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Postdigital Educational Technology

Aras Bozkurt
Department of Distance Education, Open Education Faculty, Anadolu University, Eskişehir, Turkey

Abstract

This entry describes the postdigital view of educational technology (EdTech), emphasizing the need to critically examine its assumptions, values, and implications. The postdigital perspective transcends binary thinking and examines the role of EdTech in mediating cognitive, affective, and social processes by recognizing the entangled nature of the digital and the analog. Recognizing that technology is shaped by social, cultural, and political forces, the postdigital perspective calls for a sociomaterialist understanding of EdTech. Challenging technological determinism and instrumentalism, and focusing on inequality, the postdigital perspective encourages a more comprehensive, equitable, and inclusive understanding of EdTech, empowering diverse learners, and challenging existing power dynamics.

Keywords

Postdigital · Educational technology · EdTech · Critical pedagogy · Human-technology symbiosis · Posthumanism · Sociomaterialism · STS · Philosophy of technology · Inequality · Social responsibility

Introduction

Educational Technology (EdTech) has always existed, often in analog forms such as blackboard and chalk. Following the rapid spread of computers and Internet connection in the early 1900s, today's concept of EdTech, which encompasses a wide range of digital tools and strategies used to support learning, has started to emerge (Watters 2021). Bozkurt (2020) classifies EdTech into hard and soft technologies. Hard technologies yield efficiency, exactness, and repeatability, yet they compromise flexibility and adaptability. Soft technologies promote innovation, adaptability, and robustness, yet they often necessitate a considerable amount of expertise and exertion. In the early twenty-first century, EdTech encompasses both soft and hard technologies and includes many areas such as philosophy, psychology, environmental studies, and sociology.

Morrison and van der Werf (2012: 399) note that "there is a symbiosis between theory and practice, and, for educational research, they cannot flourish without each other, even though they may have difficulty in living both with and

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without each other." Those arriving at EdTech from the Frankfurt School tradition and critical pedagogy perspectives often refer to the notion of critical praxis (see Jandrić et al. 2023a, b).

Toward the end of the twentieth century, EdTech research has significantly grown. In this period, the main areas of critique included the false promise of technologization and the formulization of education (Watters 2021). An increasing interest in teaching and learning (Cowling et al. 2022) has shifted the focus from technology toward pedagogy (Bozkurt 2020). Soon after, the focus on pedagogy slowly reoriented toward society (Jandrić 2019). In 2024, postdigital theory has arrived at a balanced understanding which places equal attention to biology, information, and society (Jandrić 2021).

A lot of early EdTech development was burdened by the fallacies of technological determinism and instrumentalism (see Oliver 2011). Technological determinism "is a belief that technology somehow determines human societies and their values, structures, and so on. In this view, technological development is an intrinsically positive social force that education needs to adapt to." Technological instrumentalism is "a view that technologies are neutral tools which can simply be deployed to realize the intentions of designers or users" (Jandrić and Knox 2022: 782). Postdigital understandings of EdTech are firmly positioned against technological determinism and instrumentalism, which are being replaced by more nuanced philosophies such as Science and Technology Studies, posthumanism, and so on (Jandrić and Hayes 2020; Jandrić 2023a).

Defining EdTech

Etymologically, the term "technology" refers to art, craft, proficiency in an art or craft, or a systematic method of performing or engaging in an art. It is defined as (a) the practical application of knowledge; (b) a capability provided by the practical application of knowledge; (c) a way of accomplishing a task, particularly through technical processes, methods, or knowledge; and (d) the specialized aspects of a specific field of endeavor (Merriam-Webster 2023). Its scope encompasses soft technologies (approaches, conceptual frameworks, theories, etc.) and hard technologies (pen, paper, computer, etc.) (Bozkurt 2020; Dron 2022).

Due to complex and interdependent relationships between education and technology (Weller 2018, 2022), the definition of EdTech has evolved drastically (Richey et al. 2008). In its simplest form, EdTech is defined as "the study and ethical application of theory, research, and best practices to advance knowledge, as well as mediate and improve learning and performance through the strategic design, management, and implementation of learning and instructional processes and resources" (The Association for Educational Communications and Technology 2023). In another popular definition, EdTech refers to

> the use of tools, technologies, processes, procedures, resources, and strategies to improve learning experiences in a variety of settings, such as formal learning, informal learning, non-formal learning, lifelong learning, learning on demand, workplace learning, and just-in-time learning. (Huang et al. 2019.

These definitions highlight some critical issues. EdTech is a living, evolving concept. It is a multifaceted enterprise that considers changing relationships between living and nonliving entities and requires a broader ecosystem perspective (Jandrić and Ford 2022). EdTech is inherently postdisciplinary and includes inter-, multi-, and transdisciplinary approaches to theory and practice (Jandrić and Knox 2022).

Theoretical Influences

Marshall McLuhan (1964) notes that technology is an extension of human beings. Inspired by McLuhan's ideas, Culkin (1967) argues that "[w]e shape our tools and thereafter our tools shape us." Mirroring Culkin, Lochhead (1994) argues that "we create machines in our own image, and they, in turn, recreate us in theirs." Human-technology relationship is symbiotic and EdTech is not an exception. The ideology, philosophy, epistemology, and methodology of EdTech is in constant flux (Jandrić 2021; Jandrić and McLaren

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2021). Consequently, Jandrić and Ford (2022) firmly reject any attempt at defining the concept of the postdigital, and, by extension, postdigital EdTech.

