CONTRIBUTION OF L2 MORPHOLOGICAL AWARENESS
TO PASSAGE-LEVEL L2 READING COMPREHENSION
ABOVE AND BEYOND VOCABULARY KNOWLEDGE,
GRAMMAR KNOWLEDGE AND READING STRATEGY USE
AMONG INTERMEDIATE-LEVEL
ADULT TURKISH EFL LEARNERS

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Fatma AKSOY'un "Contribution of L2 Morphological Awareness to Passage-Level L2 Reading Comprehension Above and Beyond Vocabulary Knowledge, Grammar Knowledge and Reading Strategy Use Among Intermediate-Level Adult Turkish Efl Learners" başlıklı tezi 09.09.2015 tarihinde, aşağıda belirtilen jüri üyeleri tarafından Anadolu Üniversitesi Lisansüstü Eğitim-Öğretim ve Sınav Yönetmeliğinin ilgili maddeleri uyarınca Yabancı Diller Eğitimi Anabilim Dalı İngilizce Öğretmenliği programı yüksek lisans tezi olarak değerlendirilerek kabul edilmiştir.

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ABSTRACT

CONTRIBUTION OF L2 MORPHOLOGICAL AWARENESS TO PASSAGE-LEVEL L2 READING COMPREHENSION ABOVE AND BEYOND VOCABULARY KNOWLEDGE, GRAMMAR KNOWLEDGE AND READING STRATEGY USE AMONG INTERMEDIATE-LEVEL ADULT TURKISH EFL LEARNERS

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The primary objective of the present study was to investigate to what extent intermediate-level adult Turkish EFL learners are aware of lexical and grammatical functions of certain suffixes in English. The study further aimed at exploring the unique contribution of L2 morphological awareness to passage-level L2 reading comprehension above and beyond such reading-related factors as vocabulary knowledge, grammar knowledge and reading strategy use among intermediate-level adult Turkish EFL learners.

With these purposes, the data were collected from a total of 87 EFL learners through a number of testing instruments. These instruments consist of reading comprehension, vocabulary knowledge and grammar knowledge subtests of the proficiency exam that Anadolu University School of Foreign Languages (AUSFL) administered at the end of 2014-2015 fall semester, Turkish version of Survey of Reading Strategies (SORS) by Sheorey and Mokhtari (2002) and the two-section Morphological Awareness Test (MAT), designed by the researcher with some adaptation from Mahony (1993) for the current study.

The data were analysed using a number of statistical procedures. The first research question, which is about exploring to what extent intermediate-level adult Turkish EFL learners are aware of lexical and grammatical functions of certain suffixes in English, was answered by means of descriptive statistics, paired samples *t*-test and one-way ANOVA with repeated measures. The second research question, which is about the unique contribution of morphological awareness to reading comprehension above and beyond vocabulary knowledge, grammar knowledge and reading strategy use, was responded through hierarchical multiple regression and bivariate regression analyses. Additionally, semi-structured interviews were conducted with a smaller group of the participants to support the data gathered from the quantitative data collection instruments of the present study.

The results of the study revealed that intermediate-level adult Turkish EFL learners show at least moderate awareness of English word morphology. It was also found that the participants could judge whether a morphologically complex word comes from a simple word better than they identified the lexical and grammatical functions of certain derivational suffixes in English. Moreover, suffix categories and each suffix in each category used in the present study affected the participants' performance. The results further revealed that L2 morphological awareness does not make a direct contribution to L2 reading comprehension among intermediate-level adult Turkish EFL learners either along with or above and beyond vocabulary knowledge, grammar knowledge and reading strategy use. However, further analysis revealed that morphological awareness might make an indirect contribution to L2 reading comprehension via its direct contribution to L2 vocabulary knowledge. Additionally, the semi-structured interviews displayed that intermediate-level adult Turkish EFL learners are likely to benefit from word morphology in foreign language learning. The findings were discussed with regard to the previous research, and implications and suggestions for further research were offered.

Key words: Intra-word structure, word morphology, morphological awareness, L2 reading comprehension, Turkish EFL learners.

ÖZET

İNGİLİZCEYİ YABANCI DİL OLARAK ÖĞRENEN ORTA SEVİYE YETİŞKİN TÜRK ÖĞRENCİLER ARASINDA, İNGİLİZCE SÖZCÜK BİÇİM BİLGİSİNİN, İNGİLİZCE KELİME BİLGİSİ, DİLBİLGİSİ VE OKUMA STRATEJİLERİ KULLANIMININ ÖTESİNDE İNGİLİZCE METİN DÜZEYİNDE OKUDUĞUNU ANLAMAYA KATKISI

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Bu çalışmanın öncelikli amacı İngilizce'yi yabancı dil olarak öğrenen orta seviye yetişkin Türk öğrencilerin İngilizce'deki belli başlı son eklerin sözcüksel ve dilbigisel görevlerinin ne kadar farkında olduklarını bulmaktı. Bu çalışma bunun yanı sıra İngilizce'yi yabancı dil olarak öğrenen orta seviye yetişkin Türk öğrenciler arasında İngilizce sözcük biçim bilgisinin, İngilizce sözcük bilgisi, dil bilgisi ve okuma stratejileri kullanımı gibi okuduğunu anlamayı etkileyen faktörlerin ötesinde tek başına İngilizce metin düzeyinde okuduğunu anlamaya yaptığı katkıyı bulmayı amaçlamıştır.

Bu amaçla toplam 87 hazırlık öğrencisinden bir takım ölçme-değerlendirme araçları kullanılarak very toplandı. Bu ölçme-değerlendirme araçları Anadolu Üniversitesi Yabancı Diller Yüksekokulu'nun (AÜYDYO) 2014-2015 güz yarıyılı sonunda uyguladığı yeterlik sınavının okuduğunu anlama, kelime bilgisi ve dilbilgisi bölümlerini, Sheorey ve Mokhtari'nin (2002) hazırladığı Okuma Stratejileri Anketi'nin Türkçe tercümesini ve araştırmacı tarafından Mahony'den (1993) bu çalışma için uyarlanaran ve iki bölümden oluşan Sözcük Biçim Bilgilgisi Testi'ni kapsamaktadır.

Toplanan veri bir takım istatistiksel yöntemlerle analiz edildi. İngilizce'yi yabancı dil olarak öğrenen orta seviye yetişkin Türk öğrencilerin İngilizce'deki belli başlı son eklerin sözcüksel ve dilbigisel görevlerinin ne kadar farkında olduklarıyla ilgili olan birinci araştırma sorusu betimsel istatistikler, eşleştirilmiş örneklem *t*-testi ve yinelenen ölçümler için tek faktörlü ANOVA kullanılarak cevaplandı. İngilizce'yi yabancı dil olarak öğrenen orta seviye yetişkin Türk öğrenciler arasında İngilizce sözcük biçim bilgisinin, İngilizce sözcük bilgisi, dil bilgisi ve okuma stratejileri kullanımı gibi okuduğunu anlamayı etkileyen faktörlerin ötesinde tek başına İngilizce metin düzeyinde okuduğunu anlamaya yaptığı katkıyla ilgili olan ikinci araştırma sorusu ise basit ve çoklu regrasyon kullanılarak cevaplandı. Bunlara ek olarak, daha küçük bir grup katılımcıyla, nitel veri edinmek ve nicel veriyi desteklemek amacıyla yarı yapılandırılmış görüşmeler düzenlendi.

Bu çalışmanın sonuçları İngilizce'yi yabancı dil olarak öğrenen orta seviye yetişkin Türk öğrencilerin İngilizce'deki belli başlı son eklerin sözcüksel ve dilbigisel görevlerinin orta derecede farkında olduklarını ortaya koydu. Ayrıca, katılımcıların karmaşık biçim bilgisine sahip bir kelimenin daha basit biçim bilgisine sahip bir başka kelimeden gelip gelmediğini anlama yetilerinin İngilizce'deki belli başlı son eklerin sözcüksel ve dilbilgisel görevlerini belirleyebilme yetilerinden daha iyi olduğu bulundu. Bunun yanı sıra, son ek türleri ve her türdeki son ek katılımcıların performansını etkiledi. Bu çalışmanın sonuçları aynı zamanda İngilizce'yi yabancı dil olarak öğrenen orta seviye yetişkin Türk öğrenciler arasında İngilizce sözcük biçim bilgisinin, İngilizce sözcük bilgisi, dil bilgisi ve okuma stratejileri kullanımı gibi okuduğunu anlamayı etkileyen faktörlerin ötesinde tek başına İngilizce metin düzeyinde okuduğunu anlamaya doğrudan katkı yapmadığını ortaya çıkardı. Ancak, ileri analiz İngilizce sözcük biçim bilgisinin İngilizce kelime bilgisine yaptığı doğrudan katkı vasıtasıyla İngilizce okuduğunu anlama becerisine dolaylı olarak katkı sağlıyor olabileceğini ortaya koydu. Ayrıca yarı yapılandırılmış görüşmeler İngilizce'yi yabancı dil olarak öğrenen orta seviye yetişkin Türk öğrencilerin yabancı dil öğreniminde sözcük biçim bilgisinden faydalanabildiğini gösterdi. Sonuçlar önceki çalışmalar ışığında tartışıldı ve yabancı dil öğrenimi ve ileri çalışmalar için öneriler sunuldu.

Anahtar Kelimeler: Sözcük yapısı, sözcük biçim bilgisi, sözcük biçim bilgisi farkındalığı, yabancı dilde okuduğunu anlama, İngilizce'yi yabancı dil olarak öğrenen Türk öğrenciler.

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TABLE OF CONTENTS

ABSTRACT ..... **iv**

ÖZET ..... **vi**

ACKNOWLEDGEMENTS ..... **ix**

TABLE OF CONTENTS ..... **x**

LIST OF TABLES ..... **xii**

LIST OF FIGURES ..... **xiii**

CHAPTER 1 INTRODUCTION **1**

Background to the Study **1**

Statement of the Problem **3**

Purpose of the Study and Statement of the Research Questions **5**

Significance of the Study **6**

CHAPTER 2 REVIEW OF LITERATURE **9**

The Nature of Reading Skill **9**

Lower-level Processes 11

Higher-level Processes 14

Models of Reading **16**

General Models of Reading 16

Specific Models of Reading 18

Essential Components of Reading **20**

L2 Vocabulary Knowledge 21

L2 Grammar Knowledge 31

Reading Strategy Use 35

Morphological Awareness 39

CHAPTER 3 METHODOLOGY **67**

The Setting and the Participants **67**

Data Collection Instruments **69**

Reading Comprehension, Vocabulary, Grammar Subtests 69

Morphological Awareness Test (MAT) 70

Survey of Reading Strategies (SORS) 73

Semi-structured Interviews 74

Data Collection Procedures **75**
Pilot Study 75
Actual Data Collection 76
Data Analysis **78**
CHAPTER 4 RESULTS AND DISCUSSION **81**
Overall Findings: Proficiency Exam and Survey of Reading Strategies **82**
Proficiency Exam: Reading Comprehension Subtest, Vocabulary Knowledge Subtest, Grammar Knowledge Subtest 82
Survey of Reading Strategies (SORS) 85
Morphological Awareness among Intermediate-level Adult Turkish EFL Learners **108**
Contribution of Morphological Awareness to Reading Comprehension **129**
Indirect Contribution of Morphological Awareness to Reading Comprehension **137**
CHAPTER 5 CONCLUSION **140**
An Overview of the Thesis **140**
To what extent are intermediate-level adult Turkish EFL learners aware of syntactic and lexical functions of certain suffixes in English? 141
Does morphological awareness contribute to passage-level L2 reading comprehension above and beyond other reading and language-related factors such as grammar knowledge, vocabulary knowledge, and use of reading strategies among intermediate-level adult Turkish EFL learners? 143
Implications **144**
Limitations and Suggestions for Further Research **146**
APPENDICES **149**
Appendix A-Learning Outcomes for Level-A (Global Scale of English) **149**
Appendix B-Sample Reading Comprehension Questions **158**
Appendix C-Sample Vocabulary Knowledge Questions **160**
Appendix D-Sample Grammar Knowledge Questions **162**
Appendix E-Morphological Awareness Test (MAT) **164**
Appendix F-SURVEY OF READING STRATEGIES **170**
Appendix G-Semi-Structured Interview Questions **174**
REFERENCES **176**

LIST OF TABLES

Table 1. L2 studies investigating the contribution of morphological awareness to reading comprehension 62
Table 2. Data Collection Steps 77
Table 3. A summary of the research questions, research instruments and data analysis procedure 80
Table 4. Descriptive Statistics: Proficiency Exam 82
Table 5. Quartiles and the Interquartile Range: Proficiency Exam 83
Table 6. Means and Standard Deviations for Intermediate-level Adult Turkish EFL Learners' Reading Strategy Use (N = 87) 86
Table 7. Percentages for Global Reading Strategies (GLOB) 87
Table 8. Analysis of percentages of Global Reading Strategies (GLOB) 88
Table 9. Percentages for Problem Solving Strategies (PROB) 93
Table 10. Analysis of percentages of Problem Solving Strategies (PROB) 94
Table 11. Percentages for Supplementary Reading Strategies (SUPP) 99
Table 12. Analysis of percentages of Supplementary Reading Strategies (SUPP) 100
Table 13. Descriptive Statistics: Morphological Awareness Test (MAT) 109
Table 14. Quartiles and the Interquartile Range: Morphological Awareness Test (MAT) 109
Table 15. Descriptive Statistics: Sections of the MAT 118
Table 16. Quartiles and the Interquartile Range: Sections of the MAT 119
Table 17. Suffix-wise Analysis of the MAT 121
Table 18. An analysis of every suffix in each distinct category of derivational suffixes 123
Table 19. Inter-correlations between the variables of the study 129
Table 20. Hierarchical Multiple Regression Model 1 131
Table 21. Hierarchical Mutiple regression Model 2 134
Table 22. Bivariate Regression Analysis Model 1 137
Table 23. Bivariate Regression Analysis Model 2 139

LIST OF FIGURES

Figure 1. Classification of Morphemes (Brinton, 2000:76) 41
Figure 2. Classification of Morphs (Brinton, 2000:77) 42
Figure 3. Percentages of Reading Comprehension Subtest Scores 83
Figure 4. Percentages of Vocabulary Knowledge Subtest Scores 83
Figure 5. Percentages of Grammar Knowledge Subtest Scores 85
Figure 6. Percentages of Morphological Awareness Test Scores 110
Figure 7. Percentages of the Sections of the MAT 119

CHAPTER 1
INTRODUCTION

Background to the Study

Learning a new language always provides a variety of benefits for people in one way or another. Some of these benefits might be offering stimulation to one's mind, enhancing cognitive skills, boosting creativity and functioning as an international means of communicating and maintaining relationships (Bruck, Lambert & Tucker, 1974; Weatherford, 1986). In this sense, English is a widely recognized important foreign language all around the world. It is the medium of instruction in many universities, language of science, aviation, computers, diplomacy, tourism, Internet, media industry, favorite books, films, music and TV shows (Szczepaniak, Pathan & Soomro, 2013). The current situation of the importance of English as a foreign language might be summarized as follows:

> "English is the gateway to a world of knowledge, commerce, and culture, a lingua franca that gives a student access to the world in a way that other languages do not. Just as Latin was the most important language for a thousand years and French for five hundred, English is today the key to participating in the global conversation." ("Importance of Learning a Second Language", 2013)

Uysal, Plakens and Dembovskaya (2007) state that many reasons account for the current position of English; however, it is necessary to investigate the place and role of English in a specific country to be able to better understand its importance (as cited in Szczepaniak, Pathan & Soomro, 2013). In this regard, of the three concentric circles, namely the inner circle, the extended circle and the expanded circle, Turkey, a country with no colonial history and where English is taught as a foreign language (EFL), comes in the expanded circle (Büyükkantarcıoğlu, 2004, as cited in Szczepaniak, Pathan & Soomro, 2013). Therefore, the most significant function of English in Turkish context is instrumental (Szczepaniak, Pathan & Soomro, 2013). In other words, English

serves as a medium of instruction in many Turkish universities and provides opportunities for job careers, creating and keeping international communication links and tourism. The areas in which the English language is used in Turkey include education, science, technology, communication, media, business, economy and tourism (Szczepaniak, Pathan & Soomro, 2013). Of these areas, education, which underlies all the other areas mentioned above, is our main concern in this study.

As Szczepaniak, Pathan and Soomro (2013) state, the interest in teaching and learning English increased after World War II as a result of the cultural, economic, social, technological and political changes that occurred during the post-war period in the world. Since then, teaching and learning English as a foreign language has spread in Turkey, too. Currently, there are a lot of state and private universities in Turkey. Almost all private universities are English medium and most of the state universities are either English medium or have separate departments that are English medium such as engineering, management and economics. This requires one year or more preparatory English courses for incoming students. Therefore, preparatory English courses and thus schools of foreign languages play a crucial role in the university education in Turkey. The general purpose of these courses and schools is to introduce the grammar and vocabulary of the target language as well as enabling students to develop skills of listening, speaking, reading and writing (Çetinavcı & Topkaya, 2012). They aim at providing foreign language learners with the linguistic and even non-linguistic skills and strategies they need in order to achieve their studies that will be conducted in the target language in their departments. They further aim at making the challenging process of foreign language learning easier by equipping the learners with knowledge and awareness that they will need and use throughout their lives. These objectives are usually fulfilled via separate courses for the required language areas and sometimes in merged courses such as listening-speaking and reading-writing (Çetinavcı & Topkaya, 2012). However, the new and common trend in foreign language teaching is the integrated-skill approach, in which four primary skills of listening, speaking, reading and writing as well as such related areas as vocabulary knowledge, spelling, pronunciation, syntax, meaning and usage are interwoven (Oxford, 2001). The integrated-skill approach is favored as it exposes foreign language learners to authentic

materials and provides them with opportunities to communicate in the target language naturally (Oxford, 2001). Furthermore, the integrated-skill approach helps learners notice that a foreign language is likely to be a real means of interaction and sharing among people rather than being just an object of academic interest or a key to passing an exam, and thus is motivating for foreign language learners (Oxford, 2001).

Considering the crucial role of English as a foreign language and that integrated-skill approach is widely accepted in foreign language teaching in Turkey, it is necessary to provide practical teaching and learning environments in which foreign language learners will have chances to learn divergent language skills and strategies simultaneously, gain related awareness and transfer their knowledge from one language area to another. In other words, it is essential to enable foreign language learners to make profitable use of any knowledge or awareness in one language area to be able to achieve in another language area (Moghadam & Adel, 2011). For example, foreign language learners should be able to benefit from such sources as vocabulary knowledge, intra-word knowledge and syntactic knowledge to achieve in reading. The current situation in Turkey with regard to teaching and learning English as a foreign language requires such transfers. Therefore, the relations among language areas and the contributions that they are likely to make to each other should be investigated to come up with sound reasons to base language teaching and learning practices.

Statement of the Problem

In general terms, EFL learners in Turkey have difficulty in integrating the language skills and transferring their knowledge and awareness in one language area to another. More specifically, they have some problems in certain skills and language areas. Reading is one of these skills in which learners have some problems. Prior to mentioning these problems, it is first necessary to note the significance of reading as an L2 skill in Turkish context. To be able to read and comprehend texts in a foreign language is an integral part of knowing that language, particularly for those who are learning a foreign language for academic purposes, as they have to deal with written language most of the time. Accordingly, Carrell (1988), Grabe and Stoller (2001) and

Richards and Renanadya (1994) state that reading should receive special focus in foreign language teaching because many foreign language learners have reading as one of their most important goals. As for EFL learners in Turkey, most of whom learn English because it is the medium of instruction in their departments, they are required to read and understand books and articles to succeed in exams and thus to gain insights into their prospective professions. Therefore, reading is significant in our case, too.

When it comes to the problems in reading skill, they may stem from a number of reasons such as word-recognition difficulties, weaknesses in grammar knowledge, not being able to apply reading strategies or even being unaware of them, lack of background knowledge, lack of knowledge of text structure and discourse cues (Koda, 2005). However, a considerable part of these problems may be attributed to unknown vocabulary in a reading text. In this sense, Moghadam, Zainal and Ghaderpour (2012) maintain that vocabulary learning is prevalent in language acquisition and a lot of unknown words that learners encounter while reading might cause difficulties in processing the text. They further maintain that reading comprehension breakdowns stem from problems/limitations concerning word recognition and lexical access (Moghadam, Zainal & Ghaderpour, 2012). Similarly, Anjomshoa and Zamanian (2014) note that without the ability to recognize the meanings of words, both perceiving and producing the language would be impossible. Mehrpour, Razmjoo and Kian (2011), on the other hand, indicate that even if students successfully decode and read fluently, knowledge of word meanings is critical to reading comprehension (as cited in Anjomshoa & Zamanian, 2014).

Considering the crucial role of vocabulary knowledge in reading comprehension, we have the following problem: there are always unknown words. Moreover, EFL learners attempt to look up their dictionaries for every single unknown word. Yet this may become tiring and even unnerving after a while. Additionally, such attempts are likely to bring about loss of time, which is specifically hazardous for timed reading tasks. More importantly, looking up a dictionary for the meaning of an unknown word may not always be possible considering, for example, exam conditions. Furthermore, abundance of unknown words in a reading text may intimidate EFL

learners. Therefore, they get bored, distracted and ultimately give up reading. For this very reason, EFL learners should be provided with the awareness that they are able to and had better survive reading a text in English without knowing the exact meaning of every single unknown word. Accordingly, they should be presented the ways of how they can accomplish this. Considering the unknown vocabulary and the challenges it poses to L2 reading comprehension, a possible solution may be lexical inferencing, which is defined as "making informed guesses as to the meaning of a word in light of all available linguistic cues in combination with the learners' general knowledge of the world, her awareness of context and her relevant linguistic knowledge" (Haastrup, 1991, p.13). Intra-word knowledge or morphological awareness is a part of lexical inferencing process and is likely to be a practical tool for EFL learners to gain insights into the meaning of multi-morphemic unknown words regardless of contextual information, and thus to be better readers. However, the number of studies investigating the role of morphological awareness in teaching and learning English as a foreign language is quite limited in the general EFL context (Jeon, 2011). Furthermore, there are no related studies on the role of morphological awareness in teaching and learning English as a foreign language so far in Turkish EFL context as far as we are concerned. This means that morphological awareness has densely been investigated and is seemingly not paid enough attention in terms of teaching English as a foreign language despite its potential to provide a useful tool for EFL learners, which forms the main problem of the present study (Jeon, 2011).

Purpose of the Study and Statement of the Research Questions

The present study aims to explore to what extent intermediate-level adult Turkish EFL learners are aware of syntactic and lexical functions of certain suffixes in English and investigate whether morphological awareness in a foreign language matters in learning that particular language. It is hypothesized that it does matter in learning a foreign language by contributing to passage-level reading comprehension. In other words, we hypothesize that English morphological awareness plays a role in EFL learning process of adult Turkish learners by favor of the contribution it makes to passage-level reading

comprehension in English. With these purposes, the present study addresses the following research questions:

1) To what extent are intermediate-level adult Turkish EFL learners aware of syntactic and lexical functions of certain suffixes in English?

2) Does morphological awareness contribute to passage-level L2 reading comprehension above and beyond other reading and language-related factors such as grammar knowledge, vocabulary knowledge, and use of reading strategies among intermediate-level adult Turkish EFL learners?

As the second research question above lays bare, the present study aims to exclude the effects of grammar knowledge, vocabulary knowledge and use of reading strategies, which are the variables that are believed to have a strong and positive relationship with reading (Koda, 2005; Grabe, 2009), so that unique contribution of morphological awareness to passage-level reading comprehension can be explored.

Significance of the Study

A considerable number of studies (ranging from 1970s to present) have yielded empirical findings that morphological awareness boosts L1 reading comprehension. Within the light of these findings, foreign/second language teaching practitioners and researchers attempted to find out whether morphology contributes to L2 reading as it does to L1 reading, and how much this contribution is when the effects of other reading and language-related variables are controlled. However, a review of literature lays bare that, despite the abundance of studies conducted to investigate the contribution of morphological awareness to reading comprehension in L1, the number of studies carried out to explore the contribution of morphological awareness to L2 reading comprehension is quite limited (Jeon, 2011). Therefore the questions, whether morphology contributes to L2 reading as it does to L1 reading, and how much this contribution is when the effects of other reading and language-related variables are controlled, thus marking the relationship between morphological awareness and L2

reading comprehension, remain only partially answered (Jeon, 2011). Besides, these limited number of studies, investigating the relationship between morphological awareness and L2 reading comprehension, tackle the issue from the point of view of language minority children who learn the target language as a second language, which refers to ESL environment (Droop & Verhoeven, 2003; Wang et al., 2006; Kieffer & Lesaux, 2008; Kieffer & Lesaux, 2012; Kieffer, Biancarosa & Mancilla-Martinez, 2013 and Kieffer, 2014). Consequently, the data of relevance to foreign language learning (EFL environment), which is the case in Turkey, is even more limited. Therefore, the present study modestly attempts to reduce a gap in the field by finding out whether adult Turkish EFL learners are aware of morphological structure of English and whether or to what extent this awareness is in line with passage-level L2 reading comprehension.

As well as reducing a gap in the field, the present study might potentially come up with favorable findings. Once a positive correlation is established between morphological awareness and passage-level reading comprehension, as hypothesized, morphological instruction might be integrated into classroom activities and eventually into the syllabus, thus enabling EFL learners to gain insights into word structure and benefit from it. Gaining insights into word structure is likely to enable learners to guess the meanings of unknown words and, as a result, enhance their reading comprehension (Jeon, 2011; Zhang & Koda, 2012). Even though learners fail to correctly guess the meaning of every single unknown word they encounter, they might be made aware of the fact that this is quite natural and should be encouraged to make profitable use of morphological knowledge to overcome this challenge so that they will not give up reading any text that they need to or would like to read. It goes without saying that vocabulary knowledge is crucially important when one attempts to learn a foreign language (Hu & Nation, 2000; Schmitt, 2000; Stahl, 2003; Joshi, 2005 and Zhang & Annual, 2008). Just as vocabulary knowledge, with as much quality and quantity as possible, enables one to survive in the foreign language, its inadequacy, in the sense of both quality and quantity, leads one to have difficulty in comprehending and producing the language (Hu & Nation, 2000; Schmitt, 2000). For this very reason, unknown words in a reading text may prevent foreign language learners from entirely comprehending and/or enjoying it (Chall, 1987; Curtis, 1987; Nation, 2001, as cited in Zhang &

Annual, 2008). What is worse, such texts are likely to intimidate and demotivate learners (Bernhardt, 1991; Bernhardt & Kamil, 1995; Carrell, 1988; Clarke, 1980, as cited in Nassaji, 2003). Therefore, providing morphological knowledge as a tool for learners to struggle with this *a-bunch-of-unknown-vocabulary* challenge, thus ensuring them to feel at more ease while reading, makes the present study potentially significant.

Furthermore, thanks to the semi-structured interviews that were carried out with the participants with the highest morphology scores and those with the lowest morphology scores, we were able to gain more insights into how university-level Turkish learners of English as a foreign language perceive the role of morphological knowledge in English reading proficiency. Through these interviews, it was also possible to find out what students think of morphology instruction in a foreign language classroom. These interviews are likely to add to the significance of the present study, as the thoughts of students, who are at the very center of the language learning process, were incorporated into the data collection process, which distinguishes the present study from the previous ones.

CHAPTER 2
REVIEW OF LITERATURE

The present study aims at investigating the contribution of morphological awareness to passage-level L2 (English) reading comprehension above and beyond L2 vocabulary knowledge, grammar knowledge and reading strategy use, which are assumed to have a strong and positive relationship with reading comprehension, among intermediate-level adult Turkish EFL learners. To that end, this chapter is devoted to the review of the related literature including theoretical background and empirical studies conducted so far. First, the nature of reading skill is introduced with an emphasis on lower-level processes and higher-level processes of reading. Second, models of reading, which fall into two categories as general models of reading and specific models of reading, are presented. Next, essential components of reading are listed. These are vocabulary knowledge, grammar knowledge and readings strategy use, whose effect the present study intends to eliminate to come up with the unique contribution of morphological awareness to L2 reading comprehension. Finally, morphology is defined; morphological structure of English is summarized, and morphological awareness is introduced. An overview of morphological awareness tasks and morphological instruction in classrooms is provided. Once for all, the role of morphological awareness in L1 and L2 reading is expressed respectively by means of annotations of related research studies.

The Nature of Reading Skill

Grabe and Stoller (2002) define reading as "the ability to draw meaning from the printed page and interpret this information appropriately" (p. 9). However, they add that this definition is insufficient, as it ignores such facts about reading as

> (1) one reads for several purposes, which require divergent skills and strategies;
> (2) fluent reading abilities entail a variety of skills, processes and knowledge bases;
> (3) reading is a complex cognitive process, and
> (4) the ability to read and interpret what is read depends on the target language

proficiency of the reader.

There are a variety of purposes for reading. Grabe and Stoller (2002) lists the purposes for reading as searching for simple information, skimming quickly, learning from texts, integrating information, reading to write or searching for information required for writing, reading to critique, and reading for general comprehension. Hedge (2000), on the other hand, mentions receptive reading, reflective reading, skim reading, scanning and intensive reading, citing to Pugh (1978) and Lunzer and Gardner (1979). Receptive reading refers to reading to enjoy oneself or understand the main points. Reflective reading means reading for some time and pausing to reflect on what is read. Skim reading is useful for getting an overall idea of the text, whereas scanning is searching the text quickly to find out specific information or details. Intensive reading, lastly, involves scrutinizing a text carefully. As stated above, different purposes for reading require different skills and strategies. Grabe and Stoller (2002) point out that skills and strategies are two common terms that are involved in fluent reading activity. *Skills* are automatic information-processing techniques that are applied unconsciously. They may be either at the level of grapheme-phoneme correspondence, or at the level of making a summary of the text (Paris, Wasik & Turner 1991). *Strategies*, on the other hand, refer to deliberate actions that readers take to achieve certain goals while reading. In this sense, a skill might be a strategy once it is used on purpose. By the same token, strategies might turn into skills when they begin to be applied automatically, which increases their efficiency (Paris et al., 1991). In addition to involving skills and strategies, fluent reading comprehension is a rapid, efficient and interactive process. Hedge (2000) states that reading's being interactive can be explained in two ways. First, the readers establish a dynamic relationship with the text in order to make sense of it. As readers become involved in reading, they combine their background knowledge with the knowledge from the text, which makes reading look like a dialogue between the reader and the text/author. It is worth making a note that readers make use of at least six types of knowledge to accomplish this interactive process, namely syntactic knowledge, morphological knowledge, general world knowledge, sociocultural knowledge, topic knowledge and genre knowledge. The interplay among these various types of knowledge that readers benefit from to make sense of a text represents the second

interpretation of reading's being interactive (Hedge, 2000). At the same time, reading is flexible and purposeful as already mentioned above. Moreover, it is an evaluating process, as the readers have to evaluate whether the information presented in the text is coherent and appropriate for the purpose for reading. Furthermore, it is a comprehending and learning process. Finally, reading is a linguistic process in which recognizing linguistic features of a language are essential for comprehension.

All in all, reading is a multivariate skill that combines and integrates a variety of cognitive, linguistic and non-linguistic skills rather than a single-factor process (Nassaji, 2003). These skills involve the very basic low-level processing abilities employed in decoding print and encoding visual configurations as well as high-level skills of syntax, semantics and discourse, and higher-level knowledge of text representation and integration of ideas with the reader's global knowledge (Nassaji, 2003). Grabe (2009) also states that it is crucial to recognize the role of lower-level and higher-level processes in understanding the fluent reading process. The lower-level processes are more automatic, linguistic and skill-oriented, whereas the higher-level processes have much to do with comprehension processes and depend on readers' background knowledge and inferencing skills (Grabe & Stoller, 2002). However, it is worth mentioning that lower-level processes are not easier than higher-level processes.

Lower-level Processes

Lower-level processes refer to word recognition, syntactic parsing and meaning proposition encoding, which are conducted as a part of working memory.

Word recognition (also referred as *lexical access*) represents simultaneously recognizing and retrieving the meaning of a word (Grabe & Stoller, 2002). It is widely recognized that word-recognition has a crucial role in reading comprehension (Grabe, 2009). It is reported that rapid and automatic word recognition of a large vocabulary renders fluent reading comprehension possible. Successful word recognition involves recognizing the printed word forms rapidly, associating the graphic form and phonological form, applying the necessary semantic and syntactic resources,

recognizing the morphological structure of complex word forms and lastly having access to one's mental lexicon. Therefore, we can safely arrive at the conclusion that fluent word recognition is closely related to orthographic processing, phonological processing, semantic and syntactic processing and morphological processing. In this sense, automaticity also matters in fluent word recognition, as it is critical to engaging in all of these processes simultaneously. Context is another component of fluent word recognition in the sense that it provides a useful support for word recognition when readers have difficulty in multi-processing, or encounter a confusing or not well known/learned word. However, it is worth noting that dependence on context is an indicator of weak readers (Grabe, 2009).

Syntactic parsing refers to extracting basic grammatical information from the printed text by taking in and storing words together in order to gain access to clause-level meaning (Grabe & Stoller, 2002). Grammar knowledge is an integral part of reading process and thus syntactic parsing is essential to comprehension (Grabe, 2009). Syntactic parsing consists of recognizing phrasal groupings, word ordering information and subordinate and superordinate relations among clauses. Syntactic parsing enables learners to comprehend what pronouns and definite articles refer to in the text, and what words that have multiple meanings exactly mean in a specific context. Automatic syntactic parsing is less obvious among L2 learners, which poses a challenge for them to be successful readers. Therefore, as much exposure to print as possible is required as well as overt grammar knowledge in order for L2 learners to be proficient in reading (Grabe & Stoller, 2002).

Meaning proposition encoding (semantic proposition formation) refers to forming semantic propositions that are basic clause-level meaning units combined with word meanings and structural information (Grabe & Stoller, 2002; Grabe, 2009). In other words, grammatical input brings about possible propositional structures, while a combination of word meanings and structural information leads to clause-level meaning units, namely semantic propositions. This ongoing process, functioning simultaneously with word recognition and syntactic parsing is important to reading comprehension.

Lower-level processes, namely word recognition, syntactic parsing and meaning proposition encoding, function together in the **working memory**. Working memory refers to active use of such cognitive processes as recognizing and taking in word information, making use of syntactic information, establishing the link between pronouns and their referents, constructing text structure, integrating previous knowledge with new information, making inferences and making amendments on readers goals when necessary. Grabe (2009) notes that although long-term memory is a major resource of reading, working memory is at the core of reading comprehension, and its activation is required for fluent reading. Working memory activation refers to "network of information and related processes that are being used at a given moment" (Grabe & Stoller, 2002: 24). Grabe (2009) purports that research has shown that there is a strong relationship between reading comprehension and working memory in English L1 contexts. It is further stated that working memory measures are also in line with reading skills among L2 learners though the L2 research on working memory is limited.

Before moving on to higher-level processes of reading skill, it is possible to summarize reading comprehension in terms of lower-level processes by analogy to a car:

> "The car, as general reading comprehension, is the vehicle that gets you to your destination (in this case, understanding a text). But the car will not go anywhere without gasoline (much like word recognition), which is what we need to put into the car so that it will run. … Working memory is somewhat like the engine of the car. The working parts fit together for efficient coordination and the fuel (word recognition) is converted to useful energy in the engine to drive the car. "
> (Grabe & Stoller, 2002: 22, 25)

Higher-level Processes

Higher level processes, on the other hand, include a text model of reader comprehension, a situation model of reader interpretation and a set of reading skills and resources under the command of the executive control mechanisms in working memory such as strategies, goals, inferences, background knowledge and comprehension monitoring. Returning to the car analogy mentioned above, Grabe and Stoller (2002) maintain that higher-level processes symbolize the car (general reading comprehension) itself.

Of the higher-level processes, **a text model of reader comprehension**, in its simplest term, refers to a reader's ability to coordinate the main and supporting ideas in a text so as to form a meaning representation of the text (Grabe, 2009). As already mentioned in lower-level processes of reading above, readers form clause-level meaning units by means of syntactic parsing and meaning proposition encoding, and end up with a growing network of ideas. Each new clause coming from the text becomes a part of this network in a variety of ways such as repetition, reference (to pronouns or indefinite articles representing the same idea, event, object or character) and simple inferences. The ideas that are repeatedly encountered and that establish links among the information throughout the text are regarded as the main ideas of the text. Those ideas that do not provide support for textual connections and/or inferences, on the other hand, fail to remain active in the network. This network, in which the main ideas remain active, while the others fade away, forms the text model of comprehension, and it resembles "an internal summary of main ideas" (Grabe, 2009: 26). Grabe (2009) further notes that this is why summary tasks play an important role in learning.

