygulamaları yapması öğrenenlerin konu içeriğini yapılandırmacı yaklaşıma uygun şekilde derinlemesine öğrenmeleri, akran öğrenmesi, çoklu ortam ve iletişim becerileri kazanmaları açısından potansiyel vaadetmektedir (Powell & Wimmer, 2015).

Çalışma, tek grup ön test-son test zayıf deneysel desen olarak tasarlanmıştır. Öğrencilere veritabanı dersi kapsamında bir dönem boyunca 4 ödev verilmiştir. Araştırmacılar tarafından her bir ödev için hedef kazanımlar belirlenmiş, bu hedef kazanımlara yönelik başarı testi geliştirilmiştir. Belirlenen ödevlere yönelik senaryolar oluşturulmuş ve öğrencilere bu senaryoların ekran kaydı ile anlatmaları istenmiştir. Başarı testi her bir ödev için konu işlenmesini takiben, ödev verilmeden önce ve ödev sisteme yüklendikten bir hafta sonra uygulanmıştır. Her ödev dersi doğal akışında ilgili konu anlatıldıktan sonra verilmiştir. Öğrenciler çevrimiçi bir sistemde ilk olarak ödevin ön testini doldurmuşlar ve daha sonra ödevi görmüşlerdir. Ödevi gördükten sonra videolarını çekerek sisteme yüklemişlerdir. Ödevlerin sisteme yüklenmesinden 1 hafta sonra son testi doldurmuşlardır. Bu süreç her bir ödev için bu şekilde yürütülmüştür.

Verilerin analizi sonucunda öğrencilerin başarı testlerinden aldıkları puanlar normal dağılım göstermediği için parametrik olmayan Wilcoxon testi ile değerlendirilmiştir. Değerlendirme sonrası her bir ödev için ön test-son test arasında anlamlı bir fark olduğu görülmüştür. Ayrıca öğrencilerin geçme notları ile ödevlerden aldıkların puanlar arasında anlamlı bir ilişki bulunmuştur.

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Sonuç olarak programlama derslerinde yaşanan zorluklar düşünüldüğünde öğrencilerin video çekmelerinin konuyu daha iyi öğrenmelerini sağladığı söylenebilir. Programlama ve Algoritma derslerine video ödevlerin entegre edilmesi önerilmektedir. Gelecek çalışmalarda video ödevlerin süresi ve formatının öğrenmeye etkisi incelenebilir. Bu çalışmanın sınırlılığı tek gruplu deneysel desen olmasıdır. Gelecek çalışmalarda kontrol grubu da eklenerek video ödevlerin öğrenmeye ve motivasyona etkisinin kanıtları daha güçlü şekilde incelenecektir.

Anahtar Kelimeler: *Programlama Eğitimi, Ekran Kaydı, Video*

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Öğrenme Analitiklerinin Açık ve Uzaktan Öğrenmede Motivasyon Artırma Amaçlı Kullanımı

Ahmet İŞCAN[1]

Özet

Uzaktan eğitimde öğrenme merkezli bir anlayış hakimdir. Bu anlayış öğrenenlerin sorumluluğunu da artırmaktadır. Bu sorumluluk artışına bağlı olarak uzaktan eğitim süreçlerinde öğrenenler çeşitli sorunlarla karşılaşmaktadır. Bu sorunlardan birinin motivasyon olduğu söylenebilir. Motivasyon kavramı bir insanın belli bir amaca ulaşmak için belirli koşullar altında gereken çabayı göstermesini ifade etmektedir. Uzaktan eğitim ortamlarının tasarımında motivasyonun dikkate alınması öğrenenlerin sürece katılımı açısından faydalı olabilir. Öğrenenlerin motivasyonları doğrudan ölçülemeyen bir psikolojik yapı olduğu için genellikle öğretenler veya kurumlar öğrenenlerin öğrenme sürecindeki hedeflerini sorgulayıp buna göre motivasyonları konusunda fikir edinme yoluna gitmektedirler. Motivasyon kavramı tek başına bile oldukça karışık bir kavramdır. Motivasyon artırmada farklı model, strateji ve teknolojilerden faydalanılabilir. Motivasyon kavramı doğrudan bireyle ilgili olduğu için bireyin motivasyonuna ilişkin bilgiler edinmek ve onu artırmaya yönelik çalışmalarda bulunmak için bireyi tanımaya çalışmak faydalı olacaktır. Bu kapsamda öğrenme analitiklerinden faydalanmak mümkündür. Öğrenme analitikleri, öğrenenlere ve öğrenenlerin bulundukları bağlama yönelik verilerin toplanması, ölçülmesi, analiz edilmesi ve raporlaştırılması olarak ifade edilmektedir. Öğrenme analitiklerinden faydalanarak geçmiş durumlarla ilgili değerlendirmeler yapmak ve gelecek dönemlerle ilgili tahminlerde bulunmak mümkün olabilir. Bu sayede sistemde yapılması gereken iyileştirmeler yapılabilir, öğrenenlerin kendi durumlarını takip etmeleri sağlanabilir ve öğrenme ortamının iyileştirilmesi sağlanabilir. Öğrenenlerin kendi durumlarını takip etmelerini sağlayacak imkânların sunulması ve öğrenme ortamlarının öğrenen davranışlarına göre bireyselleştirilmesinin öğrenenin motivasyonu artırmada fayda sağlayacağı düşünülmektedir. Yukarıdaki düşünceler bağlamında bu çalışmanın genel amacı ilgili alanyazında yer alan öğrenme analitikleri ve motivasyon konulu çalışmaları bireysel farklılıklar bağlamında incelemektir. Bu genel araştırma amacı doğrultusunda "Motivasyon artırmada öğrenme analitiklerinden nasıl faydalanılabilir?" araştırma sorusuna yanıt aranmıştır. Bu çalışmanın, bu alanda çalışma yapmak isteyen araştırmacılara, bireyselleştirilmiş öğrenme ortamları hazırlamak isteyen tasarımcılara ve eğitmenlere bir öngörü kazandırması beklenmektedir. Alanyazındaki çalışmalar incelendiğinde öğrenme analitiklerinin kullanımının yani öğrencilerin gösterge panolarına erişiminin öğrencilerin dışsal motivasyonunu olumlu etkilediği sonucuna varılmıştır. Sonuçların öğrencilere ulaştırılma şekli, öğrencilerin olgunluğuna bağlı olarak önemli ölçüde farklılık göstermektedir. Bu nedenle, hangi bilgilerin sunulacağı belirlenirken de bireysel farklılıkların dikkate alınması büyük önem taşımaktadır.

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Öğrencilerin bireysel farklılıklarına uygun olacak şekilde verilerin sunulması olası problemlerin de önüne geçilmesini sağlayacaktır. İncelenen çalışmalar motivasyonu artırmak için uyarlanabilir öğrenme ortamlarına ihtiyaç olduğunu, uyarlanabilir öğrenme ortamlarını sunabilmek için de öğrenme analitiklerine ihtiyaç olduğunu göstermektedir. Öğrenme analitiklerinin öğrenme ortamını şekillendirmek için kullanılması öğrenenler açısından da avantajlı olacaktır. Bu bağlamda uyarlanabilir ve bireyselleştirilmiş öğrenme ortamları için daha fazla veri analiz edilmeli ve sonuçları LMS'lere yansıtılmalıdır.

Anahtar Kelimeler: *Açık ve Uzaktan Öğrenme, Bireysel Farklılıklar, Bireyselleştirilmiş Öğrenme, Motivasyon, Öğrenme Analitikleri*

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Pandemi Sürecinde Uzaktan Yürütülen Özel Eğitim Hizmetlerine İlişkin Yapılan Akademik Çalışmalar

Burcu YAPAR[1], Fatih KOÇAK[2]

Özet

Tarih boyunca savaşlar, küresel sorunlar, salgınlar gibi durumlar nedeniyle eğitim öğretim faaliyetlerinin dönüşüme uğradığı bilinmektedir. Yaşanılan sorunlar eğitim öğretim faaliyetlerinin yürütülme biçimini değiştirmiş ve değiştirmeye devam etmektedir. Yakın dönemde tüm dünyayı etkisi altına alan COVID-19 salgını da ülkeleri sağlık, ekonomi, eğitim gibi alanlarda değişikliğe uğratmıştır. Okullarda yüz yüze eğitimden uzaktan eğitime geçilmiş, eğitim öğretim faaliyetleri çevrimiçi olarak yürütülmüştür. Uzaktan eğitimle ilk defa tanışan öğretmen, öğrenci ve aileler süreçte birtakım zorluklarla karşılaşsa da eğitimlerinin hiçbir şekilde sekteye uğramaması gereken özel eğitime gereksinim duyan bireyler için kurtarıcı bir rol üstlenmiştir. Özel eğitime gereksinim duyan bireylerin kazanımlarının kalıcılığının sağlanması için eğitim öğretimin sürekli sunulması gerekmektedir. Bu sebepten özel eğitim alanında çalışan bireyler tarafından uzaktan yürütülen özel eğitim hizmetlerine ilişkin çalışmalar yaptığı görülmüştür. Bu çalışmada da pandemi sürecinde uzaktan yürütülen özel eğitim hizmetlerine ilişkin yapılan çalışmaların sistematik incelenmesi amaçlanmaktadır. Bu araştırma uzaktan eğitim döneminde özel eğitim hizmetlerine yönelik 2020-2022 yılları arasında yürütülen çalışmalar ile sınırlıdır. Web of Science, Dergi Park, YÖK Ulusal Tez Merkezi, ERIC, TR Dizin gibi veritabanlarında "uzaktan eğitim" "özel eğitim", "distance education" "distance education + special education" distance education in special education", "COVID-19 + distance education" anahtar kelimeleriyle "Pandemi sürecinde uzaktan yürütülen özel eğitim hizmetlerine ilişkin yapılan çalışmalar, eğitim politikası eylemleri," konusunda yapılan taramada (28.07.2022) çeşitli araştırmalar tespit edilmiştir. Bu alanda yapılan çalışmalar göstermektedir ki "işbirliği, uzaktan eğitimde karşılaşılan zorluklar, öğretmen ve ebeveyn deneyimleri, özel eğitim uygulamaları, özel eğitime gereksinim duyan bireylerin ihtiyaçları" gibi temalarda araştırmalar yapılmıştır. Ancak pandemi sürecinde yürütülen özel eğitim hizmetlerinin birlikte incelendiği bir çalışma tespit edilmemiştir. Çalışmanın sonuçları, uzaktan eğitim modellerine katkı sunması; özel eğitim öğretmenleri, yöneticiler, aileler ve ilgili araştırmacılara çalışmalarında yapacakları uyarlamalar; uzaktan eğitim ile özel eğitim arasındaki ilişkiyi anlamak için sunacağı bakış açısı dolayısıyla değerlidir. Bu araştırmada içerik analizi yöntemi kullanılmıştır. İçerik analizi, bir yayını bir bütün olarak incelemek için yeni bir yöntemdir. Analiz, bir çalışma alanındaki yayınlar hakkında bir veri tabanı oluşturmayı ve ardından verilerde ilişkiler aramayı içermektedir. Bu çalışma da pandemi sürecinde uzaktan yürütülen özel eğitim hizmetlerine ilişkin yapılan çalışmaları belirli kriterler çerçevesinde ele aldığından nitel bir araştırmadır. Araştırma grubunu 2020-2022 yılları arasında özel eğitim alanında uzaktan eğitim hizmetlerine ilişkin yapılan çalışmalar oluşturmaktadır. Çalışmalar, araştırmacılar tarafından oluşturulan kriterlere göre incelenecek ve sonuçlar kodlar ve temalar halinde aktarılacaktır. Çıkan sonuçlar bağlamında ilgili araştırmacılara, ebeveynlere, öğretmenlere ve politika yapıcılara öneriler sunulacaktır.

Anahtar Kelimeler: *Sistematik Analiz, Özel Eğitim, Uzaktan Eğitim.*

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Yapay Zekanın Öğrenme Analitiklerinde Kullanımı Üzerine Sistematik Alanyazın Taraması

Zehra DAŞKIN[1], Tuğba Cansu TOPALLI[2], Mehmet FIRAT[3]

Özet

Öğrenme analitikleri, öğrenenin öğrenme süreçlerindeki dijital ayak izlerine dayanan büyük verinin, veri analitiği teknikleri ve algoritmalarla işlenmesi, veri görselleştirme araçlarıyla sunulması ve kişiselleştirilmiş öğrenme için öğrenme çevrelerine yansıtılması ile ilgilenen bir araştırma ve uygulama alanıdır. Artan çevrimiçi öğrenme ortamları eğitimde büyük veriden yararlanma olanaklarını artırmış ve bu durum öğrenme analitiklerine olan ilginin de artmasını sağlamıştır. Öte yandan yapay zeka, büyük veriden anlam çıkarma ve bunu öğrenme çevrelerine yansıtma süreçlerinde geniş bir kullanım alanına sahiptir. Öğrenme analitiklerinde yapay zeka genellikle öğrenme yönetim sistemlerinde ya da çeşitli çevrimiçi öğrenme platformlarında öğrenenlere geribildirim verme, ölçme ve değerlendirme, intihal belirleme vb. amaçlarla kullanılmaktadır. Mevcut araştırmada bu iki temel uygulama alanı baz alınarak , son 10 yıllık (2012-2022) öğrenme analitikleri çalışmalarındaki yapay zeka kullanımını araştıran dergi makaleleri analiz edilmiştir. Veritabanı olarak Elsevier Scopus seçilmiştir. "Yapay zeka" ve "öğrenme analitikleri" anahtar kelimeleriyle yapılan taramada 410 çalışmaya ulaşılırken, PRISMA aşamalarındaki filtrelemelerde kriterlere uygun 106 makaleye erişilmiştir. Bunu takiben VOSviewer aracılığıyla bibliyometrik haritalama analizi yürütülmüştür. Bibliyometrik analizlerde önde giden ülkeler/bölgeler, dergiler, araştırma yazıları, yazarlar ve arama trendleri, 'öğrenme analitiklerinde yapay zeka kullanımı' olarak belirlenmiştir.

Anahtar Kelimeler: *Öğrenme Analitikleri, Yapay Zeka, Bibliyometrik Analiz*

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Uzaktan Eğitim Öğrencileri İçerikle Bütünleşik Sosyal Etkileşim Sistemlerinde Neler Konuşuyor? *

Meva BAYRAK KARSLI[1], Selçuk KARAMAN[2]

Özet

Günümüz gelişen teknolojilerinin sunduğu olanaklar çerçevesinde çevrimiçi öğrenme süreçlerinde öğrencilere zengin etkileşim seçenekleri sağlanabilmektedir. Böylelikle öğrenciler ne zaman ve nerede olursa olsunlar eş zamanlı veya eş zamansız etkileşim olanaklarıyla birbirleriyle ve eğitimcilerle farklı türlerde etkileşimler kurabilmektedirler. Ancak bu etkileşimler öğrencilere genellikle e-öğrenme içeriklerinden bağımsız sunulmakta olup, öğrenciler bu içeriklere veya farklı konulara ilişkin etkileşim ihtiyaçlarını farklı bir fiziksel yapı/sayfa/ortam üzerinden sağlamaktadır. Bu doğrultuda mevcut araştırmada, uzaktan eğitim öğrencilerinin içerikle bütünleşik etkileşim olanaklarının sunulduğu e-öğrenme ortamlarında kurmuş oldukları etkileşimler amaçları açısından incelenmiştir. Durum çalışması olarak tasarlanan araştırmanın çalışma grubunu, Türkiye'deki köklü üniversitelerden birinde uzaktan eğitim yoluyla ders alan 31 lisansüstü öğrenci oluşturmuştur. Araştırmada e-öğrenme içerikleriyle bütünleşik şekilde çalışan, öğrencilere eğitimciler ve öğrencilerle eş zamanlı ve eş zamansız etkileşim seçeneklerinin aynı anda sunulduğu sosyal bir e-öğrenme ortamı kullanılmıştır. Öğrencilerin bu e-öğrenme ortamında eş zamanlı olarak bir araya gelmeleri, kendilerine sunulan etkileşimli içerikler üzerinde çalışmaları ve herhangi bir yapılandırma/yönlendirme olmaksızın kendi ihtiyaçları doğrultusunda etkileşimler kurmaları beklenmiştir. 4 hafta boyunca yapılan uygulamalar sonrasında e-öğrenme ortamında kaydedilen etkileşim verileri, etkileşim amacı açısından içerik analizine tabi tutulmuştur.

Araştırmadan elde edilen sonuçlara göre, öğrenciler içerikle bütünleşik etkileşim olanaklarının sunulduğu e-öğrenme ortamlarında sırasıyla akademik, teknik, kişisel iletişim, koordinasyon ve diğer amaçlarla etkileşime girdikleri ortaya çıkmıştır. Her bir amaca ilişkin etkileşim türünün ise kendi içerisinde farklı alt amaçlarla gerçekleştiği görülmüştür. Akademik amaçlı etkileşimlerin çoğunlukla sistemdeki içerikle ilgili soru sorma, sorulan soruları cevaplandırma, verilen cevaplara dayalı yorumlarda bulunma ve teşekkür ifadelerinde bulunma gibi farklı diyaloglar çerçevesinde gerçekleştiği tespit edilmiştir. Akademik amaçlı etkileşimlerden sonra ağırlıklı olarak kurulan teknik amaçlı etkileşimlerin ise büyük çoğunluğunun teknik problemlerden ziyade, öğrencilerin kendilerine sunulan ve yeni bir sistem olarak görülen içerikle bütünleşik etkileşim sistemine yönelik değerlendirmelerinden oluştuğu görülmüştür. Öğrencilerin kurdukları etkileşimlerin bir diğer amacının ise kişisel iletişimler şeklinde gerçekleştiği görülmüştür. Bu etkileşimler sisteme giriş ve çıkışlarda selamlaşmak amacıyla kurulduğu gibi, farklı amaçlarla kurulan etkileşimlere yönelik sürecin başlatılması

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amacıyla girizgâh niteliğindeki diyaloglar şeklinde de gerçekleşmiştir. Öğrencilerin kurdukları etkileşimlerin bir kısmının ise genellikle eğitimci ve öğrenciler arasında uygulama sürecinin / ders çalışma faaliyetinin koordinasyonuna ilişkin yönlendirme ve konu seçimi gibi diyaloglar etrafında şekillendiği görülmüştür.
Araştırma sonuçları değerlendirildiğinde, uzaktan eğitim öğrencilerine etkileşim seçeneklerinin içerikle bütünleşik bir sistem üzerinden sunulmasının, herhangi bir yapılandırmaya ihtiyaç duyulmaksızın öğrencilerin ihtiyaçlarına dayalı olarak gerçekleştiği, içerik odaklı etkileşimleri artırdığı ve bunun yanında sosyal etkileşimlere teşvik ettiği görülmüştür. İçerik odaklı etkileşimlerdeki bu artış öğreticilerin içerikle ilgili soru hazırlama, tartışma başlatma veya yönetim gibi ekstra görevleri üstlenmelerine gerek duyulmaksızın kendiliğinden gerçekleşmiştir. Araştırmada bu sonuçlar doğrultusunda uzaktan eğitim kurumlarında öğretici bağımlılığı olmadan içerik odaklı etkileşimlerin ve sosyal etkileşimlerin geliştirilmesine yönelik önerilerde bulunulmuştur.

Anahtar Kelimeler: *Uzaktan Eğitimde Etkileşim, Sosyal Etkileşim, İçeriğe Dayalı Etkileşim, Uzaktan Eğitimde Etkileşim Amaçları.*

**Bu çalışma, birinci yazarın doktora tezi (YÖK Tez Merkezi: 628479) kapsamında hazırlanmıştır.*

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Mega Üniversitelerdeki Destek Hizmetlerinin Bireysel Farklılıklar Bağlamında İncelenmesi

Kamil ÇEKEROL[1], Şerife ANATÜRK[2]

Özet

Açık ve uzaktan öğretim sistemi kendine has dinamikleriyle gerek sunum yöntemi gerek öğrenen profili, gerekse sağladığı hizmetler bakımından geleneksel öğretim sistemlerinden oldukça farklılaşmaktadır. Öğrenenlerin geleneksel sınıflarda hem dersin öğreticisi ile hem de akranları ile etkileşimi yüz yüze gerçekleştirebiliyor iken; öğrenenlerin zaman zaman kendini yalnız hissettiği uzaktan eğitim ortamlarında bu etkileşimi gerçekleştirmek öğreneni sistemde tutmak ve eğitimin sürdürülebilirliğini sağlamak adına oldukça önem arz etmektedir. Tam bu noktada tüm bu ihtiyaçlarının giderilmesi adına kurumların öğrenenlere sağladığı destek hizmetlerinin önemi her geçen gün artmaktadır. Kurumun öğrenen profilindeki çeşitlilikten yola çıkarak her öğrenenin destek hizmetleri noktasında beklentisinin farklı olabileceği göz önünde bulundurarak destek hizmetlerini öğrenenlerin bireysel farklılıklarını gözeterek yapılandırması ayrı bir öneme sahiptir. Ayrıca öğrenenlerin ihtiyaçlarına cevap verebilmek adına her kurumun kendi popülasyonun büyüklüğüne, öğrenen profilinin çeşitliliğine, kurumun yapısına, içinde bulunduğu kültürel ve ekonomik faktörlere, vizyonu ve misyonuna göre destek hizmetlerinin sayısı, içeriği, sunum şekli kurumdan kuruma farklılık gösterebilmektedir.

Bu doğrultuda açık ve uzaktan öğretim sistemlerindeki destek hizmetlerinin bireysel farklılıklar bağlamında incelendiği bu çalışmada, farklı ülkelerdeki açık ve uzaktan öğretim sunan kurumların öğrenen destek hizmetleri ele alınarak sunulan öğrenen destek hizmetlerinin bireysel farklılıkları yansıtma durumu, uygulamadaki benzerlik ve farklılıkların tespiti bu çalışmanın problem durumunu oluşturmaktadır. Problem durumundan hareketle bu çalışmada dünyada açık ve uzaktan öğretim sunan yükseköğretim kurumlarının sunduğu öğrenen destek hizmetlerinin bireysel farklılıklar gözetilerek ele alınış biçimlerini "web" sitelerinde yer alan bilgiler doğrultusunda inceleyerek var olan durumun tespitini yapmak amaçlanmaktadır.

Çalışmada açık ve uzaktan öğretim sunan kurumlarda sağlanan öğrenen destek hizmetlerini bireysel farklılıklar gözetilerek ele alınması öğrenen destek hizmetleri yapısına farklı bir bakış açısı kazandırması adına önemli görülmektedir. Çalışmada var olan bir durumun tespiti yapıldığı için nitel araştırma desenlerin biri olan durum çalışması deseni kullanılmıştır. Doküman incelemesi tekniği kullanılarak "web" sitelerinde beyan edilen bilgilerden yola çıkarak öncelikle kurumların alanyazında genel kabul görmüş açık ve uzaktan öğretimde yer alan öğrenen destek hizmetlerini sunma durumları, bu hizmetlerden farklı olarak başka hizmetleri işe koşma durumları, bu hizmetleri sunarken bireysel farklılıkları gözetme durumları ve bireysel farklılıklar bağlamında sunulan ortak öğrenen destek hizmetleri var ise bunu sunma şekilleri bakımından ele alınarak kurumlar arasında uygulamalardaki benzerlik ve farklılıklar da incelenmiştir.

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Elde edilen veriler içerik analizine tabi tutulmuştur. Çalışma evrenine kurumların çevrimiçi olarak erişilebilir olma durumları göz önünde bulundurularak farklı bölgelerdeki açık ve uzaktan öğretim bağlamında önde gelen mega üniversiteler dahil edilmiştir. Elde edilen bulgular neticesinde, açık ve uzaktan öğretim sistemlerinde bireysel farklılıklar bağlamında ele alınan öğrenen destek hizmetlerinin olduğu ve bu destek hizmetlerinin uygulama biçimlerinde kurumlar arasında farklılıkların olduğu gözlemlenmiştir.

Anahtar Kelimeler: *Açık ve Uzaktan Öğretim, Destek Hizmetleri, Bireysel Farklılıklar*

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Çevrim İçi Öğrenme Ortamlarında Oyunlaştırma Uygulamalarının Öğrenme Kazanımları Üzerindeki Etkileri *

Esra ŞİMŞEK[1], Türkan KARAKUŞ YILMAZ[2]

Özet

Amaç: Bu çalışmada çevrim içi ortamlarda kullanılan oyunlaştırma elementlerinin öğrenme çıktılarına etkileri ile ortama özgü bazı unsurlarla öğrenme çıktıları arasındaki ilişkiyi nitel olarak ortaya koyacak bir inceleme çalışması yürütülmüştür. Çalışmada özellikle metodolojik olarak ortamsal öğelerle ilgili karar verme süreçlerine yol gösterici olmak ve kullanılacak oyunlaştırma elementlerinin etkileri konusunda fikir vermek amaçlanmıştır.

Yöntem: Çalışmanın verilerini "Çevrim içi öğrenme", "Uzaktan eğitim", "Oyunlaştırma", "Çevrim içi kurslarda oyunlaştırma", "Çevrim içi eğitimde oyunlaştırma" İngilizce ve Türkçe anahtar sözcükleriyle aranan ve dâhil etme kriterlerini karşılayan tez ve makaleler oluşturmaktadır. Çalışmaya dâhil edilen yayınlar içinde tezlere ulaşmak için YÖK Tez tarama sayfası ve ProQuest veri tabanı, makalelere ulaşmak için Web of Science ve Google Akademik veri tabanları kullanılmıştır. Belirlenen anahtar sözcüklerle 2013-2021 yılları aralığındaki çevrim içi öğrenme ortamlarında oyunlaştırmanın etkilerini inceleyen, oyunlaştırma tasarımı konusunda yeterli bilgi sunan 24 tez ve 41 makale çalışmaya dâhil edilmiştir.