Postdigital EdTech is highly influenced by the Frankfurt School of Social Science philosophy of technology, from Karl Marx (see Ford 2023) to Andrew Feenberg (1991, 2002), social epistemology, Science and Technology Studies, sociomaterialism, and so on. Further influences arrive from cybernetics and critical technology (and media) studies, pioneered by people such as Richard Barbrook and Fred Turner (see Jandrić 2017). Postdigital EdTech owes a lot to the works of computer science gurus such as Nicholas Negroponte (e.g., Negroponte 1998) and postdigital theory's roots in music and arts (Escaño 2023; Jandrić 2023b). Postdigital EdTech is also influenced by critical approaches developed at the turn of the millennium such as Networked Learning (Networked Learning Editorial Collective 2021; Networked Learning Editorial Collective et al. 2021).

Postdigital EdTech is built upon the work of several generations of critical pedagogy: early works such as *Pedagogy of the Oppressed* (Freire 1972), *Deschooling Society* (Illich 1971), and *Tools for Conviviality* (Illich 1973), subsequent works by scholars such as Henry Giroux (Suoranta 2023a) and Peter McLaren (Suoranta 2023b), and most recent works by scholars such as Christian Fuchs (2022). Critical pedagogy mediates the human-technology relationship and strives toward a meaningful postdigital EdTech aimed at emancipation and social justice.

Postdigital approaches to EdTech transcend disciplinary (and other) borders, so the list of theoretical influences is inevitably much wider than this incomplete overview.

Postdigital EdTech

The recent history of EdTech is marked by several critical turning points (Jandrić and Knox 2022) such as the emergence of networked ecologies (Networked Learning Editorial Collective 2021; Networked Learning Editorial Collective et al. 2021) and AI technologies (Bozkurt 2023; Bozkurt et al. 2023). Each of these turning points has transformed practices, theories, and understandings of EdTech's role in education (Jandrić and Ford 2022). With its multifaceted nature (Fawns et al. 2023), the postdigital is "hard to define; messy; unpredictable; digital and analog; technological and non-technological; biological and informational" (Jandrić et al. 2018: 895).

Postdigital EdTech sees technology as constantly developing, evolving, and expanding. It acknowledges technology's hard and soft forms but reaches beyond this dichotomy, to examine where (Jandrić et al. 2019) and how (Ralston 2023) we value EdTech in our discourses. This leads to an understanding of postdigital EdTech in terms of profound and far-reaching sociotechnical relations (Jandrić et al. 2018; Knox 2019; Fawns 2022). Adopting such an approach is beneficial in mitigating the negative effects of techno-optimism and exercising caution against the false promises of EdTech (Facer and Selwyn 2021; Selwyn 2011).

The postdigital perspective acknowledges that the digital and the analog are inextricably entwined and that the boundaries between them are increasingly blurred or even converged. This perspective invites us to move beyond the binary thinking that separates technology from education and to recognize the entanglements that characterize the postdigital condition. In doing so, a postdigital understanding of EdTech allows us to critically comprehend its limitations and fully benefit from its affordances (Bozkurt 2020; Dron 2022).

Central to the postdigital perspective is an emphasis on addressing digital inequalities and considering how EdTech might contribute to the reproduction of social divisions and hierarchies (Jandrić et al. 2018; Facer and Selwyn 2021). Issues of access, participation, and representation must be foregrounded in discussions about the integration and use of digital technologies in education. In doing so, we can work toward a more equitable, inclusive, and socially just postdigital EdTech landscape that empowers diverse learners and challenges existing power dynamics (Bozkurt and Sharma 2020).

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Furthermore, postdigital EdTech calls for a sociomaterial approach that recognizes the ways in which technology interacts with social, cultural, and political forces (Knox 2019). Such an approach acknowledges that the adoption and use of digital technologies in education are not neutral, but rather reflect the values, norms, and power dynamics that shape educational practices and experiences. By examining the complex relationships between humans, technology, and society, postdigital theory develops a comprehensive understanding of EdTech that reaches beyond the mere adoption of new tools.

Summary

Postdigital EdTech invites a critical examination of assumptions, values, and implications underpinning the use of technology in education. It is a living, evolving concept that acknowledges the inseparability of the analog and the digital, the biological and the informational, and the technological and the nontechnological. Postdigital EdTech rejects unwarranted techno-optimism, technological determinism, and instrumentalism and replaces them with a nuanced socio-material view to relationships between human beings and technologies. Rooted in critical pedagogy, postdigital theory and practice recognize the values, norms, and power dynamics that shape educational practices and experiences, and actively advocate for socially responsible EdTech design and also deployment that enhances human welfare.

Cross-References

- ▶ Henry Giroux
- ▶ Ivan Illich
- ▶ Kim Cascone
- ▶ Paulo Freire
- ▶ Peter McLaren
- ▶ Postdigital
- ▶ Postdigital Artificial Intelligence
- ▶ Postdigital Critical Pedagogy
- ▶ Postdigital Decolonization and Educational Technology
- ▶ Postdigital Education
- ▶ Postdigital Feminism(s)
- ▶ Postdigital Knowledge Ecologies
- ▶ Postdigital Learning Design

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