Second, **a situation model of reader interpretation** refers to what readers bring to reading such as how they perceive the ways in which discourse is structured, establishing similarities with the previous texts they have read, related knowledge, readers' attitudes towards the text, the author, the situation and the genre (Grabe, 2009). In other words, the situation model of reader interpretation is what the readers want to understand and think of the author and the text. The factors that influence situation-

model construction include why readers read (purpose for reading), what readers are expected to do if reading is a task, task and text difficulty, genre activation, readers' previous experience with similar texts, readers' background knowledge, how they evaluate/enjoy/are interested in the information presented in the text, their motivation and attitudes towards the story, author, genre, and inferences that are required to make interpretations regarding the text and its components (Grabe & Stoller, 2002; Grabe, 2009).

A third higher-level process, **executive control** is responsible for directing attentional control, inhibiting irrelevant and unnecessary information, shifting attention on purpose, and updating the information in the working-memory. When task and/or text difficulty is increased, and when learners read for crucial purposes, attentional processes, conducted by the executive control, become an integral part of reading comprehension according to many a discourse comprehension researcher (Grabe, 2009). These attentional processes include goal setting, strategy use, metacognitive awareness, metalinguistic awareness and comprehension monitoring. Goal setting has been found closely related to readers' motivation and attitudes towards reading and the context in which it takes place (Grabe, 2009). Grabe (2009) further reports that goals have a significant effect on reading comprehension in both L1 and L2 context as research has shown. Strategy use provides readers with a need to make changes in processing when necessary, to adapt their goals, to reconstruct comprehension, to guess the meanings of unknown words, to do comprehension tasks more successfully. Metacognitive awareness also contributes to reading comprehension, as it enables readers to find out whether comprehension takes place, the reading goals are accomplished and they can make profitable use of linguistic resources to enhance their reading comprehension or not. Metalinguistic awareness, which refers to "the ability to reflect on one's conscious knowledge of language and be able to act on that knowledge" (Grabe, 2009: 53), is also said to support reading comprehension in the sense that it provides readers with an awareness of word-learning skills (such as making use of contextual clues and that of word parts), an awareness of syntactic structuring and an awareness of discourse organization. Comprehension monitoring, lastly, is related to readers' attempt to have a standard of coherence, which refers to readers' effort to understand a text.

Models of Reading

In order to better understand the reading comprehension process and consequently to provide benefits for learners, teachers and researchers undertake creating models of reading. "A reading model is theory of what is going on in the reader's eyes and mind during reading and comprehending (or miscomprehending) a text" (Davies, 1995: 59, as cited in Škudienė, 2002: 94) Grabe and Stoller (2002) states that models of reading fall into two categories as general models of reading and specific models of reading. General models of reading interpret reading comprehension processes metaphorically, whereas specific models of reading base their principles on the results of a variety of reading research, and thus are specific in nature as the name already indicates.

General Models of Reading

General models of reading metaphorically reflect the generalizations gathered from the findings of the comprehension research carried out in the last three decades (Grabe and Stoller, 2002). These models are bottom-up, top-down and interactive models of reading. To begin with, **bottom-up models of reading** focus on linguistic clues, and thus build literal comprehension of a text. In the bottom-up models of reading, the focus is on the text itself, and reading comprehension is processed from part to the whole (Fatemi, Vahedi, & Seyyedrezaie, 2014). Therefore, according to bottom-up processing, learners resort to their knowledge of lexical items, structural points and phonological patterns, which refer to the word "part" in the previous sentence, to be able to decode the text meaning, which refers to the word "whole" in the previous sentence. In other words, in bottom-up models, reading proceeds in serial fashion from letter to sound, to words, to meaning (Gough, 1972, as cited in Fatemi, Vahedi, & Seyyedrezaie, 2014). In sum, as Grabe and Stoller (2002) notes, bottom-up models propose that reading proceeds in a mechanical manner in which readers mentally translate the information in the text in pieces with little intervention of their background knowledge. Škudienė (1999) revealed that learners accomplish literal comprehension tasks more successfully, assuming that teachers underscore bottom-up models rather than top-down models (as

cited in Ščukienė, 2002). However, Ščukienė (2002) points that bottom-up models fail to serve useful purposes for advanced-level learners, as they can already automatically decode graphical input. This clearly indicates that the reading model that we adopt should vary in relation to the language proficiency of learners.

Top-down models of reading, on the other hand, underscore such contextual factors as socio-cultural knowledge. In other words, they pay much attention to background knowledge, and play a crucial role in building global comprehension of a text. In top-down models, reading proceeds from whole to part (Paran, 1996). It is necessary for readers to activate their world knowledge to master reading comprehension through top-down processing (Fatemi, Vahedi, & Seyyedrezaie, 2014). As Grabe and Stoller (2002) asserts, top-down models suggest that readers have a set of expectations that they confirm or reject with the information they gather from the text. To be able to do so, they are expected to sort out the useful information in the text. Top-down models further suggest that lower and higher-level processes interact with each other in the comprehension process (Grabe & Stoller, 2002). However, top-down models of reading appear not to come in useful for learners with lower language proficiency such as beginners or elementary-level learners. The reason lies in the fact that learners must be familiar with at least 5000 words to be able to make top-down processing possible, which does not seem to be the case among learners with lower language proficiency (Ščukienė, 2002; Fatemi, Vahedi, & Seyyedrezaie, 2014). Grabe and Stoller (2002) reports that not many researchers are in favor of strong top-down views.

Considering that both bottom-up and top-down views of reading might have certain drawbacks, it is possible to refer to an **interactive model**. This interactive model of reading suggests that readers can combine useful ideas from a bottom-up perspective with key ideas from a top-down view. Such a combination entails fast and efficient word-recognition as well as interference from background knowledge and readers' making predictions regarding what will come next in the text (Grabe & Stoller, 2002). However, since aspects of bottom-up approaches are not congruent with strong top-down controls, such an interactive model is likely to be self-contradictory (Grabe &

Stoller, 2002). Therefore, we can alternatively refer to a modified interactive model or "a hybrid bottom-up/top-down model" as stated in Grabe and Stoller (2002:34). These models underscore the number of automatic processes conducted in a bottom-up manner with little contribution of knowledge sources. This indicates that fluent word recognition depends usually on the integration of information gathered from letters, letter shapes, phonology and orthography, but rarely on context and background knowledge. However, readers might make use of context to disambiguate word meaning especially when they encounter with complex sentences. This modified interactive model of reading also makes sense considering that there are a variety of purposes for reading. For instance, if one reads in order to integrate information across multiple texts, or get the main idea in a single text, background knowledge and inferences become an integral part of the comprehension process, primarily referring to the top-down aspects of the modified interactive model.

Specific Models of Reading

Specific models of reading consider recent accounts of reading comprehension (Grabe & Stoller, 2002). These are Psycholinguistic Guessing Game, the Interactive Compensatory Model and the Simple View of Reading. First, the **Psycholinguistic Guessing Game** (Goodman, 1967) mainly represents an early stage of reading development. According to this model, reading comprehension involves hypothesizing, sampling and confirming information based on background knowledge and expectations and/or predictions about the text. In this sense, it is similar to top-down model of reading. Moreover, this model suggests that reading development and reading skills transferred from one language to another vary across languages. It further suggests that readers can conduct reading comprehension processes although they fail to explain how these processes operate or develop. Goodman (1967) objects to the misconception that "reading is a precise process that involves exact, detailed, sequential perception and identification of letters, words, spelling patterns and large language units" (pp. 126). Instead, he offers the following:

> "Reading is a selective process. It involves partial use of available minimal language cues selected from perceptual input on the basis of the reader's expectation. As this partial information is processed, tentative decisions are made to be confirmed, rejected, or refined as reading progresses." (Goodman, 1967: 127)

In other words, reading is a psycholinguistic guessing game in which thought and language interact. If readers are able to select the fewest, most productive cues that will enable them to make right guesses for the first time, efficient reading occurs. This makes precise perception and identification of elements involved in reading redundant. That is to say, fluent and effective reading entails accurate first guesses through useful sampling techniques, control over linguistic structure, inclusion of previous experiences and better conceptual development rather than greater precision.

Second, Stanovich (1980) argues that an interactive model gives way to reconceptualization of the nature of individual differences in reading if various component sub-skills of reading can operate in a compensatory manner, which he calls **Interactive Compensatory Model**. This model maintains that completion of lower-level processes is not necessary for a higher-level process to initiate, making the bottom-up models of reading invalid. Therefore, it is assumed that deficiencies in lower-level processes can be compensated by higher-level processes. In other words, "a process at any level can compensate for deficiencies at any other level" (Stanovich, 1980: 36). The Interactive Compensatory Model suggests that while automatic processes of reading operate independently, less automatic processes interact regularly, and reading difficulties entail interaction and compensation. For example, poor readers who have difficulty in word analysis may rely more on contextual factors, suggesting that a weakness in a knowledge source is likely to result in a grater reliance on other knowledge sources.

The third specific model of reading is **Simple View of Reading**, which claims that reading consists of only two components, namely decoding and linguistic comprehension (Hoover & Gough, 1990). Compatible with the Interactive Compensatory Model, Simple View of Reading maintains that reading comprehension

is the sum of word recognition skills and general comprehension skills (including listening comprehension) (Grabe & Stoller, 2002). The simple view further claims that neither decoding nor linguistic comprehension is sufficient itself for reading success. In other words, according to the simple view, decoding without such linguistic skills as parsing, bridging and discourse building, or vice versa, fails to lead to reading success. Hoover and Gough (1990) tested three predictions drawn from the Simple View of Reading, and found the following results. First, decoding and linguistic comprehension abilities substantially contribute to explaining variation in reading comprehension, but that the product of these abilities significantly enhances the estimate of reading comprehension more than the linear combinations of the two components. This means that inclusion of the product of the two components, namely decoding and linguistic comprehension, shows improvement in reading comprehension. Second, weakness either in one of the two essential components, decoding and linguistic comprehension, or in both causes poor reading skills. This means that among less skilled readers, the relationship between decoding and linguistic comprehension is negative. Third, as the level of decoding skills increases, so does the pattern of linear relationships between linguistic comprehension and reading comprehension.

Essential Components of Reading

Koda (2005) indicates that there are a number of essential components of reading, namely word recognition, vocabulary knowledge, intra-word awareness and word knowledge, information integration in sentence processing, discourse processing and text structure. Besides this, Jeon and Yamashita (2014), in a meta-analysis on L2 reading comprehension and its correlates, investigate ten key reading component variables. These are four high-evidence correlates, namely L2 decoding, L2 vocabulary knowledge, L2 grammar knowledge, L1 reading comprehension, and six low-evidence correlates, namely L2 phonological awareness, L2 orthographic awareness, L2 morphological awareness, L2 listening comprehension, working memory, metacognition. Additionally, a good number of both L1 and L2 reading researchers accept that effective reading strategy use supports reading comprehension (Guthrie & Taboada, 2004; Block & Pressley, 2007; Hudson, 2007, as cited in Grabe, 2009, and

Phakiti, 2003; Akkakoson, 2013; Peng, Siriyothin & Lian, 2014; Qanwal, & Karim, 2014). Of these essential components of reading, L2 vocabulary knowledge, L2 grammar knowledge, reading strategy use and morphological awareness will be discussed below in turn, as they are the most appropriate ones for the purpose of the present study.

L2 Vocabulary Knowledge

It is widely recognized that reading comprehension success considerably depends on knowing word meanings, and vocabulary knowledge plays a vital role in reading comprehension among both L1 and L2 readers (Koda, 2005). Additionally, a considerable body of research has demonstrated that vocabulary knowledge is more strongly linked to reading comprehension than such other factors as morphosyntactic knowledge and reading strategies.

In order to better understand the relationship between vocabulary knowledge and reading comprehension, it is first necessary to define what knowing a word means. Anderson and Nagy (1991) reported two aspects of word meaning, namely denotation and connotation. Denotation is the literal or referential meanings of the words, whereas connotation refers to the feelings, attitudes or opinions that the words evoke (Brinton, 2000). Therefore, knowing a word is structurally and conceptually more complex than what is conveyed in word definitions, and thus gaining vocabulary knowledge necessitates more than acquiring definition-form associations. In this sense, Nation (2001) defines three dimensions of vocabulary knowledge, namely form, meaning and use. Form refers to what the word sounds and looks like and how it is pronounced, written and spelled; meaning refers to what meaning the word signals, what items the concept refers to, what other words the word makes us think of and what other words the word could be replaced with; use refers to grammatical functions such as in what patterns the word occurs or we must use the word, collocations, and register frequency such as where, when and how often we can use the word and would expect to meet it. Nation (2001) points out that grammatical and phonological properties play a crucial role in language processing, indicating that certain words determine grammar,

morphology and phonology of the message conveyed by the words. In other words, being aware of morphosyntactic properties of a word is essential to gain insights into its semantic information and thus comprehension (Koda, 2005).

Besides the contribution that vocabulary knowledge makes to reading comprehension, information is available on possible ways vocabulary knowledge development benefits from reading skills (Koda, 2005). In this sense, it is possible to mention two different viewpoints regarding the relationship between vocabulary knowledge and reading comprehension. These are *the vocabulary-supports-comprehension view* and *the mutual-dependency view*.

The Vocabulary-supports-comprehension View

Hu and Nation (2000) estimated the percentage of the vocabulary that must be known for text understanding, and deduced from the findings that almost 98 percent of the text words must be known for acceptable reading comprehension among college ESL learners. This finding is also congruent with that reading for pleasure among native speakers of English entails 99 percent text word coverage (Carver, 1994, 2000; as cited in Koda, 2005). This finding displays that the more text vocabulary is known, the better the reading comprehension is. *The vocabulary-supports-comprehension view* underscores the importance of decontextualized vocabulary learning so as to build the core vocabulary that L2 learners need for acceptable comprehension in unassisted reading. Decontextualized vocabulary learning, referring to learning L1 equivalents on their own, is useful in the sense that it enables L2 learners to link unknown L2 lexical items in a text to their existing conceptual knowledge and provides access to their stored knowledge base. Moreover, decontextualized L2 vocabulary learning is essential, as it enhances reading comprehension considering that L2 learners have to improve reading skills and basic linguistic knowledge in the target language simultaneously, as they, unlike native speakers, often begin reading before they become orally proficient enough. In other words, decontextualized vocabulary learning eases the challenging process that L2 learners have to go through by contributing to L2 reading comprehension. Furthermore, when L2 learners are unfamiliar with the majority of the

text words, they either give up reading or try to make use of their background knowledge to make sense of the text. In this sense, background knowledge is activated through words that the learners are familiar with, which presents another aspect of why L2 vocabulary knowledge (mostly decontextualized vocabulary learning) contributes to L2 reading comprehension.

To iterate, reading skills entail readers' knowledge of word meanings that occur in a text. Reading skills and vocabulary knowledge are reported to share a close relationship, and vocabulary is one of the best predictors of both word reading and reading comprehension among L1 and L2 learners (Li & Kirby, 2012). However, it is worth mentioning that vocabulary knowledge includes dimensions of size rather than being a single-faceted construct (Zhang, 2012). These dimensions are breadth and depth. Anderson and Freebody (1981) first made the distinction between breadth and depth of vocabulary knowledge (as cited in Li & Kirby, 2012). According to them, breadth of vocabulary knowledge refers to how many words and how many significant aspects of these words' meaning a person knows, whereas depth of vocabulary knowledge refers to how well a person knows the words that he or she is assumed to know. It should be noted that there is no consensus among researchers over whether breadth and depth of vocabulary knowledge are closely related or actually distinguishable (Zhang, 2012). However, Zhang (2012) indicates that L2 reading researchers have focused largely on breadth of vocabulary knowledge in investigating the relationship between vocabulary knowledge and reading comprehension. As a result, a good number of tests have been developed to assess breadth of vocabulary, while only a few tasks have been developed to assess depth of vocabulary knowledge. Li and Kirby (2012) note that assessment of vocabulary breadth has been accomplished using written multiple-choice format vocabulary tests, oral receptive vocabulary tests, checklist format tests, word definition matching tests and translation tests. When it comes to assessing depth of vocabulary knowledge, the most common type of measure is asking learners to explain meanings of certain words and evaluating them in terms of quality. Li and Kirby (2012) further states that morphological knowledge can also be used to assess depth of vocabulary knowledge, as morphological processing requires an integration of semantic features of lexical representations, which, to some extent,

represents depth of vocabulary knowledge. Vocabulary Knowledge Scale (Paribakht & Wesche, 1999), in which learners indicate whether or not, or to what extent they know a target word, has also been used to assess depth of vocabulary knowledge. Word Associates Test (Read, 1993), in which learners choose the synonyms of the target words and the words that they can collocate with, is another instrument to assess depth of vocabulary knowledge.

Research that has been conducted using the instruments mentioned above displays that vocabulary knowledge is an important predictor of reading comprehension both in L1 and L2 (Li & Kirby, 2014). Regarding L1 context, Nation and Snowling (2004), for example, indicated that vocabulary knowledge contributed to reading comprehension above and beyond age, nonverbal IQ, decoding and phonological skills among 8-year old children. Ricketts et al. (2007), similarly, found that vocabulary knowledge predicted 17.8 percent of the variance in reading comprehension controlling for age, nonverbal IQ and word reading among 8-to-9-year old children. Given the multiple aspects of vocabulary knowledge, Quellette (2006) found that both breadth and depth of vocabulary knowledge predicted reading comprehension controlling for age, nonverbal IQ, decoding and visual word recognition. However, it was also reported that depth of vocabulary knowledge still predicted reading comprehension controlling for breadth of vocabulary knowledge, whereas breadth of vocabulary knowledge failed to predict reading comprehension controlling for the depth aspect, suggesting that depth of vocabulary knowledge plays a more crucial role in reading comprehension than breadth of vocabulary knowledge. Tannenbaum et al. (2006), in contrast, found that breadth of vocabulary knowledge was a stronger predictor of reading comprehension than depth.

As for L2 studies on the relationship between vocabulary and reading comprehension, Quian (1999) found that both breadth and depth of vocabulary knowledge significantly predicted reading comprehension among ESL learners. However, depth explained 11 percent of the variance in reading comprehension controlling for breadth, whereas breadth explained 3 percent of the variance in reading comprehension controlling for depth. Quian (2002), similarly, found that depth explained 13 percent of the variance in reading comprehension, while breadth explained

8 percent, indicating that depth has a stronger effect on reading comprehension than breadth. Carlo et al. (2004) found that intense explicit vocabulary instruction, with the focus being on depth of vocabulary meaning, led to better reading comprehension among Latino 4th grade English L2 learners. Quite recently, Wang (2014) explored the correlation between depth and breadth of ESL learners' vocabulary knowledge and their contribution to overall linguistic competence, operationalized as listening, cloze, reading and writing. To our concern, results revealed that 28.3 percent of the variance in reading scores could be explained by breadth of vocabulary knowledge, and depth of vocabulary knowledge could increase reading scores by 4 percent. Moreover, the correlation between breadth of vocabulary knowledge and reading was found to be higher than that of between depth and reading, marking the overreliance on breadth unlike Quian (1999; 2002) and Carlo et al. (2004). Horiba (2012), similarly, reports that there is a moderate correlation between L2 learners' text comprehension and breadth and depth of vocabulary knowledge, with breadth having a stronger effect than depth. Proctor (2009) found that the semantic depth of vocabulary explained 3 percent of the variance in reading comprehension controlling for word decoding and breadth of vocabulary among monolinguals and bilinguals (as cited in Li & Kirby). It is maintained that the variance in reading comprehension that depth explains is less than the previous studies, as both breadth and decoding were controlled. Another distinguishing feature of the present study is that the semantic depth of vocabulary was assessed asking the participants to find out captions for the target words that had already learned, unlike the measures of depth of vocabulary in previous studies. Nergis (2013) investigated whether depth of vocabulary knowledge, along with syntactic awareness and metacognitive awareness, was a strong predictor of reading comprehension; however, found, as a result of a multiple regression analysis, that depth of vocabulary knowledge failed to predict reading comprehension among English for Academic Purposes (EAP) with Turkish L1 background.

Li and Kirby (2014) investigated the relationships between different dimensions of vocabulary, namely depth versus breadth and different aspects of reading, namely word reading and reading comprehension among L2 learners. Reading comprehension was assessed using standardized short passages followed by multiple-choice questions

and a summary writing task. As a result of the correlation analysis, the strongest relationship was found between breadth of vocabulary knowledge and the standardized reading comprehension test. As a result of a series of hierarchical regression analyses, it was found that both breadth and depth of vocabulary knowledge predicted word reading although breadth explained more of the variance in word reading than depth. Second, breadth of vocabulary predicted the standardized reading comprehension test above and beyond depth, and depth predicted summary writing task above and beyond breadth. This indicates that different dimensions of vocabulary knowledge address to different aspects of reading. Zhang (2012) investigated the contribution of vocabulary and grammatical knowledge to reading comprehension among advanced Chinese EFL learners using structural equation modeling analysis (SEM). Vocabulary knowledge was assessed both in breadth and depth dimensions; grammatical knowledge was assessed in explicit and implicit aspects, and reading comprehension had co-reference, textual inference and gist indicators. Findings revealed that vocabulary knowledge significantly contributed to reading comprehension above and beyond grammar knowledge. However, grammar knowledge showed a weaker contribution to reading comprehension controlling for vocabulary knowledge, with implicit knowledge of grammar having a stronger effect than the explicit knowledge. Stæhr (2008) examined the importance of receptive vocabulary size for language proficiency, operated as listening, reading and writing, among Dutch EFL learners. Findings revealed a strong relationship between vocabulary knowledge and reading and writing skills, and a moderate relation to listening skill. It was found that 72 percent of the variance in reading comprehension could be explained by vocabulary size, making reading the skill that is most dependent on vocabulary size. Alavi and Akbarian (2012) scrutinized whether vocabulary size is related to performance on the TOEFL reading comprehension items, namely Guessing Vocabulary, Main Idea, Inference, Reference and Stated Detail among Iranian EFL learners, and whether EFL learners with different levels of vocabulary knowledge differ in their performance on these items. In this study, vocabulary knowledge was assessed using four levels of Vocabulary Levels Test (VLT), namely 2000, 3000, 5000 and 10,000. As for the whole group, a strong positive correlation was found between VLT and Guessing Vocabulary and Stated Detail sections of TOEFL, whereas there was only a weak correlation between VLT and Main Idea, Inference and Reference subtests.

Moreover, a stepwise multiple regression analysis revealed that VLT is a stronger predictor of Guessing Vocabulary than Stated Detail. When it comes to participants across vocabulary proficiency levels, as low, mid and high, however, there is no statistically significant correlation at all between VLT and any subtest of reading for the low group, and there is only a weak significant correlation between VLT and Stated Detail for the mid group. As for the high level group, however, VLT is significantly correlated with all subtests of reading except Inference. These findings seem to indicate that the performance in different types of reading comprehension items is affected by vocabulary size and vocabulary proficiency level among EFL learners.

The mutual-dependency View and Lexical Inference

The mutual-dependency view, on the other hand, emphasizes the significance of learning vocabulary in the long-term as a by-product of reading. In other words, according to *the mutual-dependency* view, as the name indicates, not only vocabulary knowledge boosts reading comprehension, but reading more and more in the target language also gives way to enhancement in the vocabulary knowledge. It is recognized that context plays a crucial role in comprehending the language, either written or oral, as the precise meaning of words is derived from the context although the definitional meaning does not change across contexts. To put it simply, all words depend on context, and thus learning new words requires establishing connections between linguistic forms and context-specific information. In this sense, lexical inference, which simply refers to guessing the meaning of unknown words thanks to all available linguistic and even non-linguistic cues (Bengeleil & Paribakht 2004), is critical for reading proficiency and vocabulary expansion (Koda, 2005). The term lexical inferencing was first made prominent by Haastrup (1991), who defines it as follows:

> "The process of lexical inferencing involves making informed guesses as to the meaning of a word in light of all available linguistic cues in combination with the learners' general knowledge of the world, her awareness of context and her relevant linguistic knowledge." (Haastrup, 1991, p.13)

As for how lexical inferencing relates to reading comprehension and lexical development, how young children acquire their mother tongue sets an example. It is known that young children preliminarily learn novel words, word forms and their meanings once they are exposed to them through oral input provided by others (parents and other speakers of the language). Later on, they master literacy skills and hereby appeal to reading as an important context to continue acquiring new vocabulary (Nagy et al., 1985; Nation & Coady, 1988; Sternberg, 1987, as cited in Wesche & Paribakht, 2009). L2 learners, especially EFL learners, on the other hand, are dependent more on written texts to encounter and learn novel words, as oral input is relatively more limited in their context. Wesche and Paribakht (2009) purports that although the reader's primary concern is comprehension while reading, readers are likely to pay attention to a specific word form, and accordingly may attempt to determine its meaning in the context it is embedded. This may also initiate or push forward the challenging and progressive process of vocabulary learning, and yield retention. For this very reason, lexical inferencing is said to operate at the core of the relationship between reading comprehension and vocabulary development (Wesche & Paribakht, 2009). Besides, lexical inferencing seemingly contributes to the bidirectional relationship between reading and vocabulary, as reading provides opportunities to learn novel words, and knowing many words gives way to a better understanding of reading texts.

At the beginning of 1980s, research demonstrated that boost in children's L1 vocabulary once they start school might be related to incidental learning through extensive reading. This being the case, L2 researchers also directed their attention to reading as a means of vocabulary development. As a consequence, research on L2 reading comprehension, vocabulary learning through reading and lexical inferencing accelerated (Wesche & Paribakht, 2009). Carton (1971) was the first to publish in lexical inferencing (as cited in Wesche & Paribakht, 2009). He investigated the types of cues to guess the meanings of unknown words, and categorized these cues into three as intra-lingual (L2-based), inter-lingual (L1-based) and extra-lingual (world-knowledge-based) cues. Following this, early research on lexical inferencing continued with Bialystok (1983), Sternberg and Powell (1983), Bensoussan and Laufer (1984) and Liu

and Nation (1985), and the research gained prominence with Haastrup (1991) (as cited in Wesche & Paribakht, 2009).

One of the prominent studies on lexical inferencing was conducted by Nassaji (2003), who examined the use of strategies and knowledge sources in L2 lexical inferencing and their relationship with inferential success. There were five knowledge sources employed, namely grammatical knowledge, morphological knowledge, L1 knowledge, world knowledge and discourse knowledge, and six strategies, namely repeating (word repeating and section repeating), verifying, analyzing, monitoring, self-inquiry and analogy. World knowledge was reported to be the most frequently used knowledge source, while word repeating was the most frequently used strategy. Additionally, morphological knowledge contributed to lexical inferencing success more than the other knowledge sources. Tavakoli and Hayati (2011), on the other hand, examined how two different language proficiency groups of Iranian EFL learners (high-intermediate versus low-intermediate) use lexical inferencing strategies to guess the meanings of a number of unknown words embedded in four reading passages. Results showed that for each reading passage, low-intermediate learners made more inferences; however, intermediate learners made more accurate guesses. It was also found that the two proficiency groups differed in their use of knowledge sources. Further analysis of the data revealed that the students at low-intermediate level focused more on the words and their syntactic category, while the students at high-intermediate level preferred the discourse knowledge and tried to understand the whole passage. In addition to language proficiency and gender, Gao (2012) investigated the differentiations and homologies of Chinese undergraduates in terms of lexical inference ability and lexical inference strategy use with regard to major. Results indicated that students of different language proficiency, gender and major do perform differentially in test in terms of lexical inferencing strategy use and lexical inferencing ability, even though some are significant and some are not.

Some related studies were carried out in Turkish context, as well. For example, Akkan (2008) investigated Turkish university preparatory school EFL learners' awareness and use of English affixes as a knowledge source in guessing the meanings

of unknown words in written contexts and examined their use of prefixes and suffixes separately. Results indicated that Turkish EFL learners use a variety of knowledge sources, one of which is word morphology, when attempting to infer the meanings of unknown words in written context. Despite this, it was reported that they did not do it very often. Moreover, the participants appeared to use both suffixes and prefixes nearly equally; however, their prefix use seemed to be associated with more successful guesses than suffix use in spite of the participants' unfamiliarity with prefixes in their L1 (Turkish). İstifçi (2009) analyzed how a group of Turkish EFL learners (intermediate and low-intermediate level) guessed the meanings of a number of unknown words embedded in four authentic texts. It was found that although low-intermediate level learners use more lexical inferencing strategies in proportion to intermediate level learners, the latter come up with more successful guesses, which implies that students at low-intermediate level need to be trained to infer the meanings of unknown words. Akpinar (2013) also examined how Turkish EFL learners handle unknown words while reading English texts through think-aloud protocols. It further investigated the relationship between these learners' perceptions and actual practices regarding the employment of knowledge sources while trying to guess the meaning of unknown words. Findings revealed a significant negative weak correlation between the perceptions and actual practice of the participants regarding how they handle unknown vocabulary while reading English texts. This indicates that the higher the perceptions of the students, the lower their actual practices in lexical inferencing.

Cross-linguistic studies investigating lexical inferencing do exist, too. For example, Wang (2011) examined the lexical strategies used by Filipino graduate students and Chinese graduate students when they encounter unknown words while reading. The findings indicated that the Chinese graduate students, compared with the Filipino graduate students, preferred using lexical strategies more to deal with unknown words. Furthermore, notable distinctions were found in using inferring strategies between the Filipino graduate students and the Chinese graduate students. First, the two groups differed in the lexical strategies they preferred. For example, the Chinese graduate students preferred making use of strategy of guessing using discourse context, that is, using outside the sentence in which the word occurred, guessing using local

(sentence-level) context and guessing using visual form (similarity or morphological understanding), whereas more Filipino graduate students than the Chinese graduate students chose to utilize using syntactic knowledge and extra textual (thematic or world) knowledge. Second, compared with the Filipino graduate students, the Chinese graduate students made more wrong inferences of unknown words they encountered in reading English although they could recognize the unknown words. Third, more unsuccessful inference of the unknown words was made by Chinese students, and the discrepancy of the Chinese students‟ level of vocabulary knowledge is much larger than that of the Filipino students as far as the standard deviations are concerned. Fourth, the occurrence of unknown words seemed to have an influence on the lexical inferencing used by the Filipino graduate students but not on the inferencing strategies by the Chinese graduate students. Lastly, the Chinese graduate students appeared to gain some words through incidental learning when using lexical inferencing to deal with these unknown words, while the Filipino graduate students did not report learning any other word except one.

L2 Grammar Knowledge

As Jung (2009) states, "the abilities to identify syntactic roles of words, dissect sentences into meaningful chunks, and recognize the syntactic structure of a sentence seem to contribute to the construction of meaning from the text" (p.33). In the same vein, Tong et al. (2014) notes that syntactic awareness, which refers to the ability to make sense of grammar rules and how sentences of a text are structured while reading, has been found to predict learners' text comprehension performance. Accordingly, Lesaux, Lipka and Siegel (2006) indicate that researchers recognize the ability to process syntax as an integral part of learning, which is in turn supposed to contribute to reading comprehension. Furthermore, readers with good syntactic awareness are believed to make profitable use of their metalinguistic skills, better utilize sentence and context clues to guess the upcoming words, and monitor their reading comprehension process effectively (Lesaux, Lipka and Siegel, 2006).

Research also supports that reading comprehension benefits from grammatical knowledge. Gascoigne (2005), for example, compared the performance of English

speaking learners of French on form-focused grammar activities and meaning-driven reading comprehension activities. The researcher expected a strong negative correlation between success on form-focused grammar exercises and reading comprehension scores of the participants; however, no statistically significant difference was found between the two tests. This indicates that L2 learners' performance on grammar and reading are in line, suggesting a positive relationship between the two components of linguistic competence. Akbari (2014), a qualitative study focusing on various aspects of grammatical knowledge involved in reading comprehension, investigated the extent to which grammar knowledge is responsible for effectiveness in L2 reading comprehension. In this study, grammar knowledge was assessed asking the participants to write the paraphrases of complex and/or compound sentences and translation activities from English to the native language, Persian. In the end, grammar knowledge was reported to predict better comprehension and may facilitate as an indicator of success in reading. It was also claimed that language teachers should increase the grammatical knowledge through a variety of ways such as focus on form and explicit grammar instruction so as to enable L2 learners to read better and comprehend faster. Tong et al. (2014) explored the association between syntactic awareness and discourse-level reading comprehension among Chinese children, who were administered a set of cognitive and linguistic measures. Partial correlational analyses displayed that there was a significant correlation between the participants' performances in two syntactic tasks and their discourse-level reading comprehension. The two syntactic tasks were a grammatical judgment/correction task, in which the participants were asked to correct a syntactic or morphosyntactic error in a sentence, and an oral conjunction cloze task, in which the participants were required to write down the missing word in a sentence. Further, a multiple hierarchical regression analysis revealed that syntactic skills, especially the conjunction cloze task, explained a unique variance in reading comprehension controlling for age, nonverbal IQ, phonological awareness, morphological awareness and vocabulary knowledge, as well as the auto-regressive effect of previous reading comprehension skill. These findings suggest that syntactic awareness uniquely contributes to discourse-level reading comprehension in Chinese EFL learners.

Contribution of syntactic knowledge to reading comprehension on its own or above and beyond other independent variables has been examined in terms of heterogeneous groups of participants as well. Lesaux, Lipka and Siegel (2006), for instance, examined the contribution of cognitive and linguistic skills to L2 reading comprehension across learners with a variety of word reading and text comprehension abilities. This study looked into the effect of cognitive and linguistic skills on the reading comprehension performance of (1) children with word reading abilities but comprehension difficulties, (2) children with comprehension abilities but word reading difficulties and (3) children with good word reading and comprehension abilities. In this study, cognitive and linguistic skills referred to working memory, phonological processing and syntactic awareness. Corresponding with our concern, syntactic awareness was assessed using an oral cloze, in which the children were asked to provide a missing word for 11 sentences that the examiner read. The eleven items fell into six categories as regular and irregular past forms, comparative and superlative items, conjunctions, prepositions, pronouns and past participles. Results of a regression analysis show that children's syntactic awareness, phonological awareness, and working memory for words were all respectively significant predictors of reading comprehension, controlling for all other variables in the model. Syntactic awareness was proved to be a stronger predictor of reading comprehension than working memory and phonological awareness. Shiotsu and Weir (2007), similarly, examined the relative contribution of syntax knowledge and vocabulary knowledge to L2 reading in two pilot studies in different contexts – a heterogeneous group of participants studying at the tertiary level in the UK and a homogenous group of participants in Japan – followed by a larger main study with a group of homogeneous Japanese undergraduate participants. For the heterogeneous group of participants studying at the tertiary level in the UK, both syntax and vocabulary were reported to account for a significant amount of variance in text reading comprehension when the effect of the other predictor was controlled for. Of the two independent variables, syntax was found to be the stronger predictor. For the homogenous group of participants in Japan with relatively weaker L2 proficiency, both syntactic and vocabulary knowledge variables made unique contributions to text reading comprehension, with the syntactic knowledge outperforming vocabulary in a more clear way than in the first study. The results of the

main study also showed that syntactic knowledge was a better predictor of text reading comprehension than vocabulary knowledge. In this way, the relative significance of syntactic ability was found to be the case for both readers with lower ability and better readers.

On the other hand, there are studies displaying the relatively weaker role of grammar knowledge in reading comprehension. For example, Zhang (2012), in which the contribution of vocabulary and grammar knowledge to reading comprehension o second language reading comprehension was examined among Chinese EFL learners, indicated that grammar knowledge displayed a weak contribution to reading comprehension above and beyond vocabulary knowledge. However, it is also worth mentioning that implicit knowledge of grammar was reported to have a stronger relationship to reading comprehension than explicit knowledge of grammar. This indicates that different dimensions of grammatical knowledge may have varying effect on L2 reading comprehension. Lopez (2008) explored how far grammar knowledge accounts for competence in foreign language reading comprehension among university students. Two reading exams were used. In the first exam there were two different reading texts for each half of the classroom and another text for the whole class. In the second exam, there were only two different reading texts for each half of the classroom. The question types included multiple-choice comprehension questions, identifying referent questions and short semantic explanation questions. Two grammar tests with form-focused items were used to assess the grammar knowledge. The question types included grammar correction questions, substation questions and completion questions. Results of regression analyses displayed that grammar knowledge does not predict reading comprehension despite the significant weak correlation between reading comprehension and grammar knowledge. This indicates that although grammar knowledge is essential, it remains limited to account for the complex reading comprehension process. Zhang (2012), in which the contribution of vocabulary and grammar knowledge to second language reading comprehension was examined among Chinese EFL learners, indicated that grammar knowledge displayed a weak contribution to reading comprehension above and beyond vocabulary knowledge. However, it is also worth mentioning that implicit knowledge of grammar was reported to have a stronger

relationship to reading comprehension than explicit knowledge of grammar. This indicates that different dimensions of grammatical knowledge may have varying effect on L2 reading comprehension.