Çevrim içi öğrenmede oyunlaştırma konusunda yapılan çalışmalar üç aşamalı olarak incelenerek seçilmiştir. İlk aşama olarak çalışma başlığı incelenmiş, ikinci aşama olarak özet okunmuş, eğer istenilen cevaplar bulunamamışsa üçüncü aşama olarak çalışma daha detaylı bir şekilde incelenmiştir. Araştırmada ilgili tez ve makalelere ulaşmak için öncelikle anahtar kelimelere ve zaman aralığına uygun yayınların başlıklarına ikinci aşamada ise özet kısımlarına bakılarak ampirik olup olmadıkları incelenmiştir. Detaylı incelemede ise çalışmada çevrim içi öğrenme ortamlarında kullanılan oyunlaştırma stratejilerinin öğrenme çıktıları ile ilişkisine bakılıp bakılmadığı kontrol edilmiştir.

Bu çalışmaya dâhil edilen yayınların analizi öncelikle *yayının adı, amacı, yöntem, örneklem, incelenen değişkenler, veri toplama araçları ve analiz yöntemi gibi metodolojik başlıklarla, çalışmada kullanılan teknoloji, uygulama şekli, kullanılan oyunlaştırma aracı, incelenen öğrenme çıktıları, sonuçlar ve çalışmaların önerileri* gibi ortam değişkenlerine ilişkin temalara göre incelenmiştir. Sistematik incelemeye dâhil edilen yayınlar incelenmeye devam edildikçe temalar artırılmış ve bu temalara ait kodlar oluşturulmuştur.

Bulgular: Çalışmada oyunlaştırma açısından öğrenci performansına ve ödüle dayalı oyunlaştırmanın yoğun olduğu görülmektedir. Oyunlaştırma elementlerinin öğrenme çıktıları ile ilişkisi konu alanları, örnekleme özgü unsurlar, uygulama şekilleri ve kullanılan teknolojiler temaları altında incelenmiştir. Konu alanlarına göre, en fazla bilgi ve iletişim teknolojileri alanında çalışmalar yapılmış ve konu alanlarının çoğunda anlamlı fark ortaya çıkmıştır. Çalışmalarda en fazla 9-54 kişi aralığında, lisans düzeyinde

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örneklemlerle çalışılmış ve gruplarda genel olarak öğrenme kazanımlarında anlamlı farklar ortaya çıkmıştır. Uzaktan eğitim programları ile uzaktan verilen örgün eğitim dersleri en fazla oyunlaştırmanın kullanıldığı ortamlar olurken, oyunlaştırmada en fazla web uygulamaları ve açık kaynak yazılımları kullanılmıştır. Çalışmalardaki eğilimlerin oyunlaştırma elementleri ile ilişkilerine bakıldığında ise, genel olarak duyuşsal değişkenler başta olmak üzere motivasyon, katılım, akademik başarı açısından anlamlı sonuçlar bulunmuştur.

Özgün Değer: Bu çalışma her ne kadar oyunlaştırmanın kullanıldığı çevrim içi öğrenme ortamlarındaki eğilimleri ortaya koysa da asıl amacı bu eğimlerle oyunlaştırma elementleri arasında ilişki kurmak, bağlamsal öğelerle oyunlaştırmanın etkileşiminden ortaya çıkan öğrenme çıktılarını yorumlamaktır. Sunum sırasında bu sonuçlara yer verilecektir.

Anahtar Kelimeler: *Oyunlaştırma, Çevrim İçi Öğrenme, Uzaktan Eğitim, Çevrim İçi Kurslarda Oyunlaştırma, Çevrim İçi Eğitimde Oyunlaştırma, Sistematik İnceleme*

**Bu çalışma Doç. Dr. Türkan Karakuş Yılmaz danışmanlığını yürüttüğü Esra Şimşek tarafından yazılan yüksek lisans tezinden türetilmiştir.*

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e-Öğrenme Ortamında Kullanılan Farklı Etkileşim Türlerinin Öğrenen Başarısı ve Memnuniyetine Etkisi

Ayfer BEYLİK[1], Hasan ÇALIŞKAN[2]

Özet

Bu çalışma, Etkileşimin Eşdeğerliği Kuramında öne sürülen ilk hipotezi test etmeyi amaçlamaktadır. Bu hipotez, üç etkileşim türünden herhangi birinin iyi tasarlanması ve etkin bir şekilde kullanılması durumunda anlamlı ve kalıcı öğrenmenin gerçekleşeceğini öne sürer. Bu kapsamda farklı etkileşim türlerinin uzaktan öğrenenlerin memnuniyet düzeyi ve başarısı üzerindeki etkileri incelenmiştir. Ayrıca öğrenenlerin hangi etkileşim türünü daha yararlı bulduklarını ve etkileşimin çevrimiçi öğrenme deneyimleri üzerindeki etkilerini nasıl yorumladıklarını araştırmak amaçlanmaktadır.

Bu çalışmada karma desen araştırma yöntemi kullanılmıştır. Bu çalışmada karma desen araştırma yöntemi kullanılmıştır. Karma araştırma yöntemlerinde, anlama ve doğrulamanın genişliği ve derinliği için nicel ve nitel araştırma yaklaşımı bileşenleri aynı anda kullanılır (Creswell & Plano Clark, 2017; Johnson ve diğerleri, 2007). Karma yöntemlerin kullanıldığı araştırmalarda nicel ve nitel veri toplama yöntemleri aynı anda uygulanabileceği gibi bu yöntemlerin sıralı olarak uygulanması da mümkündür. Araştırmanın ilk aşamasında nicel veriler toplanıp analiz edilmiş, ikinci aşamada ise katılım açısından aktif olan öğrenenlerle yarı yapılandırılmış görüşmeler yapılmıştır. Veriler, Anadolu Üniversitesi İletişim Bilimleri Fakültesi'nde 2021-2022 eğitim-öğretim yılı güz döneminde ARY111-Research Methods in Social Sciences (Sosyal Bilimlerde Araştırma Yöntemleri) dersini alan 63 öğrenenden toplanmıştır.

Çalışmanın ilk aşamasında Canvas Öğrenme Yönetim Sisteminde (CÖYS) ARY111-Research Methods in Social Sciences (Sosyal Bilimlerde Araştırma Yöntemleri) dersi için etkileşimin eşdeğerliği kuramında ele alınan etkileşim türleri olan öğrenen-öğreten, öğrenen-öğrenen ve öğrenen içerik etkileşimleri kapsamında üç farklı çevrimiçi ders tasarımı hazırlanmıştır. Tasarımlanan her bir derste 2 haftalık periyodlar haline bir etkileşim türüne ağırlık verilirken diğer etkileşim türleri minimum seviyede tutulmuştur. Çalışmaya gönüllü olarak katılım sağlayan öğrenenler 3 gruba ayırılarak CÖYS'de tasarımlanan bu üç derse rastgele atanmıştır. Etkileşim türleri kapsamında 2 haftalık periyodlar şeklinde hazırlanan ders tasarımları üç farklı grupta yer alan öğrenenlere farklı sıralarda ardışık olarak sunulmuştur. Farklı etkileşim türleri kapsamında tasarımlanan derslere katılan öğrenenlerin başarı düzeyini belirlemek için 2 haftalık etkinliklerin öncesine ve sonrasında testler uygulanarak öğrenme sürecinin takibi yapılmıştır. Ayrıca öğrenenlerin çevrimiçi öğrenme ortamlardaki etkileşimleri 2 haftalık periyotlarla analiz edilerek etkileşim türleri ve öğrenme süreçleri arasındaki ilişki belirlenmiştir. Öğrenenlerin etkileşim türlerine ilişkin tercihlerini belirlemek için; Terumi Miyazoe ve Terry Anderson (2010) tarafından geliştirilen anket kullanılmıştır.

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Farklı etkileşim türlerinin öğrenen memnuniyeti üzerindeki etkisini belirlemek için Kuo ve diğerleri (2014) tarafından geliştirilen anket kullanılmıştır. Etkileşim türleri ve öğrenme süreçleri arasındaki ilişkiyi incelemek için öğrenenlerin Canvas LMS kullanım verileri elde edilmiştir. Ayrıca uygulama sonrasında dersi alan 63 öğrenciden 20'si ile yarı yapılandırılmış görüşmeler yapılmıştır.
İlk bulgular, öğrenenlerin öğretenle kurdukları etkileşimi daha faydalı bulduklarını ve birincil etkileşim türü tercihlerinin öğrenen-öğreten etkileşimi olduğunu göstermektedir. Çalışmanın ayrıntılı sonuçları konferans oturumu sırasında detaylı olarak tartışılacaktır.

Anahtar Kelimeler: *Etkileşim, Ders Tasarımı, Öğrenen Memnuniyeti, Öğrenen Başarısı*

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COVID-19 Pandemisi ve Yetişkin Öğrenmesi: Genç Yetişkinlerin Uzaktan Öğrenme Deneyimleri Üzerine Nitel Bir Araştırma

Fatma TEZCAN[1]

Özet

COVID-19 pandemisi, dünyada yaşam rutinleri üzerinde köklü değişiklikleri beraberinde getirirken, eğitimin her basamağını farklı biçimde etkilemiştir. Pandemi süreci, yüz yüzeden uzaktan öğretime beklenmeyen ve zorunlu dönüşümü gerekli kılmıştır. Üniversitelerde ve okullarda eğitime ara verilmesi ile öğretmen ve öğrenciler hızla uzaktan öğretime uyum sağlamak durumunda kalmıştır. Okul eğitiminin son basamağı olan yükseköğretim kurumlarında da uzaktan öğretim sistemleri bu süreçte yüz yüze öğretimin yerini almıştır. Yüz yüzeden uzaktan öğrenmeye hızlı, zorunlu ve beklenmeyen bu değişim çeşitli güçlükler ve sınırlamalar içermesinin yanında, yetişkin öğrenmesi açısından incelenmeye gereksinim duyan fırsatlar da sunmaktadır. Bu araştırmada, pandemi döneminde bir üniversitede uzaktan öğrenim gören genç yetişkinlerin uzaktan öğrenme deneyimlerini belirlemek ve bu deneyimin öğrenmeye etkilerini ortaya koymak amaçlanmıştır.

Nitel araştırma yönteminin benimsendiği çalışmada, nitel araştırma desenlerinden fenomenoloji (olgubilim) deseni kullanılmıştır. Çalışma grubu, amaçlı örnekleme yöntemlerinden ölçüt örnekleme yöntemi ile belirlenmiştir. Buna göre, COVID-19 pandemisi sürecinde bir üniversitede eğitim fakültesinde öğretmenlik programına devam eden ve uzaktan öğrenim gören genç yetişkinler çalışma grubunu oluşturmuştur. Araştırma verileri, yarı yapılandırılmış görüşme formu aracılığıyla, pandemi sürecinde çevrimiçi yolla 85 katılımcıdan toplanmıştır. Araştırma verileri, içerik analizi ile çözümlenmiştir. Analiz aşamasında, araştırmada elde edilen veriler önce kodlanmış, kodlanan verilerden temalar (kategoriler) oluşturulmuş, sonrasında kodlara ve temalara göre düzenlenen veriler yorumlanmıştır. Araştırma bulguları doğrudan alıntılarla desteklenmiştir.

Araştırmada, genç yetişkinlerin uzaktan öğrenme sürecinde karşılaştığı güçlükler, derslere ve eğitmenlere ilişkin görüşleri ile uzaktan öğretimin öğrenme açısından katkılarına ilişkin görüşleri incelenmiştir. Araştırma sonunda elde edilen bulgular şunlardır: Genç yetişkinlerin uzaktan öğrenme deneyimleri sırasında karşılaştıkları güçlüklerin başında bilgi ve teknoloji okuryazarlığı becerileri ile ilgili güçlükler gelmektedir. İnternet bağlantısı sorunları ve donanım yetersizliği karşılaşılan diğer güçlüklerdir. Genç yetişkinler, uzaktan öğrenme sürecinde dersleri takip etmekte zorlandıklarını, uzaktan yürütülen dersleri yüz yüze dersler kadar verimli ve yararlı bulmadıklarını ifade etmişlerdir. Diğer yandan, süreç boyunca eğitmenlerin çabası ve tutumu olumlu görüşlerle ilk sırada yer alırken, kimi eğitmenlerin ödevlerde zorlayıcı olması ve empatik davranmaması olumsuz görüşler arasında yer almıştır. Uzaktan öğretim sisteminin öğrenmeye katkısına ilişkin görüşlerde, tekrar izlenebilen ders kayıtları sayesinde sistemin öğrenme esnekliği ve kolaylığı sağlaması en çok ifade edilen görüş olmuştur. Genç yetişkinler ayrıca uzaktan öğretim sisteminin bireye araştırma özgürlüğü tanıması ve öğrenme sorumluluğu yüklemesini öğrenmeye katkılar arasında değerlendirmişlerdir.

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Araştırmadan elde edilen bulgular ışığında şu öneriler geliştirilmiştir: Genç yetişkinlerin internette doğru ve güvenilir bilgiye ulaşmalarının yolu olan bilgi ve teknoloji okuryazarlığı becerilerini geliştirmelerine katkı sağlayacak araştırma derslerine programda daha fazla yer verilmeli ve uygulamalar yoluyla araştırma becerileri iyileştirilmelidir. Uzaktan öğretim sistemi içinde etkin ve kalıcı öğrenmeyi gerçekleştirebilmek için genç yetişkinlerin ve dersleri yürüten eğitmenlerin sistemin etkin ve verimli kullanımı üzerine ders veya seminer almaları kurumsal düzeyde sağlanmalıdır. Son olarak, genç yetişkinlerin yüz yüze dersleri uzaktan öğrenme sisteminin sunduğu olanaklar ile desteklenerek, öğrenme yolları çeşitlendirilebilir ve böylece öğrenme daha kalıcı hale getirilebilir.

Anahtar Sözcükler: *Yetişkin Eğitimi, Yetişkin Öğrenmesi, Genç Yetişkinler, Uzaktan Öğrenme, Covıd-19 Pandemisi*

Uzaktan Eğitim Tutum Ölçeği: Geçerlik ve Güvenirlik Çalışması

Fatih YAMAN[1], Nihal DULKADİR YAMAN[2]

Özet

Bilgi ve iletişim teknolojilerindeki gelişmelerle son 50 yılda dünya çapında her düzeyde eğitim alanında hızlı bir gelişme gözlenmiştir. COVID-19, eğitim sistemlerinin şimdiye kadar başa çıktığı en büyük zorluklardan biri olmuştur (Daniel 2020). Dünya genelinde eğitim kurumlarında neredeyse bir gecede uzaktan eğitim sistemine geçiş yapılmıştır (UNESCO, 2020). Uzaktan eğitim kararıyla dünya çapında yaklaşık 1,5 milyar öğrenci uzaktan eğitim sürecine katılmıştır (Drane et al. 2020). Pandemi sürecinde devam eden uzaktan eğitime pandemi sonrasında geleneksel sınıf derslerinin çevrimiçi ortama aktarılmasıyla devam edilmektedir. COVID-19 krizinin geleneksel eğitim gelişimi üzerinde önemli bir etkisi olmuştur. Üniversiteler, eksikliklerini keşfetmek ve verimli yönetim yoluyla çevrimiçi eğitim reformunu hızlandırmak için riski fırsata dönüştürmektedirler. Pandemi, küresel bir çevrimiçi eğitim ağı geliştirmek için uluslararası işbirliğini ve deneyimleri, bilgilerin ve kaynakların paylaşımını teşvik etmek için büyük bir fırsat olmuştur (Sun, Tang ve Zuo, 2020).

Son 30 yılda uzaktan eğitim büyük önem kazanmış ve pandemi sürecinde daha önemli bir hale gelmiştir. Bir tür örgün öğrenme olarak, uzaktan eğitim, öğrenen, öğreten, öğrenme materyali ve içeriklerin farklı ortamlarda bulunmasına rağmen iletişim teknolojilerini kullanarak bütün paydaşların bir araya gelmelerine dayalı eğitim faaliyetidir (Keegan, 1990). Uzaktan eğitim, öğreneni zamandan ve mekândan bağımsız kılar, içerik öğreten tarafından teknoloji aracılığıyla öğrenene iletilir ve öğrenen ile öğreten arasındaki iletişim de teknoloji aracılığıyla gerçekleşir (Kidd ve Song, 2007). Bilgisayar teknolojileri günümüzde öğrenci-öğretmen sistemi yapısı altında anlamlı öğrenme süreçlerinin herhangi bir mesafeden uygulanmasına olanak sağlamaktadır (Bachmaier 2011).

Bu bağlamda bu çalışmanın amacı öğrencilerin uzaktan eğitime yönelik tutumlarını belirlemek amacıyla Uzaktan Eğitim Tutumlar ölçeğinin Türkçe'ye uyarlanmasını sağlamaktır. Bu amaçla Tzivinikou, Charitaki ve Kagkara (2021) tarafından geliştirilen Uzaktan Eğitim Tutumlar Ölçeği'nin Türkçe'ye uyarlanması gerçekleştirilmiştir. Ölçeğin uyarlanması sürecinde Hambleton ve Bollwark (1991) ve Hambleton ve Kanjee (1993)'ün uyarlama süreci dikkat alınmıştır. Buradan hareketle (a) maddelerin hedef dile çevrilmesi, (b) maddelerin eşdeğer olduğunu kontrol edilmesi ve (c) hedef dile çevrilen ölçeğin geçerliğinin ve güvenirliğinin sınanması aşamaları gerçekleştirilmiştir. Ölçeğin hedef dil olan Türkçe'ye çevirisinin gerçekleştirilmesi amacıyla üç uzman belirlenmiştir. Üç uzmanın çevirisinden sonra ölçek maddelerine çalışma ekibi tarafından son hali verilmiştir. Türkçe dilbilgisi kontrolünün sağlanması amacıyla iki Türkçe Eğitimi

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anabilim dalı uzmanından görüş alınmış ve ölçeğe son şekli verilmiştir. Bu aşamadan sonra dilsel eşdeğerlik çalışması kapsamında öncelikle ölçeğin orijinal formu, daha sonra Türkçe formu 2 hafta ara ile İngilizce Öğretmenliği Programı öğrencilerine uygulanmıştır. Her iki formda öğrencilerin verdikleri yanıtlara göre maddeler arasındaki tutarlılığı test etmek için Pearson momentler çarpım korelasyon katsayısına bakılmıştır. Ölçeğin çevirisinin ardından yapı geçerliği çalışması kapsamında doğrulayıcı faktör analizi aşamasına geçilmiştir. Bir devlet üniversitesinde öğrenim gören 164 öğretmen adayına ölçek uygulanmıştır. Güvenirlik bağlamında ölçeğin geneline ilişkin iç tutarlılık katsayısı .846 bulunmuştur. Uygulama sonucu Uzaktan Eğitim Tutumlar Ölçeği'nin Türkçe formunun geçerli ve güvenilir bir ölçme aracı olduğunu göstermektedir. Bu bağlamda çalışmada, gelecekte yapılacak çalışmalara yönelik öneriler sunulmuştur.

Anahtar Kelimeler: *Uzaktan Eğitim, Uzaktan Eğitim Algısı, Uzaktan Eğitim Tutumu*

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Uzaktan Eğitim Sürecinin İlkokul 3.Sınıf Öğrencileri Üzerindeki Yansımaları

Ahmet GÜVEN[1]

Özet

Koronavirüsler soğuk algınlığı, MERS-Cov ve SARS-Cov gibi çeşitli hastalıklara yol açabilen bir virüs ailesidir (https://covid19bilgi.saglik.gov.tr/tr/ 03.04.2020 tarihinde erişilmiştir). 31 Aralık 2019'da Çin'in Wuhan kentinde sebebi bilinmeyen bir zatürre vakası Dünya Sağlık Örgütü'nün Çin Ofisine bildiriliş, 30 Ocak 2020 tarihinde salgın, uluslararası halk sağlığı acil durumu olarak deklare edilmiş ve 11 Şubat 2020'de Dünya Sağlık Örgütü yeni koronavirüs hastalığını COVID-19 olarak adlandırmıştır (https://www.who.int/ 03.04.2020 tarihinde erişilmiştir). Hastalık dünya çapında hızla yayılmış ve bu kapsamda pek çok ülkedeki hükümetleri çeşitli tedbirler almaya zorlamıştır. İnsanların sosyal yaşamdaki günlük aktiviteleri virüsün yayılma hızını artırdığından, kısıtlamalar yapılmıştır. Ülkemizde de bu kapsamda çok sayıda önlem alınmış, oluşturulan bilim kurulunun tavsiyeleri doğrultusunda eğitime ara verilmesi, seyahat kısıtlamaları getirilmesi, çeşitli mekanların geçici süreyle kapatılması, 65 yaş ve üzeri vatandaşların sokağa çıkmasının yasaklanması, toplantı vb. etkinliklerin ertelenmesi gibi kararlar hayata geçirilmiştir. Covid -19 salgını'nın etkisini azaltmak ve yayılımını önlemek amacıyla alınan tedbirler kapsamında ülkemizde 16 Mart 2020 tarihi itibariyle eğitim'e bir hafta süreyle ara verilmiş, 23 Mart ve 27 Mart tarihleri arasında ise bir hafta süreyle uzaktan eğitim uygulanması kararı alınmıştır. 25 Mart tarihinde Milli Eğitim Bakanı ve Sağlık Bakanı tarafından yapılan açıklamayla, bilim kurulunun tavsiyesi üzerine eğitime 30 Nisan 2020 tarihine kadar ara verilmesine ve bu süreçte eğitimin uzaktan eğitim yoluyla sürdürülmesine karar verildiği duyurulmuştur. Bir ayı aşkın bir süre boyunca MEB'e bağlı tüm kurumlardaki öğrencilerin eğitim faaliyetlerine uzaktan eğitim yoluyla 0devam edecek olmasının çeşitli aksaklıklara yol açacağı söylenebilir. Bu araştırmanın amacı uzaktan eğitim sürecinin ilkokul 3.sınıf öğrencileri üzerinde nasıl etkileri olduğunu ortaya çıkarmaktır. Araştırmanın amacına uygun olarak şu sorulara yanıt aranmıştır:

1- Uzaktan eğitim süreci ilkokul 3.sınıf öğrencilerini nasıl etkilemiştir?
   a. Öğrenciler uzaktan eğitim ile ilgili ne tür duygu ve düşüncelere sahiptirler?
   b. Uzaktan eğitim sürecinde nasıl deneyimler yaşamışlardır?
2- Uzaktan eğitim ilkokul 3.sınıf öğrencileri için nasıl sürdürülmüştür?
   a. Uzaktan eğitimde hangi uygulamalar kullanılmıştır?
   b. Eğitim öğretim sürecinin verimliliği nasıl olmuştur?

Araştırma nitel bir desen olan fenomenoloji desenindedir. Araştırma kapsamında il merkezindeki bir ilkokuldaki bir 3.sınıf şubesinin uzaktan eğitim dersleri katılımcı olmayan gözlem yoluyla gözlemlenmiştir. Öğrencilerle ve sınıf öğretmeniyle görüşmeler gerçekleştirilerek veri toplanmıştır. Toplanan veri içerik analizine tabi tutulmuştur.

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Araştırma kapsamında uzaktan eğitim sürecinin yüz yüze eğitime göre dezavantajları bulunmakla birlikte araştırmaya söz konusu olan sınıftaki öğrencilerin bu süreçte sıklıkla olumlu deneyimler yaşadıklarını dile getirmişlerdir. Araştırmaya konu olan sınıf için eğitim öğretim sürecinin oldukça başarılı ve verimli geçtiği bulgusuna ulaşılmıştır. Bu durumda uzun yıllar tecrübesi bulunan sınıf öğretmeninin süreci yönetme şeklinin temel oluşturduğu bulgusuna ulaşılmıştır.

Anahtar Kelimeler: *Uzaktan Eğitim, Covid-19 Eğitim Süreci, İlkokul Öğrencilerinin Uzaktan Eğitim Süreci*

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Kitlesel Açık Çevrimiçi Derslerin (KAÇD) Sosyal Bilgiler Öğretmenliği Lisans Ders Sürecine Dahil Edilmesi

Seda ÖNGER[1], Şeyda KIR[2]

Özet

Dijital teknolojilerin gelişmesi açık, esnek ve erişilebilir çevrimiçi öğrenme ortamlarının artmasına bir zemin hazırlamıştır. Bu çevrimiçi öğrenme ortamları formal eğitim programlarına, yapılandırılmış öğretim süreçlerine ve yükseköğretime alternatif, tamamlayıcı veya ek uygulamalar sunmaktadır. Sağladığı esnek ve herkes için erişilebilir olma özelliğiyle Kitlesel Açık Çevrimiçi Dersler (KAÇD) bu uygulamaların başında yer alan bir açık eğitim hareketidir. KAÇD; öğrenenin zaman ya da mekân fark etmeksizin, herhangi bir koşul olmadan kaydolabileceği, genellikle ücretsiz olan herkese açık derslerdir. KAÇD, öğrenene yapılandırılmış bir içerik sunması, fırsat eşitliği sağlaması, nispeten ücretsiz olması açısından oldukça önemlidir.

Araştırmanın amacı: Bu önemden hareketle, bu çalışmada KAÇD'lerin, sosyal bilgiler öğretmenliği bölümü Medya Okuryazarlığı ve Eğitimi ders sürecine dahil edilmesine yönelik sosyal bilgiler öğretmen adaylarının deneyimlerini incelemek amaçlanmıştır.