Reading Strategy Use

Effective reading strategy use is one of the components that make a good reader. Therefore, a list of the factors that contribute to reading comprehension would be incomplete without reading strategy use. Grabe (2009) defines strategic reader as "one who automatically and routinely applies combinations of effective and appropriate strategies depending on reader goals, reading tasks and strategic processing abilities" (pp. 220). Becoming a strategic reader is essential in the sense that such a reader checks reading goals, evaluates his/her comprehension effectiveness and is able to better understand difficult texts applying appropriate strategies.

Multiple research studies have empirically supported a number of specific comprehension strategies. As a result of the significant differences found between experimental and control groups in these research studies, it is noted that effective strategy use boosts reading comprehension. Prior to mentioning some of these studies, it is first necessary to look through the effective reading strategies that have been recognized as offering the strongest help to reading comprehension according to research findings (Grabe, 2009). To begin with, **summarizing** has been found to lead to significantly better comprehension among readers. It is reported to help learners remember more information from a reading text. Second, **forming questions** is another important strategy, which improves memory regarding the information about the text, enables learners to better understand main ideas and increases the likelihood of accuracy in answering comprehension questions. Third, **answering questions and elaborative interrogation**, which simply refers to comprehension questioning, is useful for better text recall, inference making and coherence building. Four, **activating prior knowledge** is also one of the strategies that give way to better comprehension of a text. However, it is worth mentioning that activating prior knowledge that is incompatible with information in the text might be dangerous for text comprehension. Therefore,

teachers should pay attention to this hazardous effect of prior knowledge activation and learners should be guided accordingly. Another reading strategy is **monitoring comprehension**, which is rather an umbrella term, as it involves a number of minor strategies such as having a reason for reading and being aware of it, recognizing text structure, identifying main ideas, linking the text to background knowledge, relating reading goals to the text, becoming aware of the text difficulties and clarifying misunderstandings (Grabe, 2009). The sixth reading strategy to mention is **using text structure awareness**. It involves becoming aware of and paying attention to a variety of systems that give information about the discourse structure of a text. Grabe (2009) lists these discourse-signaling systems as importance levels of information in texts, headings and subheadings, paragraphing choices, co-referential connections, relations of information, transition forms and signal words, patterns to organize text information such as cause and effect, problem and solution, comparison and contrast. Reading comprehension also benefits from **using graphic organizers** such as Venn diagrams and flow charts, which help learners comprehend text structure, notice main ideas and recognize their relations to supporting ideas. Finally, **inferencing** plays a crucial role in coherence building. It is dependent on other processing skills and strategies such as prior knowledge, vocabulary knowledge, text structure awareness and comprehension monitoring. As Qanwal and Karim (2014) indicate, however, reading strategies have been classified in divergent ways. According to some researchers (Pressley & Wharton-McDonald, 1997; Rice, 2009, as cited in Qanwal and Karim, 2014), for example, reading strategies fall into three categories as before-reading, while-reading and post-reading strategies. Zhang (1993) offers a more comprehensive classification of reading strategies (as cited in Qanwal & Karim, 2014). These are cognitive strategies, compensation strategies, memory strategies and test-taking strategies. **Cognitive strategies** consists of prior knowledge activation, previewing, prediction and self-questioning. **Compensation strategies** include vocabulary identification, drawing inferences and making connections. **Memory strategies** refer to visualizing, determining importance, skimming, scanning, summarizing, synthesizing information and evaluating. Lastly, **test-taking strategies** involve becoming aware of question types in reading tests and corresponding question-answering strategies.

All in all, good readers

- read a text in accordance with their reading goals,
- pay attention to key points,
- read the text again if necessary,
- monitor and check their comprehension,
- recognize important information in a text,
- make inferences, activate their prior knowledge and thus fill in gaps in the text,
- guess the meanings of unknown words,
- make use of text structure information,
- make inferences about the text,
- integrate ideas from different parts of the text,
- summarize the main ideas,
- make evaluations about the text and author on one hand, and about themselves on the other and
- try to resolve difficulties during reading.

(Grabe, 2009: 228, Table, 11:3. *Strategies used by engaged readers*)

When it comes to some recent research supporting that reading strategy use contributes to reading comprehension, Phakiti (2003), for example, investigated the relationship of cognitive and metacognitive strategy use to EFL reading achievement test performance. A group of Thai speakers of English were administered a multiple-choice reading comprehension achievement test and a cognitive-metacognitive questionnaire on how they thought during the achievement test. Quantitative analyses conducted with the data coming from the whole sample and qualitative analyses carried out with a small group of successful participants and another small group of unsuccessful ones revealed that the use of cognitive and metacognitive strategy use had a positive impact on reading comprehension achievement test and successful readers use cognitive and metacognitive strategies relatively more than the unsuccessful readers. Akkakoson (2013), accordingly, explored the relationship between strategic reading instruction, student learning of L2-based reading strategies and L2 reading achievement among Thai EFL learners. In this study, a group of learners were taught with a strategy-based approach, while another group learners with similar features were

taught with a traditional, teacher-centered approach. A paired samples *t*-test conducted on the pre-test and post-test results of the experimental group revealed that there was a statistically significant improvement on their L2 reading proficiency after the conscious L2-based reading strategy instruction. The control group was reported to have made no progress at all and even scored less on the post-test than the pre-test. Not surprisingly, an independent samples *t*-test carried out on the post-test results of the experimental group and the control group also displayed a statistically significant difference between the two groups in terms of their reading proficiency, with the effect size being large. The present study further investigated the process of learning strategies among the experimental group participants using a portfolio approach. For this purpose, the participants in the experimental group were divided into three proficiency groups as low, mid and high, and their portfolio entries regarding L2-based strategy use were analyzed. As a result, it was found that the high-level learners in the experimental group were better than the low-level learners in the same group at learning to use L2-based reading strategies effectively. These findings indicate that learning to use L2-based reading strategies supports reading proficiency unlike traditional, teacher-centered approach, and language proficiency plays an important role in learning to use L2-based reading strategies. Qanwal and Karim (2014), similarly, examined the correlation between reading strategy instruction and reading proficiency. For this purpose, they analyzed the extent to which teachers in Pakistan incorporate reading strategy instruction into their ESL reading classes, and evaluated their students' reading proficiency. The data were collected using a questionnaire assessing the teachers' use of different reading strategies in the classroom and a reading comprehension test, both administered to the students. Results showed that the English teachers included in this study practice a satisfactory level of reading strategy instruction, and a very strong positive correlation was found between the teachers' reading strategy instruction and the participants' reading comprehension. Peng, Siriyothin and Lian (2014) also investigated the relationship between reading strategy use and reading achievements of Chinese EFL learners. Data were collected using a reading strategy questionnaire, consisting of cognitive strategies, metacognitive strategies, compensation strategies and social strategies, and a reading comprehension test. Findings suggest that of the four subcategories of reading strategies, cognitive strategies were reported to be used the

most frequently, while metacognitive strategies were reported to be used the least frequently. Despite this, metacognitive strategies were found to be the only strategies that are able to predict reading comprehension as a result of a multiple regression analysis. Further, findings revealed a moderate positive correlation between reading strategy use and reading achievements of the participants.

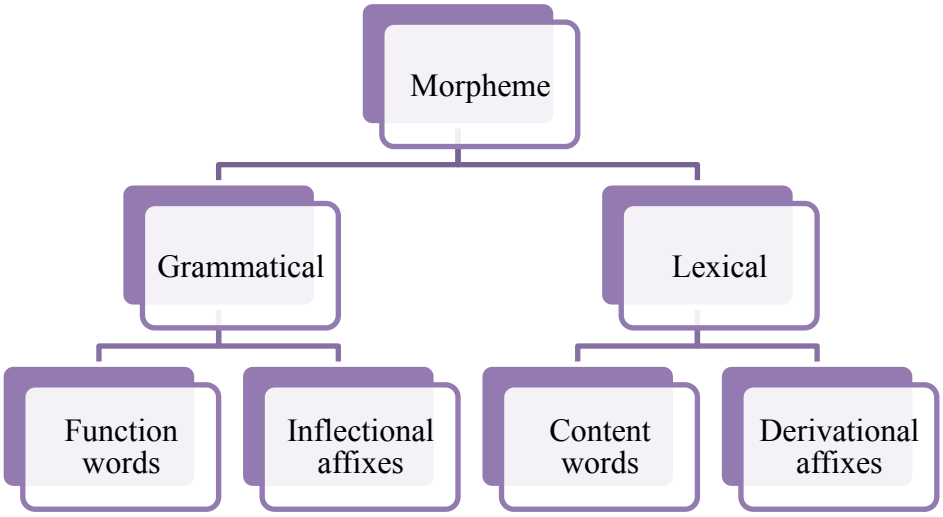
Morphological Awareness

Koda (2005) maintains that word knowledge is formulated in specific contexts, from which extracting lexical information is an acquired competence that contributes to reading comprehension, as already mentioned in this study. However, it is crucial to understand the internal structure of the words to be able to extract lexical information. Koda (2005) further maintains, "in-depth awareness of such structural awareness can point up the essential competencies underlying word-knowledge accretion through reading" (p.71). In this sense, metalinguistic awareness, which refers to "the ability to identify, analyze, and manipulate language forms" (Koda, 2005: 72), plays an important role in reading development. It is worth mentioning that metalinguistic awareness differs from linguistic awareness in the sense that it requires a general understanding of language, regardless of its specific details (Koda, 2005). As it is believed that learning to read involves the recognition of important elements of spoken language and their relation to the writing system of a language, and thus metalinguistic, there has been a boost in research on metalinguistic awareness recently (Koda, 2005). Morphological knowledge, a type of intra-word knowledge, and morphological awareness, a type of metalinguistic awareness, has gained importance accordingly. Although the number of studies investigating the relationship between morphological knowledge/awareness and reading comprehension, it is increasingly found to be beneficial for L2 reading comprehension (Kieffer & Lesaux, 2012). Prior to defining and discussing morphological knowledge/awareness and its contribution to reading comprehension, it is necessary to present an overview of morphology and morphological structure of English.

First coined by Johann Wolfgang von Goethe in the 19th century in a biological context, morphology simply means the study of form or forms. In linguistics, morphology refers to the branch of linguistics that deals with words, their internal structure, and how they are formed (Aronoff & Fundemann, 2005). In other words, morphology is the study of **morphemes**, which are defined as the smallest units of meaning and grammatical function (Katamba, 1993). A morpheme does not have to be equivalent to a word though it sometimes is. In addition to this, it may sometimes be a smaller unit. Morphemes may refer to a class of forms as well as an abstraction of the concrete forms of the language. They cannot be further divided into smaller meaningful units since they are themselves the smallest units of meaning as the definition above also indicates. Morphemes are internally stable and externally transportable, which respectively means that nothing can be interposed in a morpheme and they can occur in various contexts thanks to the positional mobility or free distribution they have (Brinton, 2000).

There are a variety of morphemes in English. Based on meaning, morphemes fall into two categories: grammatical and lexical. Grammatical morphemes can be inflectional affixes and function words, which belong to the minor word classes such as prepositions, articles, demonstratives, conjunctions, auxiliaries. They are limited in meaning and they are associated with such lexical categories as tense (with the verb), plurality and gender (with the noun). Therefore, their occurrence is predictable by the grammar of the sentence. Lexical morphemes, on the other hand, can be derivational affixes or bound roots and independent words (bound roots). These independent words constitute word classes, namely nouns, verbs, adjectives or adverbs (Brinton, 2000). Figure 1 below shows classification of morphemes based on meaning.

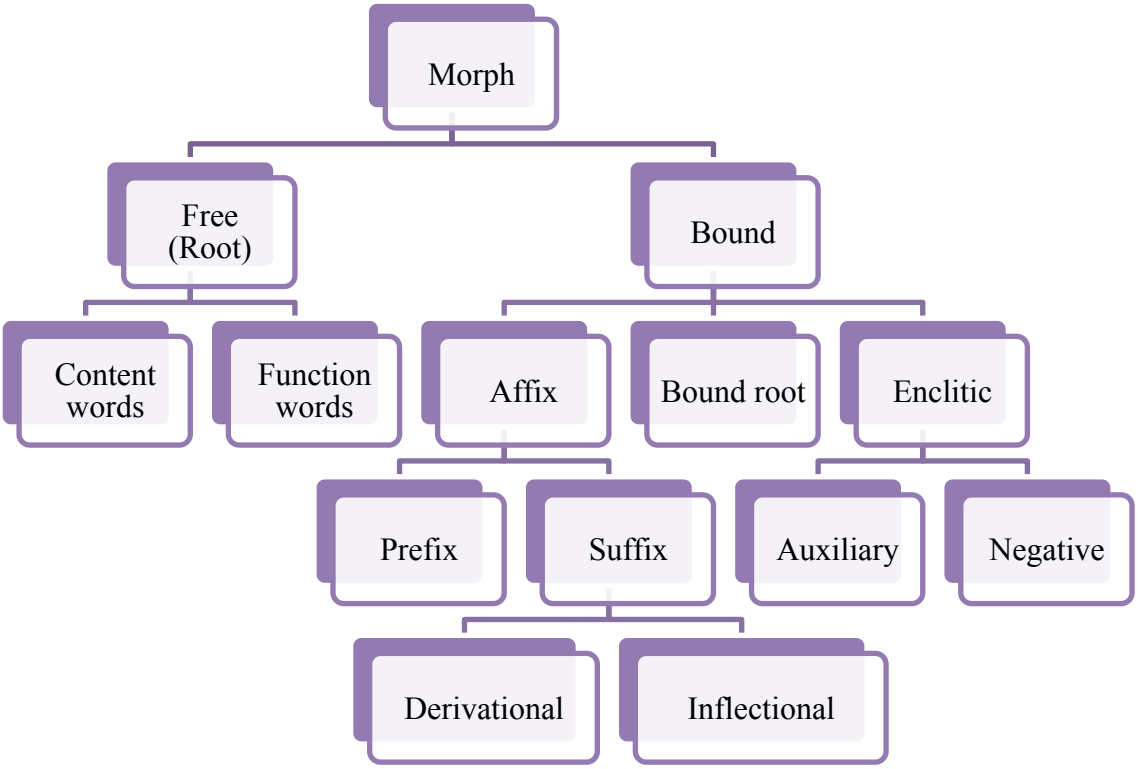
Figure 1. Classification of Morphemes (Brinton, 2000:76)



Morphemes sometimes do not have a concrete realization; therefore, it is necessary to recognize **morphs**, which refer to the concrete realization of morphemes. As Brinton (2000) clearly states, "a morpheme is realized as a morph" (p.76). For example, the plural word *feet* is composed of the content word *foot* (a lexical morpheme) and the plural morpheme although it does not have any concrete realization. In other words, *feet* includes one morph but two morphemes.

Morphs are classified into two as free morphs and bound morphs, and this classification is based on form. Free morphs are independent and thus meaningful on their own, whereas bound morphs are dependent and thus must be attached to another morph (Brinton, 2000). Figure 2 below shows classification of morphs in terms of form.

Figure 2. Classification of Morphs (Brinton, 2000:77)



Some roots are bound morphs and are called bound roots. In other words, they can be recognized in words (such as *–vert* in *invert, convert, divert, pervert*), but they cannot stand alone as independent words. It is worth mentioning that they are generally borrowed morphs. Affixes, on the other hand, are always bound to be attached to roots. Inflectional affixes can be suffixes only. Their function is to point out grammatical meaning such as tense and plurality. An inflectional suffix can be attached to almost all members of a word class, but only one inflectional suffix can be attached to a certain word. It is worth noting that inflectional suffixes always come after derivational suffixes. Unlike inflectional affixes, derivational affixes can be either prefixes or suffixes. They may change the class and/or the meaning of the word that they are attached to. A derivational affix can be attached to a limited number of roots and more than one derivational affix can be attached to a certain word (Brinton, 2000; Koda, 2005). Finally, enclitics are contracted bound forms deriving from independent words.

They must be attached to the words that they follow. Auxiliaries and negative *–n't* are two kinds of enclitics that exist in modern English (Brinton, 2000).

In English, there are a variety of ways in which morphs are combined to form new words such as derivation, conversion (functional shift), compounds, blends, back formations, shortening and root creations. Of all the processes of word formation, derivation and compounding account for the maximum number of new words in English (Brinton, 2000). **Derivation**, which is the main concern of the present study, refers to the addition of a derivational affix (either a prefix or a suffix) to a root. Such addition may cause phonological change (such as *photograph → photography*), orthographic change (such as *easy → easiness*), semantic change (such as *husband → husbandry*) and a change in word class (Brinton, 2000). Words that are composed of only a free morph (root) are **mono-morphemic** (such as *act, read*), whereas words that consist of both free and bound morphs are **multi-morphemic** (such as *action, reread*).

When it comes to **morphological awareness**, it refers to "the ability to reflect on and manipulate morphemes and word formation rules in a language" (Kuo & Anderson, 2006:161). In other words, it is the ability to recognize the internal structure of a word, identify the root and the affixes as well as being able to form new words applying the word formation rules in a particular language.

The interest in morphological awareness and its contribution to reading achievement surged thanks to the realization that English is a morphophonemic language. Previous to this surge in interest in morphological awareness, phonological awareness, which is defined as the ability to analyze the sound structure of words (Mattingly, 1972, as cited in Apel & Werfel, 2014), was once a major topic in reading research as its explicit teaching was found to have a facilitating effect on reading achievement in the pre-school and early elementary school years. Therefore, studies investigating these facilitating effects of phonological awareness scaled up. Consequently, phonemic awareness, which is defined as the ability to analyze sound structure of a language in terms of its individual speech sounds, was specified as an integral part of early literacy instruction (National Institute of Child Health and Human

Development, 2000, as cited in Apel & Werfel, 2014). However, it was later noticed that despite the incontestable contribution of phonemic awareness to literacy and reading skills, it cannot be identified as the single most important predictor of reading achievement as literacy is naturally complex and multifaceted. Afterwards, it was recognized that morphological structure, as well as phonological structure, is an essential component of English language.

Chomsky (1970) and Venezky (1970, 1999) are two of those to have taken the lead to promote the role of morphology (as cited in Apel & Werfel, 2014). Chomsky (1970) indicated that English orthography maintains morphemes and affects their meanings. Further, Venezky (1999) noted that morphemes have a share in English spelling as much as phonemes do. Since then, researchers have been scrutinizing morphological awareness, its development and its contribution to literacy. As a natural result of the favorable findings of the related studies conducted in English as a first language, researchers carrying out studies in English as a second or foreign language have also tended towards this emergent research area. Before discussing these studies investigating the benefits of morphological awareness to literacy both in L1 and L2, it is first important to remark tasks used to measure morphological awareness and morphological awareness instruction in classroom.

Morphological Awareness Tasks

Prior to mentioning the tasks used to measure morphological awareness, it is necessary to draw a distinction between morphological awareness and morphological production. As Apel and Werfel (2014) states, the latter simply refers to the use of morphemes in productive skills of a language, namely speaking and writing, without attaching any conscious attention to those morphemes. Such tasks designated to measure morphological production do not necessitate any analysis of the morphological structure of the words used. Knowledge of morphemes is enough on its own for learners to be able to carry out these tasks. Considering L1, Test of Early Grammatical Impairment with the subtests Third Person Singular Probe and Past Tense Probe (Rice & Wexler, 2001) sets an example for morphological production tasks. For the accomplishment of

these tests (Third Person Singular Probe and Past Tense Probe), children going through their native language acquisition process see sets of pictures and are asked to tell the examiner what the person in each picture does or did respectively. For example, as for the Third Person Singular Probe, children see a ballerina and are asked what a ballerina does. A correct response entails the third person singular morphological marker as in "A ballerina dances". Similarly, in the Past Tense Probe, children see, for example, two pictures in the first of which a boy is painting the fences and in the second one he has finished painting. A correct response entails the past tense morphological marker as in "He painted/has painted the fences". In this way, the examiner verifies the child's knowledge of two inflectional morphemes without the child analyzing or thinking about the morphological structure of the word he/she produced.

When it comes to morphological awareness tasks, on the other hand, learners are required to analyze the morphological structure of words. However, no norm-referenced morphological awareness test has been designed yet (Apel & Werfel, 2014). As a result, researchers themselves have developed morphological awareness tasks to examine their students'/participants' morphological awareness skills. Some of these tasks require implicit morphological awareness, while some others require explicit morphological awareness.

Implicit morphological awareness tasks do not require much conscious analysis of the morphological structure of a given word because there is an abundance of contextual clues provided in the task itself, which also provides students with world knowledge. They may be either analogy tasks or production tasks. Analogy tasks fall into two categories as sentence analogy tasks and word analogy tasks. Sentence analogy tasks are designed to measure inflectional morphology. To illustrate, learners are given a set of sentences such as "1) The dog is scratching the chair.", "2) The dog scratched the chair." and "3) The dog is chasing the cat" (Deacon & Kirby, 2004). Then, they are asked to write a forth sentence in order to complete the set. As for this set, the forth sentence is "4) The dog chased the cat." Word analogy tasks are able to assess both inflectional and morphological awareness. To give an example, in a set that consists of

"1) mess", "2) messy" and "3) fun", learners are expected to come up with "4) funny" (Roman, et al., 2009).

Implicit morphological awareness tasks can also be designed in the form of spoken or written production tasks. They are generally in the form of cloze tests and include two subtests as derivation and decomposition. In a derivation test, learners are given a base word such as "farm" and asked to complete a sentence such as "My uncle is a _____." with the appropriate form of that word adding a bound morpheme to it orally or in a written way (farmer) (Carlisle, 1998). In a decomposition test, learners are given a multi-morphemic word such as "improvement" and asked to complete a sentence such as "My teacher wants my spelling to _____." with the appropriate form of that word removing the bound morpheme orally or in a written way (improve) (Carlisle, 1998). There are some other researchers who have made use of non-words to which learners are expected to affix bound morphemes. For instance, "Today the girl waps. What did she do yesterday? Yesterday she _____. (wapped)" (Walker & Hauerwas, 2006).

Explicit morphological awareness tasks, as the name indicates, require much more conscious analysis of the morphological structure of a given word and there is less contextual support to enable learners to guess the meanings of the target words. They are generally judgment tasks and in written form. One common type of these judgment tasks is asking learners if a multi-morphemic word comes from a base word such as "Does *quickly* come from *quick*?" (Carlisle, 1995; Mahony, Singson & Mann, 2000; Nagy, et al., 2003). Such tasks may also be in the form of multiple-choice tests in which learners are asked to choose one of four multi-morphemic words to accurately complete a sentence (Singson, Mahony, & Mann, 2000; Nagy, et al., 2003, 2006; Kirby et al., 2012). To exemplify,

The sunrise was so _____.
A. gloriousness
B. glorify
C. glorification
D. glorious *(Correct Answer)*

(Singson, Mahony, & Mann, 2000)

Learners can also be asked to determine whether a sentence with a morphological error sounds correct or incorrect. For instance, "He wants to *colonist* the moon." (*colonize*) (Singson, Mahony, & Mann, 2000)

Apparently, morphological awareness tasks are domain-dependent. Some apply to spoken language, while some apply to written language. Some are conducted with real words, while some are conducted with pseudo-words. Some necessitate implicit analysis of morphological structure of the given words, while some others necessitate explicit morphological analysis. Additionally, morphological awareness/production tasks mentioned in this section, either implicit or explicit, have been used with mainly native speakers of English; however, as research reveals, they can be used to measure the morphological awareness skills among individuals who are learning English as a second/foreign language (Droop & Verhoeven, 2003; Wang et al., 2006; Kieffer & Lesaux, 2008; Kieffer & Lesaux, 2012; Kieffer, Biancarosa & Mancilla-Martinez, 2013; Kieffer, 2014; Jeon, 2011; Zhang & Koda, 2012; Zhang & Koda, 2013; Zhang, Koda & Sun, 2014; Wang, Ko & Choi, 2009). Furthermore, even though most of these tasks have been administered to young children, research verifies that they can be used with older learners and even adults (Jeon, 2011; Zhang & Koda, 2013). Taking all these factors into account, one needs to consider their research environment to use the best task to measure morphological awareness.

Morphological Awareness Instruction

Research shows that in one way or another learners of a language are likely to benefit from morphological awareness, which entails its implementation in a language classroom. However, since morphological awareness is a multi-dimensional skill, there are various ways of instructing morphological awareness in a language classroom. Apel and Werfel (2014) describe a variety of tasks to target one or more aspects of morphological awareness. They note that it is essential to first model the task and/or strategy before carrying out the activity or presenting the use of the strategy.

Segmenting Task. Segmenting activities are indicated to increase learners' conscious awareness of how many meaningful units a spoken word contains. Learners are instructed how multi-morphemic words can be segmented into their smallest meaningful units. When modeling, the instructor is required to provide reasons for each unit they divide so that learners can understand that this segmentation is logical and each unit has a meaning on their own. For example, as for the word "longer", "long" is the adjective itself and has an independent meaning. The suffix -er, on the other hand, is added to most adjectives to make comparisons. In this way, learners might gain insights into the lexical and grammatical functions of inflectional and derivational affixes. In order to emphasize that the phonology of the word has nothing to do with the number of meaningful units it is formed with, it is possible to orally provide examples of words that can be mono-morphemic (such as "band") or multi-morphemic (such as "banned") depending on the context (such as "My favorite band is U2." and "The government banned the film." respectively) and ask learners how the segmentation occurs.

Word Building Task. It is stated that word building activities increase learners' conscious awareness of how many meaningful units a written word contains. Such activities involve forming real words or creating new ones (pseudo-words) by means of combining base words or roots with prefixes and/or suffixes. Learners might be provided with lists of common roots, prefixes and suffixes and asked to choose the prefixes and suffixes that can be attached to a certain root. Once learners tell the prefixes and/or suffixes that can be attached to a certain root, they may discuss whether the same prefix/suffix can be attached to all members of the same part of speech and whether the spelling and/or pronunciation of the word changes as a per class activity.

Word Sorts. Word sorts predominantly apply to inflectional suffixes and increase learners' conscious awareness of changes in spelling once a suffix is added to a base word. They are appropriate to teach/practice certain rules or principles such as plural –s, third person singular or past tense. The instructor is advised to write on cards words that can be contrasted in terms of a certain rule or principle and encourage learners to sort these cards into categories. As for plural –s, these categories would be of three different allomorphs, namely /s/, /z/ and /ɪz/. Derivational suffix –ly, which is

attached to adjectives to form adverbs, can also be instructed accordingly. In this way, learners may be made aware of the differentiation in spelling when –ly suffix is added to an adjective. In such an activity, for example, there would be at least three categories with most adjectives being attached –ly without any spelling change at all (slow → slowly), adjectives ending in –le (terrible → terribly) and adjectives ending in –y (easy → easily).

Direct Instruction of Word Roots. These activities require explicitly instructing or encouraging learners to think about the roots of words which might be borrowed or derived from other languages, mainly Greek and Latin as for English. If learners know meanings of the most common borrowed roots, they might be able to produce novel words using those roots and/or guess the meanings of novel words formed with them. Such an instruction would be relatively better for older and/or more advanced learners. This type of activities is especially convenient for individuals who are interested in conducting searches within specific texts of such topics as geography, photography and history, which might consist of borrowed words in abundance.

Word Relatives. Word relatives aim at promoting learners' conscious awareness of relations among base words or roots and their inflected and/or derived forms. With this purpose, the instructor is to enable learners to recognize that some multi-morphemic words come from the same base word or root and thus are related to each other. These words resemble members of a family in the sense that some of them may look and sound like another, some others may look but not sound like another, while some others may sound but not look like another, and still some others may neither look nor sound like another. Therefore, Apel and Werfel (2014) recommend instructors to use analogy of family members to help learners internalize this relationship among multi-morphemic words and the notion of how they may differ in terms of look and sound. Learners may be provided with a base word (such as *act*) and asked to brainstorm all the other multi-morphemic words coming from the same base word (such as *action, actor, actress, acting*). The same process can be repeated with roots (such as *vert,* which means "to turn in some direction") and learners may come up with all the

other related words (such as *introvert, introverted, extrovert, extroverted, convert, conversion*).

The activities listed above aim at increasing learners' morphological awareness skills. However, it should be kept in mind that the purpose of increasing learners' morphological awareness skills is to enable learners to be more proficient in reading and writing (Apel & Werfel, 2014). To this end, it is essential to integrate these activities into the acts of reading and spelling or writing in the language classroom. For example, once learners discover the meaning of a specific affix and how it is spelled, they may be requested to read a text, find the words to which this affix is attached, read them loudly and spell them. The instructor may dictate sentences for learners to write down with an opportunity to practice the spelling of multi-morphemic words. Alternatively, learners may be asked to make their own sentences using multi-morphemic words that they form attaching the new affix they have learned. They may also be encouraged to produce as many words as they can with the suffixes, prefixes and common roots they learn, which will boost their vocabulary.

Morphological Awareness in L1 Reading

The earliest empirical study to investigate the relationship between morphology and reading comprehension dates back to 1970. Brittain (1970) examined the ability of first and second grade children to supply the inflectional morphemes of English, and explored the relationship between inflectional performance and reading achievement. The researcher found a significant relationship – independent of intelligence- between reading ability and inflection performance. Additionally, the correlations between reading ability and inflection performance increased from the first to the second grade. Subsequent to this early analysis of the issue, plenty of related research has been conducted so far with a number of differences in the research design and data analysis. For example, many studies have included different types of morphological knowledge such as derivational morphology and compounding in addition to inflectional morphology. A second difference is that recent studies have incorporated more than one independent variable like vocabulary knowledge, grammar knowledge, decoding

ability, listening comprehension, phonological awareness, and controlled their effect to come up with the unique contribution of morphology (the main independent variable) to reading comprehension (the dependent variable). Similar to the second one, the last difference between Brittain's and the recent studies stems from the intention to find the unique contribution of morphological knowledge to reading comprehension. To this end, many researchers have conducted relatively more elaborative statistical analyses such as regression analysis and SEM (Structural Equating Modeling) alongside descriptive statistics and basic correlations. However, findings of the recent studies have been congruent with those of Brittain's (1970). In other words, morphological knowledge has been found closely related to reading comprehension, and this relation scaled up toward higher grades.

One common feature of the studies investigating the contribution of L1 morphology to L1 reading comprehension is that the participants are young children, with their grades ranging from one to six. Carlisle (1995), for example, investigated the contribution of morphological awareness -alongside vocabulary knowledge, grammar knowledge and phonological awareness- to reading comprehension and phonology on eighty-three first and second graders. Unique contribution of morphology to passage-level reading comprehension is not reported; however, statistical analysis indicated a significant additional contribution of morphological awareness to reading comprehension. Carlisle (2000) reported that morphology explained a unique 6.80 percent variance in reading comprehension, and it played a greater role in grade 5 than in grade 3. Singson, Mahony, and Mann (2000), in their study with 3rd, 4th, 5th and 6th graders, found that knowledge of derivational suffixes increased with grade level, along with decoding ability and phoneme awareness. Their findings further revealed that, although there was a consistent correlation between derivational suffix performance and phoneme awareness and decoding ability, derivational suffix performance made an independent and increasing contribution to decoding ability throughout the higher elementary grades. Katz (2004) explored significant correlation between reading comprehension and morpheme sensitivity and noted that morphological awareness contributed to reading comprehension independent of its relation with vocabulary. Deacon and Kirby (2004) similarly found that morphological awareness contributed to

reading comprehension -significantly in grades 4 and 5, but non-significantly in grade 3. The findings further revealed that morphological awareness additionally contributed to pseudo-word reading, but not to single word reading. Clin, Woolley and Heggie (2009) measured children's ability to produce morphological derivations with differing levels of phonological complexity between stem and derivation. The children performed significantly more poorly on both types of derivations that involve stress changes than on phonemic change and derivations with no change at all. Regression analyses showed that both prosodic sensitivity and morphological awareness, especially in derivations that require manipulation of stress, are significant predictors of reading ability controlling for age, verbal and non-verbal abilities and phonological awareness. A more recent study, Kirby et al. (2012), investigated the effects of morphological awareness on reading comprehension from kindergarten to the third graders. Morphological awareness was found to be a significant predictor of reading comprehension as well as word reading accuracy, speed pseudo-word reading accuracy and text reading speed, controlling for the effects of verbal and nonverbal ability and phonological awareness.

Although the studies briefly summarized above are similar in terms of their participants' ages on average and their findings, few studies that differ also exist. Mahony (1994), to give an example, is different in the sense that morpheme sensitivity was assessed on the ninth to twelfth graders and undergraduate learners. Although the subjects were much older than those of the aforementioned studies, the finding -significant correlation between morpheme sensitivity and reading comprehension- was in line with the previous research. Nagy et al. (2006), similarly, measured the effect of morphological and phonological awareness on reading comprehension, reading vocabulary and spelling with a group of relatively older participants including eighth and ninth graders, and came up with the unique contribution of morphology to passage-level reading comprehension. Apart from all these, Nagy et al. (2003) distinguishes itself from previous studies in that it found different findings with regard to the relationship between the participants' grade and the significance of the contribution of morphology to reading comprehension. On the contrary to the majority of the related studies establishing that the correlation or the contribution increased with the participants' grade, this study revealed that for the second graders morphological

awareness made a significant unique contribution to reading comprehension, whereas for the forth graders, despite the strong correlation between morphological awareness and reading comprehension, neither morphology nor the other variables –phonology, orthography and oral vocabulary- alone accounted for a significant unique variance in reading comprehension.

Regarding the relationship between morphology and L1 reading comprehension, some researchers have attempted cross-linguistic comparisons. Ku and Anderson (2003), for instance, investigated derivational and compound knowledge of second, forth and sixth Mandarin and English speaking graders. They found that for both language groups, morphological awareness accounted for a significant variance in reading comprehension beyond the amount accounted for by vocabulary knowledge. McBride-Chang et al. (2005) also conducted a cross-linguistic study with second graders from China, Honk Kong, Korea and the United States. Besides morphological awareness, phonological awareness, vocabulary and speeded naming were also assessed in this study. The findings indicated that across languages, phonological awareness and morphological structure awareness are closely related to one another and to vocabulary knowledge; however, phonological awareness and morphological structure awareness were found to be script-dependent. In other words, these two types of awareness have different associations with word recognition in different scripts, at least among second graders. The researchers also reported that phonological awareness may be more important for reading in English and Korean than for reading in Chinese, whereas morphological structure awareness may be more important for reading in Chinese and Korean than for reading in English at this grade level.

Besides the studies probing the contribution of morphological awareness to passage-level reading comprehension, some other L1 studies have also been carried out on word reading. Roman et al. (2009), for instance, examined four main variables that research to date has proposed to be involved in reading development, namely phonological awareness, naming speed, orthographic knowledge and morphological awareness, all in one study. To assess these four main variables' unique contribution to reading, a group of fourth, sixth and eighth graders were administered a total of eight

tasks. Phonological awareness was assessed using a computer-based elision task. Morphological awareness was assessed using a production task with derivation and decomposition sub-sections (Carlisle, 2000) and a word analogy task (Nunes et al,, 1997). Orthographic knowledge was assessed using a timed orthographic choice test. Naming speed was assessed using two computer-based rapid automatized naming tasks, one for naming digits and another for naming letters. Finally, real word reading accuracy was assessed using a word identification test, whereas pseudo-word reading accuracy was assessed using a word attack test. The results of a series of multiple regression analyses point out that each of phonological awareness, orthographic knowledge and morphological awareness made a unique contribution to real and pseudo-word reading, while rapid automatized naming failed to do so.

To iterate, a number of studies that have been designed differently and analyzed their data in divergent ways have suggested that reading comprehension benefits from morphological awareness. Additionally, the relationship between morphological awareness and reading development tends to be reciprocal rather than unidirectional. Further, phonological awareness, whose involvement seems to decrease with age, mediates this relationship (Ku & Anderson, 2003).

Morphological Awareness as a Predictor of L2 Reading

As formerly noted, there is a strong link between L1 morphology and L1 reading comprehension. Accordingly, this strong link raises the following questions: Does morphology contribute to L2 reading as it does to L1 reading? Is the L2 morphology related to other reading related variables such as vocabulary knowledge, grammar knowledge, etc.? And how much does morphology contribute to L2 reading when the effects of other reading and language-related variables are controlled? (Jeon, 2011) However, a review of literature lays bare that, despite the abundance of studies conducted to investigate the contribution of morphological awareness to reading comprehension in L1, the number of studies carried out to explore the contribution of morphological awareness to L2 reading comprehension is quite limited. Therefore, we can safely arrive at the conclusion that the aforementioned questions remain only

partially answered (Jeon, 2011). With the intention of gaining insights into how these questions have been responded to, a review of the previous studies exploring the contribution of morphology to L2 reading comprehension is required.

Droop and Verhoeven (2003) is a relatively early study that assessed the importance of morphology-related variables in reading comprehension. A total of 122 Moroccan and Turkish children living in the Netherlands for two years were followed for a two-year period and assessed on morphology, vocabulary and reading comprehension. At the end of this two-year period, it was found that morphosyntactic knowledge preserved a strong and positive correlation with reading comprehension and vocabulary knowledge. The researchers also came up with that morphosyntactic knowledge was a significant contributor of L2 reading comprehension. However, this relationship between morphosyntactic knowledge and reading comprehension was reported to be indirect via oral text comprehension, which was operationalized as listening comprehension.

In Wang et al. (2006), another language minority study, Chinese immigrant children living in the United States were assessed on phonological awareness, morphological awareness, vocabulary knowledge, word reading and reading comprehension in English. The study found that both derivational awareness and compound structure made a significant contribution to reading comprehension above and beyond participants' age, English grade level, vocabulary knowledge and phonological awareness. Furthermore, morphology was found to have a strong positive correlation with vocabulary knowledge and reading comprehension.

Kieffer and Lesaux (2008), a longitudinal study, assessed Spanish-speaking English language learners' ability to decompose derived words during reading with a specifically-designed task, and analyzed whether their accomplishment on this task makes a contribution to reading comprehension above and beyond such reading-related skills as word reading, phonological awareness and breadth of vocabulary knowledge. Findings revealed a statistically significant and moderately large relationship between derivational morphological awareness and reading comprehension among Spanish-

speaking ELLs in the upper-elementary school years, controlling for the influence of word reading skills, vocabulary breadth, and phonological awareness. Findings further revealed that the extent of this relationship grew from forth to fifth grade.

Kieffer and Lesaux (2012), which tested the direct and indirect contributions of derivational morphological awareness to English reading comprehension in sixth graders of Spanish, Filipino and Vietnamese backgrounds, reported that morphological awareness made a significant, direct contribution to reading comprehension when the effects of reading vocabulary and word reading fluency were controlled. They also found that morphological awareness made a significant, indirect contribution to reading comprehension through reading vocabulary. However, the other variable, word reading fluency, was not found to have an effect on the indirect contribution of morphology to reading comprehension. It is worth mentioning that the effects were similar across the four languages included in this study. As a result of these findings, the researchers pointed out the important role of morphological awareness in L2 reading comprehension even for students with divergent home languages.

Kieffer, Biancarosa and Mancilla-Martinez (2013) also studied the direct and indirect roles of morphological awareness in L2 reading comprehension in 101 Spanish-speaking language minority learners. Results indicated that morphological awareness uniquely and significantly contributed to reading comprehension, controlling for phonemic decoding, listening comprehension, reading vocabulary, word reading fluency and passage reading fluency. Results additionally revealed that morphological awareness significantly, but indirectly predicted reading comprehension through reading vocabulary and passage reading fluency. Word reading fluency, however, was not effective on this contribution. The researchers concluded that morphological awareness potentially plays a number of significant roles in second-language reading comprehension.

Kieffer (2014) explored whether there is a relationship between morphological awareness weaknesses and reading difficulties among Spanish-speaking language minority learners and their English-speaking peers. For this purpose, 138 sixth graders

were assessed on English reading comprehension, silent word reading fluency and derivational morphological awareness. Reading comprehension and word reading fluency were measured using a norm-referenced reading comprehension subtest and a norm-referenced word reading fluency test respectively. Derivational morphological awareness, on the other hand, was assessed using a non-word suffix choice test, in which the participants were asked to complete a sentence with the appropriate multi-morphemic word among four choices formed with the same base but different suffixes. The participants were classified into four groups as readers with weaknesses in word reading fluency, readers with weaknesses in reading comprehension, readers with weaknesses in both word reading fluency and reading comprehension and skilled readers. Readers with reading difficulties scored less in derivational morphological awareness task than skilled readers. Readers with weaknesses in reading comprehension were found to be relatively better in derivational morphological awareness task than readers with weaknesses in word reading fluency, while readers with weaknesses in both word reading fluency and reading comprehension had the lowest derivational morphological awareness scores. Results also revealed that language minority learners with certain reading difficulties were found to be weaker in morphological awareness than native speakers with certain reading difficulties. The findings of the present study point out that weaknesses in morphological awareness might be a common source of reading difficulties for language minority learners, signaling the necessity to incorporate morphological awareness into a model of reading difficulties.

The studies mentioned above all tackled the issue from the point of view of language minority children who were learning the foreign language as a second language. Considering the differences between second language and foreign language, it is of the essence to review the studies that explored the contribution of morphological awareness to foreign language reading comprehension in EFL context. Jeon (2011), for example, investigated the contribution of L2 morphological awareness to foreign language reading comprehension assessing 188 South Korean tenth grader learners of English on six reading and language-related variables: phonological decoding, listening comprehension, vocabulary knowledge, passage level reading comprehension, metacognitive reading awareness, and morphological awareness. The results of ten

sequential regression analyses showed that morphological awareness significantly contributed to L2 reading comprehension when the other variables were controlled. Of the two tests measuring morphological awareness, Test of Morphological Structure (TMS), which is reported to have assessed derivational morphological knowledge, was found to be a stronger predictor of L2 reading comprehension. The findings of the present study indicate that morphological awareness, especially, derivational morphological knowledge, beyond other variables, play a crucial role in reading comprehension of EFL learners, and thus should have a place in the foreign language classroom.

Zhang and Koda (2012) tested the direct and indirect effects of morphological awareness and lexical inferencing ability on L2 vocabulary knowledge and reading comprehension among advanced Chinese EFL learners. Results revealed that morphological awareness contributed to L2 vocabulary knowledge both directly and indirectly. The indirect contribution of morphological awareness to vocabulary knowledge was due to the mediation effect of learners' lexical inferencing ability. Inferencing ability was reported to refer to the integration of structural information (derivational morphology) and semantic information (morpheme meaning). However, it was found that morphological awareness failed to make a significant, unique or direct contribution to reading comprehension after adjusting for vocabulary knowledge. Instead, it was found to be a significant, but indirect contributor to reading comprehension, controlling for vocabulary knowledge.

Zhang and Koda redesigned their study in the light of the limitations of the previous one, and once more examined foreign language learners' morphological awareness and its contribution to reading comprehension, focusing on young Chinese EFL learners again (Zhang & Koda, 2013). This time the mediating effect of lexical inferencing was excluded. Additionally, this study differed from the previous one in the sense that it covered compounding as well as inflection and derivation, and two facets of morphological awareness, namely basic and refined, were included for each. The researchers arrived at the conclusion that learners' basic facet of inflectional awareness was better than that of derivational awareness, and their compound awareness was also

better than their derivational awareness for both basic and refined facets, with the difference being smaller for the basic facet. Regarding the contribution of morphological awareness to reading comprehension, derivational and compound awareness predicted English reading comprehension independently of other variables - vocabulary and grammar knowledge- whereas inflectional awareness did not contribute to English reading comprehension significantly.

Zhang, Koda and Sun (2014) investigated contribution of morphological awareness to reading comprehension among young Chinese EFL learners in China. This study further examined how cross-linguistic similarities and differences in morphological awareness had an effect on its transfer in Chinese-English biliteracy acquisition. For this purpose, compound awareness and reading comprehension tests were administered to Chinese learners of English in fifth and sixth grades. The participants were also measured in Chinese radical awareness, which is uniquely tied to Chinese. Morphological awareness was measured in terms of compound structure and compound discrimination both in English and Chinese. Compound structure tasks, in which the participants were given riddles and asked to respond with a compound word, measured the participants' knowledge of modifier-head relationship. Compound discrimination task, on the other hand, measured whether the participants recognize that a word part shared by different compound words may have a different meaning in these words. Chinese radical awareness task asked the participants to choose the radical (a component of the character that forms a word in Chinese) that transmits the actual meaning of the character (compound word) from a group of four radicals taken from the character. Reading comprehension in each language was measured with four stories followed by multiple-choice questions targeting textual inference, main idea detection and co-reference resolution skills. Bivariate correlations and hierarchical regression analysis revealed that compound awareness contributed to reading comprehension in both L1 (Chinese) and L2 (English). The present study further found that Chinese compound awareness predicted English reading comprehension, suggesting inter-lingual relationships between compound awareness and reading comprehension and English and Chinese and a mediating effect of L1 morphological awareness on L2 reading comprehension. Chinese radical awareness, on the contrary did not explain a

unique and significant variation in English reading comprehension. Finally, English compound awareness did not contribute to Chinese reading comprehension, indicating a lack of a facilitating effect of L2 morphological awareness to L1 reading comprehension.

Another study investigating the importance of morphological awareness in biliteracy acquisition is Wang, Ko and Choi (2009), which differs from Zhang, Koda and Sun (2014) in the sense that two languages which are similar in their morphological structure and functions, namely English and Korean, are the concern of the present study. However, it is worth mentioning that the two languages vary in their orthography as English is an opaque orthographic system, whereas Korean is a transparent orthographic system. The researchers hypothesized that morphological awareness would predict reading comprehension in both L1 and L2 significantly over and above phonological awareness, and as a result of the similar morphological structure of the two languages, morphological awareness in one language would contribute to word reading and reading comprehension in another. In order to test these hypotheses, a phoneme deletion test, a morphological awareness task with the sections being derivation and decomposition, a receptive vocabulary test, a real word naming task and a reading comprehension test consisting of four paragraphs with multiple-choice questions were administered in each language to second and forth graders who were attending English classes and Korean classes at the same time in the USA. Results showed that morphological awareness predicted reading comprehension in both Korean language and English significantly over and above phonological awareness, which was reported to suggest that morphological awareness matters in not only opaque orthographies such as that of English but also transparent orthographies such as that of Korean language. Additionally, morphological awareness in one language was found to contribute to word reading in another, indicating that morphological awareness has a facilitative effect on word reading across two languages of different orthographies.

A review of the previous studies implies that there is no standard among the methodologies each study employed. In other words, the participants, instruments and procedure seem to have differed. For example, while some of them investigated the

issue in ESL context, some others were conducted in EFL environment. Similarly, controlling variables, what morphological awareness covered, and thus testing instruments varied. However, almost all of them reported to have found L2 reading comprehension benefits from morphological awareness either directly or indirectly. Table 1 below shows a summary of these studies.

Table 1. L2 studies investigating the contribution of morphological awareness to reading comprehension

Study	Age	Dependent Variable (s)	Independent Variable(s)	Findings
Droop & Verhoeven (2003)	3rd and 4th graders	Reading comprehension	Decoding skills, vocabulary knowledge, oral text comprehension and morphosyntactic comprehension	Morphosyntactic knowledge directly contributed to reading comprehension. It also significantly but indirectly contributed to reading comprehension via oral text comprehension.
Wang et al. (2006)	4th graders	Reading comprehension	Phonological awareness, morphological awareness, vocabulary and word reading	Derivational and compound structure made a significant, independent contribution to reading comprehension when other variables were controlled.
Kieffer & Lesaux (2008)	4th to 5t graders (Longitudinal study)	Reading comprehension	Word reading, phonological awareness, breadth of vocabulary and derivational morphological awareness	A statistically significant and moderately large relationship was found between derivational morphological awareness and reading comprehension among Spanish-speaking ELLs in the upper-elementary school years

				above and beyond word reading skills, vocabulary breadth, and phonological awareness. The extent of this relationship was found to grow from forth to fifth grade.
Kieffer, Biancarosa & Mancilla-Martinez (2013)	6th, 7th and 8th graders	Reading comprehension	Phonemic decoding, listening comprehension, reading vocabulary, word reading fluency, passage reading fluency and morphological awareness	Results indicated a significant unique contribution of morphological awareness, controlling for phonemic decoding, listening comprehension, reading vocabulary, word reading fluency, and passage reading fluency. Results further indicated significant indirect contributions of morphological awareness via reading vocabulary and passage fluency, but not via word reading fluency.
Kieffer (2014)	6th graders	Reading comprehension and word reading fluency	Derivational morphological awareness	The findings point out that weaknesses in morphological awareness might be a common source of reading difficulties for

				language minority learners, signaling the necessity to incorporate morphological awareness into a model of reading difficulties.
Jeon (2011)	10th graders	Reading comprehension	Phonological decoding, listening comprehension, vocabulary knowledge, metacognitive reading awareness and morphological awareness	Morphological awareness was a significant predictor of L2 reading comprehension when other variables were controlled. The measure that tested derivational morphological knowledge showed stronger predictability.
Zhang & Koda (2012)	Adults with an average age of 23	Vocabulary knowledge and reading comprehension	Morphological awareness and lexical inferencing	Morphological awareness contributed to L2 vocabulary knowledge directly and indirectly through the mediation of learners' lexical inferencing ability. It made no significant unique or direct contribution to reading comprehension after adjusting for vocabulary knowledge.

Zhang & Koda (2013)	6th graders	Reading comprehension	Vocabulary knowledge, grammar knowledge and morphological awareness	Derivational and compound awareness independently predicted English reading comprehension, over and above vocabulary and grammatical knowledge.
Zhang, Koda & Sun (2014)	5th and 6th graders	Reading comprehension	Compound awareness	Compound awareness contributed to reading comprehension in both L1 (Chinese) and L2 (English). Furthermore, Chinese compound awareness predicted English reading comprehension, suggesting inter-lingual relationships between compound awareness and reading comprehension and English and Chinese and a mediating effect of L1 morphological awareness on L2 reading comprehension.

In conclusion, previous research has shown that morphological awareness contributes to L1 reading comprehension. Research on the role of morphological awareness to L2 reading comprehension, on the other hand, is reported to be limited. A considerable part of this limited L2 research revealed that L2 reading comprehension tends to benefit from morphological awareness, though. As already mentioned above and displayed in Table 1, these research studies differ in the methodologies they employed. With the purpose of exploring the contribution of morphological awareness to L2 reading comprehension in the case of Turkish EFL learners, the present study aimed at employing the most convenient methodology within the light of the previous research and the convenience of the research environment, which is introduced in the following chapter.

CHAPTER 3
METHODOLOGY

This chapter is devoted to the methodology followed in the current study. First, the setting and the participants are introduced. Second, the data collection instruments are presented. Then, pilot study and data collection procedures are described. Finally, data analysis methods are explained.

The Setting and the Participants

Founded in 1998, Anadolu University School of Foreign Languages (AUSFL) aims at offering foreign language education in a democratic and contemporary way with its 193 instructors, 6 of whom are foreigners. AUSFL currently adopts an integrated approach to foreign language learning. In other words, at AUSFL foreign languages are taught in a way in which language skills and sub-skills are interwoven, and students are encouraged to learn these skills simultaneously. Speakout course book series by Pearson are used across varying language proficiency levels at AUSFL. Speakout has a wide range of support materials such as DVD lessons, video podcasts and teachers' resource book. Students at AUSFL also study online in the weeks certified on syllabi of varying language proficiency levels.

AUSFL determines learners' proficiency level according to Global Scale of English (GSE). GSE puts learners at a precise point on a scale from 10 to 90, in each of which there are specific learning outcomes. According to this scale, points from 22 to 29, 30 to 35, 36 to 42 and 43 to 50 correspond to levels D, C, B and A, respectively from the lowest to the highest in terms of English proficiency. It is worth mentioning that these levels are determined as a result of a requisite placement test and a proficiency exam that are carried out at the beginning of the fall term. The placement test consists of 100 multiple-choice test items. Thirty test items assess vocabulary knowledge, 40 test items assess language use and the remaining 30 test items assess reading comprehension. The students are required to complete this test in a total of 100

minutes and the highest score is 100. The purpose of the placement test is to determine the language proficiency level of the students and decide on the students who are going to take the proficiency exam. Those who get below 60 from the placement test are placed at a level in accordance with the points they obtain, while those who manage to get 60 and above are entitled to sit for the proficiency exam. The proficiency exam is conducted in three sessions, namely multiple-choice test consisting of listening, reading, vocabulary knowledge and grammar knowledge sections (60 percent), written exam (20 percent) and speaking exam (20 percent). The purpose of the proficiency exam, as the name already indicates, is to determine whether the students have the required language skills in the target language in which the test is administered, namely English in our case. Those who obtain 60 points and more from the proficiency exam are exempted from English preparation classes, whereas those who obtain below 60 points are placed at a level in accordance with the points they obtain from the placement test. It is worth mentioning that the proficiency exam is carried out at the beginning and end of both fall and spring semesters. The proficiency exam that is conducted at the beginning of the fall semester, as mentioned above, is used to determine the students who are proficient enough to be exempted from English preparation classes and are able to start their education in their departments. Those who are able to take 60 and more points from the placement test have a right to sit for this exam. The proficiency exam that is administered at the end of the fall semester, however, is used to determine the students who are now qualified enough to finish their studies at AUSFL and go to their departments. Those who are able to successfully finish A-level taking 70 and more points from the final exam designed for the requirements and learning outcomes of the A-level have a right to sit for this exam.

With the purpose of assessing adult Turkish EFL learners' morphological awareness level and determine its relationship to passage-level L2 reading comprehension, the scope of the present study has been decided as intermediate level adult Turkish EFL learners who are attending English preparatory classes at AUSFL. Intermediate level has been chosen as the target language proficiency in the present study as it is accepted as the threshold level by Common European Framework of Reference for Languages (CEFR). Since level A is supposed to meet the requirements

of intermediate level, the data were collected from nine A-level classes (See Appendix A for the learning outcomes of level A). The tests that were used to collect the required data for the purpose of the present study were administered to a total of 165 students from these classes; however, the data coming from 87 of the participants were found to be eligible for data analysis.

Data Collection Instruments

Considering that the main objective of the present study is to explore the contribution of morphological awareness to passage-level L2 reading comprehension, passage-level L2 reading comprehension is the dependent variable, while morphological awareness is the independent variable of the study. Additionally, the present study is concerned with the unique contribution of the morphological awareness to passage-level L2 reading comprehension, and thus intends to eliminate the effect of L2 vocabulary knowledge, grammar knowledge and reading strategy use, which are accepted as the control variables.

In this regard, reading comprehension, vocabulary knowledge and grammar knowledge were assessed using the proficiency exam that Anadolu University School of Foreign Languages (AUSFL) administered at the end of 2014-2015 Fall Semester. Morphological Awareness was assessed using Morphological Awareness Test (MAT), which was adapted from Mahony (1993) by the researcher. Finally, reading strategy use was assessed using Survey of Reading Strategies (SORS) developed by Mokhtari and Sheorey (2002). To support the quantitative data gathered from the instruments mentioned above, semi-structured interviews were conducted with 8 participants, corresponding to 9 percent of the whole sample.

Reading Comprehension, Vocabulary, Grammar Subtests

Reading subtest of the proficiency exam that AUSFL administers at the beginning and end of each semester consists of 25 multiple-choice test items. It includes authentic reading texts with an average length of 200-500 words. These texts might be taken from

magazines, newspaper journals, advertisements, graphics and similar sources. Question types are understanding the main idea and details, making inferences, guessing meaning from context and finding in-text references. Since School of Foreign Languages prefers to keep exam questions confidential with the intent of reusing them with some amendments for the upcoming years, it is not possible to attach the full subtest here. However, Appendix B displays sample reading comprehension questions.

Vocabulary subtest of the proficiency exam also consists of 25 multiple-choice test items. Question types in this subtest include finding the meaning of a word, assessing intra-word structure, finding synonyms and/or antonyms of certain words and assessing knowledge of word phrases. Appendix C provides sample vocabulary questions.

Grammar subtest of the proficiency exam also consists of 25 multiple-choice test items. Some of these test items require students to fill in the gaps embedded in sentences or paragraphs with the appropriate structures. For some others of these test items, students are instructed to choose the inappropriate one from the underlined parts of a sentence. Appendix D lists sample grammar questions of the proficiency exam.

It is worth making a note that all of these questions are prepared by a group of experienced English instructors who are currently working at Anadolu University School of Foreign Languages and are frequently receiving trainings on testing.

Morphological Awareness Test (MAT)

Morphological Awareness Test (MAT) consists of two sections, which are Sentence Completion and Word Relation respectively. The Sentence Completion section consists of 27 multiple-choice test items. The purpose of this section is to understand whether the participants are aware of the grammatical and lexical functions of some common derivational suffixes in English. The target words used in this section are pseudo-words that are appropriate for the morphological structure of English. The derivational suffixes used in this test are **-tion, -ist, -(i)ty; -ate, -ize, -fy** and **-ous, -ive, -al**, which make

nouns, verbs and adjectives respectively. The reason why these suffixes have been picked up is that they are among the very common suffixes in English (White, Sowel & Yanagihara, 1999; Fry & Kress, 2006). Of the suffixes that are used in the present study, *-tion, -(i)ty, -ous, -ive* and *-al* are among the most common 20 suffixes that account for 93 percent of occurances according to a research-based list by White et al. (1999) (See List 30, The Most 20 Common Suffixes in The Reading Teacher's Book of Lists, Fry & Kress, 2006). Of the suffixes that are used in the present study, *-ist, -ate, -ize* and *-fy*, on the other hand, are among other common suffixes that account for seven percent of the words (See List 31, More Suffixes in The Reading Teacher's Book of Lists, Fry & Kress, 2006).

The test items in this section have been taken from Mahony (1993) with minor adjustments. For the accomplishment of the Sentence Completion section, the participants were instructed to choose the best word out of four options formed with the same root but different suffixes in order to complete a sentence with a blank. As can be seen in the following sample test item, once a learner knows what functions the derivational suffixes -er, -ty, -tion and -ize serve, as listed in the options respectively, they can easily complete the sentence with the correct form of the word, indicating that they have some insights into English derivational morphology.

They _____ *those fields early in the spring.*

A-) fertilizer
B-) fertility
C-) fertilization
D-) fertilize (Correct answer)

(Mahony, 1993)

In the Word Relation section, the participants were provided with a list of 20 word pairs, and asked whether the second word in each pair comes from the first word. As the following sample test items display, the participants were instructed to circle

YES, next to each pair, if they think the second word comes from the first word, and NO if they think the second word does not come from the first word.

creative → creativity (*YES*) - *NO* (Related)

part → party *YES* - (*NO*) (Unrelated)

It was assumed that the participants would be familiar with the meaning of all of the words that were used in this section of the test. In other words, the participants were assumed to recognize the meaning of each word in each pair so that they could identify whether the two words were morphologically related or not. This assumption was confirmed by three A-level instructors at AUSFL who checked all the word pairs and agreed that almost all of the participants would probably be familiar with their meanings. Nine of these word pairs were morphologically related, while the rest, 11 pairs, were morphologically unrelated. Two practice items, one morphologically related and the other morphologically unrelated, were presented so as to make sure that the participants comprehended what they were expected to do. Some of the word pairs in this section were taken from Mahony (1993), while some others were designed accordingly by the researcher. It is worth mentioning that each correct answer in the MAT corresponds to 1 point, making the highest score 47.

In order to assure the validity of the researcher-designed Morphological Awarenes Test, it was necessary to get expert opinion. Therefore, four English Language Teaching (ELT) professors, who are also considerably knowledgeable in English linguistics, checked the test items in both sections of the MAT. As a result, some minor amendments were made on the test items. In addition, reliability of the test was also assured by means of statistical analysis. The internal consistency of the Morphological Awareness Test was found to be acceptable to good, Cronbach's α=.78, indicating that all items in MAT might be accepted to measure the same construct. Appendix E shows both sections of the MAT.

Survey of Reading Strategies (SORS)

Another control variable, reading strategy use was assessed using Survey of Reading Strategies. It was adapted from the Metacognitive Awareness of Reading Strategy Inventory (MARSI), which was developed by Mokhtari and Reichard (2002). The adapted SORS was field-tested on a group of ESL students who were studying at two universities in the United States and the overall reliability was found to be .89 (Mokhtari & Sheorey, 2002). The purpose of this survey was to collect information about the various strategies that students use when they read school-related academic materials in English such as reading textbooks for homework or examinations and reading journal articles. It was a Likert-type scale, which means that each statement is followed by five numbers, 1, 2, 3, 4 and 5, corresponding to "never", "occasionally", "sometimes", "usually" and "always" respectively.

Developed by Mokhtari and Sheorey (2002), SORS was originally in English; however, it was translated into Turkish by means of back-translation method in order to provide the participants with the survey in their native language so that they could better understand each item. The original version of the survey was translated into Turkish by the researcher. Then, an experienced English instructor who holds an MA degree in ELT and has been working at Anadolu University School of Foreign Languages for almost 18 years translated this Turkish version back into English. The original survey and the new English version were compared and some minor changes were made accordingly on the Turkish translation, assuring the quality of the translation. It is worth mentioning that the English version of the survey was used for one participant who was from Afghanistan.

SORS consists of 30 items. The items *1, 3, 4, 6, 8, 12, 15, 17, 20, 21, 23, 24* and *27* (13 items) measure Global or Metacognitive Reading Strategies (GLOB). Global Reading Strategies are intentional, carefully planned techniques that help learners monitor or manage their reading. They include such techniques as having a purpose in mind, previewing the text as to its length and organization and using typographical aids and tables and figures. The items *7, 9, 11, 14, 16, 19, 25* and *28* (8 items) measure

Problem Solving or Cognitive Reading Strategies (PROB). Problem Solving Strategies are localized, focused techniques or the actions that readers take while they are working directly with the text. They include adjusting one's speed of reading when the text becomes too difficult or easy, guessing the meaning of unknown words or rereading the text so as to better understand it. The items *2, 5, 10, 13, 18, 22, 26, 29* and *30* (9 items) measure Support Reading Strategies (SUPP). As the name indicates, Support Reading Strategies are support mechanisms that enable learners to comprehend the text better with help of dictionaries notes or such techniques as underlining or highlighting textual information.

The participants were instructed to read each statement and circle the number that best applies to them. They were reminded that there were no right or wrong responses to any of the statements in this survey. As suggested by Mokhtari and Sheorey (2002), the present study identified three levels of reading strategy use based on the average scores on the 5-point Likert scale: high (an average score of 3.5 or higher), moderate (an average score of 2.5 to 3.4) and low (an average score of 2.4 or lower). The internal consistency of the Survey of Reading Strategies was found to be good, Cronbach's α=.80 indicating that all items in SORS were good enough to measure the same construct on the sample in the present study. Appendix F shows both English and Turkish versions of the survey.

Semi-structured Interviews

In order to support the quantitative data gathered from the Morphological Awareness Test (MAT) and Survey of Reading Strategies (SORS), eight participants who were selected on purpose were interviewed. The only criterion that was used to select these participants was their scores from the MAT. Those who obtained the highest scores (n=4) and those who obtained the lowest scores from the MAT (n=4) were interviewed with the focus being on reading strategy use and morphological awareness in general. Based on the items in the Survey of Reading Strategies, the researcher prepared three open-ended questions for global reading strategies, two open-ended questions for problem-solving strategies and four open-ended questions for support reading strategies

with one of the questions referring to problem solving strategies as well (*What do you do if the text is too difficult for you?*).

Regarding the relationship between reading and morphological awareness, four open-ended questions were prepared by the researcher. These four questions were very much like the parts of a chain. The first question aimed at eliciting the overall view of the participants about what is necessary to be proficient enough in reading in English. Almost all of the participants mentioned or were directed towards the bond between reading proficiency and vocabulary knowledge. The second question inquired what the participants generally do to learn or guess the meanings of unknown words during reading. The third question was to elicit the relationship between prefix/suffix knowledge and parts of speech, and the contribution of knowing this to efficiently using a word (vocabulary knowledge) and better understanding reading texts through syntax knowledge (grammar knowledge). The last question was about the participants' attitude towards being guided to gain more insights into the word structure during the foreign language process.

It is worth mentioning that the fact that the participants with the lowest and highest MAT scores were chosen to be interviewed enabled us to compare reading scores of each group and their use of reading strategies, paving the way for a better comprehension of the relationship between morphological awareness on one hand and reading comprehension and reading strategy use on the other. Appendix G shows the semi-structured interview questions.

Data Collection Procedures

Pilot Study

On the 26th of December 2014, two weeks before the actual data collection, a pilot study was conducted to check the data collection instruments. A total of 39 students from two A-level classes participated in the pilot study. Reliability analysis of the Morphological Awareness Test (MAT) and Survey of Reading Strategies (SORS) were found to be

good, Cronbach's α=.81 and Cronbach's α=.79 respectively. A few minor changes were applied on the instruments subsequent to the pilot study. Furthermore, it was ensured that the participants would be able to finish the Morphological Awareness Test and the Survey of Reading Strategies within one class hour, namely 45 minutes.

Actual Data Collection

First, Morphological Awareness Test (MAT) and Survey of Reading Strategies (SORS) were administered on the same day on the 9th of January 2015. A total of nine A-level classes consisting of 165 participants were included in this first step of data collection. Since these two instruments were administered in 9 classes simultaneously, each class's own teacher conducted this first step of data collection. However, the researcher was present in each class for almost five minutes to help with instructions and questions if any.

The participants were first asked to sit for MAT and then SORS. There was no time limit; however, it took one class hour, 45 minutes, for the participants to finish the morphology test and the survey. The participants were not told that the words used in the Sentence Completion section of the MAT were pseudo-words, but new to them, and reminded to use their knowledge of suffixes (words' endings) to be able accomplish the test. The teachers administering the morphology test and the survey were asked to do the practice items as a whole-class activity, and make sure that the participants clearly understood what they were being required to do. The teachers were also asked to pay utmost attention to ensuring that each participant answered the questions on their own.

Second, on the 21st of January, AUSFL end-of-fall-semester proficiency exam, from which data concerning reading comprehension, vocabulary and grammar knowledge were collected, was administered. The participants to whom the MAT and SORS were administered were randomly assigned to different classes in the proficiency exam. Additionally, teachers other than the participants' class teachers and the researcher invigilated the exam. However, it is crucially important to note that some of the 165 participants who were included in the first step of the data collection were not

qualified enough to sit for the proficiency exam for such reasons as not having been able to successfully complete the A level. It is worth reminding that A-level students studying at AUSFL are obliged to take 70 and more points from the final exam prepared in accordance with A-level learning outcomes and administered at the end of the fall term. Besides this, some other participants preferred not to take the proficiency exam to continue their studies at AUSFL for one more semester. As a result, the number of the participants whose data were eligible for the purpose of the present study decreased to 87.

Lastly, semi-structured interviews were performed between the 16th and 20th of February, almost one month after the quantitative data collection was carried out, as the participants went away for the semester break. Four participants with the highest morphology scores and four participants with the lowest morphology scores were interviewed on their use of L2 reading strategies, what they think of reading skill, reading difficulties they experience, what they do to overcome these difficulties and the role of morphology in overcoming these difficulties. The interviews were carried out in Turkish and individually; took fifteen to twenty minutes for each interviewee, and were recorded with their approval. Table 2 below displays a summary of data collection steps followed in the present study.

Table 2. Data Collection Steps

26th December, 2014	Pilot Study
9th January, 2015	Administering Morphological Awareness Test (MAT) and Survey of Reading Strategies (SORS)
21st January, 2015	Proficiency Exam-reading Comprehension, Vocabulary Knowledge and Grammar Knowledge Subtest
16-20 February, 2015	Semi-structured Interviews

Data Analysis

Quantitative data collected by means of the AUSFL end-of-fall-semester proficiency exam, Survey of Reading Strategies (SORS) and the researcher-designed Morphological Awareness Test (MAT) were computed in SPSS version 20. Prior to answering the research questions of the present study, data coming from each test instrument were analyzed to come up with all potential findings. First of all, the three subtests of the proficiency exam included in the present study (reading comprehension subtest, vocabulary knowledge subtest and grammar knowledge subtest) were analyzed by employing descriptive statistics. Besides the descriptive statistics, participants' mean scores from each subtest were compared using a one-way ANOVA with repeated measures. Once a significant difference was found across the subtests of the proficiency exam, paired samples *t*-tests were employed to determine where the significance stemmed from. Second, the three sections of the SORS (Global Reading Strategies, Problem Solving Strategies and Supplementary Reading Strategies) were analyzed using descriptive statistics. Besides the descriptive statistics, participants' mean scores from the sections of the SORS were also compared using a one-way ANOVA with repeated measures. Once a significant difference was found across the three sections, paired samples *t*-tests were employed to find out where the significance stemmed from.

In order to answer the first research question, the MAT was first analyzed using descriptive statistics, namely quartiles and percentages. For further analysis, participants' scores from the two sections of the MAT (Sentence Completion and Word Relation) were compared using a paired samples *t*-test in order to find out in which section of the MAT the participants performed better.

As for the second research question, first, Pearson's product moment correlation coefficients were calculated in order to find out the relationship each variable of the present study has with one another. In addition, with the purpose of finding the unique contribution of morphological awareness to reading comprehension above and beyond such reading-related variables as vocabulary knowledge, grammar knowledge and

reading strategy use, a series of multiple regression and bivariate regression analyses were conducted.

In order to support the relationship or lack of relationship between morphological awareness and L2 reading comprehension, first, two new groups with the lowest and highest MAT scores respectively were formed, using the quartiles, namely Q1 and Q3. Once participants' scores from the MAT are listed from the lowest to the highest, Q1 refers to the 25 percent of the whole sample from the bottom, whereas Q3 refers to the 25 percent from the top. Next, these two groups, low-MAT and high-MAT, were compared in terms of their scores from the reading comprehension subtest of the proficiency exam using independent samples *t*-test.

When it comes to the qualitative data analysis, tape-recorded interviews with the participants with the lowest and highest MAT scores were first transcribed. Then, the transcribed interviews were translated into English by the researcher and analyzed grouping each interviewee's response under each open-ended question. The quotations gathered from the interviews were used to support and discuss the quantitative findings of the present study.

Table 3. A summary of the research questions, research instruments and data analysis procedure

Research Questions	**Instruments**	**Data Analysis**
1) To what extent are intermediate-level adult Turkish EFL learners aware of syntactic and lexical functions of certain suffixes in English?	**1)** Morphological Awareness Test (MAT)	**1)** Descriptive Statistics **2)** Percentiles (Quartiles & the Interquartile Range) **3)** Paired Samples *t*-test
2) Does morphological awareness contribute to passage-level L2 reading comprehension above and beyond other reading and language-related factors such as grammar knowledge, vocabulary knowledge and metalinguistic reading awareness among intermediate-level adult Turkish EFL learners?	**1)** Morphological Awareness Test (MAT) **2)** Reading Comprehension Subtest **3)** Grammar Knowledge Subtest **4)** Vocabulary Knowledge Subtest **5)** Survey of Reading Strategies (SORS)	**1)** Correlation **2)** Multiple Regression Analyses **3)** Bivariate Regression Analyses **4)** Percentiles (Quartiles & the Interquartile Range) **5)** Independent Samples *t*-test

CHAPTER 4
RESULTS AND DISCUSSION

This study intends to find out to what extent intermediate-level adult Turkish EFL learners who are studying at Anadolu University School of Foreign Languages are aware of syntactic and lexical functions of certain suffixes in English. It further aims at finding out whether this awareness contributes to English reading comprehension above and beyond some reading-related variables such as vocabulary knowledge, grammar knowledge and reading strategy use. The data were collected from a total of 87 intermediate-level adult Turkish EFL learners via Morphological Awareness Test (MAT), created by the researcher with some adaptation from the previous research, Survey of Reading Strategies (SORS) and reading comprehension, vocabulary knowledge and grammar knowledge subtests of the proficiency exam that Anadolu University School of Foreign Languages administered at the end of 2014-2015 fall semester. This chapter first introduces and discusses the overall success of the participants with regard to their scores from the related subtest of the proficiency exam, the survey of reading strategies and the morphological awareness test. Then, results of the multiple regression analyses conducted to find out the direct and unique contribution of morphological awareness to reading comprehension are presented and discussed. Third, indirect contribution of morphological awareness to reading comprehension is mentioned and discussed accordingly. Semi-structured interviews performed with a smaller group of participants in order to support the data gathered from the quantitative data collection instruments of the present study (SORS and MAT) are introduced and discussed in the parts allocated for the findings of the Survey of Reading Strategies (SORS) and Morphological Awareness Test (MAT).

Overall Findings: Proficiency Exam and Survey of Reading Strategies

Proficiency Exam: Reading Comprehension Subtest, Vocabulary Knowledge Subtest, Grammar Knowledge Subtest

A total of 87 students participated in the present study and they all sat the reading, vocabulary and grammar subtests of the proficiency exam that Anadolu University School of Foreign Languages administered at the end of 2014-2015 fall semester. Table 4 below shows the minimum and maximum scores of the participants from these subtests along with the mean scores, standard error and standard deviation. As shown in the table, mean scores from the reading and vocabulary subtests were quite close to each other, *M*=14,71 and 14,37 respectively, while the grammar mean score is relatively lower, *M*=12,61.