Araştırmanın yöntemi: Araştırma sürecinde nitel araştırma türlerinden biri olan fenomenoloji yöntemi tercih edilmiştir. Fenomenoloji çalışmaları, fark ettiğimiz ancak daha detaylı bilgiye sahip olmadığımız olguları deneyimler üzerinden inceler. Bu nedenle KAÇD platformu üzerinden sosyal bilgiler öğretimine dahil edilen derslerde derinlemesine sorgulama yapabilmek için, bu araştırmada Anadolu Üniversitesi tarafından yürütülen KAÇD platformu AKADEMA'da Sosyal Medya Okuryazarlığı dersini tamamlayan öğrenenlerin deneyimlerine ve görüşlerine başvurulmuştur. Bu doğrultuda, araştırmada sosyal bilgiler öğretiminde KAÇD olan Sosyal Medya Okuryazarlığı kapsamında öğrenen deneyimleri nasıl şekillenmiştir, Sosyal bilgiler öğretmenliği lisans programındaki Medya Okuryazarlığı ve Eğitimi dersine tamamlayıcı olan bu KAÇD'nin öğrenen başarısına, motivasyonuna ve ders sürecine etkileri neler olmuştur ve öğrenenlerin bu süreçte olumlu ve olumsuz deneyimleri nelerdir araştırma sorularına odaklanılmıştır.

Bulgular: Araştırmanın ilk bulgularına göre; sosyal bilgiler öğretmen adayları KAÇD'lerin tüm lisans programlarında derslere destek ve derslerin tamamlayıcısı olarak kullanılması gerektiğini vurgulamışlardır. Bunun yanında, sosyal bilgiler öğretmen adayları, ders öncesinde AKADEMA'da izlemiş oldukları ders sayesinde, Medya Okuryazarlığı ve Eğitimi ders sürecini daha iyi yürütmüş ve akademik başarılarına katkı sağladığını belirtmişlerdir.

Sonuç ve Öneriler: Araştırmanın sonuçlarında, sosyal bilgiler öğretmen adaylarının KAÇD platformu AKADEMA'da Sosyal Medya Okuryazarlığı dersini izlemeleri, derse katılımlarını artırdığı, derse karşı daha motive oldukları ve akademik başarılarını artırmalarına yardımcı olduğu sonucuna ulaşılmıştır. Sonuçlardan hareketle, bu konuyla ilgili çalışma yapacak araştırmacılara KAÇD'lerin başka bölümlerin yükseköğretim derslerinde ve farklı yöntemlerle çalışmalar yapmaları önerilebilir.

Anahtar Kelimeler: *Kitlesel Açık Çevrimiçi Dersler, Sosyal Bilgiler Eğitimi, Fenomenoloji, Açıklık, Yükseköğretim*

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Araştırma Felsefesi ve Yaklaşımlarını Anlamak: Uzaktan Eğitim Araştırmaları İçin Bir Deneme

Kamil ÇEKEROL[1]

Özet

Araştırma felsefesi terimi araştırma ile ilgili olarak bilginin doğası ve bilginin gelişimine ilişkin bir inanç ve varsayımlar sistemini ifade eder. Araştırmacı farkında olsa da olmasa da belirli inançları ve felsefi varsayımları araştırmasında kullanır. Burada iki önemli nokta söz konusudur: Birincisi, araştırmacının sahip olduğu varsayımların ve inanışların farkında olması; ikincisi ise bu varsayımları ve inanışları aktif olarak çalışmasına dahil edip etmeyeceğine karar vermesidir. Felsefi varsayımlar mutlaka bir araştırmaya başlanacağı zaman ortaya atılan ilk fikirlerdir ancak sonrasında araştırma sürecinin bütünüyle ilişkisi gizli kalmaktadır. Bu ilk fikirler genellikle bir merak duygusu, ilgi çekme veya ihtiyacın farkına varma olarak ifade edilir ancak araştırmacının bilgi birikimini, özgeçmişini, düşüncelerini ve konulara bakış açılarını büyük oranda yansıtır. Dolayısıyla bir araştırmanın daha başlangıç aşamasında araştırmacının kendi durumunu vurgulaması ve araştırma sürecindeki konumunu belirlemesi önemlidir. Çünkü hemen ardından araştırmacı, teorileri, paradigmaları, bakış açılarını tüm araştırma sürecince kendisine rehberlik eden bir temel inanç seti olarak araştırmasına dahil etme yolunu seçecektir.

Araştırmacının bilgiyi geliştirme çabası, yeni bir teoriyi ortaya koyma şeklinde radikal bir değişimi beraberinde getirmese de alanı ile ilgili yeni bilgiyi ortaya koyma ile sonuçlanmalıdır. Buna göre yeni bilgiyi ortaya koyma çabasında, araştırmanın altında yatan felsefi varsayımların niçin bilinmesi gerektiği düşünülmelidir. Felsefe, öncelikle araştırmanın probleminin ve araştırma sorusunun nasıl formüle edileceğini ve cevapları bulmak için gerekli bilgileri nasıl arayacağımızı belirler. Bunun yanında araştırmacının eğitimi boyunca kökleşmiş, içerisinde bulunduğu akademik toplum tarafından da desteklenen varsayımları yansıtır ve bu varsayımların değişip değişmeyeceği veya farklı varsayımların bir arada kullanılıp kullanılmayacağı sorularını da gündeme getirerek büyük oranda çözümü ortaya koyar. Bu bilgi araştırmacının çalıştığı alanla ilgili farklı varsayımları keşfederek kullanmaya ve içerisinde bulunduğu bilimsel toplumun fikirlerini benimseye ne derece açık olduğunu da ortaya koyar. Özellikle uzaktan eğitim gibi eklektik ve farklı disiplinlerden yararlanmaya (eğitim, iletişim, işletme ve mühendislik gibi) açık bir alanda bu durum daha da önemli hale gelir.

Araştırma felsefesi ayırt edici olarak üç grupta incelenir: Ontoloji, epistemoloji ve aksiyoloji. Ontoloji gerçekliğin doğası hakkındaki varsayımları ifade eder. Bu varsayımlar araştırma nesnelerini görme ve inceleme biçimimizi şekillendirir. Örneğin uzaktan eğitim araştırmaları için bu nesneler uzaktan eğitimin yönetimini, öğrenenlerin çalışma hayatlarını, organizasyonel olayları ve eserleri içerebilir. Araştırmacı için ontoloji uzaktan eğitim dünyasını nasıl gördüğünü ve dolayısıyla neyi araştıracağına ilişkin seçimini belirler. Epistemoloji, bilgiyi, neyin kabul edilebilir, geçerli ve meşru bilgiyi oluşturduğu ile ilgili varsayımlarla ilgilenir. Uzaktan eğitimin disiplinler arası bağlamı

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sayısal veriler, metin ve görsel veriler, gerçekler, yorum ve anlatılar, hikayeler gibi birçok farklı bilgi türlerini kullanmamıza izin verir ve araştırmacılar buna bağlı olarak farklı epistemolojileri benimseyebilir. Bu durum uzaktan eğitim araştırmacılarına çok fazla yöntem seçeneği sunar. Aksiyoloji araştırma sürecinde değerler ve etiğin rolünü ifade eder ve araştırmacının hem kendi değerleriyle hem de araştırma katılımcılarının değerleriyle nasıl başa çıktığı ile ilgili soruları içerir. Örneğin öğrenme konusunda yapılacak bir araştırmada araştırmacının kişisel değerleri, yetişkinlerin hemen kavrayamayacaklarına, gençlerin ise sorumsuz olduklarına yönelik inançları ortaya koyabilir.

Açıklanmaya çalışıldığı gibi bu çalışma, bir araştırma için yapılan seçimlerin neden yapıldığını ortaya koymaya yönelik felsefi varsayımların uzaktan eğitim özelinde açıklanmaya çalışılmasına dayanmaktadır.

Anahtar Kelimeler: *Uzaktan Eğitim Araştırmaları, Araştırma Yöntemleri, Araştırma Felsefesi*

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Açık ve Uzaktan Öğrenme Bağlamında Kesintisiz Öğrenme Süreçlerinde Mobil Uygulamalar

Muhammet ALPASLAN[1], Nilgün ÖZDAMAR[2]

Özet

Bu çalışmanın amacı açık ve uzaktan öğrenmede kesintisiz öğrenme süreçlerinin tasarımına yönelik olarak kullanılabilecek mobil uygulamaları incelemek ve alanyazın çerçevesinde uygulamaya dönük önerilerde bulunmaktadır. Gelişen mobil teknolojilerin hayatımızda daha fazla yer edinmesiyle birlikte öğrenen alışkanlıklarında gerçekleşen değişim açık ve uzaktan öğrenme ortamlarını ve süreçlerini zenginleştirmeyi ve farklılaştırmayı gerekli kılmaktadır. Çoklu öğrenme modellerini içeren kesintisiz öğrenme süreçleri öğrenenlere bireysel ve bağımsız öğrenme fırsatı sunarken aynı zamanda sosyal öğrenme ortamları da sağlar. Kesintisiz öğrenme süreçlerinde gerçek ve sanal dünyalarda formal ve informal ortamlar birbirini tamamlar niteliktedir. Kesintisiz öğrenme yaklaşımı ile geliştirilecek öğrenme süreçlerinde öğrenenler formal bir yapı içerisinde öğrenme kaynaklarına erişim sağlamalarının yanında farklı bir zamanda ve yerde aynı içeriğe ya da tamamlayıcı nitelikteki başka bir bilgi kaynağına farklı bir yapıda erişebilirler. Öğrenenler öğrenme ortamlarına zaman, mekân ve teknolojiden bağımsız ve kesintisiz olarak ulaşabilir ve öğrenme görevleri arasında geçişler yapabilirler. Kesintisiz öğrenme yaklaşımı öğrenme sürecindeki boşlukları doldurarak öğrenmede süreklilik sağlar. Öğrenen mobil bir uygulama üzerinden podcast yayın dinlerken bunu bırakıp ilgili konu hakkında diğer bir uygulama aracılığıyla anlık olarak öğrenme topluluğuyla iletişime geçebilir konu hakkında tartışabilir; başka bir mekâna geçtiğinde aygıt değiştirebilir ve podcast yayını yeni aygıtta kaldığı yerden devam ederek öğrenmenin kesintiye uğramasını engelleyebilir. Kesintisiz öğrenme yaklaşımı bu anlamda mobil teknolojilerin sağladığı avantajlarla birlikte öğrenme ortamlarına ulaşımı daha esnek hale getirerek öğrenmede sürekliliği sağlar. Kesintisiz öğrenme süreçleri içeriğin farklı bağlamlarda sunulabilmesini ve her zaman ve her yerde ulaşılabilir olmasını gerektirir. Bunu mümkün kılacak olan mobil uygulamalar kesintisiz öğrenmede önemli bir yere sahiptir. Video formatında hazırlanmış bir içeriğin alt yazı ile sunulması ya da yazılı dökümünün otomatik olarak yapılabilmesi ve öğrenenin bulunduğu ortamda bu içeriğe okunabilir bir öğrenme malzemesi olarak ulaşabilmesi mobil uygulamalarla sağlanabilir. Aynı şekilde ekran takibinin mümkün olmadığı ortamlarda yazılı metnin ya da videonun otomatik olarak sesli içeriğe dönüştürülüp dinlenilebilir hale gelmesi kesintisiz öğrenmenin mobil ortamlarda başarılı şekilde uygulanabilmesi için gereklidir. Kesintisiz öğrenme süreçlerinde öğrenme birimleri – anları – ortamları – etkinlikleri zincir halkaları gibi birbirine bağlanarak öğrenmenin daha kalıcı olmasını sağlayabilir. Kesintisiz öğrenme süreçleri öğreneni bir akış içerisine alarak öğrenmeyi daha etkili, verimli ve çekici kılma potansiyeline sahiptir. Bunun yanında öğrenenlerin öz-yönetim becerileri açık ve uzaktan öğrenmede önemli bir yere sahiptir. Kesintisiz öğrenme süreçlerinin etkili şekilde yürütülebilmesi öğrenenlerin öz-yönetim becerilerine de

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bağlıdır. Öğrenenlerin öz-yönetim becerilerinin geliştirilmesine yönelik olarak kişisel bilgi yönetimi, sosyal etkileşim, işbirliği, bilginin organize edilmesi gibi öz-yönetim becerilerini geliştirmeye ve bu sayede kesintisiz öğrenme süreçlerinin birincil aktörü olan öğrenenleri akışta tutmaya yönelik mobil uygulamaların kendilerine sunulması da önemlidir. Bu bağlamda kesintisiz öğrenme süreçlerinde işe koşulabilecek mobil uygulamaların incelenmesi, kategorilere ayrılarak bir bütün halinde uygulama örnekleriyle birlikte sunulması açık ve uzaktan öğrenmede kesintisiz öğrenme süreçlerinin etkili olarak gerçekleştirilebilmesi için önem arz etmektedir.

Anahtar Kelimeler: *Açık ve Uzaktan Öğrenme, Kesintisiz Öğrenme Süreçleri, Mobil Uygulamalar*

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Yükseköğretim Kurumlarında Küresel Salgın Sonrası Uzaktan Eğitim Destek Hizmetlerinin Yürütülmesi: Adüzem Örneği

Fulya TORUN[1], Cumali ÖKSÜZ[2], İbrahim GÖKDAŞ[3], Şerife AK[4], Ayşenur TATLI[5], Yunus SARICA[6], Çetin AYVAZ[7]

Özet

Uzaktan eğitim süreci yapısı gereği birçok bileşeni içerisinde barındırır. Bunların başlıcaları öğretimsel, yönetimsel ve teknik boyutlardır. Tüm bu boyutlar sürece dâhil olan farklı profillerdeki bireylerin (öğretim elemanı, öğrenci vb.) gereksinimlerini çeşitlendirmektedir. Bu doğrultuda destek hizmetlerinin sistematik olarak planlanması ve kısa sürede yaygın bir etki sunması önemlidir. Küresel salgının başlarında acil uzaktan eğitime geçilmesi ile birlikte yükseköğretim kurumları hızlı biçimde eğitim süreçlerini planlarken, bu sürece dahil olan tüm bireylere sağlanacak desteğin de planlaması ve uygulaması gerçekleştirilmiştir. Bu doğrultuda Aydın Adnan Menderes Üniversitesi Uzaktan Eğitim Araştırma ve Uygulama Merkezi (ADÜZEM) hiyerarşik bir destek mekanizması oluşturmuştur. İçerisinde kullanıcı desteği ve teknik destek olmak üzere iki temel bileşen barındıran bu mekanizma, farklı profillerdeki bireyler için farklı destek alternatifleri sunmaktadır. Geniş bir destek kapsamı sunulması dolayısıyla farklı rollere sahip destek ekipleri de oluşturulmuştur. Bu ekipler teknik, ana destek, yardımcı destek, birim koordinatörleri vb. olarak birbirlerinden ayrışmaktadır. Ekiplerin hiyerarşik yapı içerisindeki yerleri destek mekanizmasının sistemli biçimde çalışmasına olanak sunmuştur. Acil uzaktan eğitim sürecinde kurgulanan ve uygulanan bu destek mekanizması küresel salgın sonrası uzaktan eğitim destek mekanizmasının yapılandırılmasında önemli bir rol oynamıştır. Bu kararın alınmasındaki en önemli nedenler farklı profillerdeki bireylerin destek süreçlerinden duydukları memnuniyet ve acil uzaktan eğitim sürecinde öngörülenden daha iyi bir performans sergilenmiş olmasıdır. Küresel salgın sonrası mevcut durumda destek mekanizması yine iki temel bileşenden (kullanıcı desteği ve teknik destek) oluşmaktadır. Koordinasyon ekipleri üstlendikleri roller ile birlikte kürsel salgın sonrası süreçteki varlıklarını devam ettirmektedirler. Belirli dönemlerde farklı ortamlarda (basılı afiş, sosyal medya, portal vb.) güncellenerek sunulan çoklu ortam destek materyalleri (infografik, video vb.) kullanılmıştır. Bu sayede hem öğretim elemanları ve öğrenciler uzaktan eğitim süreçlerine kolayca uyum sağlamış hem de doğrudan bir destek personeli ile (çağrı hattı ve/ya da portal destek mesajı) iletişim kurma ihtiyacı belirgin oranda azalmıştır. Dolayısıyla gerekli destek personeli sayısı da azalmıştır. Tüm bu sonuçlar göstermektedir ki ADÜZEM bünyesinde çalışan destek mekanizması, kullanıcı deneyimini üst düzeyde tutmuş ve işlevsellik sağlamıştır. Bu araştırma kapsamında kurumsal anlamda genel durum ortaya konulurken, ideal bir destek mekanizması oluşturabilmek adına alanyazın incelenerek öneriler sunulmuştur.

Anahtar Kelimeler: *Uzaktan Eğitim, Destek Hizmetleri, Kullanıcı Deneyimi, COVID-19, Küresel Salgın*

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Yükseköğretim Kurumları İçin Dijital Dönüşümde Yedi Boyutlu Stratejik Model*

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Özet

Teknolojik ilerlemelerle birlikte hayatın hemen her alanında dijital teknolojiler hızla yer edinmiş ve dijitalleşme, dijital dönüşüm gibi kavramlar ön plana çıkmaya başlamıştır. Dijital dönüşüm dijital teknolojileri kullanarak yeni fırsatlar ve değerler yaratma; sosyal yapıları dijital teknolojilerle güçlendirme ve daha verimli hale getirme sürecidir. Tüm alanlarda dijital teknolojiler keşfedilerek bu teknolojilerden en etkili şekilde yararlanmaya yönelik girişimler gerçekleştirilmektedir.

Tüm kurumlarda olduğu gibi yükseköğretim kurumlarında da dijital dönüşüm sürecine uyum sağlayarak küresel ölçekte rekabet edebilme gücü kazanmak bir gereklilik haline gelmiştir. Tüm dünyada yükseköğretim kurumları küreselleşmeden kaynaklanan artan rekabet ve dijital teknolojilerin sağladığı olanaklar nedeniyle dijital dönüşüm sürecine girmişlerdir. Özellikle yükseköğretim kurumlarında Covid-19 pandemi süreciyle birlikte çok yönlü bir dijital dönüşüm ihtiyacının önemi ortaya çıkmıştır. Yükseköğretim kurumlarının dijitalleşmeden yalnızca etkilenen olmaması, dijitalleşme sürecinin nasıl yönetileceği ve kontrol edileceğine yön vermesi ve bu sürece katkı sağlayan bir yapı oluşturarak aktif ve belirleyici bir rol üstlenmesi gerekmektedir. Eğitim-öğretim, araştırma, yönetim ve topluma katkı süreçlerinde dijital araç gereçlerden faydalanması, dijital yöntemler kullanması ve bu süreçlerin gelişimine katkı sağlaması beklenmektedir. Dijital dönüşümün meslekler ve sektörler üzerindeki etkileri sonucu ortaya çıkan yeni yetenekleri öğrencilere ve öğretim elemanlarına kazandıracak bir yapı oluşturmalıdır. Ayrıca yükseköğretim kurumlarının dijitalleşmenin olanaklarından faydalanarak toplumsal sorunlara çözümler sunması ve toplumsal değişime de yön vermesi gerekmektedir. Bu doğrultuda yükseköğretimde dijital dönüşümün kapsamlı ve detaylı bir şekilde ele alınmasının oldukça önemli olduğu söylenebilir.

Dijital dönüşümün yükseköğretim kurumlarında etkin bir şekilde yürütülebilmesi ancak farklı türden dijital yeteneklerin dikkate alınarak bu doğrultuda dijitalleşme çalışmalarının gerçekleştirilmesi, dijitalleşmenin ölçülmesi, değerlendirilmesi ve kurumun olgunluk düzeyinin belirlenmesi ile mümkündür. Yükseköğretimde dijital dönüşüm planlı ve sistem yaklaşımı kapsamında ele alınarak ilgili süreçteki tüm paydaşlar dönüşüm sürecine katılmalıdır. Bunu gerçekleştirebilmenin yolu yüksek

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iletişim, koordinasyon ama en önemlisi de stratejik planlama ve bu planlamaları hayata geçirmeyi sağlayacak eylem planlarıdır. Bu nedenle yükseköğretim kurumlarının dijitalleşme sürecine rehberlik sağlayacak çalışmalar oldukça önemlidir. Bu çalışma kapsamında yükseköğretimde dijital dönüşüm süreci kuramdan uygulamaya ayrıntılı olarak ele alınmıştır. Özellikle yükseköğretim kurumlarında dijital dönüşüm süreçlerine uygulamalı rehber olacak nitelikte Atatürk Üniversitesi'nin girişimleri ve faaliyetlerine yer verilmiştir. Atatürk Üniversitesi, yeni nesil üniversite vizyonu çerçevesinde eğitim, araştırma ve topluma katkı işlevlerini bütünleştirmeyi öngörmekte ve bahsedilen bütünleşmeyi gerçekleştirmek için 7 katmanlı bir yönetsel yaklaşım ile çok boyutlu bir sistem yaklaşımını benimsemektedir. Bu yaklaşım ve JISC kurumsal dijital yetenek çerçevesi temel alınarak Atatürk Üniversitesi'nde yer alan 7 farklı stratejik öncelik ve bu önceliklerin gerçekleştirilmesine yönelik hedefleri içeren "**dijital dönüşümde 7 boyutlu stratejik model"** oluşturulmuştur. Bu model ile yükseköğretim kurumlarının dijital dönüşümünde öğrenme süreçlerinin dijitalleştirilmesinden kurumun dijital dönüşümünün sürdürülebilirliğinin sağlanmasına kadar farklı boyutlar ele alınmıştır. Bu modele dayalı olarak yükseköğretim kurumlarında öğrenme, öğretme ve değerlendirme, içerik ve bilgiye erişim, iletişim, araştırma süreçleri, topluma katkı süreçleri ve kurumsal kültür unsurlarının dijitalleştirilmesi ve güçlendirilmesine yönelik çıktıların üretilmesi mümkün olabilir.

Anahtar Kelimeler: *Dijitalleşme, Yükseköğretim, Dijital Dönüşüm Modeli*

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Acil Durum Uzaktan Öğretime Yönelik Öğretim Elemanı Memnuniyet Ölçeğinin Geliştirilmesi

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Özet

Uzaktan eğitime olan talep 2020 yılına kadar belirli bir ivmelenme ile artarken küresel salgın ile bu ivmelenmede ani bir artış söz konusu olmuştur. Dünya Sağlık Örgütünün 30 Ocak 2020 tarihinde COVID-19 salgının küresel acil tehdit unsuru kabul etmesiyle birçok ülke sınırlarını kapatmış, seyahat ve sosyal aktivitelerin durdurulmasına ilişkin kararlar almıştır. Sağlık, kültür -sanat, ekonomi, tarım gibi birçok alan bu süreçten etkilenmiştir. Bu süreçten etkilenen alanlardan biri de şüphesiz eğitim olmuştur. UNESCO'ya göre 1,4 milyar öğrencinin eğitiminin kesintiye uğradığı bu süreçte birçok ülke öğretim süreçlerini hızlı bir şekilde çevrimiçi ve dijital teknolojilerin kullanıldığı uzaktan eğitime taşımakta çare bulmuştur. Küresel salgın öncesinde öğretim elemanları ve öğrenciler için uzaktan eğitim tercihe bağlıyken, salgın döneminde eğitimin her düzeyinde bir anda zorunlu hale gelmiştir. Yeterince hazırlık yapılmadan başlanan bu öğretim süreci acil durum uzaktan öğretim şeklinde ifade edilmiştir. Sosyal mesafeyi koruma, öğrenime devam etme ve iletişim kurabilme gibi konularda çeşitli fırsatlar sunmasına karşın etkileşim sorunu karşılaşılan pedagojik ve teknolojik sorunlar gibi dezavantajları da beraberinde getirmiştir. Yaşanan bu olumsuzluklar öğrencileri etkilediği gibi eğitim öğretim sürecinin bir diğer önemli paydaşı olan öğretim elemanları da etkilemiştir. Öğrenme ortamlarının ani bir şekilde değişmesi ile öğrenme materyallerinin çevrimiçi ortama uyarlanması, yeni öğretim yöntem ve teknikleri uygulama ihtiyacı ve öğretimi değerlendirme farklı bir boyut kazanmış bu da öğretim elemanlarının iş yükünün artmasına neden olmuştur. İş yükünün yanında karşılaştıkları teknik sorunlar ve teknolojik beceri eksikliği zaten hali hazırda uzaktan eğitime yönelik direnç gösteren ve zorunlu olarak katılmak durumunda kalan öğretim elemanlarının çevrimiçi eğitime karşı olumsuz bir tutum geliştirmelerine neden olmuştur. Ancak etkili bir öğretim için öğretim elemanlarının uzaktan eğitim deneyimlerinin iyileştirilerek, uyum sağlaması ve memnuniyeti önemlidir. Nitekim Online Learning Consortium (2017) kaliteli çevrimiçi eğitimin beş unsurundan birinin öğretim elemanlarının memnuniyeti olarak kabul etmektedir.

Dolayısıyla öğretimin kalitesinde önemli bir role sahip olan öğretim elemanlarının deneyim, tutum ve algılarını etkileyen faktörlerin belirlenmesinin, ileriye yönelik çevrimiçi öğretim deneyimlerinin iyileştirilmesine katkı sağlayacağı düşünülmektedir. Bu nedenle yapılan çalışmanın amacı acil durum uzaktan öğretim sürecinde ders veren öğretim elemanlarının memnuniyet düzeylerini belirlemek amacıyla geçerli ve güvenilir bir ölçme aracı geliştirmektir. Bu amaç doğrultusunda öncelikle alan yazın taraması yapılarak madde havuzu oluşturulmuştur. Oluşturulan ölçek maddeleri kapsam ve görünüş geçerliliği için uzman görüşüne sunulmuştur. Uzmanların geribildirimleri

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doğrultusunda yapılan düzeltmelerin ardından ölçek 2020-2021 eğitim öğretim yılı bahar döneminde 401 öğretim elemanına uygulanmıştır. Verileri toplanan ölçme aracı için analiz süreci devam etmektedir. Ölçeğin faktör yapısının belirlemek amacıyla öncelikle faktör analizi yapılacaktır. Daha sonra faktör yapısının doğruluğunu teyit etmek amacıyla doğrulayıcı faktör analizi yapılacak ve model uyumu değerlendirilecektir.

Anahtar Kelimeler: *Acil Durum Uzaktan Öğretim, Öğretim Elemanı Memnuniyeti*

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Ortaöğretim Seçmeli Proje Hazırlama Dersi'nde Kullanılan ÖYS'in Proje Üretimine Etkileri

Erol KÖMÜR[1]

Özet

Amaç: Ortaöğretim Seçmeli Proje Hazırlama Dersi Öğretim Programı Milli Eğitim Bakanlığı Talim Terbiye Kurulu Başkanlığı tarafından 20/09/2006 tarih ve 371 Sayılı karar ile kabul edilmiş ve 2006-2007 eğitim öğretim yılından itibaren liselerin haftalık ders çizelgelerine eklenmiştir. Lise seviyesinde tüm okul türleri tarafından farklı sınıf seviyelerinde seçilerek okutulabilen bu ders, fen liselerinde dört yıllık eğitimin herhangi bir yılında bir kez seçilerek haftada bir saat veya iki saat olarak okutulabilmektedir. Araştırmanın yapıldığı okulda Proje Hazırlama Dersi 9. sınıf öğrencilerine haftada bir saat olarak önerilmekte ve bu sınıf düzeyindeki öğrencilerin %80'i tarafından seçilmektedir. Pandemiyle başlayan kapanma dönemlerinde (2019-2020 I. dönem, 2020-2021 I. ve II. Dönem) 9. sınıflar kapanmadan en fazla etkilenen ve en az yüz yüze eğitim alan sınıf düzeyi olmuştur. Uzaktan eğitimin uygulandığı üç dönem boyunca seçmeli dersler EBA altyapısındaki kısıtlardan dolayı uzaktan eğitim kapsamı dışında tutulmuştur. Araştırmaya konu ÖYS (Öğrenme Yönetim Sistemi); kullanıldığı okul idaresinin insiyatifi ile öğrencilerin gelecekte proje hazırlama süreçlerinde eksiklikler yaşamaması için oluşturulmuştur. Çalışmada Proje Hazırlama Dersi için hazırlanan ÖYS'in öğrencilerin proje üretimlerine katkılarının belirlenmesi amaçlanmıştır.

Yöntem: ÖYS, Proje Hazırlama Dersi için öğretim programının kazanımları, programın ünitelendirmesine uygun olarak bir eğitim öğretim yılı için tasarlanmıştır. Ünitelendirme öğretim programında verildiği gibi yapılandırılmıştır. ÖYS içeriği öğretim programında sunulan örnek etkinliklerle uyumlu olarak Moodle'un 3.8 sürümü üzerinde oluşturulmuştur. Proje Hazırlama Dersi seçen tüm öğrenciler idarenin uygun görüşü ve veli izinleri alınarak ÖYS sistemine kaydedilmiştir. ÖYS'e entegre edilen BigBlueButton ve Zoom yazılımları haftalık ders çizelgesine uygun canlı dersler düzenli olarak yapılmıştır. Sınavlar ve ödevler ÖYS üzerinden uygulanmış ve takip edilmiştir. Araştırma nicel bir çalışma olup veriler; Moodle veritabanındaki istatistiksel raporlar, öğrencilerin proje ödevleri, okul içi ve okul dışında katıldıkları proje sergi, fuar ve yarışmalarına sundukları projelerin istatistikleri kullanılmıştır.

Bulgular: Yapılan çalışma sonucunda ÖYS üzerinden sunulan ders ve içeriklere tüm öğrencilerin oturum açtıkları ve erişim sağladıkları tespit edilmiştir. Eş zamanlı katılım oranlarının ders ders farklılıklar göstermektedir. Eş zamanlı katılım göstermeyen öğrencilerin de daha sonar ders izlencelerini takip ettikleri görülmüştür. Ders izlencelerinin bazı öğrencilerce birden fazla kez tekrar edildiği tespit edilmiştir. Sınav öncesi paylaşılan deneme sınavlarına katılımın %100 olduğu görülmüştür. Bu dersi alan öğrencilerin okul derslerinden aldıkları proje ödevlerinde yüksek başarı gösterdikleri, ulusal ve uluslararası proje yarışmalarına katılım sağladıkları, TÜBİTAK proje yarışmalarında derece elde ettikleri tespit edilmiştir.

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Öneriler: Proje Hazırlama Dersi için hazırlanan ÖYS'nin bulguları itibari ile beklenen verimliliği gösterdiği tespit edilmiştir. Pandemi sürecinde seçmeli derslerin sürdürülebilirliğini sağlamıştır. ÖYS altyapılarında gelişen kullanıcı dostu teknolojilerin öğretmenlerin içerik hazırlama, içerikleri sunma ve yönetmelerini kolaylaştırmıştır. Pandemi koşulları sona ermiş olsa da derslerin ÖYS ile desteklenmesinin öğrencilerin kişisel gelişmelerine olumlu katkı sağlamaya devam edeceği değerlendirilmektedir.

Anahtar Kelimeler: *Proje Hazırlama Dersi, ÖYS, Fen Lisesi, Proje*

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Türkiye'deki Açık ve Uzaktan Öğrenme Kurumlarında Mezun İzleme Sistemleri: Mevcut Durum Analizi ve Bir Model Önerisi

Kazım DEMİRER[1]

Özet

Bir yükseköğretim kurumunun paydaşları arasında en önemli olanlarından biri mezunlarıdır. Mezunların, kurumun prestiji, öğrenme çıktıları ve tanıtım faaliyetleri gibi bir çok konuda kuruma doğrudan etkisi vardır. Dünyada birçok yükseköğretim kurumunda olduğu gibi Türkiye'de de kurumların çeşitli mezun izleme sistem ve stratejilerine sahip olduğu görülmektedir. Çeşitli ulusal ve uluslararası kurumlarca uygulanan değerlendirme ve akreditasyon ölçütlerinde de görüleceği üzere mezunlardan alınan geribildirimler de kurumun değerlendirme performansı üzerinde doğrudan katkı yapmaktadır. Bu geri bildirimler kurumun sunduğu öğretim faaliyetinin daha da iyi hale getirilmesi için anahtar konumda bulunmaktadır. Dünyanın pek çok ülkesinde yükseköğretim kurumları çeşitli mezun izleme sistem ve stratejileriyle elde ettiği bilgiler ışığında mezunlarının nerede nerede istihdam edildiğini, hangi konumda olduğunu takip edebilmekte ve bunu kurum prestiji açısından da gerekli görmektedir. Ayrıca bu tür izlemeler kurumların aday öğrencilere yönelik tanıtım stratejilerine de doğrudan etki yapabilmektedir.

Bu çalışmanın amacı ülkemizde açık ve uzaktan öğrenme yönetmiyle eğitim-öğretim faaliyetlerinde bulunan kurumlarda, bu yöntemle öğrenimini tamamlayıp mezun olmuş bireylere yönelik, mezun olduğu kurumlarca uygulanan izleme sistem ve stratejilerine ilişkin mevcut durumu ortaya koymak ve söz konusu yapıdaki kurumlar için bu konuda bir mezun izleme sistem modelini ortaya koymaktır. Küçük bir araştırmayla açıkça görülmektedir ki Türkiye'de açık ve uzaktan öğrenme yöntemiyle öğrenim görüp mezun olmuş bireylere yönelik bir mezun izleme sisteminden bahsetmek oldukça güçtür. Bu durumun bir nedeni olarak bu tür kurumların salt açık ve uzaktan öğrenme yöntemiyle öğretim faaliyetinde bulunmayan, diğer bir deyişle karma yapıda olmaları ve mezun izleme konusunun genellikle örgün öğrenciler üzerinden hizmet veren birimler tarafından yerine getiriliyor olmasıdır. Dolayısıyla ilgili kurumlarda açık ve uzaktan öğrenme yöntemi ile öğrenim görüp mezun olmuş bireyler için ayrıca bir birimden söz etmek mümkün görünmemektedir. Oysa ki sayıları milyonlarla ifade edilen bu mezunların izlenmesi ve onlardan gelecek geri bildirimlerin öğretim planlama ve güncelleme süreçlerine yansıtılmasının, açık ve uzaktan öğrenme kurumlarında sunulan öğretim hizmetinin kalitesinin artırılmasına büyük katkı sunacağı kesindir. Ülkemizde halen açıköğretime ve açık ve uzaktan öğretim yöntemine karşı kamuoyu gözünde olumsuz bir önyargının devam ettiği şüphesizdir. Ne var ki açık ve uzaktan öğrenme yöntemiyle öğrenim görüp mezun olmuş bireyler içinde, salt aldıkları bu eğitimle kamu veya özel sektörde önemli pozisyonlara istihdam edilmiş ve yükselmiş kişilerin varlığı hiç de azımsanmayacak sayıdadır. Özellikle bu mezunların tespiti, kariyer gelişimlerinin izlenmesi ve aday öğrenciler ve diğer paydaşlarla da bu izlemelerin paylaşılması kurumların prestijini artıracak ve kalite süreçlerinin sağlıklı bir biçimde yürütülmesini beraberinde getirecektir.

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Bu çalışmada Türkiye'de açık ve uzaktan öğretim kurumları olarak hizmet veren Anadolu, Ankara, Atatürk ve İstanbul Üniversitelerinin söz konusu mezunlarına yönelik olarak sunduğu hizmetler doküman incelemesi yöntemiyle incelenecek ve yine kurumdaki muhataplarla yarı yapılandırılmış görüşmeler yapılarak kurumlardaki mevcut durum tespiti yapılacaktır. Daha sonra dünyadaki ve ülkemizdeki çeşitli modeller incelenerek ülkemizdeki açık ve uzaktan öğrenme kurumlarına yönelik bütüncül, yenilikçi ve değişen koşullara göre güncellenebilir bir mezun izleme sistemi modeli sunulacaktır.

Anahtar Kelimeler: *Mezun, Mezun İzleme, Açıköğretim, Açık ve Uzaktan Öğrenme, Kalite Süreçleri*

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Türkçe Öğretim Sitelerinin Oyunlaştırma Unsurları Açısından Değerlendirilmesi

Kerim SARIGÜL[1]

Özet

Son yılllarda Türkiye'nin uluslararası alandaki etkisinin ve görünürlüğünün artması, irili ufaklı tüm bölge ve ülkelerle etkili iletişim sürdürmesi, Türk şirketlerinin yurt dışında gerçekleştirdiği yatırımlar; TİKA, Yunus Emre Enstitüsü, Türkiye Maarif Vakfı, Yurtdışı Türkler ve Akraba Topluluklar Başkanlığı gibi kurumlar ve bu kurumların yürüttüğü faaliyetler; Türkiye'nin özellikle tarih, gastronomi, sağlık gibi açılardan önemli turizm noktalarından biri olması Türkçe öğrenmek isteyenlerin sayısının artmasına sebep olmaktadır. Çeşitli sebeplerle Türkçe öğrenmek isteyenler imkânları doğrultusunda yüz yüze kursları tercih ederek veya uzaktan Türkçe öğretim ortamlarını (eşzamanlı veya art zamanlı) kullanarak amaçlarını gerçekleştirmeye çalışmaktadır. Yüz yüze kurslara katılamayanlar veya yüz yüze Türkçe öğrenme sürecini dijital ortamlardaki içeriklerle desteklemek isteyenler Yunus Emre Enstitüsü tarafından geliştirilen Türkçe Öğretim Portali (A1, A2, B1, B2, C1), Anadolu Üniversitesi tarafından geliştirilen ANA–DİL Türkçe (A1, A2, B1, B2, C1, C2) ve Yaşar Üniversitesi tarafından geliştirilen Türkçe Öğreniyorum (A1) gibi platformları kullanmaktadırlar. Bugün bu 3 platformu kullananların sayısı 500 bini aşmış durumdadır. Türkçe öğrenmek isteyenlerin kullanabileceği dijital ortamlar ve bu ortamlardaki içeriklerin önemi her geçen gün daha da artmaktadır. Yabancı dil olarak Türkçe öğrenenlerin kullandığı bu platformların günümüz teknolojisinin sağladığı dijital imkanları ne kadar kullandığı, yeni nesil öğrenme ortamlarını ne kadar sağladığı en az bu platformların varlığı kadar önemlidir. Dijital ortamlarda sunulan etkileşimli içerikler, oyunlar ve oyunlaştırma unsurları günümüz dijital öğrenme ortamlarından beklenen en temel özellikler olarak karşımıza çıkmaktadır.

Bu çalışmada; dijital ortamlarda dil öğretim platformlarında kullanılabilecek oyunlaştırma unsurları (Avatarlar, Hedefler, Görevler, Puanlar, Rütbeler/Rozetler, Seviyeler, Sıralamalar, Liderlik Tablosu, Ödüller, Yarışmalar, Zorluklar (Nadir Hedefler), Sertifikalar, Meydan Okumalar, Duygusal Mesaj ve Bildirimler, Geribildirimler, Temalar) ele alınmış, yabancı dil olarak Türkçe öğrenmek isteyenlere hizmet etmesi amacıyla geliştirilen Türkçe Öğretim Portali, ANA–DİL Türkçe ve Türkçe Öğreniyorum platformları oyunlaştırma unsurları açısından değerlendirilmiştir.

Dil öğretim platformlarında kullanılabilecek yirmiden fazla oyunlaştırma unsurunun olduğu tespit edilmiştir. Ele alınan 3 platform oyunlaştırma unsurları açısından değerlendirildiğinde Yunus Emre Enstitüsü tarafından geliştirilen "Türkçe Öğretim Portali"nin ön plana çıktığı, birçok oyunlaştırma unsurunu bünyesinde barındırdığı görülmüştür. Anadolu üniversitesi ve Yaşar Üniversitesi tarafından geliştirilen platformların oyunlaştırma unsurları açısından çok zayıf kaldığı, kullanıcının içerikle olan etkileşimi sonucunda elde ettiği verilerin oyunlaştırma amacıyla kullanılmadığı görülmüştür.

Gerçekleştirilen bu çalışmada elde edilen veriler yüz binlerce kullanıcısı bulunan mevcut Türkçe öğretim platformlarının geliştirilmesine rehberlik edecek, yeni Türkçe öğretim platformları geliştirmek isteyenlere de yol gösterecektir.

Anahtar Kelimeler: *Yabancı Dil Olarak Türkçe, Oyunlaştırma, Oyunlaştırma Unsurları, Türkçe Öğretim Siteleri*

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Kullanıcı Deneyimi Tasarımı ve Web Arayüzü Tasarımına Yönelik Güncel Yaklaşımların Açık ve Uzaktan Öğrenme Bağlamında Değerlendirilmesi

Fırat SÖSUNCU[1]

Özet

Açık ve uzaktan öğrenme kurumlarının web siteleri ve öğrenme yönetim sistemleri teknolojinin gelişmesiyle birlikte önemli gelişmeler göstermiştir. Web 2.0 teknolojileriyle birlikte kullanıcılar, internette aktif rol almaya başlamıştır. Bunun sonucu olarak web sitelerinin arayüz tasarımı ve kullanıcı deneyimi tasarımının önemi artmıştır. Özellikle yapay zekâ teknolojilerinin işe koşulmaya başlandığı ve birçok alanda kullanıldığı bu dönemde, yapay zekâ teknolojileri görsel tasarımda da kullanılmaya başlanmıştır. Bununla birlikte kullanıcı deneyimi tasarımına yönelik kullanıcıların verilerini sunan platformlar (Google Analitics, Yandex Metrica) da kullanıcı deneyiminin tasarımında önemli faydalar sağladığı söylenebilir. Bu noktadan hareketle; görsel tasarımda ve kullanıcı deneyimi tasarımında kullanılan güncel teknolojilerin neler olduğu ve bu teknolojilerden açık ve uzaktan öğrenme bağlamında nasıl yararlanılabileceğinin ortaya çıkarılması önem taşıdığı söylenebilir. Çalışmada, arayüz tasarımına ve kullanıcı deneyimi tasarımına yönelik güncel yaklaşımlar açık ve uzaktan öğrenme bağlamında ele alınmıştır. Bu doğrultuda, kullanıcı deneyimi tasarımına yardımcı olabilecek araçlar ve yapay zekâ temelli bazı görsel tasarım odaklı web siteleri teknoloji kabul kuramı çerçevesinde ele alınmış ve değerlendirilmiştir.

Anahtar Kelimeler: *Açık ve Uzaktan Öğrenme, Kullanıcı Deneyimi Tasarımı, Arayüz Tasarımı, Yapay Zekâ*

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Açık ve Uzaktan Öğrenmede Öğrenene Geri Bildirim Vermede Yapay Zeka

N. Selin ÇÖPGEVEN[1], Saniye KULELİ[2], Emre EV ÇİMEN[3], Gülsün KURUBACAK[4]

Özet

Bu çalışmada açık ve uzaktan öğrenmede yapay zekâ teknolojilerinin işe koşularak öğrenenlere geri bildirim verilmesinin öğrenme ortamlarındaki etkileşimi artırmadaki etkilerinin belirlenmesi amaçlanmıştır. Ek olarak, açık ve uzaktan öğrenmede yapay zekâ teknolojilerinin etkileşimi artırmada geri bildirimin kullanımına yönelik sunulan görüşler temelinde denenceler geliştirilmesi ve ileride yapılacak çalışmalar için fikir oluşturulması hedeflenmiştir. Araştırmada ele alınan problemin tecrübeler temelinde derinlemesine araştırılması amaçlandığı için nitel araştırma yöntemlerinden bütüncül tek durum çalışması deseni kullanılmıştır. Araştırmada, araştırma problemi ve kuramsal çerçeve sonrasında araştırmanın amacına uygun olarak katılımcıların özellikleri belirlenmiş olup açık ve uzaktan öğrenme alanında aktif olarak çalışmakta olan deneyimli alan uzmanlarının görüşlerine başvurulmuştur. Araştırmanın ilk aşamasında kuramsal matris ve bu matristen yola çıkılarak görüşme soruları hazırlanmıştır. Görüşme sorularının uzman görüşü değerlendirmelerinden ve son hallerini almalarından sonra görüşmeler yüz yüze ya da çevrimiçi ortamda gerçekleştirilmiştir. Görüşmeler katılımcı izinleri alınarak kayıt altına alınmıştır. Elde edilen veriler analiz edilerek ana tema ve kavramlara ulaşılarak bulgular ve yorumları hazırlanmış ve görüşlerden uygun kesitler alınarak sunulmaya çalışılmıştır. Açık ve uzaktan öğrenmede yapay zekânın etkileşimi artırma konusunda geri bildirim vermek amacıyla kullanılmasına yönelik görüşlerin olumlu olduğunun belirlendiği bu araştırmada ulaşılan bulgular belli kategoriler ile sunulmuştur. Araştırmada ulaşılan veriler, yapay zeka kullanılarak açık ve uzaktan öğrenmede; *i)* öğrenene geri bildirimin nasıl sağlanacağı, *ii)* öğrenenlerin öğreten ile yeterince etkileşime girememesinin verdiği eksikliği gidermek için yapay zekanın nasıl kullanılabileceği, *iii)* öğrenenlerin kendi aralarında yeterince etkileşime girememesinin verdiği eksikliği gidermek için yapay zekanın nasıl kullanılabileceği ve son olarak *iv)* öğrenenlerin içerikle etkileşimini artırmak için yapay zekanın nasıl kullanılabileceği içerikleri ile incelenmiş ve katılımcı ifadeleri ile desteklenerek sunulmuştur. Ek olarak etkileşim türlerinin yapay zeka ile desteklenmesinde maliyet ve zaman açısından sürdürülebilirliğin nasıl sağlanacağına ilişkin de katılımcıların görüşlerine yer verilmiştir. Açık ve uzaktan öğrenmede geri bildirimin statik bir yapısı vardır ve bu durum öğrenenin motivasyonunu olumsuz etkilemektedir. Açık ve uzaktan öğrenmede öğrenenlerin, öğrenenler ve öğretenlerle etkileşime girme düzeylerinin yetersiz olduğu, genel olarak öğrenenlerin yalnızca içerikle etkileşime girebildikleri araştırmalarda belirtilen bir sonuçtur. Nitekim açık ve uzaktan öğrenmede öğrenen sayısının yüksek olması iletişimde ve geribildirim vermede güçlükler oluşturmaktadır. Bu güçlüğün

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ortadan kaldırılması amaçlı öğretimin farklı aşamalarında yapay zekâ teknolojilerinden faydalanılarak öğretimin niteliğini artıracak adımların gerçekleştirilmesi bir ihtiyaç olmaktadır. Alanyazında yapay zekânın etkileşimi artırmada olumlu sonuçlar vermesine karşılık bu konuda gerçekleştirilen sınırlı çalışmaya ulaşılmıştır. Bu ihtiyaç doğrultusunda yapılması plânlanan bu araştırmada, kuramsal çerçeve bağlamında Etkileşim Eşdeğerliği Teoremi çerçevesinde iki varsayım ileri sürülmüştür. Bu varsayımlardan ilki, öğrenen-öğrenen, öğrenen-öğreten, öğrenen-içerik etkileşim türlerinden herhangi birinin yüksek seviyede kullanılması ve diğerlerinin düşük seviyede veya hiç kullanılmaması durumunda bile öğrenmenin kalıcı olarak gerçekleştiğidir. İkinci varsayım ise üç etkileşim türünün de aynı anda yüksek seviyede kullanılmasının etkili ve kalıcı bir öğrenme deneyimi sağlayacağı ancak zaman ve maliyet açısından sürdürülebilir olmayacağı yönündedir. Yapılan araştırmalar incelendiğinde genel olarak ilk varsayım üzerine çalışıldığı görülmektedir. Ancak ikinci varsayım üzerine yapılan çalışmalar oldukça azdır. Oysa yapay zeka doğru yöntemler ile işe koşularak tasarlanan öğrenme ortamlarında, ikinci varsayımda söz edilen üç etkileşim türünün de aynı anda yüksek seviyede kullanılmasının sağlanabileceği yaklaşımı bu araştırmanın özgün değerini ortaya koymaktadır.

Anahtar Kelimeler: *Açık ve Uzaktan Öğrenme, Geri Bildirim, Yapay Zeka.*

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Covid 19 Sonrası Eğitimde Yıkıcı Teknolojiler

Şükriye Hazal ERGİN[1]

Özet

Amerikalı bilim adamı ve iş danışmanı Clayton Christensen tarafından ilk kez "Yıkıcı Teknoloji" olarak adlandırılan bu terim, Covid 19 pandemisi öncesinde de oldukça sık yazılan ve okunan bir kavramdı. Öncelikle iş alanında kullanılmaya başlanmış olan bu kavram, daha sonra araştırmacılar tarafından eğitim alanında da çalışılmaya başlandı.
Araştırmamıza öncelikle herkesin bildiği ve sık kullandığı "teknoloji nedir?" sorusu ile başlamak isterim. TDK'ye göre, teknoloji; uygulayımbilim olarak da adlandırılan, herhangi bir sanayi dalındaki araç, gereçleri yaratan ve bunların kullanımlarını belirleyen, olarak adlandırılmaktadır (TDK). Kısaca genişletmek istersek, teknoloji, bir şeyin uygulanışına karar veren bir bilim dalıdır diyebiliriz.
Tim Smith, yıkıcı teknolojileri ise, Christensen'in 1995'teki makalesinden şu şekilde çıkarım yaparak açıklamıştır (Smith, 2022):
Yıkıcı bir teknoloji, eski süreçlerin, ürünlerin veya alışkanlıkların yerine geçer.
Genellikle en azından erken benimseyenler için, kendini hemen gösteren üstün niteliklere sahiptir.
Eğitimin de türlü uygulanış biçimi bulunmaktadır. Zaman içinde uygulaması oldukça değişen "eğitim", dijital çağda pek çok farklı yazılım ve donanım araçları ile yeni bir hale büründü. Covid pandemisi sonrasında, dünya çapında zorunlu uzaktan eğitime geçiş ile, bilgisayar temelli eğitim teknolojilerinin eğitim üzerinde kimine göre yıkıcı, kimine göre yapıcı bir etkide bulunduğunu söylemek mümkündür. Yıkıcı teknolojilerin, eğitim alanında Covid 19 pandemisi sonrasında geldiği noktayı gözler önüne serebilmek amacıyla bu araştırmanın konusu, "Covid 19 Sonrasında Eğitimde Yıkıcı Teknolojiler" olarak belirlenmiştir.
Dijital eğitim teknolojileri, Covid pandemisi sonrasında daha fazla kullanılmaya başlanmıştır ve öğrenciler için farklı öğrenme ortamları yaratmayı başaran dijital teknolojiler, gerçek yaşamda, yüz yüze eğitim içinde kullanılan teknolojiler ile yer değiştirebilecek midir? Örneğin, sanal laboratuvarlar, artık gerçek laboratuvarlardan daha fazla mı konuşulmaktadır?
Bu araştırma, nitel araştırma tekniklerinden doküman inceleme yöntemi ile yazılmıştır. Araştırmalara, "Google Akademik" sayfasından, "Covid 19 Pandemic "Disruptive Technology" Education" ve "Yıkıcı Teknolojiler Covid 19 eğitim" terimleri aratılarak ulaşılmıştır.
Yabancı dilde (İngilizce) taratılan kaynaklarda, Covid 19 sonrasında, özellikle "Açıköğretim/ Uzaktan Eğitim" in yıkıcı teknoloji olarak adlandırıldığı fark edilmiştir. Bazı araştırmalarda yıkıcı teknoloji olarak adlandırılan uzaktan eğitim uygulamalarının öğretenler ve ögrenenler üzerindeki etkileri ve uzaktan eğitime yönelik pedagojik yaklaşım konu alınmıştır. Sonrasında, sanal eğitim uygulamalarının, eğitimde kullanılmasının ele alındığı göze çarpmıştır (sanal kütüphane, dijital eğitim yazılımları, simülasyonlar, AR/VR, STEM).
Türkçe yazılan makale taramalarında ise Covid 19 sonrası uzaktan eğitim ile ilgili

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yazılmış pek çok makale varken, uzaktan eğitim yıkıcı teknoloji olarak ele alınmamıştır. Ayrıca uzaktan eğitimde kullanılan web 2 araçları ve farklı bilgisayar yazılımlarının kullanımları da akademik olarak incelenirken, bunların hiçbiri yıkıcı teknoloji ürünleri olarak görülmemiştir.