Table 4. Descriptive Statistics: Proficiency Exam

	N	Range	Min.	Max.	Mean	SE	SD
Reading	87	22	0	22	14.71	.434	4.046
Vocabulary	87	23	0	23	14.37	.432	4.029
Grammar	87	22	0	22	12.61	.410	3.826

When we look into the quartiles and the interquartile range as shown in Table 5 below, as for reading, 29 participants who obtained 13 and less from the reading comprehension subtest are low achievers, and they make up 33.3 percent of the whole sample. Thirty-one participants who obtained between 14 and 16 from the reading comprehension subtest are moderate achievers, and they form 35.6 percent of the whole sample. Twenty-seven participants who obtained 17 and more from the reading comprehension subtest are high achievers, and they make up 31.1 percent of the whole sample. When it comes to vocabulary, 24 participants who took 12 and less from the vocabulary knowledge subtest are low achievers, and they form 27.6 percent of the whole sample. Thirty-five participants who got between 13 and 16 from the vocabulary knowledge subtest are moderate achievers, and they make up 40.2 percent of the whole sample. Twenty-eight participants who scored 17 and more from the vocabulary

knowledge subtest are high achievers, and they make up 32.2 percent of the whole sample. Regarding grammar, 29 participants who obtained 11 and less from the grammar knowledge subtest are low achievers, making up 33.3 percent of the whole sample. Twenty-six participants who scored 12 and 13 from the grammar knowledge subset are moderate achievers, and they make up 29.9 percent of the whole sample. Thirty-two participants who took 14 and more from the grammar knowledge subtest are high achievers, and they form 36.8 percent of the whole sample.

Table 5. Quartiles and the Interquartile Range: Proficiency Exam

	Q1	N	P	Q2	N	P	Q3	N	P
Reading	13-	29	33.3%	14-16	31	35.6%	17+	27	31.1%
Vocabulary	12-	24	27.6%	13-16	35	40.2%	17+	28	32.2%
Grammar	11-	29	33.3%	12-13	26	29.9%	14+	32	36.8%

N=Number of the participants in each quartile range.

P=Percentage of the participants in each quartile range.

Figures 3, 4 and 5 below display percentages of the participants in low, mid and high categories of reading comprehension, vocabulary and grammar subtests of the proficiency exam respectively in pie charts. These charts point out that as for reading comprehension and vocabulary subtests, the majority of the participants fall into mid category, indicating that most of them are moderate achievers of reading and vocabulary, although the percentages in each category are close to each other. When it comes to grammar knowledge subtest, however, the majority of the participants are in high category followed by the low category, with less participants being in the mid category. To find out if the participants' performance in each subtest of the proficiency exam significantly differ from each other, a one-way within subjects ANOVA was run. The findings revealed that there is a statistically significant difference across the three subtests of the proficiency exam in terms of the participants' performance $F(2, 172)=14,90$, $p<.001$. To determine where the significant difference existed, a paired samples *t*-test was carried out as a post hoc test. The results indicated that there is a statistically significant difference between reading ($M=14.71$, $SD=4.04$) and grammar ($M=12.61$, $SD=3.82$) $t(86)=5.301$, $p<.001$, and vocabulary ($M=14.37$, $SD=4.02$) and

grammar (*M*=12.61, *SD*=3.82) *t*(86)=3.973, *p*<.001, whereas there is not a significant difference between reading (*M*=14.71, *SD*=4.04) and vocabulary (*M*=14.37, *SD*=4.02) *t*(86)=.865, *p*>.05. To sum up, intermediate-level adult Turkish EFL learners participating in the present study performed significantly better in reading and vocabulary subtests than they did in grammar subtest of the proficiency exam that AUSFL administered at the end of 2014-2015 fall semester. This finding might stem from that students at AUSFL generally pay utmost attention to vocabulary knowledge and reading comprehension, and study harder for them before exams. However, they might be taking grammar skill for granted because they believe they have been learning grammar for years.

Figure 3. Percentages of Reading Comprehension Subtest Scores

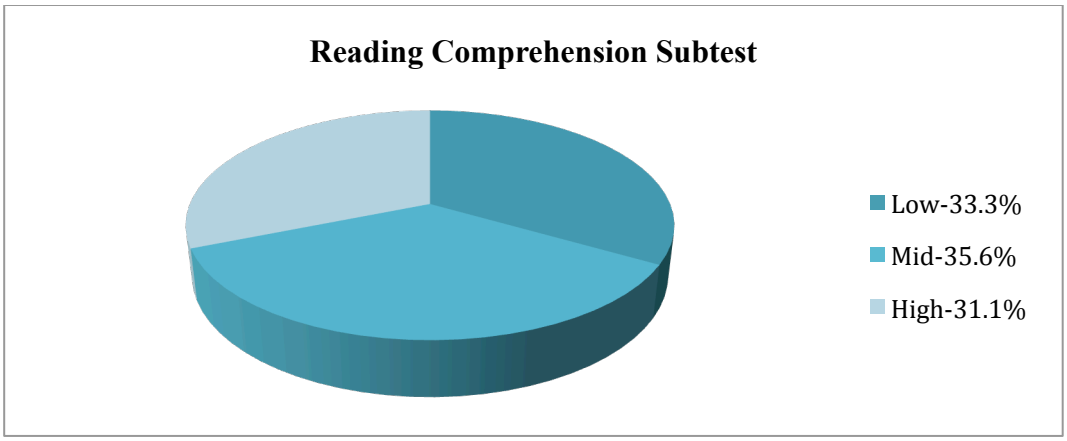


Figure 4. Percentages of Vocabulary Knowledge Subtest Scores

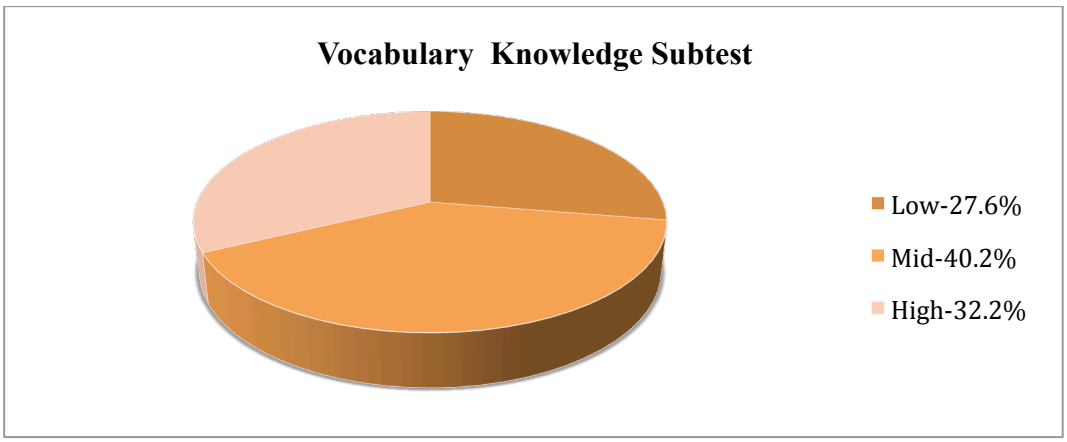
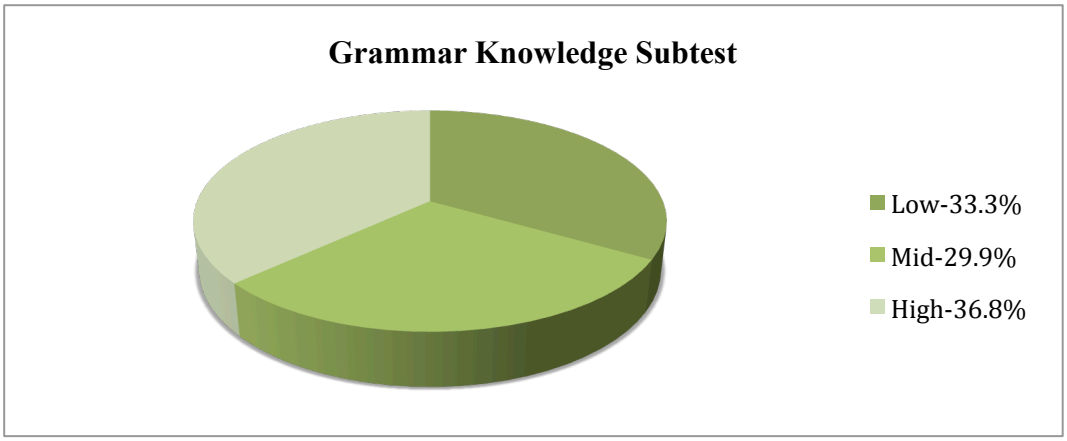


Figure 5. Percentages of Grammar Knowledge Subtest Scores



Survey of Reading Strategies (SORS)

With regard to the Survey of Reading Strategies (SORS), individual scores from the questionnaire that were grouped together according to their sub-scale categories, which are Global Reading Strategies (GLOB), Problem Solving Strategies (PROB) and Support Reading Strategies (SUPP) were recorded and added up to obtain the total score for the entire instrument. The statistical procedures used in this part of the study include descriptive statistics, namely mean scores and standard deviations and also frequencies and percentages. The overall means for each sub-scale are categorized as follow:

High – (mean of 3.5 or higher)
Moderate – (mean of 2.5 to 3.4)
Low – (mean of 2.4 or lower)

Within the light of this categorization of reading strategy awareness levels, Table 6 below displays means and standard deviations for each item grouped together according to their sub-scale categories in a descending order, namely in the most-often-used to the least-often-used strategies. Items in each reading strategy category are followed by the average mean and standard deviation for each category and the overall score average is provided at the end of the table.

Table 6. Means and Standard Deviations for Intermediate-level Adult Turkish EFL Learners' Reading Strategy Use (N = 87)

Category	Item	Mean	Std. Deviation	Level
GLOB	24	3.92	1.00	High
	15	3.84	.87	High
	23	3.70	.99	High
	1	3.67	.94	High
	17	3.62	.90	High
	12	3.59	.92	High
	3	3.56	1.00	High
	4	3.45	1.17	Moderate
	20	3.43	1.28	Moderate
	6	3.32	1.10	Moderate
	27	3.31	.99	Moderate
	21	3.14	1.15	Moderate
	8	2.15	1.11	Low
GLOB	**Overall**	**3.43**	**.50**	**Moderate**
PROB	9	4.06	.84	High
	19	3.84	.95	High
	14	3.78	1.01	High
	25	3.69	1.09	High
	7	3.64	1.01	High
	28	3.63	1.01	High
	11	3.56	1.00	High
	16	3.47	1.12	Moderate
PROB	**Overall**	**3.71**	**.57**	**High**
SUPP	30	3.69	.98	High
	29	3.54	1.19	High
	22	3.32	1.14	Moderate
	10	3.25	1.39	Moderate
	13	3.22	1.29	Moderate
	18	3.08	1.33	Moderate

	26	2.59	1.19	Moderate
	2	2.36	1.25	Low
	5	2.21	1.24	Low
SUPP	**Overall**	**3.02**	**.57**	**Moderate**
Overall Score Average		**3.40**	**.46**	**Moderate**

As evident in the table, most participants reported using overall reading strategies (*M*=3.40, *SD*=0.46). The means of individual strategy items ranged from 4.06 (SD = .84, item 9: I try to get back on track when I lose concentration.) to 2.15 (SD = 1.15, item 8: I review the text first by noting its characteristics like length and organization.). There are 16 high-use strategies (53 percent), 11 moderate-use strategies (37 percent) and only three low-use strategies (10 percent), supporting the moderate-use to high-use levels of reading strategies among intermediate-level adult Turkish EFL learners. The highest mean score falls into the Problem Solving Strategies, whereas the lowest mean score falls into the Global Reading Strategies. It can be seen that the Problem Solving Strategies is the most favored choice (*M*=3.71, *SD*=0.57), followed by Global Reading Strategies (*M*=3.43, *SD*=0.50) and Support Reading Strategies (*M*=3.02, *SD*=0.57).

Considering these overall means for each sub-scale as provided by the SORS, high, moderate and low categories of Global Reading Strategies, Problem Solving Strategies and Supplementary Reading Strategies are presented and discussed below.

Table 7. Percentages for Global Reading Strategies (GLOB)

	N	**P**
High	40	46.0
Moderate	44	50.6
Low	3	3.4
Total	87	100

First of all, the data given in Table 7 above shows the moderate usage of designation of global reading strategies being the most prominent with 50.6 percent of

the respondents showing their awareness in various techniques. A total of 44 students fall under the moderate usage designation of global reading strategies, whereas only three participants, corresponding to 3.4 percent of the total respondents, show the lack of awareness of such techniques. The high mean score, as suggested by the SORS, made up of 3.5 and higher, also sees a high percentage, namely 46 percent, with a total of 40 respondents being in this category. This shows that almost all of the participants are able to monitor and manage their reading either moderately or very well. In other words, they have a purpose in mind when they read, preview the text, think about their previous knowledge and the content of the text, make use of visuals, typographical features and context clues and make guesses about the text and check those guesses and their understanding. In sum, we can conclude that a good number of intermediate-level adult Turkish EFL learners participating in the present study show at least moderate awareness of Global Reading Strategies. Table 8 below displays a detailed analysis of each item of Global Reading Strategies.

Table 8. Analysis of percentages of Global Reading Strategies (GLOB)

Item No	Description of Items		1	2	3	4	5
1	I have a purpose in min when I read.	n	2	6	28	34	17
		%	2.3	6.9	32.2	39.1	19.5
3	I think about what I know to help me understand what I read.	n	1	13	26	30	17
		%	1.1	14.9	29.9	34.5	19.5
4	I take an overall view of the text to see what it is about before I read it.	n	6	15	16	34	16
		%	6.9	17.2	18.4	39.1	16.4
6	I think about whether the content of the text fits my reading purpose.	n	8	9	27	33	10
		%	9.2	10.3	31.0	37.9	11.5
8	I review the text first by noting its characteristics like length and organization.	n	31	26	19	8	3
		%	35.6	29.9	21.8	9.2	3.4
12	When reading, I decide what to read closely and what to ignore.	n	3	5	29	38	12
		%	3.4	5.7	33.3	43.7	13.8
15	I use tables, figures and pictures in text to increase my understanding.	n	0	5	26	34	22
		%	0	5.7	29.9	39.1	25.3
17	I use context clues to help me better	n	2	8	22	44	11

	understand what I am reading.						
		%	2.3	9.2	25.3	50.6	12.6
20	I use typographical features like bold face and italics to identify key information.	n	9	14	14	31	19
		%	10.3	16.1	16.1	35.6	21.8
21	I critically analyze and evaluate the information presented in the text.	n	7	20	25	24	11
		%	8.0	23.0	28.7	27.6	12.6
23	I check my understanding when I come across new information.	n	3	6	23	37	18
		%	3.4	6.9	26.4	42.5	20.7
24	I try to guess what the content of the text is about when I read.	n	1	6	23	26	31
		%	1.1	6.9	26.4	29.9	35.6
27	I check to see if my guesses about the text are right or wrong.	n	5	8	39	25	10
		%	5.7	9.2	44.8	28.7	11.5

Table 8 above indicates that for most of the items (1, 3, 4, 6, 8, 12, 15, 17, 20 and 23), the participants most frequently chose 4, which means that they usually apply these strategies. For the items 21 and 27, the most frequent response is 3 (sometimes) followed by 4 (usually). For the item 24, which is about guessing the content of the text, the most frequent response of the participants is 5, meaning always or almost always. This item-wise analysis also supports that intermediate-level adult Turkish EFL learners participating in the present study are aware of and apply some of Global Reading Strategies.

As stated earlier, semi-structured interviews focusing on reading strategies and morphological awareness were conducted with a group of eight participants (four participants with the highest morphology scores and four participants with the lowest morphology scores). There were four open-ended questions covering the global reading strategies listed in the SORS as follow:

1. Do you get prepared before reading such as taking an overall view of the text, noting its characteristics like its length and organization or thinking about your previous knowledge about the text?

2. While reading, do you use tables, figures, pictures, context clues, typographical features like bold face and italics?
3. Before and during reading, do you make guesses about the content of the text and check them later?

The participants reported not doing much preparation before reading. They stated they start reading right away without taking notes or noting the text's characteristics like its length and organization except one participant who said:

Okumadan önce bir ön hazırlık yapmam ama az çok fikir edinirim okuduğum parçadan. Ne kadar uzunmuş diye bakarım. Kaç paragraf diye bakarım.
(High-1)

[I do not get prepared before reading, but I try to have an overall idea of the text. I check how long it is and how many paragraphs there are.]

In addition to this, another participant (Low-3) said:

Okurken ön hazırlık pek yapmazdım, hazırlıkta bu alışkanlığı biraz kazandım. Okumadan önce şöyle bir bakınca daha rahatlıyorum, faydası oluyor.

[I did not use to get prepared before reading, but I took this habit at prep school. I feel more comfortable when I look over the reading text. It is useful.]

Almost all of the interviewees reported taking a look at the title of a reading passage because the title might give insights into the content of the text.

Başlığa bakarım çünkü başlık içerik hakkında bilgi verir. Okumaya devam ederim, okudukça bağlantılar kendiliğinden gelir. (High-1)

[I look at the title because it reveals some information about the reading text. Then, I keep reading. As I read, connections come out.]

Başlığa bakarım. Başlık genel olarak parça hakkında bilgi sahibi olmamızı sağlar. Sınıfta hocalar sizce ne hakkında okuyacağız diye soruyordu, böylelikle başlığa bakarak tahmin yürütmeye alıştım. (High-2)

[I look at the title. The title enables us to have an overall idea about the reading text. Our teachers used to ask us about the content of the reading text; teherfore, I got used to guessing the content through the title.]

Sadece başlığa bakarım. Konuyla ilgili tahminde bulunmamı sağlayabilir. Konuyu bilerek okumak işimi kolaylaştırır, işe yarar. (Low-1)

[I just look at the title. The title may help us make guesses about the content of the reading text. If I know the content, it is easier for me to read and understand. It is useful.]

Almost all of the participants reported looking at tables, figures, pictures, context clues, typographical features like bold face and italics and using them when necessary. They stated that figures, pictures, context clues, typographical features like bold face and italics might provide them visual guidance when they have difficulty in understanding something in the reading text.

The participants also reported paying utmost attention to vocabulary before they start reading the text.

Parçanın içindeki koyu yazılı ve italik yazılı kısımlara da bakarım. O kelimelerin anlamına bakar ve altına not alırım mutlaka. (High-2)

[I glance at the bold-faced and italicized parts, too. I look up their meanings and for sure take notes under them.]

Bilmediğim kelimeler var mı diye bakarım, varsa cümleden anlamını çıkarmaya çalışırım. Sınavda değil de normalde okurken kelimelerin anlamıyla ilgili üzerine not alırım. (High-3)

[I check if there are unknown words. If there are any, I try to guess their meanings from the context. Except exams, I look up for the meanings of these words and take some notes.]

Bilmediğim kelimeleri parçadan çıkarmaya çalışırım. Önceki cümlelere bakarım. Bazen başarılı olurum bazen olmam. Basit kelimeleri cümleden çıkarabilirim. Basitten kastım kelimenin uzunluğu kısalığı, aldığı ekler. Okurken koyu yazılı ya da italik kelimelere dikkat ederim. Belki normalde isim olan bir kelime parçada fiil olarak kullanılmış olabilir. (High-4)

[I try to guess the meanings of the unknown words from the context. I have a look at the previous sentences. Sometimes I understand, sometimes I fail. I can guess the meanings of easy words from the sentences they are embedded. 'Easy' refers to how long the word is and the affixes it takes. While reading, I pay attention to bold-faced or italicized words. A noun may hav been used as a verb in a text, for example.]

Koyu yazılı ya da eğik yazılı kelimelere dikkat ederim. Bunlar bilinmeyen kelimeler olabilir. Altta açıklaması verilmiş olabilir. (Low-1)

[I pay attention to bold-faced or italicized words. these may be unknown words. Their definitions may be offered below the text.]

Regarding making guesses about the content of the text, most participants reported turning to the title. One participant (High-2) reported trying to make guesses about the content of the text just because the teachers asked them to do so although she thinks making guesses about the text is not as useful as the teachers think.

Table 9. Percentages for Problem Solving Strategies (PROB)

	N	P
High	62	71.3
Moderate	23	26.4
Low	2	2.3
Total	87	100

When it comes to Problem Solving Strategies, according to Table 9 above, 71.3 percent of the participants fall into the high category with a total of 62 respondents. This indicates that these respondents report a high level of awareness in applying some of the Problem Solving Strategies. For example, they try to get back on track when they lose concentration, adjust their reading speed, read carefully or reread when they find the text difficult and guess the meanings of unknown words or phrases. 23 participants, corresponding to 26.4 percent of all of the respondents, do indicate that they moderately apply some of these strategies, while only 2 participants, making up 2.3 percent of the whole sample, show low awareness of Problem Solving Strategies. All in all, majority of the intermediate-level adult Turkish EFL learners participating in the present study seem to show high awareness of Problem Solving Strategies. Table 10 below displays a detailed analysis of each item of Problem Solving Strategies.

Table 10. Analysis of percentages of Problem Solving Strategies (PROB)

Item No	Description of Items		1	2	3	4	5
7	I read slowly and carefully to make sure I understand what I am reading.	n	2	7	32	25	21
		%	2.3	8.0	36.8	28.7	24.1
9	I try to get back on track when I lose concentration.	n	2	2	10	48	25
		%	2.3	2.3	11.5	55.2	28.7
11	I adjust my reading speed according to	n	4	6	28	34	14

	what I am reading.						
		%	4.6	6.9	32.2	39.1	16.1
14	When text becomes difficult, I pay close attention to what I am reading.	n	4	4	20	38	21
		%	4.6	4.6	23.0	43.7	24.1
16	I stop from time to time and think about what I am reading.	n	5	11	27	26	18
		%	5.7	12.6	31.0	29.9	20.7
19	I try to picture or visualize information to help remember what I read.	n	2	4	23	35	23
		%	2.3	4.6	26.4	40.2	26.4
25	When text becomes difficult, I reread it to increase my understanding.	n	4	9	18	35	21
		%	4.6	10.3	20.7	40.2	24.1
28	When I read, I guess the meaning of unknown words or phrases.	n	3	9	21	38	16
		%	3.4	10.3	24.1	43.7	18.4

According to Table 10 above, for all of the items except 7, the most frequent response was 4, which means that the participants usually apply these strategies. For the item 7, the most frequent response is 3 (sometimes) followed by 4 (usually). For these items, the most frequent response is generally followed by 5, which means that the participants always or almost always apply these strategies. This item-wise analysis also supports that intermediate-level adult Turkish EFL learners participating in the present study are well aware of and apply some of Problem Solving Strategies to an acceptable extent.

The open-ended interview questions covering problem-solving strategies are as follow:

1. What do you do to better understand/remember a reading text?
2. What do you do when you encounter with unknown words or phrases while reading a text?

With regard to the first question above, which is about better understanding and remembering a reading text, most of the participants focused on vocabulary knowledge. As exemplified below, we can understand that intermediate-level Turkish EFL learners first try to deal with unknown vocabulary when they want to achieve the goal of reading comprehension. They also report taking notes while reading to remember what they read.

Bir şeyi okuyup anlamam gerekiyorsa, önce okurum, sonra mutlaka bilmediğim kelimelerin anlamına bakarım. Farklı anlamlarda kullanılmışsa ona bakarım. Daha çok kelimeye ağırlık veriyorum. Kelime defterim olur mutlaka. Oraya yazarım kelimeleri. Sadece kelimeye bakınca bile ne okuduğumu hatırlarım. (High-2)

[If I have to read and comprehend a text, first I read and look up for the meanings of the unknown words. I check if they have different meanings. I think vocabulary knowledge is very important. I always have a vocabulary notebook. I write new words there. When I just look at those words, I remember what I read.]

Bir şeyi okuyup daha iyi anlamak ve hatırlamak için tekrar tekrar okurum, not alırım. Kısa kısa özetler ya da ipuçları yazabilirim. Kelimelerin anlamına bakarım. (High-3)

[To read, better understand and remember a text, I read over and over again, and take notes. I may write short summaries or tips about what I read. I look up for the meanings of the unknown words.]

İngilizce bir metni daha iyi anlamak ve hatırlamak için, önemli gördüğüm ya da bilmediğim kelimelerin altını çizerim, sözlük yardımıyla bu kelimelerin anlamını öğrenirim. Okuduğumu hatırlamak için küçük notlar alırım. (High-4)

[To better understand and remember a reading text in English, I underline the words whose meanings I do not know or consider as important. I look up for ther menaings from a dictionary. I take short notes to remember what I read.]

Bir parçayı daha iyi anlamak için sesli okurum. Renkli kalemeler kullanırım. Belli yerlerin altını çizerim. Bilmediğim kelimeleri renkli kağıtlara yazıp çalışma masama yapıştırırım. Sadece kelimeyi yazarım, anlamını yazmam. (Low-2)

[I read aloud to better understand a reading text. I use colorful pencils to underline certain parts. I write the unknown words on colorful pieces of paper and hang them above my desk. I write only the words themselves, not their meanings.]

Okuduğumu daha iyi anlamak ve hatırlamak için önce göz gezdiririm, kelimelere bakarım sonra detaylı okurum. Türkçe veya İngilizce kısa notlar alırım okurken. (Low-4)

[To better understand and remember what I read, first I look through it. I check the vocabulary and then I read in detail. While reading, I take short notes either in English or Tukish.]

With regard to the second question above, which is about how to deal with unknown vocabulary encountered in a reading text, two of the participants with the highest morphology scores report turning to intra-word structure to guess the meaning of the unknown words as exemplified below.

Bilmediğim kelimeler varsa, önce parçadan tahmin etmeye çalışırım. Yoksa sözlüğe bakarım. Benzer ekler varsa ona bakarım. Sonunda bir ek var mesela, o ek nasıl bir anlam katar ona bakarım. Kökü başka bir kelimede gördüysem, onu düşünürüm. (High-1)

[If there are unknown vocabulary items, first I try to guess their meanings from the context. If I can't, I look up my dictionary. If it has a suffix, for instance, I try to understand how it changes the meaning. If I have seen the root before in another word, I think about it.]

Bilmediğim kelime çıkınca, köküne bakarım. Bulamazsam cümleden anlamını çıkarırım. Ben bu kökü başka bir kelimede görmüştüm, anlamları benzeyebilir diye düşünebilirim. Eklere de bakarım. Önce cümleye bakarım, sonra parçanın geneline bakarım. Tahmin yürütemezsem sözlüğe bakarım. (High-3)

[If there are unknown words, I look at their roots. If I can't understand the meaning from the root, I try to guess its meaning from the context. If I have seen the same root befor in another word, I may think about the similarity between the two words. I also look at the suffixes. First, I check the sentence, then the whole text. If I fail to make a guess, I look up my dictionary.]

Another participant from the high-morphology group stated that part of speech of a word might help them guess the meaning of unknown words as exemplified below. In this sense, considering that suffixes enable learners to know what part of speech a word is in, we can conclude that learners are likely to benefit from word morphology to guess the meanings of unknown words.

Bilmediğim kelimelerin anlamını önce cümleden çıkarmaya çalışırım. Sonra sözlükten bakarım. Anlamını çıkarmak için cümlenin ögelerini bulurum. Sözcük türü (Part of speech) burada rol oynar. Sözcük türünü bilirsem anlamını tahmin etmem daha kolay olabilir.(High-4)

[First, I try to guess the meanings of the unknown words from the context. Then, I look up my dictionary. To understand the meaning of a sentence, I parse it into its parts. Parts of speech play a role here. If I know the parts of speech of the words, it is easier for me to guess their meanings.]

The participants with the lowest morphology scores, on the other hand, did not report any use of word morphology to guess the meaning of unknown words encountered in a reading text. They reported using context clues or looking up dictionaries instead.

> *Bilmediğim kelimelerle karşılaşırsam parçadan çıkarmaya çalışırım. O cümleden anlamazsam önceki ya da sonraki cümlelere bakarım. Sözlüğe bakmaya üşenirim. Ayrıca kendim tahmin edersem daha iyi olur benim için. (Low-1)*
>
> *[If there are unknown words, I try to guess their meanings from the context. If I cannot guess the meaning form the sentences in which the unknown word is embedded, I check the previous or next sentences. I am too lazy to look up a dictionary. Additionally, I believe it is better for me to guess the meanings of unknown words myself.]*
>
> *Bilmediğim kelimeyi önce cümlenin anlamından tahmin etmeye çalışıyorum. Sonra sözlüğe bakıyorum. Bazen bire bir karşılığını bulamıyorum, sözlükle metin bilgisini birleştirmeye çalışıyorum. Bazen birine soruyorum, ablama mesela. Her kelimeye bire bir karşılık bulmaya çalışmıyorum, okuyorum anlıyorum, ama arkadaşlarım anlamını sorunca çeviremiyorum. (Low-2)*
>
> *[I try to guess the meanings of the unknown words from the context. Then, I look up a dictionary. I sometimes cannot find an exact equivalent of the word and I try to match the textual information with the information in the dictionary. I sometimes ask for help from someone, my elder sister for instance. I do not try to find an exact meaning for every single word but when my friends ask what a word means, I can't translate.]*

Bilmediğim kelimelerle karşılaşınca, parçanın içindeyse çok takılmıyorum, bütünü okuyup çıkarmaya çalışıyorum. Tek kelimeyse sözlüğe bakarım. (Low-3)

[When there are unknown words, I do not pay much attention to them if they are in a text. If there are decontextualized unknown words, I look up a dictionary.]

Bilmediğim kelimeleri önce parçadan çıkarmaya çalışırım. Zorda kalırsam sözlüğe bakarım. (Low-4)

[First, I try to guess the meanings of unknown words from the context. If I have difficulty in doing so, I look up a dictionary.]

Table 11. Percentages for Supplementary Reading Strategies (SUPP)

	N	P
High	19	21.8
Moderate	55	63.2
Low	13	15.0
Total	87	100

Finally, as for Supplementary Reading Strategies, Table 11 above indicates that moderate usage of designation of Supplementary Reading Strategies is the most prominent with 55 participants being in this category, corresponding to 63.2 percent of the whole sample. A total of 19 participants, making up 21.8 percent of all of the respondents, fall under the high category, whereas 13 participants, forming the 15 percent of the whole sample, take place in the low category. Apparently, majority of the participants, 85 percent of all of the respondents being in the high and moderate categories, report applying some of Supplementary Reading Strategies. For instance, they take notes, underline or circle some information in the text, use reference materials such as dictionary, paraphrase what they read, ask themselves questions about the text and go back and forth in the text to find relationships among the ideas in the text. Only

a small group of the respondents, however, show the lack of awareness of Supplementary Reading Strategies. Therefore, we can arrive at the conclusion that most of the intermediate-level adult Turkish EFL learners participating in the present study show moderate awareness of Supplementary Reading Strategies. Table 12 below displays a detailed analysis of each item of Supplementary Reading Strategies.

Table 12. Analysis of percentages of Supplementary Reading Strategies (SUPP)

Item No	Description of Items		1	2	3	4	5
2	I take notes while reading to help me understand what I read.	n	30	18	23	10	6
		%	34.5	20.7	26.4	11.5	6.9
5	When text becomes difficult, I read aloud to help me understand what I read.	n	34	21	17	10	5
		%	39.1	24.1	19.5	11.5	5.7
10	I underline or circle information in the text to help me remember it.	n	13	16	15	22	21
		%	14.9	18.4	17.2	25.3	24.1
13	I use reference materials (e.g., a dictionary) to help me understand when I read.	n	10	17	19	23	17
		%	11.5	19.5	21.8	26.4	19.5
18	I paraphrase (restate ideas in my own words) of better understand what I read.	n	12	21	18	20	16
		%	13.8	24.1	20.7	23.0	18.4
22	I go back and forth in the text to find relationships among ideas in it.	n	7	13	25	29	13
		%	8.0	14.9	28.7	33.3	14.9
26	I ask myself questions I like to have answered in the text.	n	21	19	27	15	5
		%	24.1	21.8	31.0	17.2	5.7
29	When reading I translate from English into my native language.	n	6	10	25	23	23
		%	6.9	11.5	28.7	26.4	26.4
30	When reading I think about information in both English and my mother tongue.	n	1	9	26	31	20
		%	1.1	10.3	29.9	35.6	23.0

Table 12 above clearly displays that the participants' responses vary more in Supplementary Reading Strategies than in the previous two sub-categories. For the

items 2 and 5, the most frequent response is 1, which means that most of the participants in the present study never or almost never take notes while reading or read aloud. For the item 18, which is about paraphrasing to understand the text better, the percentages of each option are quite close to each other, with 2 (occasionally) and 4 (usually) being the most frequent ones. For the rest of the items (10, 13, 22, 26, 29 and 30) the most frequent responses are 4 (usually) and 3 (sometimes), indicating that most of the intermediate-level adult Turkish EFL learners participating in the present study apply some of Supplementary Reading Strategies moderately.

The open-ended interview questions covering supplementary reading strategies are as follow:

1. While reading a text, do you take notes, underline or circle certain information?
2. Do you use a dictionary while reading a text? Bilingual or monolingual?
3. While reading a text in English, do you translate the information into Turkish?
4. What do you do if the text is too difficult for you? (Refers to problem solving strategies as well.)

As the participants' responses reveal, Turkish EFL learners are not much used to taking notes either before or during reading. They take notes mainly for unknown vocabulary. Similarly, they underline or circle unknown vocabulary rather than textual information. Once again, vocabulary knowledge seems to be a priority in reading a text in English for Turkish EFL learners.

With regard to the dictionary use, most participants reported using bilingual dictionaries because they find it easier. However, it is worth mentioning that they are aware of the fact that using monolingual dictionaries is more advantageous for learning a language as exemplified below.

İngilizce-Türkçe sözlük kullanırım çünkü daha basit. Doğrudan anlama ulaşmak istiyorum. Yapmamam gerekiyor biliyorum ama yapıyorum. Çünkü bir dil diğer bir dile tam olarak çevrilmeyebilir. İngilizceyi İngilizce açıklayan bir şey olursa hem anlam daha net olur hem de İngilizcem gelişir. Buna rağmen yapıyorum, sebebi üşengeçlik. (High-1)

[I use a bilingual dictionary because it is easier. I want to find the meaning right away. I know I shouldn't because a language may not be translated into another one exactly, but I do. If I use an English monolingual dictionary, I get the meaning more clearly and my English improves. Despite this, I use a bilingual dictionary.]

İngilizce-Türkçe sözlük kullanırım. Daha önce İngilizce-İngilizce sözlük kullandım ama daha sonra anlamadığım için Türkçe sözlüğe döndüm. Anlaması kolay ama dezavantajları da olabilir. Mesela eş anlamlılarını öğrenemem. Ya da sınıfta, quizde, sınavda sadece Türkçelerini bilerek başarılı olamam, zorlanıyorum. Ama Türkçesini öğrenmek daha kolay. (High-2)

[I use a bilingual dictionary. I used to use an English monolingual dictionary, but I did have difficulty in understanding and started using a bilingual dictionary. It is easier to understand but it may have disadvantages. For example, I cannot learn the synonyms from a bilingual dictionary. Moreover, knowing only the Turkish equivalent of the words is not enough to be successful in the classroom, in a quiz or in an exam. However, it is easier to learn Turkish equivalents of the unknown words.]

İngilizce-Türkçe sözlük kullanırım. Bilmediğim kelime görünce hemen sıcağı sıcağına bakarım ve unutmam. İngilizce-İngilizce sözlük kullansam anlamında da bilmediğim kelimeler çıkabilir, o zaman da

anlamam. Ama İngilizce-İngilizce sözlükten yeni kelimeler öğrenebilirim ve kelimenin kullanımını da görmüş olurum. (High-4)

[I use a bilingual dictionary. When there are unknown words, I look up a dictionary right away and I do not forget their meanings. If I use an English monolingual dictionary, there might be unknown words in its definition as well and I do not understand them, either. However, I am likely to learn new words from an English bilingual dictionary and I can see how a word is used.]

İngilizce-Türkçe sözlük kullanıyorum. Kolaya kaçıyorum ama pek işe yaramıyor, nasıl kullanıldığını anlayamıyorum. İngilizce sözlükte nasıl kullanıldığını ve sözcük türünü öğrenebiliriz. Türkçe sözlük kullanmamın sebebi alışkanlık. İngilizce sözlük daha avantajlı çünkü kullanımını görebilirim ve her şeyin Türkçe karşılığı olmak zorunda değil. (Low-2)

[I use a bilingual dictionary. I take the easy way out but it doesn't work; I do not understand how the word is used. I can learn how a word is used and its part of speech from an English monolingual dictionary. The reason why I use bilingual dictionary is that it is a habit. An English monolingual dictionary is more advantegous because I can learn how words are used and every single word in English does not have to have a Turkish equivalent.]