Anahtar Kelimeler: *Covid 19, Yıkıcı Teknolojiler, Eğitim*

Yararlanılan Kaynaklar

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Video Derslerde Öğretim Analitiklerinin Kullanımı: Sistematik Bir İnceleme

Arif DAŞ[1], Engin Kurşun[2]

Özet

Öğrenme ve öğretme ortamlarında sıkça tercih edilen video içerikler son yıllarda popülerliğini artırmış ve özellikle yeni nesil öğrenenlerin bilgiye erişimde en çok tercih ettikleri materyal haline gelmiştir. Öğrenenlerin video dersleri neden tercih ettikleri ve videolara yönelik iç görülerini belirlemek öğretim süreçlerinin kalitesinin artırılmasında önemli bir etken olabilir. Öğrenmenin etkililiği, öğrenenin odağı ve öğrenen tercihlerinin belirlenmesi gibi unsurlarda öğrenme analitikleri kullanılabilir. Öğrenme analitikleri öğretim ortamlarının tasarımında öğrencilerin öğrenme deneyimlerine yönelik gerçek verilerinin kullanılmasına imkân sunar. Öğretme analitikleri ise aynı veriler ışığında öğretim süreçlerinin etkililiğini ve kalitesini doğrudan belirlemeye çalışır. Öğrenenlerden toplanan veriler öğretim analitikleri çerçevesinde ele alındığında öğretimin kalitesinin artırılması için pedagojik ve andragojik temellerin yeniden ele alınmasına ve en uygun öğretim tasarımı süreçlerinin belirlenmesine yardımcı olur. Öğretme analitikleri iyi planlanmış bir şekilde kullanılırsa eğitim ve öğretim süreçlerinin simüle edilebilmesini ve süreçteki aksaklıkların önceden belirlenmesini de sağlayabilir. Bu çalışmada öğretme analitiklerinin video derslerde kullanımına yönelik çalışmalara değinilmiş ve öğretme analitiklerinin videolarda hangi amaçla ve nasıl kullanıldığı belirlenmeye çalışılmıştır. Ayrıca çalışmalarda video derslere yönelik eğitmenlere sunulan önerileri belirlemek amaçlanmıştır.

Bu çalışmada mevcut durumu belirlemek ve odaklanılan noktaları ortaya çıkarmak amacıyla sistematik yöntemlerle bir inceleme yapılmıştır. Sistematik tarama yapılırken PRISMA yönteminden faydalanılmıştır. Bu amaçla Web of Science veri tabanında yer alan ve "Teaching Analytics For Video" anahtar kelimeleriyle belirlenen, eğitim bilimleri alanındaki tam metin makaleler ele alınmıştır. İlgili makaleler incelendikten video derslerde öğretme analitiklerini kullananlar çalışmaya dâhil edilmiş, diğerleri inceleme dışında bırakılmıştır.

Yapılan incelemeler sonucunda, video içeriklere yönelik yapılmış olan analitik çalışmalarında videonun tasarımı, sunuş şekli ve etkileşim durumu gibi unsurların öğrenenlerin kullanımını ve haliyle öğretimin kalitesini etkilediği belirlenmiştir. Ayrıca çalışmalar öğrenenlerin video içeriklere yönelik kullanım taleplerinin yanı sıra içerikleri hangi süreçlerde ve hangi cihazlarla daha aktif kullandıklarına da odaklanmıştır. Bu durumda öğretim tasarımlarında öğrenen tercihlerine yer verilerek öğrenci motivasyonunun ve öğretim kalitesinin artırılmasının mümkün olduğu söylenebilir.

Öğrenen tercihlerine yönelik öğrenme veya öğretme analitiği konularında daha öncelerde yapılmış olan sistematik taramalar bulunmaktadır. Daha önce yapılmış olan çalışmalarda öğrenenlerin video analitiklerine dayalı olarak öğrenme kalitesini etkileyen unsurlara odaklanılmıştır. Bu çalışmada ise video içeriklere yönelik mevcut durumda

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öğretme analitiklerinin kullanıldığı çalışmalara odaklanılmış ve analitik verilerinin videolar için hangi amaçla, nasıl kullanıldığına bakılmış ve çalışmalarda öğretimin kalitesini daha iyi hale getirmek amacıyla sunulan öneriler belirlenmeye çalışılmıştır. Böylece video derslerde öğretim analitiklerini kullanarak videoların öğretim kalitesini artırmak için gerekli olan düzenlemeler ortaya çıkarılmaya çalışılmıştır.

Anahtar Kelimeler: *Öğretme Analitikleri, Video Dersler, Öğrenme Analitikleri, Veri Anlamlandırma.*

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Öğrenme Yönetim Sistemlerinin Yeniliğin Yayılımı Kuramı Çerçevesinde Öğrenci Görüşlerine Göre İncelenmesi

Rezan ÖZGÖKÇE KOÇ[1], Berrin ÖZKANAL[2]

Özet

Amaç: Uzaktan eğitim alanında yeni yaklaşımların benimsenmesi ve e-öğrenmenin yaygınlaşması ile günümüzde öğrenme yönetim sistemlerinin önemi gittikçe artmaktadır. Öğrenenler için etkileşimli öğrenme ortamları sağlayan bu sistemlerin bireyler tarafından etkili şekilde kullanılması da önem kazanmaktadır.

Bu araştırmanın amacı, Anadolu Üniversitesi Uzaktan Öğretim Bölümü Tezsiz Yüksek Lisans öğrencilerinin öğrenme yönetim sistemlerinin kullanımını Yeniliğin Yayılımı Kuramı çerçevesindeki yeniliğin algılanan özellikleri doğrultusunda incelemektir. Bu genel amaç doğrultusunda çalışmada; öğrenenlerin ÖYS'leri Yeniliğin Yayılımı Kuramına göre yeniliğin algılanan özelliklerinin (göreceli avantaj, uyumluluk, karmaşıklık, denenebilirlik, gözlenebilirlik) benimsenme düzeyleri, ÖYS'lerin kullanım durumu, sistemin etkililik derecesi, kullanıcıların sisteme ilişkin görüş ve önerilerinin neler olduğu belirlenmeye çalışılmıştır.

Yöntem: Araştırma nitel araştırma yöntemlerinden temel nitel araştırma yaklaşımı ile gerçekleştirilmiştir. Temel nitel yaklaşımla bir süreç, bir olgu veya ilgili katılımcıların konuyla ilgili görüşleri alınarak kişilerin perspektiflerinin ortaya konması hedeflenmektedir. Çalışma grubunun belirlenmesinde amaçlı örneklem türü olan, önceden belirlenmiş ölçütleri karşılayan, temelinde olasılık olmayan örneklem türü olan ölçüt örneklemeden yararlanılmıştır. Araştırmada yer alacak katılımcılar öğrenme yönetim sistemlerini öğrenme-öğretme süreçlerinde kullanmalarına göre çalışmaya dahil edilmişlerdir. Böylece araştırmaya konu olan bu olgu yaşayan kişilerin deneyimleri ile yansıtılmaya çalışılmıştır.

Araştırmanın katılımcılarını 2021-2022 öğretim yılı güz döneminde Anadolu Üniversitesi Sosyal Bilimler Enstitüsü Uzaktan Eğitim Bölümünde tezsiz yüksek lisans yapan 13'ü kadın 5'i erkek olmak üzere 18 öğrenci oluşturmaktadır. Araştırma verilerinin toplanmasında görüşme tekniği kullanılmıştır. Görüşme için yarı yapılandırılmış görüşme formu geliştirilmiş ve görüşmeler telefon aracılığıyla gerçekleştirilerek, kayıt cihazı ile kayıt altına alınmıştır. Verilerin analizinde içerik analizi yönteminden faydalanılarak temalar ve bunlara ilişkin kodlar tablolarla ifade edilmiştir.

Bulgular: Çalışma sonucunda Yeniliğin Yayılımı Kuramı çerçevesinde katılımcıların yeniliğe ilişkin göreceli avantaj, uyumluluk, denenebilirlik, karmaşıklık ve gözlenebilirlik özellikleri ile yeniliğin benimsenme düzeyi arasında anlamlı bir ilişki olduğu görülmüştür. Bunun yanı sıra çalışmada elde edilen demografik verilere ilişkin katılımcıların yaş, cinsiyet, kıdem ve mesleklerine ilişkin ÖYS'lerin yarar algısı üzerinde bir etkisi olmadığı ancak BİT kullanma düzeylerinin bu konuda yordayıcı olabildiği görülmüştür. Yeniliğin göreceli avantajı, uyumluluğu, denenebilirliği ve gözlenebilirliği arttıkça yeniliğin benimsenme hızını arttırdığı buna karşılık yeniliğin karmaşıklık

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düzeyinin azalmasıyla yeniliğin benimsenme düzeyinin artacağı belirtilmiştir. Buna göre bu araştırmada katılımcıların ÖYS'lere ilişkin benimsenme düzeylerinin hızında artış olabileceği görülmüştür.
Özgünlük/Öneriler: Bu araştırma Yeniliğin Yayılımı Kuramı çerçevesinde ÖYS'lerin benimsenmesine ilişkin literatürde yeterince çalışma olmamasından dolayı önemli bir araştırma olarak görülmekte ve yapılacak çalışmalara katkı sağlayacağına inanılmaktadır. Aynı zamanda bu araştırma gelecekte nicel verilerle desteklenebilir. Ayrıca bu konuda öğreticilere yönelik olarak nitel ve nicel çalışmaların yapılması da önerilmektedir.

Anahtar Sözcükler: *Uzaktan Öğretim, E-Öğrenme, ÖYS, Yeniliğin Yayılımı Kuramı*

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Pandemi Kapanmalarında İlkokul 4. Sınıf Öğrencilerinin Karşılaştıkları Dijital Uçurum

Derya UYGUN[1], Mehmet FİRAT[2]

Özet

Mobil abone sayısının 2025 yılına kadar dünya nüfusunun %71'ine eşdeğer olan 5,9 milyara ulaşması beklenmektedir. Bireylerin mobil cihaz kullanımı rakamları yüksek olsa da etkin bir Açık ve Uzaktan Öğrenme için yeterli teknolojik donanım hanelerde bulunmayabilir. Ayrıca çoğu hanede birden fazla öğrencinin bulunabileceği dikkate alınmalıdır. Bilişim teknolojileri alt yapısına sahip olunsa bile, dijital okuryazarlık becerisine sahip olma büyük önem kazanmıştır. Çünkü dijital bilgiye erişim için öncelikle onun teknolojisine, sonrasında ise dijital okuryazarlık becerilerine sahip olmak gerekmektedir. Gerekli olan teknolojik donanım ve dijital okuryazarlığa sahip olunmadığında ise bireyler ve toplumlar bilgiye erişimde büyük bir engel olarak dijital uçurum ile karşılaşmaktadır. Bu çalışmada, "Çocuklarda Yabancı Dil Öğretiminde Mevcut Mobil Uygulama Kullanımının İlkokul 4. Sınıf Öğrencilerinin İngilizce Ders Başarılarına Etkileri" isimli doktora tezi sürecinde çocukların karşılaştıkları dijital uçurum problemlerinin paylaşılması amaçlanmaktadır. Örneklemin merkez, merkeze yakın ve köy okullarında öğrenim gören 4. sınıf öğrencilerinden oluştuğu araştırmada, köy okullarında öğrenim gören 4. sınıf öğrencilerinden çevrim içi veri toplanamamıştır. Ayrıca köy ve merkez okullarda öğrenim gören öğrencilerin mobil araç kullanımı ve internete erişimleri arasında fark olduğu sonucuna ulaşılmıştır.

Anahtar Kelimeler: *Dijital uçurum, Bilişim teknolojileri, 4. sınıf öğrencileri*

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Yükseköğretim ve UZEM'ler: Bir Bakışta UZEM Sistemi

Soner SÖZLER[1]

Özet

Uzaktan eğitimin bir takım öncü girişimlerin aksine hayatın ve eğitimin her alanında ve aşamasında yer alabileceği artık herkesin kabulü haline gelmiştir. Özellikle yüksek çıktı üretmesi beklenen yükseköğretim kurumları bu noktada öncü olma misyonunu taşımaktadır. Bu bilinçle hareket eden bu çalışmada Yükseköğretime bağlı devlet üniversitelerinde faaliyet gösteren Uzaktan Eğitim Merkezleri (UZEM) web siteleri aracılığıyla incelenmiş ve söz konusu merkezlerin yıllara göre sayıları, misyon ve vizyon ifadeleri, yönetici kadroları, kullandıkları Öğrenme Yönetim Sistemleri, ve toplam tam zamanlı personel sayıları belirlenmiştir. Verinin toplanması, organize edilmesi ve de toplanan veriden gerçekçi sonuçlar çıkarılabilmesi adına bu çalışma nitel araştırma yöntemlerinden içerik analizi yöntemini işe koşmuştur. İçerik analizi bir veriyi raporlamaktan çok özetleyici bir özelliğe sahiptir. Dolayısıyla bu bakış açısıyla yola çıkan bu çalışma bahsedilen örneklemin durumunu özetlemiştir. Söz konusu merkezlerin tamamının web sitelerine erişilerek bilgiler 3 farklı araştırmacı tarafından bir araya getirilmiştir. Bir araya getirilen veri, tablolardan süzülerek temalar oluşturulmuş ve daha sonra bu temalar ana tema olarak bir başka tabloya süzülmüştür. Analizler sonucunda, bu merkezlerin genellikle teknik destek hizmeti sürdürdüğü, yöneticilerinin açık öğretim, uzaktan eğitim ya da bilgisayar öğretimi alanlarında araştırmalarının olmadığı, tam zamanlı çalışan personel sayısının çok az olduğu, bu çalışanların genellikle mühendis kökenli olduğu, uzaktan eğitim pedagojisine hakim personelin bulunmadığı ve de öğretim yönetim sistemi olarak piyasada bulunan yazılımları kullandıkları sonucuna ulaşılmıştır. Kuruluş yılları açısından yaklaşık 20 yıllık bir geçmişe sahip olan bu merkezlerin tam zamanlı personel sayısının yetersizliği, yönetici kadrosunun alan dışından olması, fiziki imkânlarının kısıtlı olması gibi nedenlerden dolayı faaliyet olarak öğretim elemanlarının ya da öğrenenlerin gündelik teknik destek konularına hizmet vermesi uzaktan eğitimi desteklemek, geliştirmek ve yaygınlaştırmak adına olumsuz bir durumdur. Kuruluş amacı olarak bağlı bulunduğu kurumun uzaktan eğitim çalışmalarını desteklemek, geliştirmek ve bu kapsamda mesleki gelişim faaliyetleri gerçekleştirmek bu merkezlerin asli görevi olarak benimsenmelidir. Bu noktada yönetim kademesinden başlayarak uzaktan eğitim alanına, teorilerine ve yaklaşımlarına hakim insan kaynağını sağlamak üniversite üst yönetimlerinin benimsemesi gerek bir düşünce olmalıdır. Bununla beraber bu merkezlerin daha sürdürülebilir faaliyetler gerçekleştirebilmeleri adına maddi, fiziki ve insan kaynağı desteğinin de yeterli seviyelere gelmesi son derece elzemdir. Bulguları, araştırma örneklemi ve sonuçları ile bu çalışma alanda ilk sayılacak bir çalışmadır. Bu noktada bu çalışma, okuyucularına Uzaktan Eğitim merkezlerinin yönetici kadrolarında mutlaka Uzaktan eğitim alanına hakim ve mümkünse bu alanda çalışmalar yapmış insan kaynağının bulunmasını, tam zamanlı görev yapan insan kaynağının ise sadece teknik konulara hakim kişilerden değil aynı zaman uzaktan eğitim pedagojisine hakim kişilerden de oluşmasını, kuruluş misyon ve vizyon ifadelerinde söz edildiği gibi kendi teknoloji ya da yazılımlarını üretebilecek fiziki ve maddi destek sağlamalarını önermektedir.

Anahtar Kelimeler : *Uzaktan Eğitim Merkezi, İçerik Analizi, Web Sitesi Analizi*

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Açık ve Uzaktan Öğretim Fakültesi Öğrencilerinin Üç Boyutlu Sanal Ortam Uygulamasına (AtaMeta) Yönelik Teknoloji Kabul Düzeylerinin İncelenmesi

Sinem ÇİLLİGÖL KARABEY[1], Melike AYDEMİR ARSLAN[2], Gökhan ÖMEROĞLU[3]

Özet

Açık ve uzaktan öğretim hizmeti alan öğrenciler teknolojinin sunduğu imkanlar dahilinde geliştirilen çeşitli sistemler ve yazılımlar aracılığıyla fiziksel olarak ayrı mekânlarda eğitim-öğretim faaliyetlerini sürdürmektedir. Yüz yüze eğitim ortamlarında öğrencilere sunulan iletişim ve etkileşim hızının açık ve uzaktan eğitim gören öğrencilerin de yakalayabilmesi, teknolojik gelişmelere ayak uydurabilmesi ve metaverse olarak adlandırılan yeni dünyada yerini alabilmesi amacıyla öğrencilerin kullandığı tüm sistem ve yazılımlar dinamik veri havuzlarıyla metaverse ortamına taşınmaya başlamıştır. Eğitimde metaverse uygulamalarına örnek oluşturan AtaMeta uygulaması, açık ve uzaktan öğretim fakültesi öğrencilerinin eğitim-öğretim faaliyetlerini sanal platformlara taşımış ve öğrencilerin metaverse dünyasına girmelerini sağlamıştır. AtaMeta uygulaması genel itibariyle öğrenci işlemlerinden sınav işlemlerine, materyal işlemlerinden online kitap siparişi vermeye kadar açık ve uzaktan eğitim öğrencilerinin tüm ihtiyaçlarını karşılayabilen, sosyal veya akademik etkileşim ve iletişime imkan sunan bir yapıda tasarlanmıştır. Aynı zamanda açık ve uzaktan öğretim öğrencilerinin fiziksel olarak farklı mekanlarda olması kurumsal aidiyetlerini düşürmektedir. Bu uygulama aynı zamanda öğrencilere öğrenim gördükleri fakültenin gerçek görüntüleriyle aidiyetlerini güçlendirme, akademik ve idari işlemlerini kolayca iletme, yürütme ve takip etmelerini sağlamaktadır.

Bu doğrultuda çalışma kapsamında, açık ve uzaktan öğretim fakültesi öğrencilerinin ATAMETA Üç Boyutlu Sanal Ortam Uygulamasına yönelik teknoloji kabul ve kullanım düzeylerinin incelenmesi amaçlanmıştır. Bu amaçla, nicel araştırma yöntemlerinden Tarama Araştırması Deseni kullanılmıştır. Araştırma kapsamında Atatürk Üniversitesi Açık ve Uzaktan Öğretim Fakültesi bünyesinde yürütülen 10 programda öğrenim gören öğrencilerden maksimum çeşitlilik örnekleme yöntemiyle veri toplanmıştır. Veri toplanması planlanan programlar seçilirken seçkisiz olmayan örnekleme yöntemlerinden amaçsal örnekleme yöntemlerinden biri olan maksimum çeşitlilik örnekleme yöntemi kullanılmıştır. Bu kapsamda uygulama sürecinde veri toplanacak olan programların farklı alanlardan (eğitim, iktisat, sağlık, sosyal, fen) seçilmesi sağlanmıştır. Öğrencilerin ATAMETA uygulamasının kullanımına yönelik kabul düzeylerini tespit edebilmek için Venkatesh vd. (2012) tarafından geliştirilen "Teknoloji Kabul ve Kullanım Birleştirilmiş Modeli-2 (TKKBM2)" ölçeğinin Türkçe uyarlaması kullanılmıştır. Çevrimiçi ortama aktarılan ankete toplamda 397 öğrenci katılım göstermiştir.

Çalışma sonucunda öğrencilerin büyük bir kısmı AtaMeta uygulamasını "Orta Sıklıkta" kullandıklarını, kullanım amaçlarının genellikle öğrenci bilgi sistemi erişimi ve sınav

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hizmetleri olduğunu belirtmişlerdir. Ayrıca uygulamanın performans beklentilerini büyük oranda karşıladığını, bu uygulamayı kullanmanın zevkli olduğunu ve ilerde bu tür uygulamaların olduğu platformları kullanma niyetlerinin olumlu yönde olduğu ortaya çıkmıştır. Öğrencilere yöneltilen açık uçlu sorularda uygulamanın beğenilen yönlerinin ara yüzünün kolay olması, canlı asistan desteği, gerçek mekan benzerliğini, tüm ders materyallerin aynı anda tek bir platformdan erişimin mümkün olmasını, bildirimleri ve duyuruları kolayca görebilme özelliklerini beğendiklerini ifade etmişlerdir. Ancak öğrencilerin, uygulamanın kullanımının alışkanlık haline gelmesi ve başkaları tarafından uygulamanın kullanımının önerilmesi konularında büyük oranda olumsuz görüşe sahip oldukları görülmüştür. Aynı zamanda E-devlet girişinin olmamasını, bazı mobil işletim sistemleri sürümleri tarafından desteklenmemesini, sistemin zaman zaman yavaş olmasını ve web desteğinin bulunmamasını beğenmediklerini ifade etmişlerdir. Sonuç olarak açık ve uzaktan öğretim fakülteleri tarafından sunulan hizmetlerin tümünün metaverse ortamına taşınmasının genel itibariyle öğrenciler tarafından beğenildiği ve benzer hizmetler sunan diğer kurumlar tarafından belirli eksiklikler giderildikten sonra kullanıma uygun olacağı öngörülmektedir.

Anahtar Kelimeler: *Uzaktan Eğitim, Açıköğretim, 3B Sanal Ortamlar, Metaverse, Teknoloji Kabul Modeli*

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Pandemi Döneminde Öğretmenlerin Eğitim Amaçlı Sosyal Medya Kullanım Durumları: Yüz Yüze Eğitim-Uzaktan Eğitim Karşılaştırması

Haluk ÜNAL[1], Bilge ÇAM AKTAŞ[2],

Özet

Amaç: Günümüzde teknolojik gelişmeler ile sosyal ağlar eğitim ile daha uyumlu hale gelmiştir. Covid 19 pandemi süreci de bu durumu hızlandırmıştır. Alanyazında eğitimde sosyal medya kullanımı ile ilgili yapılan çalışmalara baktığımızda araştırmaların pandemi öncesi dönemde gerçekleştirildiği görülmektedir. Pandemi sürecinde ise bu tür bir çalışmaya rastlanmamıştır. Bu gereksinimden hareketle bu araştırmada öğretmenlerin öğrenme – öğretme sürecinde sosyal medya araçlarını kullanım durumlarının belirlenmesi amaçlanmıştır. Bu amaç doğrultusunda aşağıdaki sorulara yanıt aranmıştır.

- Eğitim amaçlı hangi sosyal medya araçları kullanılmaktadır?
- Eğitim amaçlı sosyal medya araçları hangi sıklıkla kullanılmaktadır?
- Eğitim amaçlı sosyal medya araçlarının kullanım amaçları nelerdir?
- Eğitim amaçlı sosyal medya araçlarının kullanımında uzaktan eğitim ve yüz yüze eğitim sürecinde farklılık var mıdır?

Bu çalışma eğitimde sosyal medya araçlarının kullanım durumlarının tespiti ile hem yüz yüze eğitim hem de uzaktan eğitim sürecinde yardımcı eğitim- öğretim ortamlarının kullanım durumlarına katkı sağlayacaktır. Elde edilen sonuçlar ile pandemi gibi benzer acil durumlarda değişen eğitim şartlarında yardımcı eğitim-öğretim ortamlarının seçilmesinde yol göstereceği olacağı düşünülmektedir. Eğitimde sık kullanılan sosyal medya araçlarının belirlenmesi ile bu araçların eğitsel amaçlı kullanımına yönelik öğretmenler için düzenlenecek olan hizmet içi eğitimlere de yol haritası çizeceği umulmaktadır.

Yöntem: Bu araştırma nicel araştırma yöntemlerinden betimsel tarama modelinde tasarlanmıştır.

Araştırmanın çalışma grubunu, 2020-2021 eğitim-öğretim döneminde Eskişehir ili Odunpazarı ve Tepebaşı ilçelerinde yer alan ortaokullardan basit seçkisiz örnekleme yöntemiyle belirlenen 15 farklı branştan145 öğretmen oluşturmaktadır.

Araştırmanın verileri araştırmacılar tarafından geliştirilen "Öğretmenlerin Eğitim Amaçlı Sosyal Medya Kullanım Durumları" anketi ile toplanmıştır. Anket Katılımcıların demografik bilgilerinin toplandığı Kişisel Bilgiler ve sosyal medya kullanım durumları, amaçları ve kullanım sıklıkları ile ilgili bilgilerin toplandığı Eğitim Amaçlı Sosyal Medya Kullanımı olmak üzere iki bölümden oluşmaktadır. Birinci bölümde 5 adet; ikinci bölümde 15 adet soruya yer verilmiştir.