İngilizce-Türkçe sözlük kullanırım. Türkçe daha kolay geliyor. İngilizce sözlük daha avantajlıdır ama. İngilizce tanımından yeni kelimeler öğrenebilirim, eşanlamlılarını öğrenebilirim. (Low-3)

[I use bilingual dictionary. Turkish equivalents are easier to understand. However, English monolingual dictionaries are more advantageous. I can learn new words and synonyms from an English definition.]

Most of the interviewees reported translating the information into Turkish while they are reading. One participant from the high-morphology group stated that she does translate the information into Turkish although she knows that this is not good for her English proficiency development. Another participant from the high-morphology group reported she learned to try comprehending the overall text in English without translating the information into Turkish at the English preparatory school.

When it comes to the last open-ended question in this part regarding what the participants do when the text is too difficult for them, they reported using such reference materials as dictionaries, grammar books and asking help from a friend or family member. Almost all of the participants stated that unknown vocabulary makes a reading text difficult; therefore, it is first necessary to deal with unknown vocabulary. To do this, they mentioned reading books in English -although they report not doing so- and watching movies and TV series with English subtitles. Some of the participants stated that grammatically complex sentences also make a reading text difficult; however, they reported that vocabulary knowledge plays a far more important role in comprehending a reading text in a foreign language.

The overall findings gathered from the semi-structured interviews support that the participants in the present study use reading strategies moderately. They seem to be aware of most of these strategies, but they are either not used to applying them or keep away from doing so. Moreover, they pay utmost attention to vocabulary knowledge while they are reading in English. They think that the more unknown vocabulary in a reading text, the less comprehension. Not surprisingly, the participants with the highest morphology scores think of intra-word structure, namely prefixes, suffixes and the root, as a way of guessing meaning of unknown words, whereas the participants with the lowest morphology scores use context clues only or look up their dictionaries for the meanings of the unknown words. Another noteworthy finding gathered from the interviews is that the participants responded to the questions with the focus on being exams at first. This finding shows that the participants might read mostly in exams, or pay attention to reading in exams. The explanation might be that preparatory school students are not used to reading in English outside the classroom.

Next, with the purpose of comparing the mean scores of Global Reading Strategies (GLOB), Problem Solving Strategies (PROB) and Supplementary Reading Strategies (SUPP) in order to find out whether the participants' awareness of subcategories of reading strategies significantly differ from each other, a one-way ANOVA with repeated measures was conducted. The findings indicated that there is a statistically significant difference ($F(2, 85)=40.21$, $p<.001$) across the three subcategories (Sphericity assumption was not met, Wilks' Lambda results are reported). To detect where the significant difference occurred, pairwise comparisons were calculated using paired samples *t*-test. The results showed that there is a statistically significant difference between GLOB ($M=3.43$, $SD=.50$) and PROB ($M=3.71$, $SD=.57$), $p<.001$; between GLOB ($M=3.43$, $SD=.50$) and SUPP ($M=3.02$, $SD=.57$), $p<.001$ and between PROB ($M=3.71$, $SD=.57$) and SUPP ($M=3.02$, $SD=.57$), $p<.001$. In sum, these findings support that intermediate-level adult Turkish EFL learners participating in the present study show high awareness of Problem Solving Strategies. Furthermore, although they seem to apply both Global Reading Strategies and Supplementary Reading Strategies moderately, they show significantly higher awareness for Global Reading Strategies than they do for Supplementary Reading Strategies.

The current study, in which a total of 87 intermediate-level adult Turkish EFL learners were administered the Survey of Reading Strategies, revealed that intermediate-level adult Turkish EFL learners show moderate overall use of reading strategies. This finding concerning moderate overall use of reading strategies is compatible with the findings of Sheorey and Mokhtari (2001), who administered the SORS to a group of ESL learners coming from different L1 backgrounds along with a group of native speakers of English and Aziz et al. (2011) study, in which sixty Malay learners of English responded the same questionnaire. This study slightly differs from Chumworatayee (2012), who used the SORS to measure the students' metacognitive awareness of reading strategies while reading academic materials, in the sense that there is a minor difference between the overall score average of the reading strategies in the present study ($M=3.40$, $SD=.46$ → Moderate overall use of reading strategies) and the Chumworatayee (2012) study ($M=3.54$, $SD=.49$ → High overall use of reading

strategies). Another finding of the present study with regard to reading strategy use among EFL learners is that problem-solving strategies are the most favored strategies by intermediate-level adult Turkish EFL learners and they are followed by global reading strategies and supplementary reading strategies. This finding is in line with Aziz et al. (2011) and Chumworatayee (2012), who also reported that Malay EFL learners and Thai EFL learners respectively used problem-solving strategies more often than global reading strategies than supplementary reading strategies. However, the present study differs from Sheorey and Mokhtari (2001) and Tercanlıoğlu (2004), who stated that EFL/ESL learners employ global reading strategies more often than problem-solving strategies. Support reading strategies are the least preferred ones among EFL/ESL learners as most studies state. However, with regard to support reading strategies, it is worth mentioning that studies comparing native speakers of English and ESL/EFL learners in terms of reading strategy use, point out that ESL/EFL learners resort to supplementary reading strategies more often than native speakers do (Tercanlıoğlu, 2004).

The results reveled that intermediate-level adult Turkish EFL learners reported using a wide array of reading strategies to achieve reading comprehension. The participants showed an overall moderate to high awareness of reading strategies. One possible explanation for the moderate to high awareness of reading strategies among intermediate-level adult Turkish EFL learners might lie in their proficiency level and thus high motivation to be successful in English. These students were at level-A (intermediate), which is the highest proficiency level at Anadolu University School of Foreign Languages (AUSFL), indicating that they were not far from being proficient EFL learners. In this sense, Sheorey and Mokhtari (2001) and Tercanlıoğlu (2004) note that like native readers, proficient EFL/ESL readers are well aware of reading strategies and able to monitor these strategies reasonably while reading academic texts. Therefore, the moderate to high awareness of reading strategies among intermediate-level adult Turkish EFL learners is not surprising. Accordingly, these students knew the fact that they were just one step behind completing their studies successfully at AUSFL and starting their major; therefore, they were motivated to achieve the goal of overall English proficiency including reading comprehension. Another thing is that the students

participating in the present study are supposed to be good learners considering that their departments (mainly faculty of engineering) require high academic achievement.

When it comes to the reason why the participants in the present study reported using problem-solving strategies more often than global reading strategies, it is necessary to consider the characteristics of these categories of reading strategies. As Mokhtari and Sheorey (2002) point out problem-solving strategies are cognitive strategies and they are localized, focused techniques that readers turn to when they have a problem while reading. Considering that the participants in the present study are learning English as a foreign language and they do not have much chance to be engaged in English outside the classroom, it is quite likely for them to have problems while they are reading academic texts. Besides, they have to comprehend these texts as it is mostly an academic requirement, which means that they need to overcome any problem they face to be able to better understand these texts. Consequently, that Turkish EFL learners tend to consult problem-solving strategies while reading academic texts is expected. Global reading strategies, on the other hand, are intentional and carefully planned metacognitive strategies. These strategies imply monitoring one's own reading, which requires more proficiency in the language. Therefore, it is expected that Turkish students learning English as a foreign language use global reading strategies less frequently than problem-solving strategies. As for, supplementary reading strategies, lastly, they serve to aid the reader in comprehending the text. In this sense, we expect EFL learners to use these strategies more frequently. The reason why they use these strategies less frequently than expected might lie in that they are not used to taking these actions such as taking notes while reading, underlining or circling textual information, using dictionaries or paraphrasing, or too lazy to do so.

The most preferred reading strategy (*I try to get back on track when I lose concentration)* falls into Problem Solving Strategies, which is expected. However, the least preferred reading strategy (*I review the text first by noting its characteristics like length and organization*) does not fall into Supplementary Reading Strategies, but Global Reading Strategies. Of all of the global reading strategies, this is the only one that received a low mean score. 36 percent of the respondents reported applying this

strategy never or almost never; 30 percent of the respondents reported applying this strategy occasionally and 22 percent of the respondents reported applying this strategy sometimes. The rest of the respondents, amounting to only 12 percent of the whole sample, reported applying this strategy usually or always or almost always. The explanation might be that the participants in the present study are not familiar with noting textual characteristics like length and organization. Another reason might be that Turkish EFL learners tend to associate such textual characteristics as length and organization with writing skill rather than reading skill.

One item of the SORS that is worth discussing on its own considering the purpose of the present study is *28. When I read, I guess the meaning of unknown words or phrases* (*M*=3.63*, SD*=1.01), which falls into Problem Solving Strategies. 44 percent of the respondents reported applying this strategy sometimes; 24 percent of the respondents reported applying this strategy usually and 19 percent of the respondents reported applying this strategy always or almost always. The rest of the respondents, amounting to only 13 percent of the whole sample, reported applying this strategy occasionally or never or almost never. This finding implies that the participants in the present study are apt to try guessing meaning of unknown words or phrases to achieve the goal of reading comprehension. In other words, this finding indicates that Turkish EFL learners consider unknown words or phrases as a challenge to better understanding a reading text and try to overcome this challenge.

Morphological Awareness among Intermediate-level Adult Turkish EFL Learners

The first research question of the present study is as follows: **To what extent intermediate-level adult Turkish EFL learners are aware of syntactic and lexical functions of certain suffixes in English?** For this purpose, 87 participants were asked to answer the researcher-designed Morphological Awareness Test, consisting of a total of 47 test items. Table 13 below shows the minimum and maximum scores of the participants from this test along with the mean score, standard error and standard deviation. As shown in the table, the mean score of the participants from the

Morphological Awareness Test is *M*=33.09, while the minimum and maximum scores are 18 and 45 respectively.

Table 13. Descriptive Statistics: Morphological Awareness Test (MAT)

	N	Range	Min.	Max.	Mean	SE	SD
Morphological Awareness Test (MAT)	87	27	18	45	33.09	.628	5.862

According to Table 14 below, displaying the quartiles and the interquartile range of the MAT, 22 participants who obtained 29 and less from the MAT are low achievers, making up 25.3 percent of the whole sample. Thirty-six participants who scored between 30 and 36 from the MAT are moderate achievers, making up 41.4 percent of the whole sample. Lastly, 29 participants who took 37 and more from the MAT are high achievers, and they form 33.3 percent of the whole sample. The number of the high MAT achievers is higher than that of the low MAT achievers. The number and percentage of the moderate MAT achievers, on the other hand, is higher than that of the high MAT achievers. Considering this, we can arrive at the conclusion that intermediate-level adult Turkish EFL learners participating in the present study are at least moderate achievers of morphological awareness. In other words, intermediate-level adult Turkish EFL learners participating in the present study are aware of syntactic and lexical functions of certain suffixes in English to at least a moderate extent.

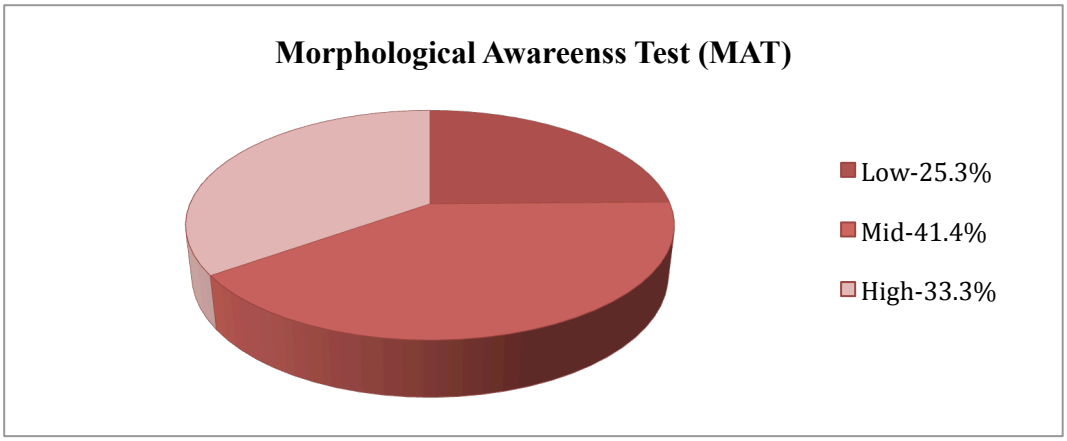
Table 14. Quartiles and the Interquartile Range: Morphological Awareness Test (MAT)

	Q1	N	P	Q2	N	P	Q3	N	P
MAT	29-	22	25.3	30-36	36	41.4	37+	29	33.3

N=Number of the participants in each quartile range.

P=Percentage of the participants in each quartile range.

Figure 6. Percentages of Morphological Awareness Test Scores



There were four open-ended questions about morphological awareness in the semi-structured interviews. The first question, namely *What do you think is necessary to be proficient enough in reading in English?,* was to elicit the overall view of the participants. They all already mentioned the bond between reading proficiency and vocabulary knowledge as well as extensive reading. Almost all of the interviewees reported that a large vocabulary size is needed to be proficient in reading in English. When it comes to the second question regarding what they do to learn new words and guess the meanings of unknown words, they stated that they can learn new words through extensive reading and watching movies or TV series with English subtitles. The third question, *Do you pay attention to the meanings of prefixes and suffixes? If yes, does it help you? How?*, was to elicit the relationship between prefix/suffix knowledge and parts of speech, and the contribution of knowing this to efficiently using a word (vocabulary knowledge) and better understanding reading texts through syntax knowledge (grammar knowledge). The participants' responses include the following and the numbers of interviewees are written next to each quotation along with the group that they belong to (high referring to High-MAT and low referring to Low-MAT):

> *İngilizce okuma becerisinde başarılı olmak için, kitap okuma alışkanlığı lazım. Kelime dağarcığını geliştirmek lazım. Ek-kök bilgisi lazım. Ekten kökten anlam çıkabilir çünkü. Kelime öğrenmek isteyen insanlar İngilizce alt yazılı film izlesin. Kelimenin anlamını oradaki bağlamdan*

çıkarabiliriz. Kelimenin anlamını tahmin yoluyla öğrenmek istiyorsam ek-kök bilgisi işe yarar. İngilizce' de ön ek ve son ek var. Mesela -un eki olumsuz yapar. Kelimenin ne olduğunu bilemesem de olumsuz olduğunu anlayabilirim. Son ekler de isim, fiil, sıfat gibi görevi hakkında bilgi verir. Ekleri bilmeyip de kökü biliyorsam bu da fayda sağlayabilir. (High-1)

[To be proficient in reading in English, reading habit is necessary. A big vocabulary size is also required. Knowledge of affixes and root is also necessary because we can guess meaning from the affixes and the root. People should watch movies with English subtitles if they want to learn new vocabulary. We can guess the meanings of unknow words from the context in the movie. If I want to learn the meanings of uknown words through guesses, knowledge of affixes and the root is also useful. There are prefixes and suffixes in English. The prefix –un, for instance, has a negative meaning. Even if I cannot understand what a word formed with this prefix exactly means, I can say that it has a negative meaning. Suffixes, on the other hand, give some information about the words' part of speech. If I do not know the meanings of the affixes but that of the root, this may also offer some help to guess the meaning of unknown words.]

Kelime bilgisi çok önemli. Cümle içinde geçiyorsa tahmin etmek kolay. Ama cümle yoksa eklerine göre tahmin edebiliriz. Eklerinden kelimenin isim, sıfat, fiil olduğunu anlarım. Son eklerden anlarım bunu. Olumlu olumsuz olduğunu ön eklerden anlarım, -dis, -un gibi mesela. Anlamını tam tahmin edemesem de olumlu olumsuz olması tahmin yürütmemi sağlar. Mesela –un ön ekinin geçtiği cümleden olumsuz bir şeyden bahsedildiğini anlayabilirim. (High-2)

[Vocabulary knowledge is crucial. It is easy to guess the meaning of the unknown words from the context. If the words are decontextualized, we can guess their meanings from their affixes. I can understand the part of

speech of an unknown word from its suffixes. I can understand if the unknown word has a negative meaning from its prefixes, such as –dis and –un, for instance. Even if I cant understand the exact meaning, I can make a guess if I know it has a negative or positive meaning. For example, I can understand that there is something negative in a sentence in which there is word formed with the prefix –un.]

İngilizce okuma becerisinde başarılı olmak için kelime bilgisi çok önemli. Kelime dağarcığı ne kadar geniş olursa, okuduğunu anlama da o kadar iyi olur. Kitap okuma alışkanlığı önemli. İngilizce haber okuyabiliriz. Dizi filmleri İngilizce alt yazılı olarak izleyebiliriz. Kelime dağarcığını geliştirmek için sözlük okuyabiliriz ama bu pek pratik değil. Hikaye kitapları okumak yeni kelimeler öğrenmemizi sağlayabilir. Kelimeleri tekrar tekrar yazabiliriz. Kalıcı olur. Küçükken öyle yapıyorduk. Kökünden kelimelerin anlamını tahmin edebiliriz. Ön ekler kelimenin anlamını olumsuz yapabilir, tekrar anlamı katabilir, ya da anlamı güçlendirebilir. Son ekler kelimenin cümledeki yerini bulmamızı sağlar, mesela isim mi sıfat mı, bunu anlarız. Böylelikle kelimenin kullanımına dair bir fikir edinebiliriz. (High-3)

[To be proficient in reading in English, vocabulary knowledge is very important. The bigger the vocabulary size, the better the reaing comprehension. Reading habit is also important. We can read news in English. We can watch movies and TV series with English subtitles. We can read dictionaries to improve our vocabulary knowledge, yet it is not practical. Reading books in English may help us learn new words. We can write the words we have just learned over and over again. We used to do like this when we were younger. We can guess the meanings of unknown words from their roots. Prefixes add a negative meaning to words, they may indicate that that the action is done again, or they may strengthen the meaning. Suffixes help us find the place of a word in a

sentence. We can understand words' part of speech and thus have insights into how the word is used.]

Kelime bilgisi okumada çok önemlidir. Kelime bilgisi, dilbilgisi ve okuma stratejilerinden en önemlisi kelime bilgisidir bence. Okuma stratejileri önem açısından kelime bilgisine eş olabilir. Yabancı şarkılar dinleyerek kelime öğrenebilirim. Bir kelimenin anlamını tahmin etmek için bağlam bilgisini kullanırım. Parça içinde değilse eklere bakarım Ön eklerden olumlu olumsuz olduğunu, son eklerden de isim, fiil olduğunu bilebiliriz. Ön ekler ve son ekler kelimenin anlamını tahmin etmemi sağlar. Bir kelimenin isim veya fiil olduğunu bilmek cümleyi daha iyi çözümlememizi sağlar. (High-4)

[Vocabulary knowledge is very important for reading comprehension. Vocabulary knowledge is more important than grammar knowledge and reading strategies. Reading strategies may be as important as vocabulary knowledge. I can learn new words by listening to English songs. I can guess the meanings of unknown words from context. I can guess the meanings of decontextualized unknown words from affixes. Prefixes tell us if a word is negative or not, while suffixes tell us what part of speech the word is. Prefixes and suffixes enable us to guess the meanings of unknown words. knowing the part of speech of a word help us better understand a sentence.]

All of the interviewees with the highest morphology scores emphasized the importance of word morphology to guess the meanings of unknown words and thus be more proficient in reading. The participants with the lowest morphology scores also underscored the importance of vocabulary knowledge in being proficient readers. As for the word morphology, two of the participants did not think of it at all as exemplified below.

Dizi film izleyerek çok kelime öğrenebilirim. Çünkü kelimeleri diyalog içinde görmüş olurum (Context). Contexten çıkaramazsam başka bir şekilde tahmin edemem. (Low-1)

[I can learn a lot of words through TV series and movies because I can see new words in context. I cannot guess the meaning from context, I cannot guess it in another way.]

Kelimenin anlamını tahmin etmek için cümleye bakarım, sonra paragrafın geneline bakarım. Tek başına bir kelimenin anlamını tahmin etmem mümkün değil. (Low-2)

[To guess the meaning of an unknown word, first I check the sentence and then the whole paragraph. It is impossible to guess the meaning of an unknown word on its own.]

However, when they were reminded of prefix-suffix knowledge, they reported that they could make use of this knowledge to guess the meanings of unknown words encountered in reading text as shown below.

Ön ek olarak –un olabilir. Bir kelimenin olumsuz olduğunu ifade eder. Son ek olarak –able ama ne işe yarar bilmiyorum. Son ekler kelimenin isim, sıfat, fiil ne olduğu hakkında bilgi verir. Bu da işime kesinlikle yarar. Mesela sıfatsa kendisinde sonra isim geleceğini bilirim. Bence ek-kök bilgisi önemli. Be ek-kök bilgimin zayıf olduğunu fark ettim şu an. (Low-1)

[–un is a prefix, for instance. It indicates that a word has a negative meaning. –able is a suffix, for instance, but I do not know its functions. Suffixes give information about parts of speech of the unknown words and this knowledge is useful of course. For example, if I know that an unknown word is an adjective, I know that there must be a noun after it. I

think knowledge of affixes and the root is important. I have just noticed that I am bad at this knowledge.]

Ama ek varsa tahmin edebilirim. Kökünü de biliyor olmam lazım. Ama kökünü bilmiyorsam ön eklerinden olumlu veya olumsuz olduğunu anlarım. Son ekinden de sözcük türünü anlarım. Kökünü de biliyorsam tamamen tahmin ederim. Bağlam önemli ama siz söyleyince hatırladım bu konu da çok önemli. Ön ek son ek bilgisi İngilizce öğrenen birine kesinlikle katkı sağlar. Kelimeler daha kalıcı olarak öğrenilebilir bu şekilde. Ek bilgisiyle yeni kelimeler türetebilirim, bu da kelime dağarcığımı artırır. (Low-2)

[If there are affixes, I can make a guess. I should know the root as well. If I do not know the root, I can understand if the word has a negative menaing or not from the prefixes. I can understand the par of speech from the suffixes, on the other hand. If I know the root, too, I can guess the exact meaning of the word.]

The following quotation from another participant with a low morphology score clearly shows that they know that prefixes and suffixes do exist and have some functions; however, they do not know what these functions are or how they can benefit from this knowledge.

Önekler ve sonekler de tahmin etmeme yardımcı olur. Şu an aklıma gelmiyor ama kelimenin başına gelen ekler olumsuz olduğunu söyleyebilir mesela. Sonekler de anlamına katkı sağlayabilir. –tion vardı mesela ama görevini bilmiyorum. (Low-3)

[Prefixes and suffixes also help me guess the meaning of an unknown word. I cannot think of an example rigt now, but prefixes can indicate that the word has a negative meaning. Suffixes can also predict the meaning. There is –tion, for instance, but I do not know its functions.]

These findings indicate that the participants in the current study are aware of word morphology to some extent; however, they need more guidance to gain more insights into word morphology and lexical and grammatical functions of word parts. Once they all seem to be aware of the reciprocal relationship between vocabulary knowledge and reading comprehension, they might be made further aware of the relationship between vocabulary knowledge and word morphology. Lastly, their responses to the last open-ended question in this section of the semi-structured interviews, namely *Would you like to be guided to gain more insights into the word structure? Why/Why not?*, indicates that they also confirm that they need this guidance as exemplified below.

> *İngilizce öğrenmek isteyen bir kişiye ek-kök konusunda yönlendirme sağlanabilir. Ama daha çok öğrencinin fark etmesi, kendi kendine bir şeyler yapması sağlanmalı. (High-1)*
>
> *[People who want to learn English can be guided in terms of affix and root knowledge. However, it is better to help learners themselves notice their functiosn and do something on their own.]*
>
> *İngilizce öğrenmek isteyen bir kişi ek-kök konusunun öneminin farkına varmalı ve bu konuda yönlendirilmeli. Mesela benim arkadaşlarım parts of speech konusunda sorun yaşıyordu ve kelimeleri yanlış kullanıyordu. Mesela -tion eki isim yapar, ama bunu bilmeyen -tion ile biten bir kelimeyi fiil kullanması gereken bir yerde kullanabilir ve hata yapar. (High-2)*
>
> *[A person who wants to learn English should be aware of the importance of affix and root knowledge and should be guided accordingly. For example, my friends had difficulty in parts of speech and misused some words. For instance, –tion is used to make nouns, but those who do not*

know this may make a mistake using a word ending in –tion in a place where a verb is required.]

İngilizce öğrenmek isteyen biri, ek-kök konusunda yönlendirilmeli ama bizi kimse yönlendirmedi, ben kendim isteyerek yaptım. Böyle konulara meraklıyım. Aynı zamanda işime yaradığını da gördüm. Mesela re- eki kelimeye tekrar anlamı katar, -dis olumsuz anlam yapar. Bunlara bakarak kelimenin anlamını tam olarak anlayamasam da bir tahminde bulunabilirim. (High-3)

[Those who want to learn English should be guided in terms of affix and root knowledge but no one guided us, I did so on my own. I'm interested in such things. I have noticed that this knowledge is beneficial for me. For example, the prefix re- indicates tha the action is done again; –dis, on the other hand, means that the word has a negative meaning. Considering these, I can make a guess even if I cannot tell the exact meaning of a word.]

Ek bilgisi hazırlık eğitimi gören birine olumlu katkı sağlar. (High-4)

[Knowledge of affixes and roots is useful for students at prep school.]

Ek-kök bilgisi dilbilgisi kurallarından daha faydalı bence. (Low-3)

[I think knowledge of affixes and roots is more useful than grammar knowledge.]

İngilizce öğrenmek isteyen öğrenciler ek kök bilgisi konusunda yönlendirilmeli. (Low-4)

[Students who want to learn English should be guided in terms of affix and root knowledge.]

Subsequent to this moderate overall awareness of word morphology among the participants in the present study, it is necessary to further analyze the Morphological Awareness Test (MAT). Since the Morphological Awareness Test consists of two separate sections, namely Sentence Completion and Word Relation, both of which assess derivational morphological awareness, it is worth conducting a section-wise analysis. Table 15 below shows descriptive statistics of the two separate sections of the MAT.

Table 15. Descriptive Statistics: Sections of the MAT

	N	Range	Min	Max	Mean	SE	SD
Sentence Completion	27	22	4	26	15.38	.53	4.99
Word Relation	20	10	10	20	17.69	.19	1.80

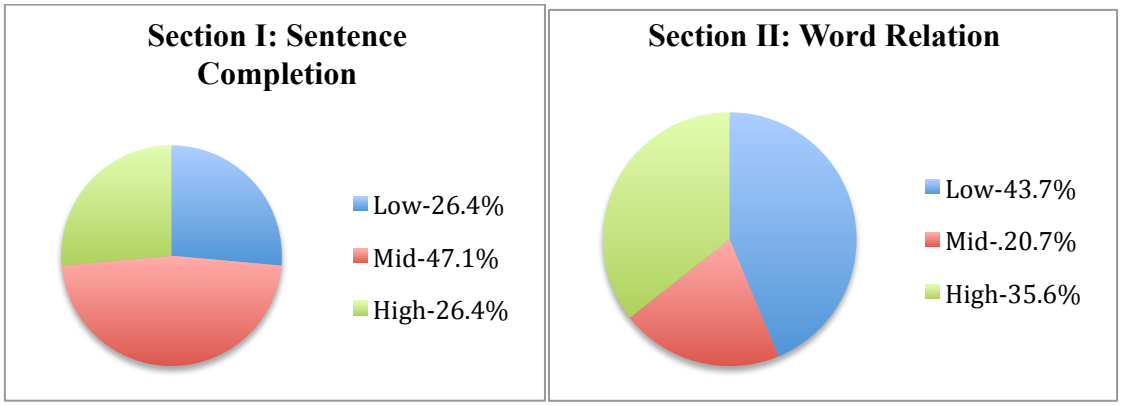
N=Number of the test items in each section.

As the table indicates, the minimum scores are 4 and 10 for the Sentence Completion and Word Relation sections respectively, whereas the maximum scores are 26 and 20. Mean scores for each section of the MAT, on the other hand, are *M*=15.38 and *M*=17.69 respectively. However, since the two sections differ in the number of the test items they employ, these minimum, maximum and mean scores do not provide insight into comparsion of the two sections. Yet the standard deviations indicate that participants' scores in the Word Relation section do not vary as much as in the Sentence Completion section. In other words, with regard to the Word Relation section of the MAT, participants' scores are more or less similar to each other and not very far from the mean; however, with regard to the Sentence Completion section, participants' scores are not very similar to each other and further from the mean. The following Table 16, which displays the quartiles and the interquartile range of the two sections of the MAT, and Figure 7 below elaborate the findings concerning the two sections of the MAT.

Table 16. Quartiles and the Interquartile Range: Sections of the MAT

	Q1	N	P	Q2	N	P	Q3	N	P
Sentence Completion	12-	23	26.4	13-18	41	47.1	19+	23	26.4
Word Relation	17-	38	43.7	18	18	20.7	19+	31	35.6

Figure 7. Percentages of the Sections of the MAT



According to table 16 above, regarding section I, namely Sentence Completion, 23 participants who obtained 12 and less from the Sentence Completion section are low achievers, making up 26.4 percent of the whole sample. Forty-one participants who scored between 13 and 18 from the Sentence Completion section are moderate achievers, making up the 47.1 percent of the whole sample. Twenty-three participants who scored 19 and more from the Sentence Completion section are high achievers, and they form 26.4 percent of the whole sample. When it comes to section II, namely Word Relation, 38 participants who obtained 17 and less from the Word Relation section are low achievers, and they make up 43.7 percent of the whole sample. Eighteen participants who scored 18 from the Word Relation section are moderate achievers, making up 20.7 percent of the whole sample. Thirty-one participants who scored 19 and more from the Word Relation section are high achievers, and they form 35.6 percent of the whole sample. These findings indicate that most of the participants are moderate achievers of the Sentence Completion section, while the majority of the participants are either low achievers or high achievers in the Word Relation section.

As further analysis, first, participants' scores from each test item in the Word Relation section of the MAT, which consists of 20 test items, were multiplied with 1.35 to make them equal to the participants' scores from the Sentence Completion section of the MAT, which consists of 27 test items. By doing so, conversion is provided between the sections of the MAT, which vary in the number of the test items they employ. Next, a paired samples *t*-test was carried out to find out if the participants' performance in the Sentence Completion section of the MAT significantly differed from their performance in the Word Relation section. The results revealed a statistically significant difference between the Sentence Completion section of the MAT (M=15.38, SD=4.99) and the Word Relation section (M=23.93, SD=2.45) with regard to the participants' scores ($t(86)=-17.000$, $p<.001$). This finding indicates that the participants in the present study performed significantly better in the Word Relation task than they did in the Sentence Completion. In other words, intermediate-level adult Turkish EFL learners participating in the present study are considerably better at judging whether a morphologically complex word comes from a simple word than identifying the lexical and grammatical functions of certain derivational suffixes in English.

Considering that three different types of derivational suffixes were used in the Sentence Completion section, it is worth conducting a suffix-wise analysis. Three noun making derivational suffixes, namely *-tion, -ist, -(i)ty*; three verb making derivational suffixes, namely *-ate, -ize, -fy* and three adjective making derivational suffixes, namely *-ous, -ive, -al*, were used in the Sentence Completion section of the Morphological Awareness Test (MAT). It is worth mentioning that each suffix was used three times. Therefore, there were nine distinct derivational suffixes, falling into three categories, namely noun making, verb making and adjective making, and consequently a total of twenty-seven test items. Table 17 below displays a suffix-wise analysis of the MAT. **N** refers to the number of the participants who circled the correct option out of 87 participants, while **P** refers to their percentage.

Table 17. Suffix-wise Analysis of the MAT

	Item No	Derivational Suffix	N	P
Noun Making Derivational Suffixes	1	-tion	75	86%
	7	-ist	70	80%
	9	-tion	63	72%
	11	-ity	48	55%
	12	-ity	35	40%
	16	-ist	35	40%
	21	-ity	30	34%
	24	-ist	39	45%
	26	-tion	50	57%
Average			**49.4**	**57%**
Verb Making Derivational Suffixes	2	-ate	76	87%
	4	-ize	60	69%
	6	-fy	33	38%
	10	-fy	36	41%
	13	-ize	59	68%
	18	-ate	72	83%
	19	-fy	39	45%
	23	-ize	59	68%
	27	-ate	62	71%
Average			**55.1**	**63%**
Adjective Making Derivational Suffixes	3	-ive	46	53%
	5	-al	49	56%
	8	-ous	45	52%
	14	-ous	45	52%
	15	-ive	48	55%
	17	-al	51	59%
	20	-ive	33	38%
	22	-al	53	61%

	25	-ous	29	33%
Average			**44.3**	**51%**

N=Number of the participants who circled the correct option out of 87 participants.
P=Percentage of the participants who circled the correct option out of 87 participants.

As the table indicates, a total of 87 intermediate-level adult Turkish EFL learners participating in the present study chose the correct option mostly in the case of verb making derivational suffixes with the correct answer per question being picked up by 63 percent of the whole sample on average. In other words, on average 55 of the 87 participants, corresponding to 63 percent of the whole sample, chose the correct option for each test item that ends with one of the three verb making derivational suffixes used in the present study, namely –ize, –ate and –fy. The second category of the derivational suffixes in which the participants were the most successful was noun making derivational suffixes with the correct answer per question being picked up by 57 percent of the whole sample on average. That is, on average 49 of the 87 participants, making up 57 percent of the whole sample, chose the correct option for each test item that ends with one of the three noun making derivational suffixes used in the present study, namely –tion, –ist and –(i)ty. Lastly, the participants were the least successful in the case of adjective making derivational suffixes with the correct answer per question being picked up by 51 percent of the whole sample on average. This means that on average 44 of the 87 participants, making up 51 percent of the whole sample, chose the correct option for each test item that ends with one of the three adjective making derivational suffixes used in the present study, namely –ive, –al and –ous.

To find out if the participants performance in each distinct category of the derivational suffixes significantly differed from each other, a one-way within subjects ANOVA was conducted. The findings revealed that there is a statistically significant difference across the three distinct categories of the derivational suffixes used in the present study, namely noun making derivational suffixes, verb making derivational suffixes and adjective making derivational suffixes, in terms of the participants' performance *(F*(2, 172)=13,96, *p*<.001). To determine where the significant difference stemmed from, a paired sample *t*-test was carried out as a post hoc test. The results

revealed that there is a statistically significant difference between verb making derivational suffixes (*M*=5.70, *SD*=2.22) and adjective making derivational suffixes (*M*=4.59, *SD*=2.04), *t*(86)=5.365, *p*<.001; between noun making derivational suffixes (*M*=5.11, *SD*=1.72) and verb making derivational suffixes (*M*=5.70, *SD*=2.22), *t*(86)=-2.847, *p*<.01, and between noun making suffixes (*M*=5.11, *SD*=1.72), *p*<.01, and adjective making suffixes (*M*=4.59, *SD*=2.04),), *t*(86)=2.412, *p*<.05. This finding indicates that intermediate level adult Turkish EFL learners are significantly more aware of grammatical and lexical functions of verb making derivational suffixes than they are of noun making and adjective making derivational suffixes. In addition to this, intermediate level adult Turkish EFL learners are significantly more aware of grammatical and lexical functions of noun making derivational suffixes than they are of adjective making derivational suffixes. In other words, intermediate level adult Turkish EFL learners are significantly better at identifying grammatical and lexical functions of verb making derivational suffixes than noun making derivational suffixes and than adjective making derivational suffixes.

Every suffix in each distinct category of derivational suffixes was also analyzed. The following table presents the number and percentage of the participants who circled the correct option for each suffix.

Table 18. An analysis of every suffix in each distinct category of derivational suffixes

	Suffix	**N (Average)**	**P**
Noun Making Suffixes	-tion	63	72%
	-ist	48	55%
	-(i)ty	38	44%
Verb Making Suffixes	-ate	70	80%
	-ize	59	68%
	-fy	36	41%
Adjective Making Suffixes	-ous	40	46%
	-ive	42	48%
	-al	51	59%

N= Average number of the participants who circled the correct option for each suffix.
P=Percentage of the participants who circled the correct option for each suffix.