Araştırma için gerekli olan Etik kurul izni üniversiteden, uygulama izni ise İl Milli Eğitim Müdürlüğü'nden alınmıştır.

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Verilerin toplanmasında araştırmacılar tarafından geliştirilen anket google forms aracılığıyla online form haline getirilmiştir. Online form için oluşturulan link Tepebaşı ve Odunpazarı ilçelerindeki orta okulların idarecileriyle paylaşılarak okul whatssapp grupları yoluyla öğretmenlere iletilmiştir. Online veri toplanırken yaşanan veri kaybı nedeniyle evrende yer alan okullardaki tüm öğretmenler ile paylaşım yapılmış ancak yalnızca 145 öğretmenden dönüş alınabilmiştir.
Verilerin analizinde SPSS 20 paket programı ile frekans ve yüzde hesaplamaları yapılmış ve rapor edilmiştir.
Bulgular: Araştırma sonucunda katılımcıların 102 tanesinin uzaktan eğitim ile ilgili eğitim aldığı,78 tanesinin herhangi bir eğitim almadığı, günlük hayatlarında sıklıkla Whatssapp (179), Youtube (148), Instagram (144), Facebook (115), Twitter (72) gibi sosyal medya araçlarını kullandıkları, bununla birlikte az sayıda da olsa telegram, zoom, bip, pinterest, Google meet ve Messenger gibi araçlardan da söz ettikleri görülmüştür.
Eğitim amaçlı olarak en sık kullanılan sosyal medya araçları sırasıyla Whatssapp (156); Youtube (126); Instagram (48); Facebook (45); Twitter (8) olarak belirlenmiştir. Öğretmenlerin belirtmiş oldukları sosyal medya araçlarını uzaktan eğitim sürecinde yüzyüze eğitime göre daha sıklıkla kullandığı görülmüştür. Kullanım sıklığı olarak bakıldığında yoğunluk haftada bir olarak belirlenmiştir. Öğretmenler youtube'u çoğunlukla video paylaşımı için kullandıklarını belirtirken, instagram çoğunlukla fotoğraf, video ve yorum paylaşımı amacıyla, whatsapp ise çoğunlukla fotoğraf, video ve belge paylaşımı amacıyla kullanılmıştır. Bunun dışında söz edilen sosyal medya araçları e-twinning faaliyetlerini yaygınlaştılması, kişisel gelişimin sağlanması, ders materyali paylaşımı, ödev paylaşımı ve dönüt verme amaçlı da kullanılmıştır.

Anahtar Kelimeler: *Eğitim Amaçlı Sosyal Medya Kullanımı, Uzaktan Eğitim, Yüzyüze Eğitim, Pandemi*

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Açık ve Uzaktan Öğrenmede GPT-3 Modelinin Kullanım Alanları

Saniye KULELİ[1], Mehmet FIRAT[2]

Özet

Açık ve uzaktan öğrenmede yüksek öğrenen sayıları ve programların çeşitliliği, öğretimin birçok aşamasında işgücü ve zamandan kazanmak amacıyla yapay zekâ teknolojilerinin daha verimli kullanımına yönelik ihtiyacı da beraberinde getirmiştir. Açıköğretim sisteminde her geçen yıl artan öğrenen sayısı, öğrenenlerin öğrenme süreçlerinde destek hizmetleri ihtiyacını da beraberinde getirmektedir.

Amaç: Genel amaçlı bir dil modeli olan GPT-3, farklı amaçlarla çeşitli görevlere uygulanabilir bir modeldir. GPT-3 açık uçlu soru cevaplama, yazılım kodu oluşturma, röportaj yapma, metinleri farklı dillere çevirme ve makale yazma gibi birçok içeriği insanların oluşturduklarından ayırt edilemeyecek benzerlikte üretebilmektedir. Böyle güçlü ve işlevsel bir model ile oluşturulacak uygulamaların, açık ve uzaktan öğrenmenin hangi bileşenlerinde nasıl kullanılabileceğinin belirlenmesi ihtiyacı öne çıkmaktadır. Araştırmada GPT-3'ün açık ve uzaktan öğrenmeye yansımaları ele alınarak kullanım alanları belirlenecektir. Bu sayede gelecekte açık ve uzaktan öğrenme alanında yapılacak doğal dil işleme temelli çalışmaların oluşturulmasına önemli bir zemin hazırlanmış olacaktır. Böylece gelecekte açık ve uzaktan öğrenmenin daha verimli yürütülmesi amacıyla hangi çalışmaların yapılabileceğine ilişkin bakış açıları sunulması sağlanacaktır.

Metodoloji: Araştırma GPT-3 teknolojisine ilişkin açık ve uzaktan öğrenmede hangi alanlarda çalışmalar yapıldığı belirlenmesi amacıyla sistematik alanyazın taraması olarak desenlenmiştir. Bilimsel araştırma yayınlarında en büyük iki veritabanı olan Scopus ve Web of Science Core Collection kaynak olarak seçilmiştir. Anahtar kelime ise sadece GPT-3 olarak seçilerek çalışmaların başlık, özet ve anahtar kelime bölümlerinde arama yapılarak, sadece yayınlanan makaleler çalışmaya dahil edilmiştir. Bu süreç uluslararası bir alanyazın format standartı olan Prisma yapısına uygun olarak gerçekleştirilmiştir.

Bulgular: Yapılan analizler sonucunda GPT-3'ün eğitim amaçlı kullanılmasına ilişkin yeterli çalışma olmadığı sonucuna varılmıştır. GPT-3 ile yapılan çalışmalarda chatbot uygulamalarının yoğunluğu dikkat çekmektedir. Yapay zekâ ve doğal dil işlemenin insan-bilgisayar etkileşimiyle uygulandığı en güçlü örneklerinden biri olan chatbot'un GPT-3'ün doğal dil işleme alanında sunduğu potansiyel avantajlarla birlikte önemli bir çözüm aracı olabileceği sonucuna ulaşılmıştır. Chatbot uygulamaları, açık ve uzaktan öğrenmenin öğrenci destek hizmetleri, materyal seçimi, ölçme ve değerlendirme gibi önemli aşamalarında karşılaşılacak problemlerin çözümünde kullanılabileceği de bu sonucu desteklemektedir.

Özgünlük/Öneriler: Genel amaçlı bir dil modeli olan GPT-3, farklı amaçlarla çeşitli görevlere uygulanabilir bir modeldir. OpenAI GPT-3 ile yapılabilecek uygulama örnekleri 7 farklı kategoride toplanarak sunulmuştur. GPT-3 modeli sahip olduğu özelliklerle, açık ve uzaktan öğrenmenin özellikle kitlesel öğretim bağlamında güçlü bir

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kullanım potansiyeline sahiptir. Ancak ortaya çıktığı 2020 yılından bu yana GPT-3 ile ilgili yapılan, araştırmalarda, araştırmacılara çalışma alanı ve konusunu belirlemelerinde detaylı yol gösterecek bir sistematik alanyazın taraması bulunmadığı görülmüştür. Bu çalışma ile GPT-3 dil modeli kullanılarak yapılan çalışmaların yayınlanan dergi, ülke, kurum, yazar ve araştırma konularına göre incelenip sonuçların ortaya konularak açık ve uzaktan öğrenme alanında gelecekte yapılacak çalışmalara ışık tutması açısından önem taşımaktadır.

Anahtar Kelimeler: *Açık ve Uzaktan Öğrenme, GPT-3, Doğal Dil İşleme, Yapay Zekâ*

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Gözetimsiz Çevrimiçi Sınavlar Güvenilir mi?

Necati TAŞKIN[1], Tevfik Fikret KOLOĞLU[2]

Özet

Amaç: Bilgi ve iletişim teknolojilerindeki gelişmeler çevrimiçi öğrenmenin eğitimdeki rolünü artırmıştır. Pandemi dönemi de çevrimiçi öğrenmeye geçişi hızlandırarak eğitim sisteminde dönüm noktası oluşturmuştur. Çevrimiçi öğrenmeye duyulan bu ilgi ve/veya ihtiyaç bazı zorlukları da beraberinde getirmiştir. Çevrimiçi öğrenme de karşımıza çıkan en büyük zorluklardan birisi değerlendirmedir.

Çevrimiçi yürütülen derslerin sınavları genellikle kâğıt-kalemle yapılan gözetimli sınavlar şeklinde gerçekleştirilmektedir. Fakat pandemi dönemi değerlendirmenin de çevrimiçi gerçekleşmesini zorunlu kılmıştır. Bu durum çevrimiçi değerlendirmenin kopya çekmek için müsait bir ortam olduğu gerçeğini gün yüzüne çıkarmıştır. Çevrimiçi ortamda kopya eylemini azaltmak için canlı (live) veya yapay zekâ gözetimli bazı mekanizmalar kullanılsa da yüksek teknolojili bu yapıların kullanımı çok yaygın değildir. Uygulaması daha kolay olması sebebiyle ilk tercih gözetimsiz çevrimiçi sınavlar olmaktadır. Gözetimsiz gerçekleşen sınavlarda soru havuzu, süre sınırı, soruların tek tek gösterilmesi, geri dönüşe izini verilmemesi, soruların ve seçeneklerin karıştırılması gibi bazı önlemler alınmaktadır. Alınan bu önlemler kopya ihtimalini azaltsa da öğrencilerin farklı kaynaklara başvurması, sınavları birlikte yapması ve/veya uzman bir kişiden yardım almasının önüne geçememektedir. Bu durum, "Gözetimsiz çevrimiçi sınavlar güvenilir mi?" sorusunu akla getirmektedir. Güvenirlik tesadüfi hatalardan arınmanın bir ölçüsüdür. Kopya ise ölçmede tesadüfi hataya neden olmakta ve güvenirliği düşürmektedir.

Bu bağlamda, bu çalışma da 2017-2021 yılları arasında çevrimiçi olarak yürütülen ortak derslere ait gözetimli kâğıt-kalemle yapılan ve gözetimsiz çevrimiçi gerçekleştirilen sınavların incelenmesi amaçlanmıştır.

Yöntem: Öğrencilerin puan dağılımlarının ve puanların birlikte değişiminin incelendiği bu çalışma ilişkisel tarama modelinde gerçekleştirilmiştir. Bu çalışmada 2017-2018 ile 2020-2021 Eğitim-Öğretim yılları arasındaki gerçekleştirilen üç dersin 8 yarıyıla ait verileri incelenmiştir. Bir devlet üniversitesinde çevrimiçi olarak yürütülen ortak dersleri (Atatürk İlkeleri ve İnkılap Tarihi, Türk Dili ve Yabancı Dil) alan tüm öğrenciler araştırmaya dahil edilmiştir. Bu öğrenciler aynı eğitim-öğretim yılına ait farklı yarıyıllarda (güz ve bahar) gerçekleştirilen her iki sınava da (vize ve final) girmiştir. Öğrencilere ait puan ortalamaları betimsel istatistik yoluyla incelenmiştir. Öğrencilerin dönem ortalamaları arasındaki ilişkinin miktarını bulup yorumlamak için korelasyon katsayısına bakılmıştır.

Bulgular: Öğrencilerin puan ortalamaları incelendiğinde, gözetimsiz çevrimiçi gerçekleştirilen sınavlardaki puan ortalamalarının gözetimli kâğıt-kalemle yapılan sınavlardaki puan ortalamalarından daha yüksek olduğu görülmüştür. Gözetimsiz çevrimiçi sınavların puan ortalamaları geleneksel yöntemlerle yapılan sınavlara

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göre yaklaşık 10-15 puan daha yüksektir. Ayrıca öğrencilerin kâğıt-kalemle yapılan sınavlardaki puan ortalamaları arasında orta-yüksek düzey, pozitif ve anlamlı bir ilişki olduğu görülürken, çevrimiçi sınavlarda bu ilişkinin orta-düşük düzey olduğu görülmektedir. Aynı yıla ait gözetimli kâğıt-kalemle yapılan sınav (güz) ile gözetimsiz çevrimiçi gerçekleştirilen sınav (final) ortalamaları arasında ise düşük düzey bir ilişki olduğu görülmüştür.

Özgünlük/Öneriler: Çevrimiçi öğrenmenin büyümeye devam edeceği ve bunun çevrimiçi test ihtiyacını artıracağı açıktır. Elde edilen bulgular gözetimsiz çevrimiçi sınavların güvenirlik sorunlarının olduğunu göstermektedir. Her ölçümde az da olsa mutlaka hata vardır. Ancak hatalar minimuma indirildiğinde testin güvenirliği de olumlu yönde etkilenecektir. Ölçmenin niteliğini artırmanın yolu tesadüfi hataları mümkün olduğunca aza indirmektir.

Gözetimsiz sınavlar, gözetimli sınavlara göre, akademik suiistimale karşı daha savunmasızdır. Öğrenciler arasında çevrimiçi sınavlarda kopya çekmenin daha yaygın ve daha kolay olduğunu kanısı bulunduğundan öğretim elemanlarının güvenli bir ortamı oluşturma sorumluluğu bulunmaktadır. İyi organize edilmiş bir değerlendirme sistemi, öğrenci performansını ve değerlendirmenin niteliğini artırabilir. Bu sebeple, akademik suiistimali azaltmak adına, çevrimiçi sınavlarda kullanılacak gözetimli mekanizmalara ihtiyaç duyulmaktadır.

Anahtar Kelimeler: *Çevrimiçi Öğrenme, Değerlendirme, Kopya, Güvenirlik, Gözetimli-Gözetimsiz Sınav*

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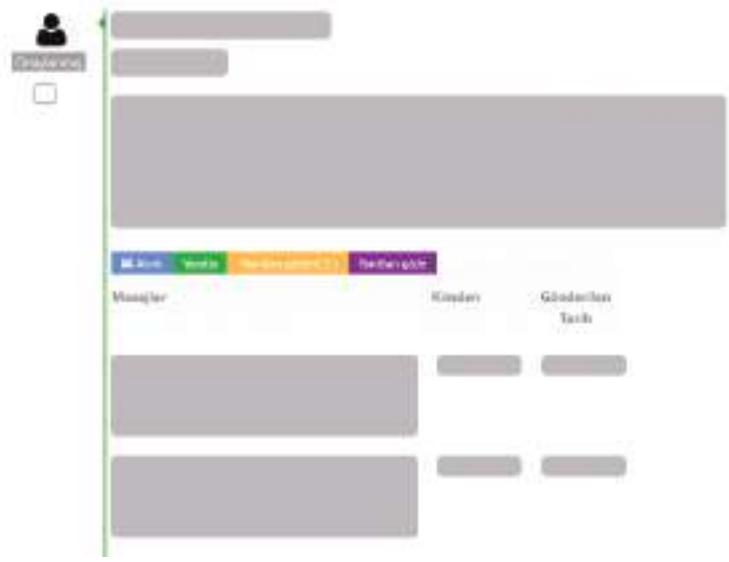
Çevrim İçi Lisans Dersi Forum Aktivitesi Arayüzünün Öğrenenler Arasındaki Eş Zamansız Etkileşime Etkisinin Keşfedilmesi

Ahmet ÇELİK[1]

Özet

Amaç: Gittikçe daha fazla ders, uzaktan eğitim ortamına taşınıp "çevrim içi hale geldikçe", öğrencilerin birbiriyle etkileşim kurmak için tartışma forumları başta olmak üzere eş zamansız etkileşim içeren uzaktan eğitim ortamlarında geçirdiği zaman da artmaktadır. Dolayısıyla eş zamansız öğrenen-öğrenen etkileşimi, kaliteli bir çevrimiçi öğrenme deneyimi algısı oluşturmada giderek önem kazanmaktadır. Eş zamansız aktivitelerde öğrenen-öğrenen etkileşiminin öğrenen-arayüz etkileşiminden olumsuz etkilenebileceği unutulmamalıdır. Bu bağlamda forum aktivitesinde zaman geçiren öğrenenlere kaliteli bir çevrimiçi öğrenme deneyimi sunabilmek için forum arayüzüyle etkileşimlerinde karşılaşabilecekleri problemlerin önceden bilinmesi önemlidir.

Yöntem: Bu araştırmada çevrim içi bir lisans dersinde araştırmacı tarafından yürütülen forum aktivitesi arayüzünün öğrenen-öğrenen etkileşimlerine olan etkisi, durum çalışması yöntemiyle keşfedilmiştir. Forum aktivitesi, Covid-19 salgını nedeniyle tamamen uzaktan eğitime geçilen 2020-2021 yılı bahar döneminde, Gazi Üniversitesi'ndeki bir lisans dersinde 3 hafta süreyle uygulanmıştır. Derse kayıtlı 72 öğrenciden 56'sı aktiviteye katılmıştır.

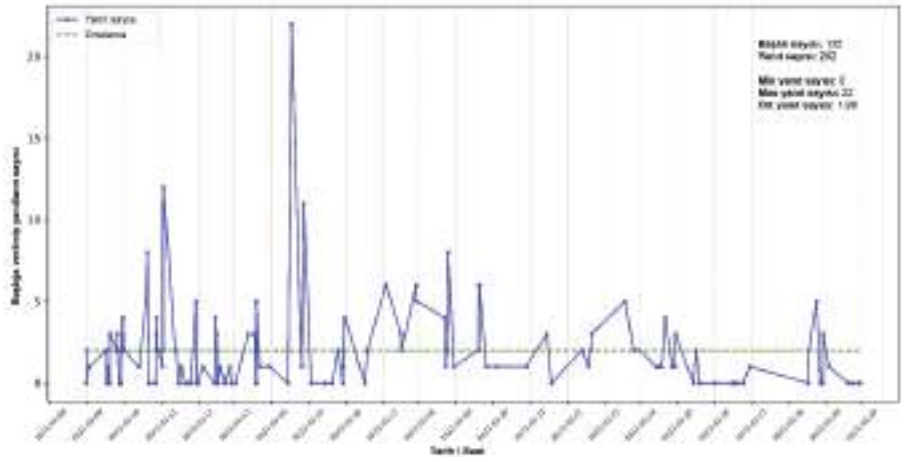


Şekil 1. *Forum arayüzü*

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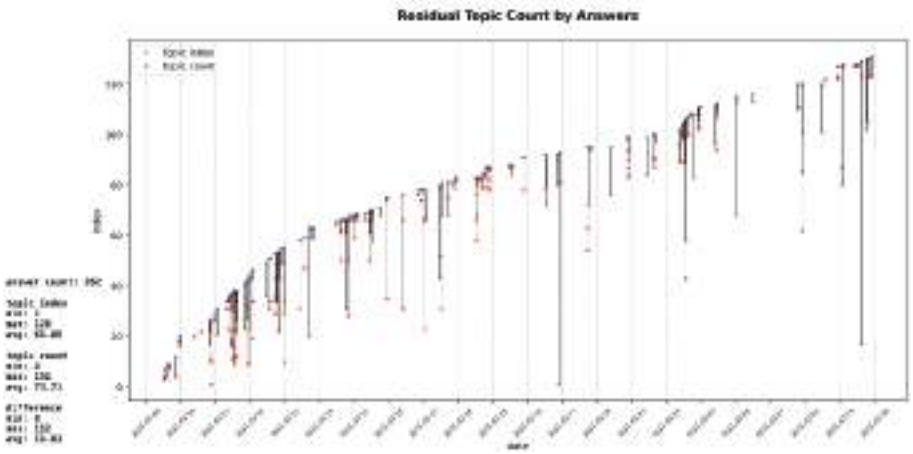
Forumda öğrencilerden tartışma konusunda özgün bir araştırma yapmaları, görüşlerini yeni bir başlık oluşturarak forum sayfasına göndermeleri (*öğrenci-arayüz etkileşimi*) ve birbirlerinin başlıklarına yanıt yazarak çevrim içi tartışmaya katkı sağlamaları beklenmiştir (*öğrenci-öğrenci etkileşimi*). Öğrencilerin performansı, rubrikle puanlanarak dersin ara sınav notunda değerlendirilmiştir. Forum aktivitesi ara yüzü, tek bir web sayfasından oluşmaktadır. Her yeni başlık, sayfanın en altına eklenirken, cevaplar başlığa göre ayrı ayrı listelenmektedir (Şekil 1). Forum aktivitesinin tamamlanmasının ardından öğrenci-öğrenci etkileşimi verileri bir excel tablosunda toplanmıştır. Başlık ve yanıtların hepsi ayrı birer gönderi olarak kabul edilmiştir. Her bir gönderinin sahibi, zamanı, türü, sayfadaki sırası ve varsa başlık yanıt ilişkisini içeren bu veriler Phyton ile yazılan özgün bir program aracılığıyla analiz edilmiştir.

Bulgular: Analiz edilen toplam 394 gönderinin 132'si başlık, 262'si yanıt türündedir. Gönderilerin 13'ü öğretim elemanına aittir ve tamamı başlıktır. Forum boyunca günlük ortama 19 ve öğrenci başına ortalama 7 gönderi paylaşılmıştır. Öğrencilerin %30,3'ü (n=17) sadece tek bir gönderi paylaşmıştır. Forum süresince başlık başına ortalama 1,98 yanıt gönderilmiş olup başlıkların %33'üne (n=44) öğrenciler tarafından hiç yanıt verilmemiştir. Yanıtların %49'u (n=129) birinci, %27'si (n=71) ikinci ve %24'ü (n=62) üçüncü haftalarda paylaşılmıştır. Gönderim tarihine göre sıralanmış başlıklara verilen toplam yanıt sayıları Şekil 2'de verilmiştir.



Şekil 2. *Başlıklara göre toplam yanıt sayılarının dağılımı*

Arayüz etkileşiminin öğrenen-öğrenen etkileşimindeki rolünü keşfetmek amacıyla öğrencilerin yanıt verdiği başlıkların forum sayfasındaki konumuna ilişkin veriler analiz edilerek yanıt gönderim tarihine göre sıralanmıştır (Şekil 3). Buna göre forum süresi boyunca öğrencilerin yanıtladığı başlığın sayfadaki sırası (*kırmızı*) ile anlık toplam başlık sayısı (*mavi*) arasındaki farkın (*siyah çizgi*) ortalaması 11.83'tür. Bu bulgu, öğrenci-öğrenci etkileşiminin forum süresince genellikle sayfanın en altına yakın başlıklarla kısıtlı kaldığını ve ilk haftalarda oluşturulmuş başlıkların süre geçtikçe hiçbir etkileşim almadığını göstermektedir.



Şekil 3. *Yanıt verilen başlıkların sayfadaki konumu*

Sonuçlar: Elde edilen bulgular doğrultusunda, forum aktivitesinde kayda değer sayıda öğrenci-öğrenci etkileşimi oluştuğu, zaman ilerledikçe öğrenen-öğrenen etkileşiminin genellikle sayfanın en altındaki başlıklarla kısıtlı kaldığı görülmüştür. Bu süreçte yanıt sayısında ciddi bir düşüş olmadığı halde etkileşimlerdeki bu eğilim, öğrencilerin sadece belirli başlıklarla etkileşim kurmasına neden olarak forum aktivitesinin beklenen hedeflerine ulaşamamasına neden olmuştur. Yani forum arayüzü ve kullanım şekli öğrenen-öğrenen etkileşimini olumsuz etkilemiştir. Forumun tek bir sayfadan oluşması, başlık sayısı arttıkça sayfa uzunluğunun artmış olması ve yanıtların sayfada gizili olmasının bu duruma etkisi olduğu düşünülmektedir. Sonuç olarak forum süreci boyunca etkili bir öğrenci-öğrenci etkileşimi oluşturabilmek için öğrenci-arayüz etkileşiminde iyileştirmeler yapılmalıdır.

Anahtar Kelimeler: *Eş Zamansız Öğrenme, Forum Aktivitesi, Öğrenci-Öğrenci Etkileşimi, Çevrim İçi Öğrenme, Tartışma Formu*

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Okul Öncesi Dönem Çocukları İçin Çevrimiçi Mahremiyet Eğitiminin Geliştirilmesi

Elif ATABAY[1], Özcan Özgür DURSUN[2]

Özet

Bu araştırmada, okul öncesi dönem çocuklarının mahremiyet eğitiminde kullanılmak üzere geliştirilecek çoklu ortam tasarımlarının, ebeveynler ve okul öncesi öğretmenlerin görüşleriyle değerlendirilmesi amaçlanmıştır. Araştırma, tasarım tabanlı araştırma yöntemi çerçevesinde yürütülecektir. Alanyazında tasarım tabanlı araştırmaların disiplinlerarası karma bir araştırma yöntemi olduğu ve tasarım tabanlı araştırmaların kendilerini yenileyen tasarım süreci ve katılımcılarla işbirliği gibi birçok yönüyle e-öğrenme ortamlarına ait tasarım ölçütlerini barındırdığı vurgulanmaktadır. Okul öncesi mahremiyet eğitiminin ebeveyn ve öğretmenler tarafından verildiği düşülerek araştırmanın katılımcıları 10 ebeveyn ve 10 öğretmen olmak üzere 20 kişi olarak belirlenmiştir. Araştırma kapsamında geliştirilecek öğrenme içeriklerinin ulaşılabilirliğini artırmak amacıyla çevrimiçi ortam kullanılarak katılımcıların çoklu ortam materyallerini deneyimlemesi sağlanacak, araştırma verileri çevrimiçi ortamda toplanacaktır.