Table 18 above lays bare that intermediate level adult Turkish EFL learners are more successful in the noun making suffix *–tion* than in *–ist* than in *–(i)ty*. As for verb making derivational suffixes used in the present study, they are more successful in *–ate* than in *–ize* than in *–fy*. When it comes to adjective making derivational suffixes, the participants are more successful in *–al* than in *–ive* than in *–ous*. In order to find out whether this differentiation is statistically significant or not, three one-way within subjects ANOVA tests were computed. The findings revealed that there is a statistically significant difference across the three noun making derivational suffixes used in the present study, namely *–tion*, *–ist* and *–(i)ty*, in terms of the participants' performance *(F*(2, 172)=28.07, *p*<.001). To determine where the significant difference stemmed from, a paired sample *t*-test was carried out as a post hoc test. The results revealed that there is a statistically significant difference between *–tion* (*M*=2.16, *SD*=.84) and *–ist* (*M*=1.30, *SD*=.85), *t*(86)=4.961, *p*<.001; between *–tion* (*M*=2.16, *SD*=.84) and *–(i)ty* (*M*=1.66, *SD*=.84), *t*(86)=7.099, *p*<.001, and between *–ist* (*M*=1.30, *SD*=.85) and *–(i)ty* (*M*=1.66, *SD*=.84), *t*(86)=2.913, *p*<.01. This finding signals that intermediate-level adult Turkish EFL learners know or are aware of or familiar with grammatical and lexical functions of the noun making suffix *–tion* statistically significantly more than *–ist* and than *–(i)ty*. The second one-way within subjects ANOVA also brought out a statistically significant difference across the three verb making derivational suffixes used in the present study, namely *–ate*, *–ize* and *–fy*, in terms of the participants' performance *(F*(2, 172)=54.46, *p*<.001). A paired samples t test conducted as a post-hoc test indicated that there is a statistically significant difference between *–ate* (*M*=2.41, *SD*=.88) and *–ize* (*M*=2.05, *SD*=.97), *t*(86)=3.387, *p*<.01; between *–ate* (*M*=2.41, *SD*=.88) and *–fy* (*M*=1.24, *SD*=1.03), *t*(86)=10.120, *p*<.001, and between *–ize* (*M*=2.05, *SD*=.97) and *–fy* (*M*=1.24, *SD*=1.03), *t*(86)=6.707, *p*<.001. This finding means that intermediate-level adult Turkish EFL learners know or are aware of or familiar with grammatical and lexical functions of the verb making suffix *–ate* statistically significantly more than *–ize* and than *–fy*. The last one-way within subjects ANOVA also revealed a statistically significant difference across the three adjective making derivational suffixes used in the

present study, namely *–ous*, *–ive* and *–al*, in terms of the participants' performance *(F*(2, 172)=4.80, *p*<.01). Another paired samples t test conducted as a post-hoc test implied that there is a statistically significant difference between *–ous* (*M*=1.37, *SD*=.99) and *–al* (*M*=1.76, *SD*=1.03), *t*(86)=-2.830, *p*<.01, and between *–ive* (*M*=1.46, *SD*=.92) and *–al* (*M*=1.76, *SD*=1.03), *t*(86)=-2.377, *p*<.05. However, no statistically significant difference was found between *–ous* (*M*=1.37, *SD*=.99) and *–ive* (*M*=1.46, *SD*=.92), *t*(86)=-.700, *p*>.05. These findings point out that intermediate-level adult Turkish EFL learners know or are aware of or familiar with grammatical and lexical functions of the verb making suffix *–al* statistically significantly more than *–ive* and *–ous*, yet their performance with regard to morphological awareness does not differ between the adjective making derivational suffixes *–ive* and *–ous.*

All in all, the present study reveals four notable findings with regard to morphological awareness among intermediate-level adult Turkish EFL learners. First, intermediate-level adult Turkish EFL learners participating in the present study are moderate achievers of word morphology. This means that they have moderate "ability to reflect on and manipulate morphemes and word formation rules in English" (Kuo & Anderson, 2006: 161). In other words, they are able to recognize the internal structure of a word, identify the root and the affixes as well as being able to form new words applying the word formation rules in a particular language to a moderate extent. The explanation that the participants in the present study have at least moderate awareness of morphological awareness might lie in their English proficiency and the time they have spent learning English so far. They are at intermediate level, indicating that they have made progress towards being proficient EFL learners. They can understand and talk about the main points of familiar topics or the topics of personal interest; they can deal with situations that arise while they are travelling in an English speaking country and they can describe their experiences, dreams and hopes giving reasons (CEFR). Besides, results of the present study indicate that they can moderately recognize the morphological structure of complex words, identify the grammatical and lexical functions of certain suffixes and judge whether two words are morphologically related or not. However, considering their English proficiency level, we would expect higher morphological awareness. This relatively lower awareness might be linked to the lack

of guidance among adult Turkish EFL learners in terms of intra-word structure. Apparently, they need more guidance to recognize the internal structure of a word and identify the root and the affixes. Additionally, they need to be shown how to form new words applying the word formation rules in English.

Second, the present study reveals that intermediate-level adult Turkish EFL learners participating in the present study performed significantly better in the Word Relation task than in the Sentence Completion task. This means that intermediate-level adult Turkish EFL learners participating in the present study can judge whether a morphologically complex word comes from a simple word better than they identify the lexical and grammatical functions of certain derivational suffixes in English. When we look at the items in the Word Relation task (Section II of the Morphological Awareness Test), we notice that they measure a basic facet of morphological awareness. These items interrogate solely whether or not EFL learners have a superficial knowledge of intra-word structure in English. For instance, the participants of the present study can recognize that the word *sunny* comes from the word *sun* (Q3-MAT/Section II). Once they notice these two words are semantically related, they can conclude that the ending *–y* is able to form new words when it is added to a word. In addition to this, if they know that *sun* is a noun and *sunny* is an adjective, they can deduce that the ending *–y* is used to make adjectives from nouns. Then, they can multiply the examples such as *rain* → *rainy*, *snow* → *snowy*, *oil* → *oily*, *leak* → *leaky*, etc. However, they can also recognize that the word *man* does not come from the word *many* although this pair seems to have the same relationship with the *sun* → *sunny* pair (Q2-MAT/Section II). Similarly, the participants of the present study can judge that the noun *winner* comes from the verb *win* (Q13-MAT/Section II); however, the noun *letter* does not come from the verb *let* (Q12-MAT/Section II). These findings point out that intermediate-level adult Turkish EFL learners participating in the present study can identify whether or not two apparently similar words are morphologically and thus semantically related.

In addition, distribution of percentages of the participants' scores from the second section of the MAT requires further attention. Majority of the participants are either low achievers, with 43.7 percent of the participants falling into the third quartile

(Q3), namely the low group, or high achievers, with 35.6 percent of the participants falling into the first quartile (Q1), namely the high group (See Figure 7 above). As for almost half of the participants falling into the low group, the explanation might be the lack of awareness concerning word relations in English. Another explanation might be that some of the participants did not find the second section of the MAT as interesting as the first section and thus they got bored and did not pay enough attention to these items.

On the other hand, seemingly, filling in a gap in a sentence with one of the four words formed with the same root but different suffixes is more challenging for the participants of the present study, who represent intermediate-level adult Turkish EFL learners. This might be due to that they have difficulty in either understanding what part of speech is required to fill in the gap in a sentence, or recognizing the suffix that is used to make the required part of speech. For instance, as for the sentence *In spite of his* _____*, he did a great job.*(Q1-MAT/Section I), one is required to notice that a noun is needed to complete this sentence successfully. Of the four options, namely *dispribize, dispribation, dispribational* and *dispribify*, one is required to pick up *dispribation* without the knowledge of meanings of these words, as it is the only word that ends in a noun-making suffix. Since all of the sentences making up the test items in the Sentence Completion Section of the Morphological Awareness Test are quite simple and far below the proficiency level of the participants of the present study, as confirmed by three experienced English instructors, we can conclude that their relatively lower performance is due to the lack of awareness of grammatical and lexical functions of certain suffixes among the participants. Therefore, findings signal that Turkish EFL learners need explicit knowledge on intra-word structure in English. In other words, they should be taught grammatical and lexical functions of common affixes and roots in English.

Third, intermediate-level adult Turkish EFL learners participating in the present study performed significantly better in the case of verb making derivational suffixes used in the present study *(–ate, –ize* and *–fy*) than that of noun making derivational suffixes *(–tion, –(i)ty* and *–ist*) than that of adjective making derivational suffixes *(–al,*

–ive and *–ous*). We expected the best performance in the case of noun making derivational suffixes since they are considered as the simplest among the 8 parts of speech and thus the first ones taught to students in primary school. However, this finding remarks that Turkish EFL learners might be making use of verb making derivational suffixes more frequently than any others; they might often encounter and be engaged in verb making derivational suffixes and thus are more familiar with and aware of their lexical and grammatical functions. This might be explained that verbs are considered as the most important part of a speech, for a sentence would not exist without a verb. The participants scored the most poorly in the case of adjective making derivational suffixes, which might be explained by that foreign language learners generally encounter with and use nouns and verbs more than the other parts of speech.

Lastly, intermediate-level adult Turkish EFL learners participating in the present study showed significantly more awareness for the verb making derivational suffix *–ate* than *–ize* than *–fy*. They showed significantly more awareness for the noun making derivational suffix *–tion* than *–(i)ty* than *–ist*. They showed significantly more awareness for the adjective making derivational suffix *–al* than *–ive* and *–ous*. This differentiation of the performance of the participants in terms of the suffixes may also be attributed to their experience with suffixes and word formation through their studies at preparatory school and the course-books. One crucial thing that this finding signals is that Turkish EFL learners display different performance in recognizing and using suffixes properly in accordance with the individual suffixes even in the case of very common ones. This indicates that they need to be provided with a wider array of suffixes profoundly to be more proficient in identifying word structure and forming new words in English. In other words, Turkish EFL learners should be provided with derivational suffixes broadly and deeply to achieve the goal of comprehending and benefitting from intra-word structure in English.

Contribution of Morphological Awareness to Reading Comprehension

The second research question of the present study seeks an answer to **whether or not morphological awareness contributes to passage-level L2 reading comprehension above and beyond other reading and language-related factors such as grammar knowledge, vocabulary knowledge, and use of reading strategies among intermediate-level adult Turkish EFL learners**. In order to detect any relationship between the participants' scores from the reading proficiency subtest of the proficiency exam and the other variables, namely vocabulary knowledge, grammar knowledge, reading strategy use and the morphological awareness, two consecutive procedures were implemented. First, inter-correlations between variables were found by calculating Pearson's product moment correlation coefficients. Second, hierarchical multiple regression analyses were conducted in order to better understand the effect of each independent variable on the reading comprehension score and find out the unique and direct contribution of the morphological awareness to reading comprehension if any, which was the main concern of the present study. It is worth stating that "unique and direct" refers to how much of the variance in reading comprehension is explained by the Morphological Awareness Test (MAT), designed for the purpose of the present study, on its own, eliminating the effects of vocabulary knowledge, grammar knowledge and reading strategy use. We intended to eliminate the effects of these three variables because they are assumed to have a positive and strong relationship with reading comprehension as the past research implies (Koda, 2005; Grabe, 2009).

Table 19 below displays the correlation matrix of the variables of the present study. "Reading" refers to the participants' scores from the reading subtest of the proficiency exam; "vocabulary" refers to the participants' scores from the vocabulary knowledge subtest of the proficiency exam; "grammar" refers to the participants' scores from the grammar knowledge subtest of the proficiency exam; "SORS" refers to the participants' scores from the Survey of Reading Strategies, and "MAT" refers to the participants' overall scores from two-section Morphological Awareness Test.

Table 19. Inter-correlations between the variables of the study

	Reading	Vocabulary	Grammar	SORS	MAT
Reading	-	.576*	.559*	.131	.112
Vocabulary		-	.448*	.164	.364*
Grammar			-	.042	.178
SORS				-	-.024
MAT					-

*. Correlation is significant at the 0.01 level (2 tailed)

First, Table 19 displays that there is a significant moderate positive correlation between reading comprehension and vocabulary knowledge (r=.576, p<0.01), indicating that reading comprehension and vocabulary knowledge scores tend to be parallel to each other among intermediate-level adult Turkish EFL learners. Furthermore, another significant moderate positive correlation was found between reading comprehension and grammar knowledge (r=.559, p<0.01), which also indicates that reading comprehension and grammar knowledge scores are congruent with each other among intermediate-level adult Turkish EFL learners. However, the relationship between reading comprehension and reading strategy use was rather weak although it was positive (r=.131). Additionally, this finding fails to be generalized to the whole population as it was statistically non-significant, p>0.01. Similarly, not a statistically significant correlation was found between reading comprehension and morphological awareness (r=.112, p>0.01), which means that there is not a considerable relationship between reading comprehension and morphological awareness at all.

Second, as Table 19 also shows, there is a significant moderate positive correlation between vocabulary knowledge and grammar knowledge among Turkish EFL learners (r=.448, p<0.01), which implies that vocabulary knowledge and grammar knowledge scores are generally compatible with each other among adult Turkish EFL learners.

Third, a significant, low to moderate, positive relationship was found between vocabulary knowledge and morphological awareness (r=.364, p<0.01). This finding

means that vocabulary knowledge and morphological awareness in a foreign language moderately and positively correlate to each other, indicating that the score a Turkish EFL learner gets from either of these two tests tends to be similar to the score s/he gets from another.

Apart from these notable findings that Table 19 displays, neither reading strategy use nor morphological awareness significantly correlated to grammar knowledge (r=.042, r=.178 respectively, p>0.01), indicating that there was not a considerable relationship between grammar knowledge on one hand and either reading strategy use or morphological awareness on the other. Lastly, the correlation between reading strategy use and morphological awareness was also non-significant (r=-.024, p>0.01).

Table 20 below presents the results of the hierarchical multiple regression analysis between the dependent variable of reading comprehension and four independent variables whose unique contributions in explaining the variance in the dependent variable, reading comprehension, were examined.

Table 20. Hierarchical Multiple Regression Model 1
(Dependent Variable: Reading Comprehension)

	R	R Square	Adjusted R Square	Standard Error	F Model	R Square Change	F Change
SORS	.131	.017	.006	4.035	1.487	.017	1.487
MAT	.175	.030	.007	4.031	1.320	.013	1.150
Grammar	.570	.324	.300	3.385	13.285	.294	36.113*
Vocabulary	.677	.459	.432	3.049	17.365	.134	20.324*

*. F is significant at the 0.01 level.

As the table indicates, the R square of this regression model was found to be .459 and significant at the 0.01 level. This means that the variables in this regression model, altogether, significantly explain 45.9 percent of the variance in the dependent variable, which is the reading comprehension score. When the model is further

examined in order to see the unique contribution of each independent variable, 'SORS', which represents reading strategy use, and 'MAT', which stands for Morphological Awareness Test, do not have a significant relationship with the dependent variable, reading comprehension. In other words, reading strategy use and morphological awareness do not make a significant contribution to the explanation of the variance in reading comprehension among intermediate-level adult Turkish EFL learners. This finding is also congruent with the correlation matrix introduced on the previous page in the current study, which displayed a statistically non-significant relationship between reading comprehension and reading strategy use and morphological awareness.

On the other hand, the third variable in the model, 'Grammar', has a significant R square change value of .294, which means that controlling for the reading strategy use and morphological awareness, grammar knowledge itself significantly explains 29.4 percent of the variance in reading comprehension. The last variable, 'Vocabulary', also has a significant relationship with reading comprehension. R square change value for this variable was found to be .134, which is significant at the 0.01 level. This means that above and beyond all other three variables, namely reading strategy use, morphological awareness and grammar knowledge, vocabulary knowledge significantly explains 13.4 percent of the variance in reading comprehension.

To summarize, the hierarchical regression analysis indicated that intermediate level adult Turkish EFL learners' L2 reading strategy use and morphological awareness do not have a significant effect on their reading comprehension scores. On the other hand, above and beyond reading strategy use and morphological awareness, grammar knowledge has an important and significant effect on reading comprehension explaining 29.4 percent of the variance in reading comprehension. Additionally, vocabulary knowledge significantly accounts for 13.4 percent of the variance in reading comprehension above and beyond reading strategy use, morphological awareness and grammar knowledge among intermediate-level adult Turkish EFL learners. In other words, grammar knowledge and vocabulary knowledge altogether significantly explain 42.8 percent of the variation intermediate-level adult Turkish EFL learners' reading comprehension scores.

The first hierarchical multiple regression analysis above clearly shows that morphological awareness does not contribute to reading comprehension, which means that the second research question in the current study has been negatively responded. To support this finding, a further analysis was conducted. For this purpose, two new groups were formed among the participants, namely Low-MAT, consisting of the participants who obtained the lowest scores from the morphology test, and High-MAT, consisting of those who obtained the highest scores from the morphology test. The lowest and the highest scores were determined in accordance with the quartiles and the interquartile range of the overall scores of the participants from the MAT. Q1 (the first quartile range) was used to determine the participants in the Low-MAT group. Considering that Q1 corresponded to 29 as displayed in the Table 13 above, the Low-MAT group consisted of the participants who obtained 29 and less from the Morphological Awareness Test. There were 22 participants in this group. They formed 35.3 percent of the whole sample. Q3 (the third quartile range) was used to determine the participants in the High-MAT group. Considering that Q3 corresponded to 37 as shown in the Table 13 above, the High-MAT group included the participants who took 37 and above from the Morphological Awareness Test. There were 29 participants in this group. They formed the 33.3 percent of the whole sample. To gain more insights into the relationship between morphological awareness and L2 reading comprehension, reading comprehension subtest scores of the Low-MAT and High-Mat groups were compared using an independent samples *t*-test. The results revealed a statistically non-significant difference between the participants with the lowest morphology scores (M=14,45, SD=2.73) and the participants with the highest morphology scores (M=14.86, SD=2.28) in terms of passage-level L2 reading comprehension ($t(49)$=-.390, p>.05). This finding indicates that morphological awareness does not play a significant role in passage level L2 reading comprehension among intermediate-level adult Turkish EFL learners. In this sense, this finding supports the findings gathered from the correlation and regression analyses conducted previously.

However, considering that the second research question is interested in the unique contribution of morphological awareness to reading comprehension above and

beyond reading strategy use, grammar knowledge and vocabulary knowledge, another hierarchical multiple regression model, in which the morphology test scores were ultimately entered, whereas reading strategy use, grammar knowledge and vocabulary knowledge scores were entered as a block was created. Table 21 below shows this second hierarchical multiple regression model.

Table 21. Hierarchical Mutiple regression Model 2
(Dependent Variable: Reading Comprehension)

	R	R Square	Adjusted R Square	Standard Error	F Model	R Square Change	F Change
SORS Grammar Vocabulary	.669	.447	.427	3.062	22.385	.447	22.385*
MAT	.677	.459	.432	3.049	17.365	.011	1.722

*. F is significant at the 0.01 level.

As the table indicates, the R square of this regression model was also found to be .459, indicating that all of the independent variables explain 45.9 percent of the variance in the dependent variable, reading comprehension. However, unlike the first model, the R square of this regression model was non-significant since MAT was the last variable to be entered into the model. This model clearly shows that Survey of Reading Strategies, grammar knowledge and vocabulary knowledge scores altogether significantly explain the 44,7 percent of the variance in reading comprehension among intermediate-level adult Turkish EFL learners. However, morphological awareness makes almost no contribution to reading comprehension above and beyond reading strategy use, grammar knowledge and vocabulary knowledge scores among intermediate-level adult Turkish EFL learners.

The present study differs from Droop and Verhoeven (2003), Wang et al. (2006), Kieffer and Lesaux (2008), Kieffer, Biancarosa and Mancilla-Martinez (2013), Kieffer (2014), Jeon (2011), Zhang and Koda (2013) and Zhang, Koda and Sun (2014) in the sense that its findings did not yield a statistically significant contribution of

morphological awareness to passage-level L2 reading comprehension. This differentiation may be due to a number of differences between these studies and the present study. First of all, most of these studies (Droop & Verhoeven, 2003; Wang et al., 2006; Kieffer & Lesaux, 2008; Kieffer, Biancarosa & Mancilla-Martinez, 2013 and Kieffer, 2014) seek the contribution of morphological awareness to reading comprehension among ESL (English as a Second Language) learners or ELLs (English Language Learners), whereas the target population in the present study is EFL learners. ELL/ESL learners might have higher awareness of morphological structure in English and accordingly they might make use of this awareness in reading academic texts to a greater extent than EFL learners. Second, the different findings might also be attributed to variations in learners' backgrounds, age for instance. In most of these studies except Jeon (2011), the participants are third to eighth grade learners. However, in the present study, we tried to measure the effect of morphological awareness to reading comprehension among adult EFL learners whose ages range between 18 and 22. Such a difference indicates that the unique variance in L2 reading comprehension explained by morphological awareness might decrease as the learners grow up. To verify such a claim, however, further study on younger Turkish EFL learners is required. With regard to the variations in learners' backgrounds, native language (L1) of the participants might also be playing a role in the contribution of morphological awareness to L2 reading comprhenesion. Native languages of the participants in the studies that found unique contribution of morphological awareness to reading comprehension include Arabic, Turkish (L2-Dutch); Chinese, Korean, Spanish, Flipino and Vietnamese (L2-English). However, considering that some of these native languages have some morphosyntactic features in common with the target languages, while some others do not, it is beyond the scope of the current study to determine the potential role of L1 in the contribution of L2 morphological awareness to L2 reading comprehension. In other words, L1 might play a role in the contribution of L2 morphological awareness to L2 reading comprehension, which can be better investigated through a comprehensive cross-linguistic study. The third reason why the present study did not come up with unique contribution of morphological awareness to reading comprehension unlike the previous ones might lie in the measurement of morphological awareness. The morphological awareness task in the current study only dealt with learners' ability to

identify lexical and grammatical functions of certain derivational suffixes in English and whether two words that seem to be related are in fact morphologically related or not. Measures tapping different levels of morphological awareness could have been employed. On the other hand, it is well worth noting that because currently no test of basic L2 morphological awareness is available, researchers design their own morphology test with some adaptation from previous research such as Carlisle's (2000) Test of Morphological Structure. Therefore, there might be variation in each context in terms of the testing instruments. In this regard, however, it is required to mention that the reliability level of the Morphological Awareness Test used in the present study was acceptable.

In addition to this, focusing on one category of derivationl suffixes only might have produced different findings. Considering that the participants of the present study displayed the best performance in the case of verb-making derivational suffixes, for instance, including verb-making derivational suffixes only might have changed the uniqe variance in L2 reading comprehension explaianed by L2 morphological awareness. Furthermore, focusing on prefixes as well as suffixes might have changed the findings of the preset study. Including prefixes might have also affected the morphological awareness level of the Turkish EFL learners because they do not exist in morphosyntactic structure of Turkish unlike English.

On the other hand, the finding of the present study that L2 morphological awareness does not make a unique contribution to passage-level L2 reading comprehension corroborates Zhang and Koda (2012), who explored the effect of morphological awareness and lexical inferencing ability on vocabulary knowledge and the contribution of morphological awareness, lexical inferencing and vocabulary knowledge to reading comprehension among adult Chinese EFL learners. It is worth noting that the two studies are similar in their English language learning context, namely learning English as a foreign language (EFL) and age group of the participants, namely adult learners. Additionally, the current study accords with Qian (1999), who found that morphological awareness did not make a significant contribution to reading

comprehension among Canadian ESL learners controlling for vocabulary size and depth (as cited in Zhang & Koda, 2012).

Indirect Contribution of Morphological Awareness to Reading Comprehension

As the two hierarchical multiple regression analyses above laid bare, morphological awareness failed to contribute to L2 reading comprehension significantly and directly among intermediate-level adult Turkish EFL learners. Vocabulary knowledge and grammar knowledge, on the contrary, were found to explain unique variances in L2 reading comprehension. Therefore, morphological awareness was thought to be likely to contribute to reading comprehension indirectly via its contribution to vocabulary knowledge and/or grammar knowledge. With this very purpose, two bivariate regression models were created. In these regression models, dependent variables were vocabulary knowledge test scores and grammar knowledge test scores respectively, while the independent variable was morphology test scores. The first bivariate regression model, inserted in Table 22 below, in which the vocabulary knowledge test is the dependent variable and the morphology test is the independent variable, displays how much of the variance in vocabulary knowledge scores is explained by morphological awareness.

Table 22. Bivariate Regression Analysis Model 1
(Dependent Variable: Vocabulary Knowledge)

	R	R Square	Adjusted R Square	Standard Error	F Model	R Square Change	F Change
MAT	.364	.132	.122	3.775	12.966	.132	12.966*

*. F is significant at the 0.01 level.

As the table points out, the R square of this regression model was found to be .132 and significant at the 0.01 level. This finding indicates that morphological awareness significantly explains 13.2 percent of the variance in vocabulary knowledge scores of the intermediate-level adult Turkish EFL learners. In other words,

morphological awareness plays a significant role in one's vocabulary knowledge and is likely to predict success in vocabulary knowledge.

Studies investigating knowledge of affixes, lexical inferencing skill and vocabulary knowledge also state that the three are related. Paribakht and Wesche (1999), for instance, purport that learners' knowledge of L2 word derivations, namely stems and affixes, and that of grammatical inflections such as *–ed* and *–s* together came out as the second most important knowledge source in inferring the meaning of unknown words. On the other hand, Schmitt and Meara (1997) found weak but still significant correlations between receptive derivative suffix knowledge and vocabulary size. They note that derivative suffix knowledge fits with vocabulary size, and once learners are familiar with derivative suffixes, they can have access to the other members in a word family. Mochizuki and Aizawa (2000), in a similar vein, explored the relationship between L2 learners' vocabulary size and their affix knowledge and in what order L2 learners acquire affixes using a vocabulary size test and an affix knowledge test. They found that affix knowledge increased in proportion to vocabulary size. They point out that vocabulary expansion enhances understanding of affixes, which in turn extends vocabulary size. That learners who have better morphological awareness are likely to learn words better and thus hold a larger vocabulary size is also congruent with Nagy (2007), who with regard to English monolingual children's vocabulary acquisition, maintains that there is a relationship between intra-word structure and vocabulary acquisition, indicating the effect of morphological awareness on vocabulary knowledge. Furthermore, Sandra (1994) proposes that learners' insights into stems, affixes and word structure, help them infer the meanings of unknown words, enhance the representation of complex words in their mental lexicon and enable them to retain vocabulary items (as cited in Zhang & Koda, 2012).

Considering, on the other hand, that vocabulary knowledge plays a significant role in one's reading comprehension and is likely to predict reading achievement, we can arrive at the conclusion that morphological awareness indirectly contributes to reading comprehension by means of the significant contribution it makes to vocabulary knowledge. Nagy (2007) states that morphological awareness may contribute to reading

comprehension because it helps students interpret novel morphologically complex words that they encounter while reading, which he calls "on-the-spot vocabulary learning". Nagy (2007) further notes that morphological awareness may contribute to reading comprehension through the use of syntactic signals provided by suffixes to parse complex sentences. He exemplifies this with the difference between the sentences "Observant investigators proceed carefully" and "Observe investigators' procedures carefully", which is signaled completely by suffixes (p.64). Tyler and Nagy (1990), with this regard, maintain that poorer readers are less likely to notice such signals (as cited in Nagy, 2007), indicating the indirect contribution of morphological awareness to reading comprehension via syntactic parsing.

The second bivariate regression model, inserted in Table 23 below, in which the grammar knowledge test is the dependent variable and the morphology test is the independent variable, displays how much of the variance in grammar knowledge scores is explained by morphological awareness.

Table 23. Bivariate Regression Analysis Model 2
(Dependent Variable: Grammar Knowledge)

	R	R Square	Adjusted R Square	Standard Error	F Model	R Square Change	F Change
MAT	.178	.032	.020	3.787	2.786	.032	2.786

As the table indicates, the R square of this regression model was found to be .032, yet statistically non-significant. This finding indicates that morphological awareness explains 3.2 percent of the variance in grammar knowledge scores of the participants of the present study. However, such a finding cannot be generalized to the whole population, namely intermediate-level adult Turkish EFL learners, as it is statistically non-significant. In other words, morphological awareness fails to make an indirect contribution to reading comprehension via grammar knowledge.

CHAPTER 5
CONCLUSION

This chapter introduces an overview of the current study. First, the findings of the study are summarized. Next, implications that the findings of the present study might require are presented. Lastly, limitations of the present study are listed along with some suggestions for further research.

An Overview of the Thesis

The present study aimed at exploring to what extent intermediate-level adult Turkish EFL learners, who were studying at Anadolu University School of Foreign Languages (AUSFL) during the time when the study was conducted, are aware of lexical and grammatical functions of certain suffixes in English. The study further aimed at investigating the unique contribution of L2 morphological awareness to passage-level L2 reading comprehension above and beyond such reading-related factors as vocabulary knowledge, grammar knowledge and reading strategy use among intermediate-level adult Turkish EFL learners. With these purposes, the data were collected from a total of 87 EFL learners through a number of testing instruments. These instruments include reading comprehension, vocabulary knowledge and grammar knowledge subtests of the proficiency exam that AUSFL administered at the end of 2014-2015 fall semester, Survey of Reading Strategies (SORS) by Sheorey and Mokhtari (2002) and the two-section Morphological Awareness Test (MAT), designed by the researcher with some adaptation from Mahony (1993) for the current study. The data with regard to MAT and SORS were collected on the same day, while tha data concerning the proficiency exam were collected later on. The data were analysed using a number of statistical procedures. The first research question, which is about exploring to what extent intermediate-level adult Turkish EFL learners are aware of lexical and grammatical functions of certain suffixes in English, was answered by means of descriptive statistics, paired samples *t*-test and one-way ANOVA with repeated measures. The second research question, which is about the unique contribution of morphological awareness to reading

comprehension above and beyond vocabulary knowledge, grammar knowledge and reading strategy use, was responded through hierarchical multiple and bivariate regression analyses. Additionally, semi-structured interviews were conducted with a smaller group of the participants to support the data gathered from the quantitative data collection instruments of the present study. The findings of the present study were discussed with regard to the semi-structured interviews and the relationship between the current study and the previous research. These findings are summarized below under each research question.

To what extent are intermediate-level adult Turkish EFL learners aware of syntactic and lexical functions of certain suffixes in English?

An analysis of the participants' performance on the Morphological Awareness Test revealed that intermediate-level adult Turkish EFL learners participating in the present study show moderate morphological awareness. As stated above, this means that intermediate-level adult Turkish EFL learners participating in the present study have moderate "ability to reflect on and manipulate morphemes and word formation rules in English" (Kuo & Anderson, 2006:161). In other words, they are able to recognize the internal structure of a word, identify the root and the affixes as well as being able to form new words applying the word formation rules in English to a moderate extent. Their moderate awareness was attributed to their English proficiency in the present study (the highest proficiency level at AUSFL). However, considering this high proficiency level, this awareness could have been higher. Then, the relatively lower awareness than expected was attributed to the lack of exposure and guidance among the participants in terms of word morphology. That is to say, it is suggested that adult Turkish EFL learners should be exposed to word morphology more and guided expilicitly to benefit from lexical and grammatical functions of prefixes and suffixes and even common roots in English.

Another finding of the present study with regard to the morphological awareness among intermediate-level adult Turkish EFL learners is that they performed significantly better in the second section of the MAT, namely Word Relation than the

first section, namely Sentence Completion. As stated above, this finding means that intermediate-level adult Turkish EFL learners participating in the present study can judge whether a morphologically complex word comes from a simple word (Section II-Word Relation) better than they identify the lexical and grammatical functions of certain derivational suffixes in English (Section I-Sentence Completion). This finding supports that adult Turkish EFL learners need more awareness and knowledge of word morphology considering that they were more successful in the Word Relation section that measures a basic facet of morphological awareness, whereas they found the Sentence Completion section, in which they were required to complete a sentence with one of the four words formed with the same root but different suffixes, more challenging.

Furthermore, the present study revaled that intermediate-level adult Turkish EFL learners participating in the present study are better achievers of verb making derivational suffixes used in the present study, namely *–ate, –ize* and *–fy*, than noun making derivational suffixes, namely *–tion, –(i)ty* and *–ist*, than adjective making derivational suffixes, namely *–al, –ive* and *–ous*. This finding sounds a bit surprising since we expected the best performance in the case of noun-making derivational suffixes. Statistics further revealed that the participants' performance differed within each derivational suffix category. They showed significantly more awareness for the verb making derivational suffix *–ate* than *–ize* than *–fy*. They showed significantly more awareness for the noun making derivational suffix *–tion* than *–(i)ty* than *–ist*. They showed significantly more awareness for the adjective making derivational suffix *–al* than *–ive* and *–ous*. This differentiation of the participants' performance across the three categories of derivational suffixes and within each category might be due to the their experiences with regard to learning English. Fluctuation of performance even in the case of very common derivational suffixes in English also supports our suggestion that intermediate-level adult Turkish EFL learners need explicit instruction and more guidance in terms of word morphology and its benefits to foreign language learning.

Does morphological awareness contribute to passage-level L2 reading comprehension above and beyond other reading and language-related factors such as grammar knowledge, vocabulary knowledge, and use of reading strategies among intermediate-level adult Turkish EFL learners?

In contrast to some studies which revealed that L2 morphological awareness explains unique variances in L2 reading comprehension among ESL/EFL learners, the present study did not find unique contribution of morphological awareness to reading comprehension among intermediate-level adult Turkish EFL learners. The present study suggests that the explanation of why the current study differs from some of the previous research might lie in the differences between the current study and the previous ones such as English language learning context (ESL/ELL versus EFL), age group of the participants and the the way morphological awareness was measured. That the findings of the present study are congruent with those of Zhang and Koda (2012), which is the only study carried out with adult EFL learners to our knowledge, supports this explanation to some extent. It is also worth mentioning that although morphological awareness failed to make a unique contribution to reading comprehension, the independent variables in the present study, namely, morphological awareness, reading strategy use, grammar knowledge and vocabulary knowledge, altogether significantly explained 45.9 percent of the variance in reading comprehension.

On the other hand, grammar knowledge and vocabulary knowledge were found to make unique contributions to reading comprehension above and beyond other independent variables. Grammar knowledge significantly explained 29.4 percent of the variance in reading comprehension, while vocabulary knowledge explained 13.4 percent. Considering this, we thought that if vocabulary knowledge makes significant contributions to grammar knowledge and vocabulary knowledge, this might be inpterpereted as indirect contribution of morphological awareness to reading comprehension through its direct contribution to grammar knowledge and/or vocabulary knowledge. A hierarchical bivariate regression analysis revealed that morphological awareness significantly explains 13.2 percent of the variance in vocabulary knowledge.

Therefore, it was concluded that although L2 morphological awareness fails to contribute to L2 reading comprehension directly, it might make an indirect contribution to reading comprehension via its direct contribution to vocabulary knowledge, which was found to statistically significantly explain some variance in reading comprehension scores. However, grammar knowledge was not found to be a mediator of the relationship between morphological awareness and reading comprehension because morphological awareness did not contribute to grammar knowledge statistically significantly.

Implications

Having failed to find a direct and unique contribution of L2 morphological awareness to passage-level L2 reading comprehension among intermediate-level adult Turkish EFL learners, the present study revealed that morphological awareness accounts for unique variance in vocabulary knowledge. Taking the strong relationship between vocabulary knowledge and reading comprehension into consideration, it was claimed that morphological awareness might make an indirect contribution to reading comprehension via vocabulary knowledge. In addition to this, semi-structured interviews carried out with a smaller group of the participants of the present study point out that EFL learners benefit from word morphology in learning vocabulary and reading comprehension, and morphological instruction is required in EFL classrooms. In other words, word formation rules and morphological awareness are important in EFL curriculum and pedagogy.

Therefore, appropriate in-class activities and multimedia packages can be developed to draw EFL learners' attention to the lexical and grammatical functions of English derivational affixes and structure of English derivational words. Such activities include segmenting affixes from derived words and identifying base morphemes, grouping derived words according to their suffixes, and inferring meanings of unfamiliar derived words with familiar base words (Zhang & Koda, 2013). Moreover, as listed under the subtitle *Morphological Awareness Instruction* above, word building tasks, word-sorts and word-relatives activities may also be used in EFL classrooms.

Furthermore, direct instruction of word roots might also provide benefits for EFL learners (Apel & Werfel, 2014). It is worth mentioning that teachers should consider the characteristics of the learner group that they address to, especially age and language proficiency level. As mentioned above, morphological awareness/production tasks can be used with both young learners and adults. As for learners' proficiency level, teachers should decide on implicit or explicit morphological awareness/production tasks in accordance with what learners already know and need to learn more.

It should also be kept in mind that the primary objective of morphological awareness instruction is offering learners an array of opportunities to benefit from word morphology so as to boost their vocabulary knowledge, enhance their spelling skill and be more proficient in reading, writing and even speaking. Therefore, morphological awareness instruction should be integrated into vocabulary, reading, writing and speaking tasks. To iterate, for instance, subsequent to discovering the meaning of a specific affix and how it is spelled, learners may be requested to read a text, find the words to which this affix is attached, read them loudly and spell them. Dictating sentences for learners to write down might be another opportunity to practice the spelling of multi-morphemic words. To accomplish the goal of language production, learners may be asked to make their own sentences using multi-morphemic words that they form attaching the new affix they have learned. They may also be encouraged to find as many words as they can with the suffixes, prefixes and common roots they learn, which will contribute to their vocabulary size.