Araştırma sürecinin üç aşamada tamamlanması planlanmıştır: İlk aşamada okul öncesi mahremiyet eğitimine yönelik ilgili alanyazın taranarak elde edilen bilgiler doğrultusunda animasyon filminin hikâyesi yazılacaktır. Daha sonra ise hikâyeye uygun olarak animasyon filmi geliştirilecektir. Geliştirilen animasyon filmi katılımcıların görüşlerine sunulacak ve uygulama sürecinde araştırma verileri toplanacaktır. İkinci aşama olan iyileştirme aşamasında, ebeveyn ve öğretmenlerden toplanan veriler doğrultusunda hazırlanan animasyon filmi geliştirilecektir. Geliştirilmiş tasarım çalışma grubuna tekrar uygulanacak ve uygulama sürecinin verileri toplanacaktır. Düzenleme ve geliştirme döngüleri tamamlandığında araştırmanın son aşaması olan analiz ve raporlama aşamasına geçilecektir.

Okul öncesi dönem çocuklarının mahremiyet eğitimlerine katkı sağlayacağı öngörülen animasyon filmi, bir hikaye ve planlı bir senaryo üzerine inşa edilecektir. Çocukların, gelişimsel özellikleriyle uyumlu olacak animasyon filmi ile bireysel olarak eğitim almaları, kendilerini rahat hissetmeleri açısından oldukça önemli ve etkilidir. İlgili alanyazında okul öncesi çocukların mahremiyet eğitiminde kendilerini güvende hissedebilmeleri için ebeveyn kontrolündeki eğitimlerin önerildiği vurgulanmaktadır. Bu nedenle ebeveynlerin etkin rol alacağı bir yaklaşımla animasyon filmi üzerinden temel bilgilerin aktarılması ve bu temel bilgilerin devamı olacak nitelikte, okul öncesi öğretmenleri tarafından mahremiyet eğitiminin pekiştirilmesi sağlanacaktır. Bilgilerin kalıcılığının sağlanabilmesi için verilen eğitim etkinliklerle desteklenecektir. Etkinliklerinde, okul öncesi dönem çocuklarının eğlenerek öğrenmelerine destek olacak, mahremiyet eğitimindeki bilgilerin hatırlanmasına yardımcı olacak boyama ve puzzle gibi materyallere yer verilecektir.

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Bu eğitim aşamasında ebeveynler ve okul öncesi öğretmenleri çocukların öğrenme sürecinde en önemli yol göstericileridir. Alanyazında da vurgulandığı gibi okul öncesi dönem çocuklarının eğitimlerinde çoklu ortam materyallerinin etkisinin oldukça fazla olmasının yanı sıra günlük hayattan hikâyeler ile bu eğitimin pekiştirilmesinin de önemli bir etkileri olacaktır. Konunun benimsetilmesi açısından mahremiyet bilincinin sınırlarını korumanın önemini belirten hikâyeler ve olaylar oldukça etkilidir. Günlük hayattan seçilecek olaylar ve eğitici hikâyeler ile çocuk, kendini hikâye kahramanı ile özdeşleştirecek ve bu sayede verilmek istenen mesajı benimseyip günlük hayatına daha kolay uyarlayabilecektir. Günlük olaylar ile verilen mahremiyet eğitimi kalıcı öğrenmeler sağlayarak çocuğun kendini korumasına ve toplumsal yapıya uyum sağlamasına da yardımcı olacaktır. Bu bağlamda ilgili araştırma, gerek mahremiyet eğitiminin okul öncesi dönem çocuklarının ilgilerini çekerek kalıcı öğrenmelerin sağlanmasına katkı sağlayacak çoklu ortam unsurlarıyla verilecek olması, gerekse öğrenme içeriklerinin ebeveyn ve öğretmenlerin desteği ile geliştirilecek olması açısından özgün değer taşımaktadır.

Anahtar Kelimeler: *Okul öncesi eğitim, Çoklu ortam, Mahremiyet eğitimi*

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2012-2022 Yılları Arasında Scopus Veri Tabanında Çevrimiçi Öğrenme Videoları Üzerine Yayınlanmış Makalelerin Bibliyografik Analizi

Efgan KAÇAR[1], Yusuf YILDIRIM[2], Hakan ALTINPULLUK[3]

Özet

Amaç: Video, çevrimiçi ortamlarda kullanılan eğitimsel araçlardan biridir. Eğitim içeriğini görselleştirmesi ve öğrenenlere kendi hızında öğrenme imkânı tanıması, videonun eğitim alanında kullanılma nedenlerinden birkaçıdır. Bu çalışmanın yapılma nedeni, çevrimiçi öğrenme videolarına ilişkin makalelerin son on yıldaki durumunun incelenmesidir. Çalışmanın amacı ise 2012-2022 yılları arasında Scopus veri tabanında çevrimiçi öğrenme videoları üzerine yayınlanmış olan makalelerin bibliyografik analizinin yapılmasıdır. Bu amaçla, çevrimiçi öğrenme videoları üzerine yayınlanmış olan makalelerde önde gelen ülkeler, kurumlar, dergiler ve yazarlar belirlenmeye çalışılmıştır. Ayrıca, yer verdikleri anahtar kelimeler üzerinden söz konusu makalelerin eğilimleri belirlenmeye çalışılmıştır.

Metodoloji: Bu araştırmada, Scopus veri tabanından yararlanılarak, çevrimiçi öğrenme videolarına ilişkin makalelerin sistematik alanyazın taraması yapılmıştır. Yapılan alanyazın taraması sonucunda, 2012-2022 yılları arasında yayınlanan 451 makaleye ulaşılmıştır. Scopus'tan CSV dosyası olarak dışa aktarılan 451 makalenin bibliyografik verileri, 3 farklı araştırmacı tarafından VOSviewer 1.6.18 yazılımı kullanılarak analiz edilmiştir. Çalışma kapsamında elde edilen sonuçlar alanyazından elde edilen diğer çalışma bulguları ile tartışılarak paylaşılmıştır.

Bulgular: Çalışma bulgularına göre, incelenen 451 makale 84 farklı ülkeden araştırmacılar tarafından üretilmiştir. Ortak yazarlık ağlarına göre 11 farklı küme oluşmuştur. Ortak yazarlık ağlarına göre oluşan kümelerin başında ABD, Çin, Birleşik Krallık, Endonezya, Güney Kore, Avustralya, Hollanda, Kanada, Hindistan, İspanya ve Yunanistan yer almıştır. Çevrimiçi öğrenme videoları kapsamında yayınlanmış makalelerde önde gelen kurumlar sıralamasında ilk iki sırayı, Malezya Teknoloji Üniversitesi (Universiti Teknologi Malaysia) ve Boise Eyalet Üniversitesi (Boise State University) almıştır. İncelenen 451 makale 278 farklı dergide yayınlanmıştır. Çevrimiçi öğrenme videoları kapsamında yayınlanmış makalelerde önde gelen dergiler sıralamasında, Online Learning Journal dergisi 11 yayınla ilk sırada, IEEE Access dergisi 10 yayınla ikinci sırada ve International Journal of Emerging Technologies in Learning dergisi 10 yayınla üçüncü sırada yer almıştır. 1606 yazardan 75'inin en az iki yayını vardır. Çevrimiçi öğrenme videoları kapsamında yayınlanmış makalelerde liderlik eden yazarlar arasında, makale sayısı açısından Jamie Costley (5 makale), atıf sayısı açısından Yang Jianbo (133 atıf) ilk sırada yer almıştır. Makalelerde kullanılan anahtar kelimeler incelendiğinde, Covid-19, yüksek öğretim ve harmanlanmış öğrenme kavramlarının öne çıktığı görülmüştür.

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Özgün değer/etkiler: Alanyazın tarandığında, çevrimiçi öğrenme videolarını inceleyen, bu çalışmadaki araştırma sorularına cevap arayan ve elde ettiği verileri başka çalışmalar ile tartışan bir başka çalışmaya rastlanmamıştır. Dolayısıyla, bu çalışmanın özgün bir çalışma olduğu düşünülmektedir. Bu çalışmada elde edilen bulguların, çevrimiçi öğrenme videoları üzerine teorik ve uygulamalı çalışmalar yapacak araştırmacılara çeşitli veriler sunacağı düşünülmektedir. Buna göre, çalışmadan yararlanacak araştırmacılar; çevrimiçi öğrenme videoları üzerine yayınlanmış makalelerde önde gelen ülke, kurum, dergi ve yazar isimleri ile bu makalelerdeki anahtar kelimelerin analizlerine erişebileceklerdir. Böylece çevrimiçi öğrenme videoları üzerine yayınlanmış makalelerin güncel durumu ve eğilimleri hakkında kapsamlı veri elde edebileceklerdir. Bu kapsamlı veriler, sonraki çalışmalarda daha detaylı bir şekilde incelenebilme ve yüksek lisans, doktora tezi gibi çalışmaların literatür taraması için kolaylıkla erişilebilecek hazır bilgi sunma potansiyeline sahip olabilecektir.

Anahtar Kelimeler: *Çevrimiçi öğrenme, video, bibliyografik analiz.*

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Açık ve Uzaktan Öğrenmede Öğrenenlerin Akademik Performanslarının Tahmin Edilmesi*

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Özet

Bu araştırmanın amacı, kitlesel açık ve uzaktan öğrenme sisteminde öğrenme yönetim sistemini kullanan öğrenenlerin akademik performanslarının tahmin edilmesidir. Bu kapsamda farklı algoritmalar kullanılarak tahmin modellerinin geliştirilmesi ve en yüksek doğruluk oranına sahip algoritmaların belirlenmesi hedeflenmektedir. Açık ve uzaktan öğrenme kurumlarında öğrenenlere ait çeşitli veriler toplanarak öğrenme süreçlerinin iyileştirilmesine yönelik veriye dayalı çalışmalar yapılmaya başlanmıştır. Bu alanda yaygın olarak yapılan çalışma türlerinden biri, öğrenenlerin akademik performanslarının tahmin edilmesidir. Öğrenenlerin performansları çevrimiçi öğrenme ortamı kullanımları, sınavlardan aldıkları puanlar ya da ders geçme-kalma durumları ile değerlendirilebilir.

Bu çalışmada, öğrenenlerin akademik performanslarına yönelik tahmin edici modellerin geliştirilmesi için makine öğrenmesi ve derin öğrenme algoritmaları kullanılmıştır. Makine öğrenmesi ve derin öğrenme yapay zekanın alt kümeleridir. Makine öğrenmesinde insanların öğrenme şeklini taklit etmek için veri ve algoritmaların kullanımına odaklanılmaktadır. Makine öğrenmesinde algoritmalar, sınıflama ve tahmin yapmak için eğitilmekte, bu içgörüler karar verme sürecini yönlendirmek amacıyla kullanılır. Makine öğrenmesinde, bir uzmanın algoritma içindeki özelliklerin hiyerarşisini belirlemesi gerekirken derin öğrenme işlemin bu yönünü otomatikleştirmektedir. Tahmin edici modellerde, öncelikle sonuçları bilinen verilerle modeller oluşturulmakta, geliştirilen modeller sonuçları bilinmeyen durumların tahmin edilmesinde kullanılmaktadır. Tahmin edici analitikler kurumların veriye dayalı öngörüler geliştirmelerine, problem durumları ile ilgili anlayışlarını geliştirmelerine ve karar verme süreçlerini desteklemelerine olanak sağlamaktadır.

Bu çalışma, 2019-2020 eğitim-öğretim yılı Güz döneminde Temel Bilgi Teknolojileri I dersinde gerçekleştirilmiştir. Çalışmada tahmin modelinin geliştirilmesi amacıyla öğrenenlerin öğrenme yönetim sistemindeki öğrenme malzemelerini kullanım verileri, demografik özellikleri, bölüm ve sınav notlarından yararlanılmıştır. Tahmin modelinin geliştirilmesi çalışması, Temel Bilgi Teknolojileri I dersine kayıtlı olan 56.810 öğrenene ait veriler analiz edilerek gerçekleştirilmiştir. Tahmin modelinin geliştirilmesi için Gradient Boosted Trees, Deep Learning, Random Forest, Logistic Regression, Decision Tree, Fast Large Margin, Generalized Linear Model ve Naive Bayes olmak üzere 8 farklı algoritma ile analiz yapılmıştır. Açıköğretim Sistemindeki veriler ile akademik tahmin modelinin geliştirilmesinde ağaç tabanlı algoritmalar ve derin sinir ağları en iyi sınıflayıcılar, Bayes tabanlı algoritma ise en düşük tahmin doğruluğunu veren sınıflayıcı olarak belirlenmiştir. Geliştirilen tahmin modelleri değerlendirildiğinde, başarısız olma

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ihtimali olan öğrenenlerin sadece ara sınav puanı ve sınava girme oranları kullanılarak bile yüksek doğruluk oranıyla tahmin edildiği görülmüştür. Bu bulgu, ara sınav sonrasında bu çalışmada elde edilen tahmin doğruluğu sonuçlarına yakın doğrulukta tahminler yapılabileceği şeklinde yorumlanabilir. Öğrenenlerin sistem kullanımlarının en yoğun olduğu dönemin ara sınav öncesi göz önüne alındığında ara sınav puanı, sınava girme durumu ve sistem kullanım metrikleri ile tahmin modelleri geliştirilebilir. Diğer bir deyişle, geliştirilen model farklı dönemlerde test edilerek dönem sonu beklenmeden ara sınav sonrasında tahmin sonuçları üreten yeni modeller geliştirilebilir.

Anahtar Kelimeler: *Açık ve uzaktan öğrenme, Akademik performans, Tahmin modelleri, Makine öğrenmesi, Derin öğrenme*

*Bu çalışma, 1001-Bilimsel ve Teknolojik Araştırma Projelerini Destekleme Programı kapsamında kabul edilen 118K100 no'lu proje ile TÜBİTAK tarafından desteklenmiştir.

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Uzaktan Eğitimde Program Okuryazarlığı: Bir Program Değerlendirme Araştırması

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Özet

Amaç: Bu araştırma, öğretmen yetiştirme lisans programlarında seçmeli bir meslek bilgisi dersi olan ve çalışma sırasında çevrimiçi olarak yürütülen eğitimde program geliştirme dersini değerlendirmeyi amaçlamaktadır.
Yöntem: Araştırmada karma yöntem tasarımlarından eşzamanlı tasarım kullanılmıştır. Program değerlendirme modeli olarak ise Stake tarafından geliştirilen Uygunluk-Olasılık Değerlendirme Modeli tercih edilmiştir. Araştırma verileri, Türkiye'nin kuzeydoğusundaki bir devlet üniversitesinde eğitimde program geliştirme dersini çevrimiçi alan 97 öğretmen adayından ve ilgili dersi yürüten öğretim elemanlarından toplanmıştır. Veri toplama sürecinin ilk aşamasında öğretmen adaylarına derse yönelik beklenti anketi uygulanmış ve gönüllü 63 öğretmen adayı katılım sağlamıştır. Ardından 80 öğretmen adayının katıldığı PG (Program Geliştirme) Başarı Testi ön test olarak uygulanmıştır. Ayrıca araştırmanın yürütüldüğü 14 hafta boyunca 97 öğrenciden oluşan araştırma grubunda gözlem yapılmıştır. Dönem sonunda PG Başarı Testi son test olarak uygulanmış ve teste 77 öğretmen adayı katılmıştır. Son olarak, yarı-yapılandırılmış görüşme formu ile dersi yürüten 7 öğretim elemanından ve memnuniyet anketi ile dersi alan 39 öğretmen adayından veri toplanmıştır.
Bulgular: Araştırma bulguları, öğretmen adaylarının ilgili dersi daha çok içeriğinin KPSS'de yer alması nedeniyle tercih ettiklerini göstermektedir. Bu bağlamda derse yönelik hazırbulunuşluk düzeylerinin düşük olduğu kanaatindedirler. Ön test sonuçları da bu bulguyu desteklemektedir. Öğretmen adayları dersin yürütüldüğü çevrimiçi platformu başarılı olarak değerlendirmektedir. Ayrıca çevrimiçi ders, zaman yönetimi ve materyal-kaynak çeşitliliği açısından olumlu değerlendirilse de iletişim, etkileşim ve öğretim yöntemleri açısından bir sınırlılık olarak değerlendirilmektedir. Başarı testinin son uygulaması ise öğretmen adaylarının testte ölçülmek istenen kazanımların büyük bir kısmına ulaştığını göstermektedir. Öğretmen adayları da dersin beklentilerini karşıladığını belirtmişlerdir. Fakat öğretmen adaylarının aksine dersi yürüten öğretim elemanları içeriğin pratik olmadığını düşünmektedirler. Ayrıca öğretim elemanları, dersin içeriğinin öğretmenlik mesleği için gereğinden fazla kapsamlı olduğunu ve bu derste daha çok öğretimde planlama becerisinin kazandırılması gerektiğini belirtmişlerdir.
Sonuç ve Tartışma: Araştırma sonuçları, dersin KPSS içeriği açısından sağladığı katkı nedeniyle tercih edildiğini ve bu doğrultuda öğretmen adaylarının beklentilerini karşıladığını göstermektedir. Ancak bu durum dersin gerçekte olması gereken amacından farklı bir anlayışla tercih edildiğini göstermektedir. Bu da dersi seçen öğretmen adaylarının çoğunun mesleki gelişimden çok istihdama odaklandığını göstermektedir.

Anahtar Kelimeler: *Uzaktan eğitim, Program geliştirme, Program değerlendirme, Öğretmen eğitimi*

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Öğrenenlerinin Çevrimiçi Uzaktan Eğitim Ortamlarında Topluluk Hissi Geliştirme Düzeylerinin Farklı Değişkenler Açısından İncelenmesi

Hülya DÜZENLİ[1], Emin ÖZEN[2]

Özet

21. yüzyılın ilk çeyreği pek çok yıkıcı yeniliği ve yeni yaşam biçimlerini beraberinde getirmiştir. Teknolojik gelişmelerle birlikte ivme kazanan bu yıkıcı yenilikler ve değişimlerin yansımaları açık bir sistem olarak toplumdaki değişim ve gelişimlerden doğrudan etkilenen eğitim alanında da kendini göstermektedir. Bu bağlamda çevrimiçi öğrenme ortamlarında artışlar yaşanmakta farklı altyapı ve modele sahip birçok çevrimiçi eğitim ortamı kullanıcıların tercihine sunulmaktadır. Özellikle son dönemde yaşanan Covid-19 pandemisiyle birlikte çevrimiçi uzaktan eğitim veren kurumların sayısı gün geçtikçe artmakta ve buna paralel olarak çevrimiçi eğitim ortamlarında bulunan öğreten ve öğrenen sayılarında ciddi artış yaşanmaktadır. Çevrimiçi uzaktan eğitim ortamlarında yaşanan bu artışın ilgili ortamlarda kalite göstergelerinden biri olan aidiyet sorununu gündeme getirdiği düşünülmektedir. Yüz yüze olmayan öğrenme ortamlarında gerçeklik hissi ve güçlü sınıf topluluğu hissi öğrenenler arasında bağlanmışlık hissi yaratarak birbirlerine ve eğitim aldıkları kuruma karşı sorumluluklarını yerine getirmelerine yardımcı olur. Bu bağlamda, öğrenenlerin ilgili ortamlarda kendilerini ifade etmeleri, aktif katılımları ve öğrenme eyleminin devamlılığının sağlanması açısından topluluk hissi geliştirme düzeylerinin belirlenmesinin gerekliliği ortaya çıkmaktadır. Bu gereklilikten yola çıkılarak bu çalışmanın amacı öğrenenlerin çevrimiçi uzaktan eğitim ortamlarında topluluk hissi geliştirme düzeylerinin duyuşsal ve eylemsel boyutlar açısından demografik özelliklerine, bilgisayar program ve uygulamaları kullanım becerilerine göre değişim durumlarını belirlemek ve öğrenenlerin çevrimiçi ortamlardaki topluluk hissi geliştirme düzeyleri hakkında bilgi elde etmektir. Araştırma kesitsel tarama modelinde yürütülmüştür. Kesitsel tarama modeli bir durumu, değişkeni, olguyu aydınlatmak için tek bir seferde veri toplayarak durumun fotoğrafını çekmeyi ve bu fotoğrafı inceleyerek durum, değişkenler ve değişkenler arası ilişkileri ortaya çıkarmayı hedeflemektedir. Öğrenenlerinin çevrimiçi uzaktan eğitim ortamlarında topluluk hissi düzeylerini belirlemek amacıyla Ilgaz ve Aşkar (2009) 'ın geliştirdiği *Çevrimiçi Uzaktan Eğitim Ortamında Topluluk Hissi Ölçeği* kullanılmaktadır. Elde edilen veriler spss paket programı yardımıyla analiz edilmektedir. Elde edilen bulgular %95 güven aralığında, %5 anlamlılık düzeyinde değerlendirilmektedir. Alt faktör ortalamaları, faktör korelasyonlarına bakılmakta ve çalışma grubuna ilişkin tanılayıcı istatistiklere yer verilmektedir. Ayrıca niceliksel verilerin karşılaştırılmasında, iki alt düzeyi olan değişkenler için t-testi, ikiden fazla alt düzeyi olan değişkenler için tek yönlü Anova kullanılmaktadır. Anova testinde fark çıkması durumunda ikili farkların saptanmasında Post-Hoc testlerinden faydalanılmaktadır. Sonuç olarak, öğrenenlerin ve eğiticilerin küresel salgın ile birlikte karşı karşıya kaldıkları stres, endişe ve belirsizlik göz önüne alındığında, öğrenmenin gerçek-

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leşmesi için sosyal varlığın öncelik alması gerektiği düşünülmektedir. Çevrimiçi eğitim ortamlarının kullanımının artarak devamının gündeme geldiği bu dönemde, eğitim öğretimi daha verimli hale getirmek için topluluk hissini güçlendirmeye yönelik olarak öğrenenlere ortak çalışabilecekleri üzerinde tartışabilecekleri ve müzakere edebilecekleri görevler verilmesi önerilmektedir. Gelecekteki araştırmalarda bu çalışmadan elde edilen bulguları doğrulamak için daha genişletilmiş bir biçimde farklı örneklemler üzerinde araştırmanın tekrarlanabileceği, artırılmış/sanal gerçeklik teknolojilerinin gerçek bir sınıf deneyimini ne kadar simüle edebileceği ve öğrenen motivasyonu üzerindeki etkisinin incelenebileceği düşünülmektedir.

Anahtar Kavramlar: *Çevrimiçi Uzaktan Eğitim, Topluluk Hissi, Çevrimiçi Öğrenme*

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Açık ve Uzaktan Öğrenmede Bireysel Farklılıklar Bağlamında Epistemolojik İnançlar

Zehra Daşkın[1]

Özet

Bireylerin hayatın herhangi bir alanında bilgiyi yapılandırırken, izlediği farklı birtakım süreçler vardır. Bu bağlamda bireylerin tecrübeleri, ön bilgileri, alt yapıları, biliş düzeyleri, inançları, kültürel, sosyal ve entelektüel çevreleri onların bu süreci nasıl yapılandıracağı konusunda kendilerine bir altyapı sunar. Bu farklı altyapılar aracılığı ile bilgiyi kodlayan ve işleyen bireylerin her biri, kullandığı farklı filtrelerle ve işlemsel süreçlerle kendi bulunduğu bağlamda bilgisini yapılandırma anlamında biriciktir. Tam da bu noktada bilginin inşası konusunda bireysel farklılıklar meydana gelmektedir. Bireylerin farklı bilgi kaynaklarından faydalanıp, yine farklı süzgeçlerden geçirerek inşa ettiği bilgi, zamanla bireyin bilgi birikimini oluşturmasına olanak sunar. Bireyin bilginin doğası, edinimi, yapısı, kaynakları ve gerekçesi ile ilgili örtük inançları ve varsayımları olarak tanımlanan kişisel epistemolojinin, öğrenenlerin çeşitli inançları, davranışları ve akademik çıktılarını eğitsel bağlamlarda tahmin etmede büyük öneme sahip olduğuna inanılmaktadır. Bireylerin öğrenme ve öğretmeye dair inançları ve bu doğrultuda geliştirdikleri davranışları içeren kişisel/epistemolojik inançları, eğitimin odak noktalarından biri olarak görüldüğü için bu bağlamda yapılacak araştırmalar öğrenme bağlamlarında bireysel farklılıkların en aza indirilerek, sunulan eğitim hizmetlerinin optimize edilmesi anlamında büyük fayda sağlamaktadır. Mevcut araştırmanın odak noktasını oluşturmakta olan bu fikir ile eğitimin çeşitli bağlamlarında öğrenenlerin epistemolojik inançlarını incelemek, alanyazında bu yönde yürütülen çalışmaların sistematik alanyazın taraması metodu ile analizini yapıp, açık ve uzaktan öğrenme (AUÖ) bağlamları için bu doğrultuda öneriler oluşturmak bu araştırmanın amacını oluşturmaktadır. Öte yandan, açık ve uzaktan öğrenenler ve öğretenlerin bilgiye erişme, bilgiyi yapılandırma, anlamlandırma, kavramsallaştırmaya ve bilginin sunumuna dair epistemolojik inançları değerlendirilerek bu doğrultuda öğretim tasarımları, farklı ölçme değerlendirme metotları geliştirilmesi AUÖ için artık elzem boyuta varmıştır. Alanda bu yönde bir araştırma ihtiyacı tespit edildiği için, mevcut araştırmanın odağında bu doğrultuda yürütülen çalışmaların bulgularının derlenip alanyazına öneriler sunmak vardır.

Anahtar Kelimeler: *Epistemolojik İnanç, Açık ve Uzaktan Öğrenme, Bireysel Farklılık*

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Eğitim Teknolojileri ve Uzaktan Eğitim Alanlarında Sistematik Derleme Araştırması: Türkiye Örneği

Gürhan DURAK[1], Serkan ÇANKAYA[2], Mahmut Ali ŞAHİN[3], Özge ÖZTUZCU[4], Özge Banur GÖKTAŞ[5]

Özet

Bu çalışmada, BÖTE alanında 2018-2020 yılları arasında yapılmış yüksek lisans ve doktora tezlerinin içerik analizinin ortaya konulması amaçlanmıştır. BÖTE alanının eğitim teknolojisi ve uzaktan eğitim alanlarını kapsadığı söylenebilir. Anahtar kelimeleri, akademik disiplini, araştırma alanlarını, teorik çerçeveleri, araştırma tasarım ve modellerini, değişkenleri ve ilgili kurumları belirlemek amacıyla toplam 156 yüksek lisans tezi incelenmiştir. Araştırma bulgularına göre incelenen tez ve tezlerde en çok nicel yöntemlerin kullanıldığı, yüksek lisans tezlerinde doktora tezlerinden daha fazla karma yöntemin kullanıldığı görülmüştür. Ayrıca doktora ve yüksek lisans tezlerinin çok azının teorik temellere sahip olduğu ortaya çıkmıştır. Katılımcı türü olarak en çok K-12 öğrencileri tercih edilirken, veri toplama araçları olarak en çok ölçekler ve görüşmeler tercih edilmiştir. Ayrıca, akademik performans ve etkililik değişkenleri de bağımlı değişken olarak daha çok kullanılmıştır. BÖTE alanında yapılan yüksek lisans ve doktora tezlerinin sistematik içerik analizinin yapıldığı bu çalışmanın Eğitim Teknolojileri ve Uzaktan Eğitim alanlarındaki mevcut durumu ortaya koyması ve araştırma eğilimlerini belirlemesi açısından önemli olduğu düşünülmektedir.

Anahtar Kelimeler: *Eğitim Teknolojileri, Uzaktan Eğitim, BÖTE, İçerik Analizi*

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Çevrimiçi Öğrenmede Akademik Dayanıklılık: Kavramsal Bir İnceleme

Esra BARUT TUĞTEKİN [1], Ufuk TUĞTEKİN [2]

Özet

Açık ve uzaktan eğitimin önemli bir parçası olan çevrimiçi öğrenmede öğrenciler ve öğretim elemanları derslere etkin olarak katılmakta ve çevrimiçi derslerde çeşitli öğretim materyalleri kullanmaktadırlar. Öğrenciler kendi yaşam alanlarında öğrenimlerini sürdürürken, istenen hedeflere ulaşabilmeleri için çevrimiçi derslere katılmaları temel gereksinim olarak kabul edilmektedir. Bunun yanında çevrimiçi öğrenmede öğrencilere çeşitli sorumluluklar düşmektedir. Bunlar; çevrimiçi ders kurallarına uymayı, çevrimiçi medyayı kullanarak etkileşim kurmayı ve çevrimiçi derslere aktif olarak katılmayı içermektedir. Çevrimiçi öğrenme üzerine yapılan araştırmalarda çevrimiçi öğrenme materyallerinin anlaşılmasının zorluğundan, öğrencilerin yeterince takip edilememesinden ve sıklıkla karşılaşılan teknik sorunlardan dolayı çevrimiçi öğrenmede öğrenciler daha çok bireysel konumdadır ve dolayısıyla daha fazla öğrenme sorumluluğu üstlenmektedirler. Bu nedenle, öğrencilerin çevrimiçi öğrenme sürecini yönetebilmeleri ve süreçte yaşayacakları zorluklara karşı akademik olarak dayanıklı olmaları gerekmektedir. Ayrıca çevrimiçi öğrenmede öğrenciler evlerinden derslere katıldıklarından dolayı öğrenme sürecinde sosyal etkileşim yüz yüze öğrenmeye göre daha sınırlıdır. Diğer yandan çevrimiçi derslerin öğrencilerin ders materyallerini anlamalarını zorlaştırdığını belirten araştırmalar bulunmaktadır. Uzaktan eğitimdeki sınırlı etkileşim ve öğrenme materyallerinin anlaşılma zorluğu öğrencilerde öğrenme yükü oluşturabilmektedir. Bu yükün üstesinden gelebilmek ve çevrimiçi öğrenmede istenilen başarıyı yakalayabilmek için akademik dayanıklılık kavramı günümüzde önemli bir hale gelmiştir. Ayrıca çevrimiçi öğrenmede bireysel öğrenmenin ön planda olması ve çevrimiçi öğrenme tükenmişliğinin yaşanmaması için; çevrimiçi akademik dayanıklılık öğrenme sürecinde incelenmesi gereken önemli bir unsur olarak dikkat çekmektedir. Dolayısıyla bu çalışmada 'çevrimiçi akademik dayanıklılık' terimi kavramsal olarak ele alınmıştır. Böylece çevrimiçi öğrenme sürecinde öğrencilere farkındalık kazandırılacağı, eğitimcilere ise öğrencileri doğru yönlendirebilmeleri adına bu araştırmanın katkı sağlayacağı düşünülmektedir. Akademik dayanıklılık, yaşanan zorluklara rağmen öğrenme sürecinde bireysel başarıdaki artışı yansıtmakta olup, günümüz koşullarında öğrencilerin çevrimiçi ders sürecinde başarılı olmaları için olmazsa olmaz bir unsur olarak incelenmelidir. Akademik dayanıklılığın öğrencilerin çevrimiçi öğrenmeye hazır olmalarını sağlayabileceği, çevrimiçi öğrenme sürecindeki memnuniyeti artırabileceği ve akademik dayanıklılığı yüksek öğrencilerin karşılaştıkları her şeyin daha iyi olacağına inandıkları düşünülmektedir. Bu özellikler akademik dayanıklılığın içsel faktörlerini

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yansıtırken; çeşitli dış faktörler de bulunmaktadır. Örneğin algılanan sosyal destek, öğrencileri akademik alanda öğrenme sürecini gerçekleştirmede tüm zorluklarla yüzleşmede ısrarcı olmaya teşvik edebilir. Çevrimiçi öğrenmede algılanan sosyal destek ise ailenin, arkadaşların ve çevrenin öğrenciler üzerindeki etkilerini ifade etmektedir. Bu nedenle çevrimiçi akademik dayanıklılığın incelenmesinde evlerinden derslere katılan öğrencilerin sosyal çevre koşulları da göz önüne alınmalıdır. Akademik olarak dayanıklı öğrencilerin; sosyal yeterliliğe, problem çözme yeteneklerine, bağımsızlığa ve bir amaç duygusuna sahip olduğu görülmüştür. Dolayısıyla çevrimiçi öğrenmede tükenmişliğin engellenerek akademik dayanıklılığın sağlanabilmesi ve çevrimiçi öğrenmede istenilen hedeflere ulaşılması için öğrenenlerin motive edilmesi, öğrenme materyallerinde çeşitliliğin sağlanması, bireysel öğrenmeyi kolaylaştırıcı araç, teknik ve yöntemlerin kullanılması, öğretim tasarımının öğrencileri bilişsel, duyuşsal ve sosyal yönden destekleyecek şekilde hazırlanması önerilmektedir.

Anahtar Kelimeler: *Akademik Dayanıklılık, Çevrimiçi Öğrenme, Uzaktan Eğitim*

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Okul Müdürlerine Yönelik Dijital Liderlik Ölçeği Geliştirme Çalışması

Kamuran AYDİN[1], Müyesser CEYLAN[2]

Özet

21. yüzyıl bilgi çağı, internet çağı, dijital çağ ve benzeri kavramlarla tanımlanmaktadır. Bu çağda çok hızlı teknolojik değişimler yaşanmaktadır. Örgütler hayatta kalabilmek için bu değişim sürecine uyum sağlamak durumundadır. Bunun için artık geleneksel liderlik tarzlarının yerine daha farklı liderlik tarzlarının işe koşulduğu görülmektedir. Dijital liderlik de geleneksel liderlik tarzlarından farklı post modern bir liderlik tarzıdır. Dijital liderlik, örgüt liderinin dijital okur yazarlık becerileri, örgütü dijitalleştirme çalışmaları sonucunda örgütte meydana gelmesi beklenen kültürel değişimi yönetmesi gibi farklı boyutları kapsayan bir liderlik türüdür. Okul müdürlerinin dijital liderlik davranışlarını belirlemeyi amaçlayan bu araştırma Likert türü bir ölçek geliştirme çalışmasıdır. Ölçek maddelerini belirlemek amacıyla öncelikle alanyazından yararlanılmıştır. Ayrıca uygulayıcı olarak okul müdürlerinden oluşan bir odak grup görüşmesi gerçekleştirilmiştir. Aynı zamanda Eğitimi Yönetimi alanında görev yapan akademisyenler ve Bilgisayar ve Öğretim Teknolojileri alanında görev yapan akademisyenlerin oluşturduğu iki ayrı odak grup görüşmesi daha gerçekleştirilmiştir. Odak grup görüşmelerinde veri toplama aracı olarak yarı yapılandırılmış görüşme formundan yararlanılmıştır. Yarı yapılandırılmış görüşme formlarının oluşturulması sürecinde ise Eğitim Yönetimi ve Bilgisayar ve Öğretim Teknolojileri alan uzmanlarının görüşleri alınmıştır. Görüşmeler sonucunda betimsel analiz yöntemiyle görüşmelerden elde edilen maddeler taslak ölçeğe eklenmiştir. Taslak ölçekte 49 maddeye yer verilmiştir. Sonraki aşamada 10 okul müdürünün katılımıyla pilot uygulama gerçekleştirilmiştir. Elde edilen taslak ölçek maddelerinin açımlayıcı faktör analizlerin yapmak amacıyla Eskişehir ilinde görev yapan 302 okul müdürüne ulaşılmıştır. Doğrulayıcı faktör analizi için ise Uşak ilinde görev yapan 227 okul müdürü katılım sağlamıştır. Hem açımlayıcı faktör analizi için hem de doğrulayıcı faktör analizi için veri toplama süreci çevrimiçi veri toplama (Google forms) yoluyla tamamlanmıştır.

Açımlayıcı faktör analizi sonucunda ölçeğin üç faktörlü bir yapı sergilediği, açıklanan varyansının %60,585 ve faktör yük değerlerinin ise .477 ile .888 arasında olduğu belirlenmiştir. Ayrıca doğrulayıcı faktör analizi ile hesaplanan uyum istatistiklerinin ölçeğin daha önce belirlenen faktör yapısı ile kabul edilebilir düzeyde uyumlu olduğu saptanmıştır. Sonuç olarak 28 maddeden ve üç boyuttan oluşan bir dijital liderlik ölçeği ortaya çıkmıştır. Bu boyutlar dijitalleşme, dijital dönüşüm, uzaktan ve hibrit öğrenme boyutlarıdır. Alanyazında farklı meslek gruplarına yönelik dijital liderlik ölçeklerine rastlansa da bu çalışma okul müdürlerine yönelik dijital liderlik ölçeği geliştirilmesi bakımından özgün bir çalışmadır. Bu çalışmanın son yıllarda Eğitim yönetimi alanında çalışılmaya başlanan dijital liderlik alanyazınına katkı sağlaması beklenmektedir. Bunun yanında geliştirilen ölçeğin de daha sonraki çalışmalara katkı sağlaması umulmaktadır.

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Dijital liderliğin oldukça dinamik bir çalışma alanı olması sebebiyle ileriki zamanlarda dönemin gelişmelerine uygun yeni bir ölçek geliştirme çalışması yapılabilir. Son olarak eğitim alanında hizmet veren öğretmenler, müdür yardımcıları, müfettişler gibi gruplara yönelik dijital liderlik ölçeği geliştirme çalışmaları da yapılabilir.

Anahtar Kelimeler: *Okul Müdürleri, Dijital Liderlik, Ölçek Geliştirme*

Panels, Workshops and Sponsor Presentations

Panels

Online Proctoring Management for Just, Valid, and Reliable Online Assessment

Moderator: Cengiz Hakan Aydin

Participants: Tim Brueggemann, Olga Zubikova, Patriks Morevs, Thomas Festch

Open Educational Resources for Formal Courses and Programs

Moderator: Cengiz Hakan Aydin

Participants: Alp Köksal (Khan Academy), Dasha Karzunina (Coursera)

Sanal ve Artırılmış Gerçekliğin Eğitimde Uygulamaları: Araştırmadan Uygulamaya Örnekler

Moderator: Mehmet Kesim

Participants: Kürşat Çağıltay, Zafer Karadayı

Oyunu Kuramına göre Oynamak: Açık ve Uzaktan Öğrenme Uygulamaları

Moderator: Selçuk Karaman

Participants: Nurettin Şimşek, Arif Altun, Engin Kurşun

Integrating MOOCs for Formal Curricula: Strategies, Implementation and Lessons Learned

Moderator: Cengiz Hakan Aydin

Participants: İrfan Süral Ela Akgün Özbek & Abdullah Saykılı Çağlar Karaduman & Aslıhan Bağcı Sezer Elif Toprak & Evrim Genç Kumtepe

Açıköğretim Sisteminde Staj Süreçlerinin Kurumsal Etkileşim ve Öğrenci Deneyimleri Açısından Değerlendirilmesi: Sahadan Örnekler

Moderator: Nilgün Çağlarırmak-Uslu

Participants: İsmail Öztürk, Arda Genç, Betül Uzun Kaya

Açıköğretim Sistemi Uygulama Dersleri Sürecinin Sahada Öğrenciye Katkısı, Yeni Yönelimler ve Üniversite ile Kurumlar Arasındaki Etkileşimi Açısından Değerlendirilmesi

Moderator: Nilgün Çağlarırmak-Uslu

Participants: Turgay Ünalan, Mustafa Tosunoğlu, Abidin Kılıç, Yılmaz Yıldırım

Workshops

90-Minute Workshop: Pedagogic Video Design Principles

Prof. Jack Koumi

Pre-Conference Workshop-Researching & Writing: Getting Published in High Impact International Journals

Prof. Som Naidu

Sponsor Presentations

E-Öğrenme Ekosistemi ile Öğrenci Başarısını Arttırmaya Yönelik Çözümler

Mustafa Güçlü, Blackboard

Reimagining the Future of Online Learning: Developing Highly Connected Experiences

Antonella Facchini, Class Technologies

Micro Credential and Short Learning Programs with Career Academy

Scott Shireman, Coursera for Campus

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PANEL

Online Proctoring Management for Just, Valid, and Reliable Online Assessment

Cengiz Hakan AYDİN[1], Tim BRUEGGEMANN[2], Dario ASSANTE[3], Thomas FESTCH[4], Patriks MOREVS[5], Mesut AYDEMİR[6], Olga ZUBİKOVA[7], Davide VİETRİ[8], Serpil KOÇDAR[9], Marija ŠNAİDERE[10],Martin SPOHN[11]

Abstract

The purpose of this panel has three folds: first, it summarizes the status and challenges of online teaching and assessment; second, it presents a list of guidelines, developed based-on the best practices, for effective online proctoring; and finally, it proposes a new role, entitled as "Online Proctoring Manager" for higher education institutions, focusing on online distance learning, and associated qualification profile of this role.

Online distance learning had already in rise before the COVID-19 pandemic and has been boosted during and post pandemic area. In fact, COVID-19 pandemic can now be considered as one of the major milestones of the development of open and distance learning (ODL) (Aydin, 2022). During this period, a number of significant lessons learned to improve the effectiveness of current and future online distance learning offerings, including outcome/competence-based course design, accessible and affordable infrastructures, and alternative ways of assessing learner achievement. Almost all around the world one of the toughest challenges was to secure a just, valid, and reliable assessment of learner achievement or performance in distance courses. According to the studies on online assessment conducted before the pandemic (e.g., Khan and Balasubramanian, 2012; King and Case, 2014) had already revealed that cheating occurs more often in online courses than in in-person courses - particularly for high-stakes assessments like exams. A recent study (Wiley, 2020) nearly all instructors surveyed believe that students are more likely to cheat online than in person. For nearly one fourth of instructors who used to deliver online assessment, this problem emerged more pronounced than ever during the pandemic. Along with misconduct, privacy, data protection, legislations were also indicated as the main issues in online assessment.

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Several solutions and recommendations have been offered and actions have taken to promote more effective online assessment (Holden et al., 2021). Online proctoring is one of those solutions for the online exams. Online Proctoring means remote surveillance of exams. More specifically, "Online proctoring is a form of location-independent digital assessment. The invigilation takes place online using special software. Online proctoring software promises to allow students and course participants to sit their exams anywhere (for example at home) in fraud-resistant conditions and/ or with invigilation against fraud. Monitoring software, video images and the monitoring of students' screens should prevent them from engaging in fraud." (Sietses, 2020, p. 10). Although it is still in the infancy stage and there are some doubts and issues around, online proctoring is spreading all around the world and growing number of institutions are integrating into their not only online distance learning but also traditional in-person, hybrid or blended learning systems.

An Erasmus+ project, entitled as "Online Proctoring Manager – Further education program for supporting digital transformation at Higher Education Institutions", or PROWIDE also focuses on online proctoring but as a new role in HEIs. The project seeks to develop, test and establish a qualification profile and corresponding training program Online Proctoring Manager with the aim to support the implementation of remote exams at Higher Education Institutions (HEIs). PROWIDE partnership is composed of four HEIs from Germany, Italy, Latvia, Turkey, and a company, Proctorio that is specialized in developing Online Proctoring solutions and services.

The proposed panel will consist of the partner institutions' representatives who will first draw a big picture about the status and challenges of online teaching and assessment; then present a list of guidelines, developed based-on the best practices concerning effective online proctoring; and later elaborate on the "Online Proctoring Manager" role for higher education institutions, and associated qualification profile of this role. The panel will start with an introduction of the PROWIDE project. Also a full paper that covers all the panel presentations will be submitted to be published in the proceedings and/or other journals. Those audiences who are interested in learning and discuss the potentials and challenges of online proctoring might find the panel quite interesting and beneficial.

Keywords: *Online Assessment, Proctoring, Online Proctoring Manager, PROWIDE*

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PANEL

Integrating Moocs for Formal Curricula: *Strategies, Implementation and Lessons Learned*

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Abstract

The proposed hybrid panel entitled "Integrating MOOCs for Formal Curricula: Strategies, Implementation and Lessons Learned" will be organized in order to share a wealth of experience related to the Erasmus+ project "Curricular modernization by implementing MOOCs model" (short, MODE IT) and ideas for integration of MOOCs into formal curricula. The MODE IT project aims to offer innovative MOOC-based pedagogical approaches to the design and delivery of higher education curricula. The project partnership is formed by five higher education institutions, which are:

- Fachhochschule des Mittelstands (Bielefeld, Germany)
- Kaunas University of Technology (Kaunas, Lithuania)
- Polytechnic Institute of Porto (Porto, Portugal)
- Polytechnic University of Timisoara (Timisoara, Romania)
- Anadolu University (Eskisehir, Turkey)

ABOUT MODE IT PROJECT

Massive Open Online Courses (MOOCs) are traditionally structured as short, almost free, non-formal online courses. However, the latest trends in formal education refer to the integration of MOOCs into the formal curricula. Within this direction, the aim of the MODE IT project was to include MOOC-based pedagogies to the design and delivery of higher education curricula, making them more flexible and engaging for students. To do this, teachers in higher education institutions need to be trained as MOOC designers! The MODE IT team has designed, developed, implemented and tested a range of supporting tools that help teachers acquire and/or improve their skills and competencies related to MOOC design and delivery.

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TOPIC OF PANEL

In the panel session, the AU team in the project will present the unique learning experiences and the challenges during the project.

TARGET AUDIENCE

The panels are recommended for a wide range of participants, including educators, learners, instructional designers as the key stakeholders of higher education institutions as well as practitioners and policy makers interested in innovative teaching and learning practices.

PROGRAM OF THE EVENT

MODE-IT Experiences

Moderator: Prof.Dr. Cengiz Hakan Aydın

Presenters:

1. Self-assessment tool for HEI educators
   (Doç. Dr. İrfan Süral)
2. Training program for educators on MOOCs (re)design & delivery
   (Dr. Ela Akgün Özbek & Dr. Abdullah Saykılı)
3. Redesigned MOOCs-based HEI curricula
   (Assist. Prof. Dr. Çağlar Karaduman & Aslıhan Bağcı Sezer)
4. Management and evaluation issues in MODE IT
   (Prof.Dr. Elif Toprak & Prof.Dr. Evrim Genç Kumtepe)



WORKSHOP

90-Minute Workshop: Pedagogic Video Design Principles

Jack Koumi[1]

ORIGIN OF THE WORKSHOP

Based on the workshop facilitator's course, Scriptwriting for Effective Instructional Video, for the University of the Philippines OU. In that Course, two Lessons prepare students for their final Scriptwriting Project:

Lesson 1's six videos analyse 42 video clips (from existing instructional videos) that exemplify **34 Potent Pedagogic Roles/Techniques**, through which video can achieve **learning objectives** more effectively than other media**:**

1. Facilitate COGNITION	2. Provide EXPERIENCES, otherwise inaccessible	3. Nurture AFFECT	4. Show SKILLS
1 composite images 2 animated diagrams 3 visual representation analogy, metaphor 4 illustrating concepts 5 modelling 6 juxtaposition 7 condensing time 8 audio-track reinforce 9 narrative power	1 movement 2 viewpoints 3 places 4 3D 5 slow/fast motion 6 people/animals interact 7 chronological sequence 8 resource material 9 rare events 10 staged events	1 galvanize / spur 2 motivate a strategy 3 appetite to learn 4 change attitudes 5 alleviate isolation 6 reassure, self-efficacy 7 authentic abstractions 8 sense of importance	manual/craft agility reasoning interpersonal expressive studying technical

The workshop starts with a quick taste of these Roles/Techniques, but fuller coverage will be for Lesson 2, where a further six videos analyse 39 clips that illustrate **31**

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Pedagogic Video Design Principles:

1. Hook (a. capture b. retain interest) a Shock / surprise / delight b Suspense, entertain, engross / appetise
2. Signpost (what's coming) a Set the scene b Signpost: what's coming later c Chapter Heading: what's next? d Heads-up: what to look out for
3. Stimulate Cognitive Engagement a Pose questions b Encourage prediction c Students' personal relevance
4. Enable Constructive Learning a Words NOT DUPLICATING pictures b Analogy and Metaphor c Scaffold construction of knowledge d Let students see the context e Concretise / Activate their knowledge
5. Sensitise a Priming b Reassure / build confidence c Personalise the teacher d Music style & timing by design e Consistent style
6. Elucidate a Vary tempo to indicate syntax b Enhance legibility/audibility c Maximise Cognitive Clarity d Control pace, depth, breadth
7. Reinforce a Repetition (with a new angle) b Re-exemplify c Words-image synergy d Compare / Contrast e Key-Word Text
8. Consolidate a Recapitulate b Summarise key features c Integrate associated materials

Now that video is "easy" to produce, there is a proliferation of teaching/learning videos, but very little attention is paid to whether video is the most appropriate medium to achieve the professed objectives (the focus of Lesson 1's distinctive video Roles/Techniques) – and MORE IMPORTANTLY very little attention is paid to Pedagogic Video Design Principles that are necessary to achieve the learning potential of the above Roles/Techniques. **These are the 31 Principles, in the above 8 categories.**

How the Workshop will be conducted

Following the brief taste of Lesson 1, the workshop facilitator will play a selection of the six videos in Lesson 2 of the UPOU Course and stop after each video to ask and answer questions, and to initiate discussion – mimicking the interactivity in the UPOU Course.

The whole content cannot be presented within 90 minutes; however, a Handout will summarise the missing content.

Objectives

Workshop Participants will be able to implement design principles to achieve the pedagogic potential of video.

References

The UPOU Course, and the derived workshop above, update the central content of the author's book, *Designing Video and Multimedia for Open and Flexible Learning*, Routledge 2006/9.

WORKSHOP

Getting Published in High Impact International Journals (Researching & Writing Workshop) (Hybrid Workshop)

Som Naidu

Duration	Session focus	Activities/Plans/Processes	Resources
9.00-9.15	Opening and workshop goals	**Workshop Goals** Participants will become familiar with how to get published in high impact journals, especially... • How to conceptualise, and develop research projects to appeal to an international audience.	• Workshop Program
9.15-10.30	**Session 1:** Selecting a worthwhile topic or an issue and defining your idea, or issue	**Useful lines of inquiry—What's WORTH PUBLISHING?** (Participants will work on an idea—a new one or one which they might already be working on) and develop that into a publishable piece of research). • Identifying a worthwhile topic and defining a publishable idea. • The role of the literature review. What is a good literature review? • Defining and framing your idea or query into a researchable question. • What more needs to be known on the topic. Why bother with it? Who do you think will be interested? And where to publish?	• Framing presentation by Som on Useful lines of inquiry—What's worth it? • Followed by Group work focus of the research (Usefulness, Impact, etc.).
Morning Break: 10.30-11.00			

11.00-12.30	**Session 2:** Your research question	**What's your research QUESTION? Is it researchable?** (Presentation and discussion of your research question). Revising your research question to ensure that it is "researchable".	• Short presentations • Feedback from Som
Lunch Break: 12.30-1.30			
1.30-3.30	**Session 3:** Defining and describing your research method	**What's your research METHOD?** (Defining your research method for your research question. • Your data and approaches to data collection (both quantitative and qualitative). • Approaches and tools for data analysis (both quantitative and qualitative) • Data interpretation (both quantitative and qualitative)	• Framing presentation by Som on matching your research question with suitable research methods.
	Matching your question and the research method	• Group presentation and discussion of your research methodology. • Addressing issues related to data collection, approaches and tools for data analysis and data interpretation (both quantitative and qualitative).	• Short presentation • Feedback from Som
	Revising your methodology	• Revising your research methodology • Data collection, analysis, and its interpretation	• Feedback from Som
Afternoon Break: 3.30-4.00			
4.00-5.00	**Session 4:** Revising your methodology	• Finalizing your research methodology • Finalization of approach to data collection, analysis, and its interpretation • Where to next from here?	• Feedback from Som

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