On the other hand, according to *Metalinguistic Hypothesis*, which is "that some of the variance shared by vocabulary knowledge and reading comprehension can be attributed to metalinguistic abilities that impact both" (Nagy, 2007:71), learning vocabulary and reading comprehension are metalinguistic processes. In this regard, vocabulary instruction, for instance, is not teaching words only but teaching about words, which refers to teaching how words are formed, learned and used. As for how words are formed, morphological awareness plays a crucial role without any doubt. Besides, in the sense that morphological awareness is an integral part of metalinguistic awareness, it is worth noting some implications of the metalinguistic hypothesis here.

First, more attention should be given to the metalinguistic demands of vocabulary instruction. For instance, Nagy (2007) states that providing more user-friendly explanations of word meanings instead of dictionary definitions is one step. In the case of multi-morphemic words, introducing common affixes and root words in English to learners is the very way of providing user-friendly explanations. Second, metalinguistic awareness should be increased as an instructional goal. To exemplify, we should teach word parts, how learners can identify word parts through suffixes, synonyms, antonyms, use of context, dictionary skills and figurative language instead of teaching word meanings only. Lastly, vocabulary instruction and comprehension instruction should be integrated. As an example of such integration, Nagy (2007) suggests teaching word-learning strategies as a part of comprehension strategies. Making use of word morphology and context clues, for example, might be taught as a part of comprehension strategies.

Limitations and Suggestions for Further Research

One potential limitation of the present study is its measurement. Because there is no established test of morphology in L2, an L1 morphological awareness test created with pseudo words (Mahony, 1993) was adapted for the accomplishment of the present study. A part of this test assessed learners' ability to recognize lexical and grammatical functions of some common suffixes in English, while another part of the test assessed learners' ability to judge whether two seemingly morphologically related words are in fact morphologically related or not. It is likely that this limited morphological insight may be the reason of the lack of contribution of morphological awareness to reading comprehension in the current study. The morphological awareness test should have tapped different levels of morphological awareness. More sophisticated levels of morphological awareness should have been touched upon. More measures or indicators of morphological awareness could have been added to touch upon its multi-faceted structure. However, it is worth stating that adding more measures or indicators of morphological awareness was not practical at all since not enough time would have been allocated for them. Another alternative might have been using real words instead of pseudo ones. However, using real words would have jeopardized the reliability of the

measurement. Using pseudo-words enabled us to make sure that the participants were all unfamiliar with the target words so that they could focus merely on the suffixes. Another potential limitation with regard to the measurement might be assessing suffix awareness only. The reason why prefixes were disregarded and only suffixes were used for the accomplishment of the present study is to focus on one aspect of morphological awareness. However, including prefixes would have yielded different findings regarding morphological awareness among adult Turkish EFL learners and its contribution to L2 reading comprehension. These limitations with regard to the measurement could not be avoided due to the aforementioned reasons such as practicality and realiability concerns, and on the grounds that no standard test of morphology exists, as discussed earlier, and the current study is the first research study to deal with morphological awareness and its contribution to reading comprehension in Turkish EFL context as far as we are concerned.

Apart from the measurement, another potential limitation lies in the number of of the participants. Although the current study involved a significant number of participants, a larger sample would have been preferred to reach at more generalizable results. However, it is worth reminding that the data collection instuments in the current study were administered to a total of 165 participants, yet only the data of the 87 participants who managed to sit the proficiency exam were used in the statistical analyses.

Third, instructors' opinions regarding benefits of word morphology and its relation to reading comprehension could have been asked. By doing so, we could have gained insights into practicality or impracticality of morphological awareness instruction in EFL classrooms and found out some potential pitfalls.

All in all, as the first of its kind to model the intricate relationship of morphological awareness to reading comprehension and vocabulary knowledge among adult Turkish EFL learners, the current study sets an example for future research. Therefore, the current limitations should be considered as suggestions for further research. In other words, further research had better tap different levels of

morphological awareness including more measures or indicators of morphological knowledge/awareness. Further research may also consider focusing on one type of derivational suffixes (verb making derivational suffixes, for instance) and including prefixes as well as suffixes. Besides, the number of participants may be increased and accordingly semi-structured inteviews may be conducted with a larger group of participants. Finally, EFL instructors' opinions with regard to the potential benefits of word morphology and its relation to reading comprehension may be a part of related further research.

Apart from the limitations of the present study, for future research, it is suggested that to what extent relatively younger Turkish EFL learners are aware of morphological awareness and whether or not this awareness contributes to reading comprehension be investigated. Including younger learners might produce different findings considering that studies that have found the unique contribution of morphological awareness to reading comprehension mostly focused on young children or adolescents. In addition to different age groups, targeting EFL learners with lower L2 proficiency level might also produce different findings. Moreover, students with lower L2 proficiency and learners with relatively higher L2 proficiency might be compared in terms of their morphological awareness level. Contribution of morphological awareness to overall L2 proficiency may also be investigated in the scope of future research. Furthermore, real words might prove an altrenative tool for further research instead of pseudo words as done in the present study. It is worth mentioning that targeting younger EFL learners with relatively lower L2 proficiency would make it possible to use real words instead of pseudo words eliminating the risk of higher-proficiency learners' familiarity with the target words. Lastly, further research may explore whether EFL learners are able to use suffixes and prefixes that they have been taught properly. For instance, once students have been taught that *sunny* comes from *sun*, whether they are able form such pairs as *rain-rainy* and *oil-oily* could be the concern of further research with the focus being on young EFL learners.

APPENDICES

Appendix A-Learning Outcomes for Level-A (Global Scale of English)

GSE 43–50/B1: Reading

44-Can understand the main information from simple diagrams (e.g. graphs, bar charts).

43-Can understand simple technical information (e.g. instructions for everyday equipment).

43–50-Can generally understand straightforward factual texts on familiar topics. Can generally understand details of events, feelings and wishes in letters, emails and postings. Can extract relevant details in everyday letters, brochures and short official documents. Can recognize significant points in straightforward newspaper articles on familiar topics. Can understand clearly written, straightforward instructions on a piece of equipment.

GSE 43–50/B1: Listening

43–50-Can understand main points of standard speech on familiar topics (e.g. work, leisure).
Can follow main points of short talks on familiar topics if delivered in clear standard speech.
Can follow detailed directions.
Can follow many films in which visuals and action carry much of the storyline.
Can follow main points in TV programs on familiar topics if relatively slow and clear.
Can generally follow familiar topics if the speaker is clear and avoids idiomatic usage.

GSE 43–50/B1: Writing

50-Can make simple, logical paragraph breaks in a longer text.
48-Can write a basic letter of application with limited supporting details.
Can write personal emails/letters giving some details of events, experiences and feelings.
47-Can write a description of a future event or activity.
Can write personal letters describing experiences, feelings and events in some detail.
46-Can write a basic formal email/letter requesting information.
43–50-Can link a series of shorter familiar elements into a connected linear sequence of points.
Can write straightforward, detailed descriptions on a range of familiar topics.
Can write about experiences, feelings and reactions in a simple connected text.
Can write a description of an event, a recent trip – real or imagined.
Can narrate a story demonstrating a range of language within a simple linear sequence.
Can write a brief standard report conveying factual information, stating reasons for actions.
Can convey information and ideas on abstract and concrete topics and seek confirmation.
Can ask about or explain a problem with reasonable precision.

Can write letters/emails exchanging simple information, emphasising the most important point.
Can take notes of key points during a lecture on a familiar topic if delivered clearly.
Can collate short pieces of information and summarise them for somebody else.
Can write a basic summary using the original wording and order of short written passages.
Can produce continuous writing which is generally intelligible throughout.

GSE 43–50/B1: Spoken interaction

50-Can express and respond to feelings (e.g. surprise, happiness, interest, indifference).
Can briefly give reasons and explanations for opinions, plans and actions.
Can convey meaning with an approximate substitute word and invite correction.
Can reasonably fluently relate a simple narrative or description as a linear sequence.
Can make a complaint.
Can express opinions and react to practical suggestions of where to go, what to do, etc.
Can express opinions as regards possible solutions, giving brief reasons and explanations.
49-Can ask someone to clarify or elaborate what they have just said.
Can use a suitable phrase to intervene in a discussion on a familiar topic.
Can take some initiative in an interview, but is generally very dependent on interviewer.
48-Can describe an experience, giving some details of feelings and reactions.
47-Can use a suitable phrase to invite others into a discussion.
46-Can initiate, maintain and close simple, face-to-face conversation on familiar topics.
Can enter unprepared into conversation on familiar topics (e.g. family, hobbies, work).
45-Can foreignise a mother tongue word and ask for confirmation.
Can deal with common situations when making travel arrangements or travelling.
Can invite others to give their views on how to proceed.
Can generally express belief, opinion, agreement and disagreement with some detail.
Can carry out a prepared structured interview with some spontaneous follow-up questions.
Can convey simple information of immediate relevance and emphasise the main point.
Can deal with less routine situations on public transport (e.g. asking where to get off).
Can ask for, follow and give detailed directions.
Can use simple techniques to start, maintain or end a short conversation.
Can give or seek personal views and opinions in discussing topics of interest.
44-Can express belief, opinion, agreement and disagreement politely.
43-Can give simple instructions (e.g. how to get somewhere, how to play a game).
Can interact in routine situations, but participation in open discussions is fairly restricted.
43–50-Can exploit a wide range of simple language to deal with most situations while travelling.
Can follow everyday conversation, with some repetition of particular words and phrases.
Can put over a point of view clearly, but has difficulty engaging in debate.
Can take part in clearly articulated routine discussions exchanging factual information.
Can generally follow what is said and repeat back details to confirm understanding.

GSE 43–50/B1: Grammar

Nouns and articles
43–50-Can make generalisations about groups and nationalities using the definite article + adjective.
the unemployed; the Brazilians; the young; the rich; the Europeans, etc.
Can use common fixed phrases that do not require an article.
at work; in bed; at home; by bus; have breakfast/dinner; at night; on Monday, etc.
Possessives, pronouns and quantifiers
43–50-Can use a range of possessive forms including hers, his, its, ours, theirs and ’s .
These are ours; Let’s go to theirs; I don’t like hers; I gave him his; That’s Anna’s, etc.
Can group things using both , neither , either , each , every , all /none + of or a noun.
I don’t like either of them; Neither of us live here; all of us went; both boys passed, etc.
Can distinguish between a few /little and few /little .
Few of his films are successful; There’s little information at the moment, etc.
Can use the genitive of + of in a noun phrase.
the end of the first half of the match; the styling of the front of the car, etc.
Can use a phrase with ’s to show a duration of time.
a week’s holiday; two days’ pay; a year’s break; a day’s rest; six months’ travelling, etc.
Prepositions
43–50-Can use a range of prepositions to describe movement.
across; along; around; through; over; under; past, etc.
Can use like with certain common verbs to express similarity.
it’s like; looks like; tastes like; feels like; sounds like, etc.
Can use prepositions instead of a pronoun in some relative clauses.
boy with dark hair; a car with a sunroof; the woman with a child; a computer with a printer, etc.
Can describe a job or the use of something with as work as a waiter; use it as a ruler/guide; use it as a cup/seat, etc.
Can use the preposition for + -ing form to express purpose.
I use it for washing the car; The money’s for spending on holiday, etc.
Adjectives and adverbs
43–50-Can use as … as to express similarity or lack of similarity with adjectives and adverbs.
as big as; the same as; not as good as; not as fast as; as slowly as, etc.
Can use basic adverbial phrases to express frequency.
every day; once a week; twice a year, etc.
Can say something is possible or not using too + adjective/not + adjective + enough + infinitive.
She’s old enough to vote; He’s too short to reach; They’re too far away to see, etc.
Can use too /enough with simple adverbs of manner.
She speaks too fast; He eats too quickly; They don’t work hard enough, etc.
Can use adjectives after verbs (e.g. look, sound, feel, taste, smell, seem, appear).
He looks bored; It sounds funny; She seems nice; It doesn’t seem difficult, etc.
Can modify comparisons with words (e.g. much, a lot /lots, a bit).
a bit taller than; much more expensive than; a lot busier, etc.
Can modify another adverb with words (e.g. really, very, quite).
He talks really fast; She goes there quite often; She can speak Chinese very well, etc.

Present tenses
43–50-Can recognise verbs not commonly used in the continuous form and use them appropriately.
think; hear; seem; looks; tastes; feels; believe; belong; own; know; prefer; want; understand, etc.
Can signal that a situation is only temporary and liable to change using the present continuous.
I'm living with my parents; She's working in Oxford; She's working a lot right now, etc.
Can describe the plot of a film or book using the present simple.
It takes place in …; It begins with …; They fall in love; The story starts with; They meet in Rome, etc.
Past tenses
43–50-Can describe past routines and habits that no longer happen.
used to; didn't use to; did you use to? I would; would you? etc.
Can describe an unfinished action around a specific past time using while + past continuous.
I saw her while I was shopping; We met while we were living in Paris; while I was sleeping, etc.
Present perfect
43–50-Can express the duration of an existing situation that started in the past.
She's lived there since 2011; How long have you been here?; I haven't seen her for two weeks, etc.
Can talk about past experiences with present perfect + superlatives.
the best book I've ever read; the worst film I've seen; the best holiday I've ever had, etc.
Future forms
43–50-Can make predictions about future events and situations with going to .
it's going to; it's not going to; I don't think it's going to rain; What's going to happen?, etc.
Can express certainty about the present or future using will .
That will be really difficult; She'll be late; I'm sure it won't be open, etc.
Modal verbs
43–50-Can express prohibition, obligation and lack of obligation in the present or future.
must; have/need to; should; don't have/need to; needn't; can't; mustn't; shouldn't, etc.
Can ask for, give or refuse permission in the present or future.
can; could; may; allowed to; able to; can't; not allowed to; won't be able to, etc.
Can express likelihood with a range of common modal verbs.
should be ready; could be late; must be expensive; can't be easy; shouldn't take long, etc.
Can express certainty about the present or future using will .
That will be really difficult; She'll be late; I'm sure it won't be open, etc.
Conditionals
43–50-Can describe possible outcomes of a future action or situation.
If we don't hurry, we'll be late; What will you do if they don't call?, etc.
Can make a conditional offer in the present or future.
I'll pay for lunch if you pay for dinner; I'll help you if you help me, etc.

Word order and sentence patterns
43–50-Can use it as the subject followed by adjective + infinitive.
It was good to see you; It's difficult to pass the exam; It wasn't easy to find the restaurant, etc.
Questions
43–50-Can ask simple indirect questions to get information.
Can you tell me what time it is?; Do you know where he lives?; Could you tell me how much it is?, etc.
Can ask simple questions about the subject.
Who loves you?; Who saw you?; What eats birds?; Who is sitting here?, etc.
Can ask simple questions about the subject using prepositional verbs.
What are you laughing at?; Who are you talking about?; What kind of music do you listen to?, etc.
Can understand the difference in meaning between What does he like? /What's he like? What kind of music does he like? He likes hip hop; What's she like? She's very friendly, etc.
-ing forms and infinitives
43–50-Can express purpose with an infinitive after some common verbs.
went to buy it; came to see me; study to pass the exam, etc.
Can speculate using verb + to be + adjective.
appears to be happy; pretends to be cool; doesn't seem to be difficult; supposed to be easy, etc.
Can use infinitives after certain verbs.
agree to do it; promise to do it; offer to help; refuse to leave; want to go, etc.
Can use -ing forms after certain verbs.
begin/start watching; consider leaving; imagine living abroad; look forward to hearing, etc.
Reported speech and indirect questions
43–50-Can report speech in a limited way using say followed by either present or future.
He says he can do it; She said she is happy; She said she'll do it, etc.
Can report speech in a limited way using tell /ask + object + either present, past or infinitive.
She told me she's single; We told them we were late; He asked me to help him, etc.
Relative, participle and other clauses
43–50-Can omit that, who, which in a defining relative (BrE)/restrictive adjective (AmE) clause.
He's the friend (who) I told you about; That's the movie (that) I wanted to see, etc.
Can use prepositions instead of a pronoun in some relative (BrE)/adjective (AmE) clauses.
boy with dark hair; a car with a sunroof; woman with a child; a computer with a printer, etc.
Discourse and linking
43–50-Can follow the simple linear structure of a short formal talk.
I'd like to start with/by, then go on to; first part is about; before we begin; conclude by, etc.
Can show the simple relationship between a cause and a result.

because; as a result + clause; as a result of + noun; the reason why + clause; therefore, etc.
Can show a chronological sequence in a narrative using a range of linking devices.
during; after/before + -ing; until; eventually; in the end; throughout; from; till, etc.
Passive forms
43–50-Can use common passive phrases in the present and past simple.
made of/by/in; built in; painted/written/directed by; discovered/invented by/in, etc.
Words that go together
43–50-Can use some common phrasal verbs that can be separated by the object.
put a jacket on; switch the light off; turn on the TV; take off your shoes, etc.
Can use a limited range of separable phrasal verbs + indirect object + object.
thank him for the present; ask her for the book; invite them to the party, etc.
Word formation
43–50-Can begin to recognise and form adjectives from common suffixes (e.g. y , ful , able , less).
dirty; healthy; careful; helpful; comfortable; suitable; careless; useless; pointless, etc.
Can begin to form negatives and opposites from common prefixes (e.g. un , im).
unhappy; impossible; unreliable; uncomfortable, etc.
Can begin to recognise and form common compound adjectives.
high-quality; well-known; ten-year-old; full-/part-time; self-service; high-speed, etc.
Formality and register
43–50-n /a

GSE 43–50/B1: Vocabulary

Business, industry and the economy
43–50-Can use limited language related to a company and what it does.
manufacturer; financial services; based in; employ; offices; factories; sales; brands, etc.
Clothes, jewellery, cosmetics and fashion
43–50-Can use some less common language related to accessories and items of clothing.
blouse; hoodie; bracelet; diamond necklace/ring; golden/silver necklace, etc.
Can use common language related to the fastenings on clothes and accessories.
zip (BrE)/zipper (AmE); button; Velcro; laces; stud; belt, etc.
Cultures, customs, religion and traditions
43–50-Can use general language related to an exhibition or museum.
gallery; sculpture; antique; opening times; modern; works of art; exhibits; on display, etc.
Can use general language related to customs in their own country.
vegetarian; alcoholic drinks; smoking; typical food; public holidays, etc.
Education, study and languages
43–50-Can use general language related to their study history.
study in/at; get a degree/diploma; major in; pass/fail an exam; graduate in, etc.
Can use general language related to the learning process.
do/hand in homework/exercises; revise/study for an exam/test, etc.
Family, friends and people
43–50-Can use common language related to relationships within an extended family.

in-laws; step-/half-sister/brother; aunt/uncle; nephew/niece; cousins; married to; lives with, etc.
Can use some detailed language related to appearance and personality.
single; divorced; separated; slim; middle-aged; young-looking; cheerful; serious, etc.
Food and drink
43–50-Can name limited ranges of types of meat, fish, fruit and vegetables.
beef; pork; chicken; cod; salmon; grapes; lemons; raisins; peanuts; spinach; peas, etc.
Can use common language related to preparing and cooking food.
peel; mix; stir; slice; fry; grill; boil; bake; peel, etc.
Can use some detailed language related to a restaurant experience.
atmosphere; traditional/modern; (un)friendly service; choice; bill; tip, etc.
Health and body
43–50-Can use some detailed language related to ailments and accidents.
get sick; take a sick day; pain/ache in; feel sick/dizzy/faint; have surgery; break a bone, etc.
Can name common healthcare professionals.
see a doctor/GP; nurse; dentist; optician; specialist; paramedic; therapist, etc.
Holidays (BrE)/Vacations (AmE), travel and transportation
43–50-Can use common language related to holiday accommodation.
luxury/budget/cheap hotel; place to stay; reception area; good/bad service; clean rooms, etc.
Can use some detailed language related to a holiday.
package deal; guided tour; go sightseeing/see the sights; delays; itinerary, etc.
Can use general language related to common ways of travelling.
passenger; travel by/on; fly from/to; rent a car; first class; economy; coach; ferry, etc.
Can use some detailed language related to an airport experience.
security; gate; lounge; immigration; passport control; visa; board; delay; check-in, etc.
House and home
43–50-Can use some detailed language related to the house.
up/downstairs; spacious; roomy; light; en suite (BrE); utility room; basement; central heating , etc.
Can name the most common items of furniture.
sofa; bed; dining table; wardrobe; chest of drawers; desk; chair; mirror, etc.
Media, arts, literature and entertainment
43–50-Can use general language related to the characters and events of a book.
character; it starts with; hero; it's about; it's set in; twist; plot; in the end, etc.
Can use general language related to a news item.
story/report on; economy; scandal; celebrity; in the news/papers; conflict; environment, etc.
Can use general language related to common types of TV programs.
soap opera; reality show; documentary about; chat/talk show; series; live broadcast, etc.
Natural world and environment
43–50-Can use general language related to geographical features of a place of interest.
forest; woodland; valley; peaceful; lively; coast; popular with; touristy; beautiful; full of, etc.
Can use some detailed language related to the weather.
climate; stormy; foggy; misty; freezing; gale; thunderstorm; mild; changeable, etc.

Numbers, physical properties and measurements
43–50-Can use some detailed language related to the form and condition of an object.
hard; rough; soft; shiny; slightly/a bit damaged/worn; brand new; second-hand; broken, etc.
Can name a range of common materials.
It's made (out) of plastic/metal/leather/silk/cotton/nylon/wood/rubber/steel, etc.
Can use basic general language related to common graphs and bar charts.
bar/pie chart; graph; rise/increase/fall by; a fall/increase of; peak of/in; between, etc.
Can use general language related to the dimensions of an object in numeric terms.
weighs about 1kg; 2lbs; 3 metres long/high; height; weight; centimetres/cm; wide, etc.
Socialising and relationships
43–50-Can use general language related to making social arrangements.
free/busy on/at; can('t)/let's make it; plans for; get together; let's say; how about?, etc.
Can use polite language related to requesting, giving and refusing permission.
Do you mind if …?; is It OK to …?; Sure; Go ahead; No problem; Sorry but I can't, etc.
Can use polite language related to turn-taking in an informal discussion.
That's OK, but …; What do you think?; Does everyone agree to that?; Can I say something?, etc.
Can use informal language related to starting and closing a casual conversation.
How's things/it going?; What's new with you?; I've got to (gotta) go now; better be off, etc.
Politics, history, law and society
43–50-Can use basic language related to a political system.
government; party; vote; election; left/right wing; parliament; socialist, etc.
Can use general language related to the nature of a crime.
murder; hijack; kidnap; terrorist attack; robbery; victim; casualty; bomb; arrest, etc.
Science and technology
43–50-Can use general language related to science and the scientific process.
chemistry; physics; biology; research into; scientist; experiment; lab; tests; invent, etc.
Shopping, money and services
43–50-Can use some detailed language related to a shopping experience.
browsing; sales; discount; in my size; sold out; look good on; try on; just looking, etc.
Can use general language related to describing a shop.
trendy; boutique; department store; reasonable; supermarket; good/bad selection, etc.
Can use general language related to complaining about a purchase in a shop/store.
doesn't work; faulty; broken; receipt; under warranty/guarantee; refund; money back, etc.
Sports, hobbies and interests
43–50-Can use some detailed language related to a hobby or interest.
I'm into; really/quite enjoy; crazy about; just for fun; the thing/what I like best is, etc.
Thoughts, feelings, perceptions and opinions
43–50-Can use some detailed language related to feelings
disappointed with; frustrated; exhausted; upset about; pleased with; hurt by; anxious about, etc.
Can use appropriate language related to expressing strength of opinion
hate/can't stand; fed up with; (not) keen on; quite like (BrE)/kind of like (AmE), etc.
Can use some detailed language related to feelings about people
love; can't stand; irritated by; attracted to; find him/her + -ing, etc.

Can use a range of language related to degree of surprise, interest or indifference.
Really?; You're joking! (BrE)/kidding! (AmE!); No way!; You'll never guess what; So (what)?, etc.
Can use a range of language related to degree of happiness, satisfaction or dissatisfaction.
(really) pleased with; delighted with; That's great/perfect; I'm not happy with; Is that OK?, etc.
Can use a range of language related to reasons for opinions and actions.
I think it's a good idea to/if we; I was trying to; If we do this, then; I (really) wanted to, etc.
Can use general language related to clarifying and elaborating meaning.
Do you mean?; So you're saying; The point is that; So this means; What do you mean by …?, etc.
Can use some detailed language related to dreams, hopes and ambitions.
I'm hoping to; One day I'd love to; It's my dream to; I'm working on; My dream job is, etc.

Workplace and jobs

43–50-Can use some detailed language related to their place of work.
long hours; breaks; canteen (BrE)/cafeteria (AmE); colleagues (BrE)/co-worker (AmE), etc.
Can use some detailed language related to their job.
work for; work in; responsible for; duties include; do a lot of; the head of; in charge of, etc.
Can use general language related to a questionnaire or interview.
Can you tell me about …?; What about …?; Tell me more about; I'd like to know (more) about, etc.
Can use appropriate language related to a formal letter or email.
Dear Sir/Madam; Yours faithfully/sincerely/truly; With best regards; grateful if you could, etc.
Can use appropriate language related to a basic letter of application/cover letter.
with reference to; availability; CV/resumé; attached/enclosed; as advertised, etc.

Appendix B-Sample Reading Comprehension Questions

Television commercials have a long reputation of being the main advertisement channel to the masses. Therefore, it is no wonder that companies are willing to spend a lot of money to create a high-quality television commercial. Apart from the visual and verbal content of a commercial, the third important feature is the music accompanying the visual and verbal parts. Music playing in a TV commercial usually affects us subconsciously, but it has a great impact on how we perceive the product that is advertised and the commercial in general.

There are different kinds of background music in advertisements, such as jingles, original music pieces that are written especially for the commercial and even popular hit songs. Whereas famous jingles can induce brand repetition because the viewer has most likely heard the jingle before and associates it directly with the brand, instrumental music generally affects the viewer more indirectly, influencing the viewers' mood and emotions towards the advertisement.

Research on this topic has revealed that the effect of music on the formation of attitudes is determined by various factors, such as musical congruity (including timbre congruity, genre congruity etc.), type of commercial music (e.g. jingles, instrumental, pop songs), musical mode (minor of major), tempo of the song (e.g. fast or slow) and the general mood the music conveys to the audience, among others.

1. The best title for the text is _____.

A. The Effect of TV Commercials on Masses
B. The Visual and Verbal Content in TV Commercials
C. The Role of Music in TV Commercials
D. TV Commercials in Music Industry

2. Which of the following is not mentioned as a component of TV commercials?

A. The scenario used
B. Photographs and videos used
C. The song used
D. The players

3. The advantage of using instrumental music in TV commercials is that it _____.

A. involves repetition
B. is associated with the product
C. affects the mood of viewers
D. directly affects viewers

4. The word "it" in paragraph 2 refers to _____.

A. the jingle
B. brand repetition
C. instrumental music
D. the product

5. The word "others" in paragraph 3 refers to _____.

A. jingles
B. various factors
C. pop songs
D. musical moods

6. The phrase "Apart from" can be replaced by _____.

A. In addition to
B. Similar to
C. Because of
D. As a result of

7. The word "convey" is closest in meaning to _____.

A. equal
B. transfer
C. affect
D. show

Appendix C-Sample Vocabulary Knowledge Questions

Part A-Word Formation

Relating with people and being able to work in large groups naturally develops one's communications skills. After all, you cannot have great social skills without good communication skills and being able to convey one's thoughts and ideas may be the single most 1._____ skill. If you are good with people, you can more 2. _____ avoid being with the people you do not like as much as others. Some people dread social interactions because they do not wish to spend time with individuals who do not have 3. _____ interests and viewpoints. If you are in a social situation and do not want to spend time with 'John' because he cannot help you with a particular issue, a good set of social skills will allow you to politely convey that you need to spend time with other people at the get together. See our pages improving self-esteem and building 4. _____ .

1.	A. **significant**	B. significance	C. significantly	D. signify
2.	A. ease	B. easiness	C. easy	D. **easily**
3.	A. simile	B. similarly	C. **similar**	D. similarity
4.	A. confide	B. **confidence**	C. confident	D. confidently

Part-B

1. According to the new law, customers can apply for a (an) _____ within 30 days if they are satisfied with the product they buy.

   A. loan
   B. interest
   C. mortgage
   D. refund

2. The players of the guest team _____ that a large amount of money and a number of mobile phones were stolen from the dressing room. However there was no evidence or witness to verify this. Now the police are watching the available security cameras in the company.

   A. refused
   B. reported
   C. alleged
   D. witnessed

3. Belgium launched a new program to help _____ adapt themselves to the community by learning the languages spoken in Belgium and certain rules of social life. It is obligatory to attend this program within a year following their arrival in the country.

   A. tourists
   B. immigrants
   C. teenagers
   D. senior citizens

Appendix D-Sample Grammar Knowledge Questions

Part A

There are some distinguished journals in the field of history. 1. _____ in 1952, the World History Society runs a journal called World History, has its own book series, sponsors conferences, and appoints two postdoctoral fellows every year. World History is widely acknowledged 2. _____ the liveliest and most stimulating historical journal in the English-speaking world. The journal's contents reflect the Society's mission that history 3. _____ be accessible and interesting to a wide range of readers, and its articles are intended to appeal to non-specialists as well as to experts. Since its inception in 1952, the mark of an article to be published in the journal 4. _____ that it should be a properly researched study which showed an awareness of the wider implications of that research.

1.	A. **Founded**	B. Founding	C. Being founded	D. Having founded
2.	A. to being	B. have been	C. **to be**	D. being
3.	A. might	B. **should**	C. will	D. is supposed to
4.	A. had been	B. would be	C. was	D. **has been**

Part B

1. _____ all the difficulties, my brother left the school.

A. In spite of
B. Because of
C. As if
D. Unless

2. Many critics believe that as Japan _____ to expand its economical boundary, its rivals _____ to stop its growth before the breaking point.

A. continues / will try
B. has continued / might have tried
C. continued / has tried
D. had continued / will have tried

3. Don’t stand there _____ nothing.

A. having done
B. for doing
C. doing
D. being done

Appendix E-Morphological Awareness Test (MAT)

Section I: Sentence Completion Test

The purpose of this section is to understand whether the participants are aware of the grammatical and lexical functions of some common derivational affixes in English. The target words used in this section are pseudo-words that are appropriate for the morphological structure of English. The derivational affixes used in this test are **-tion, -ist, -(i)ty; -ate, -ize, -fy** and **-ous, -ive, -al**, which make nouns, verbs and adjectives respectively. The test items in this section have been taken from (Mahony, 1993) with minor adjustments.

Instruction: Each of the following 20 sentences contains a blank and is followed by four words. Each of the four words has the same root (base) with a different suffix (ending). Chose the best word for each sentence. Note: The four words may be new to you; therefore, use your knowledge of suffixes.

1. In spite of his _____, he did a great job.
   - **A.** dispribize
   - **B.** **dispribation**
   - **C.** dispribational
   - **D.** dispribify

2. They _____ the data in the back office.
   - **A.** curfamic
   - **B.** curfamation
   - **C.** **curfamate**
   - **D.** curfamity

3. Their solution for the problem is fundamentally _____.
   - **A.** torbatify
   - **B.** **torbative**
   - **C.** torbativize
   - **D.** torbatuate

4. You can't even begin to _____ without modern equipment

- **A. equamanize**
- **B.** equamanizable
- **C.** equamanity
- **D.** equamanive

5. The most _____ samples were not used.

- **A. birendal**
- **B.** birendment
- **C.** birendalize
- **D.** birendify

6. They hope to _____ the two sides together.

- **A.** uniromosity
- **B. uniromify**
- **C.** uniromous
- **D.** uniromative

7. Dr. Jones, a well-known _____, is speaking tonight.

- **A.** circumtarious
- **B. circumtarist**
- **C.** circumtarify
- **D.** circumtarize

8. Please try to be as totally _____ as possible.

- **A.** progenalism
- **B.** progenalize
- **C. progenious**
- **D.** progenify

9. His _____ is greatly admired.

- **A.** superfilize
- **B.** superfilive
- **C.** superfilial
- **D. superfilation**

10. We should _____ the money that we need.

A. relaptification
B. relaptian
C. **relaptify**
D. relaptable

11. Too much_____ is bad for the economy.

A. **malburnity**
B. malburnify
C. malburnicious
D. malmurnable

12. Their progress was stopped by an unexpected _____.

A. postramify
B. postramic
C. **postramity**
D. postramicize

13. You must _____ them quickly or you'll ruin the colors.

A. premanicism
B. **premanicize**
C. premanicity
D. premanic

14. Desert animals are not normally _____.

A. commalianization
B. **commalious**
C. commalianism
D. commalianize

15. They presented the highly _____ evidence first.

A. **credenthive**
B. credenthification
C. credenthicism
D. credenthify

16. The story of the _____ was repeated every year.

A. vergalize
B. vergaliate
C. vergalify
D. **vergalist**

17. He is so _____ that he offends almost everyone.

A. dicthopithify
B. dicthopithification
C. **dicthopithial**
D. dicthopithity

18. The new equipment will _____ everything automatically.

A. **transurbate**
B. transurbativity
C. transurbatist
D. transurbative

19. The breeders _____ their stock every four generations.

A. **genilify**
B. genility
C. genilification
D. geniliar

20. All those models are _____ and old-fashioned.

A. ambilemptify
B. ambilemptivist
C. ambilemptity
D. **ambilemptive**

21. If we can overcome its _____, we should complete the project on schedule.

A. antiflidify
B. antifilidize
C. antifilidacious
D. **antifilidicity**

22. The meeting was highly _____ and invigorating.

- **A.** loquarify
- **B.** **loquarial**
- **C.** loquarialize
- **D.** loquarialism

23. Please _____ these forms as soon as possible.

- **A.** scribsumptist
- **B.** scribsumptious
- **C.** scribsuptian
- **D.** **scribsumptize**

24. She met her first _____ when she moved out west.

- **A.** **benedumptist**
- **B.** benedumptify
- **C.** benedumptize
- **D.** benedumptuous

25. All the _____ specimens are kept in a separate place.

- **A.** tribacize
- **B.** tribacion
- **C.** tribacism
- **D.** **tribacious**

26. No one liked the manager's obvious _____.

- **A.** spectitious
- **B.** spectitionalize
- **C.** **spectition**
- **D.** spectitive

27. He wants to _____ while he still can.

- **A.** fidamoration
- **B.** fidamorian
- **C.** fidamorational
- **D.** **fidamorate**

Section II: Word Relation

The purpose of this section is to find out if the participants could identify whether the two words are morphologically related or not. Some of the test items in this section have been taken from Mahony (1993), while some others have been designed accordingly by the researcher.

Instruction: Below are 15 pairs of words followed by YES and NO. For each pair, if you think that the second word comes from the first word, circle the word YES. If not, circle NO.

Practice Items:

creative → creativity	**YES**	NO
part → party	YES	**NO**

1. magic → magician	**YES**	NO
2. man → many	YES	**NO**
3. sun → sunny	**YES**	NO
4. maintain → maintenance	**YES**	NO
5. fry → Friday	YES	**NO**
6. consume → consumption	**YES**	NO
7. corn → corner	YES	**NO**
8. numb → number	YES	**NO**
9. conscious → consciousness	**YES**	NO
10. dust → industry	YES	**NO**
11. active → activist	**YES**	NO
12. let → letter	YES	**NO**
13. win → winner	YES	**NO**
14. intelligent → intelligence	**YES**	NO
15. flu → affluence	YES	**NO**
16. popular → popularity	**YES**	NO
17. chair → charity	YES	**NO**
18. environment → environmentalist	**YES**	NO
19. ear → earth	YES	**NO**
20. apple → applause	YES	**NO**

Appendix F-SURVEY OF READING STRATEGIES

The purpose of this survey is to collect information about the various strategies you use when you read **school-related academic materials in ENGLISH** (e.g., reading textbooks for homework or examinations; reading journal articles, etc.). Each statement is followed by five numbers, 1, 2, 3, 4, and 5, and each number means the following:

'1' means that 'I **never or almost never** do this'.
'2' means that 'I do this **only occasionally**'.
'3' means that 'I **sometimes** do this'. (About **50%** of the time.)
'4' means that 'I **usually** do this'.
'5' means that 'I **always or almost always** do this'.

After reading each statement, ***circle the number*** (1, 2, 3, 4, or 5) which applies to you**.** Note that there are **no right or wrong responses** to any of the items on this survey.

Statement	Never				Always
1. I have a purpose in mind when I read.	1	2	3	4	5
2. I take notes while reading to help me understand what I read.	1	2	3	4	5
3. I think about what I know to help me understand what I read.	1	2	3	4	5
4. I take an overall view of the text to see what it is about before reading it.	1	2	3	4	5
5. When text becomes difficult, I read aloud to help me understand what I read.	1	2	3	4	5
6. I think about whether the content of the text fits my reading purpose.	1	2	3	4	5
7. I read slowly and carefully to make sure I understand what I am reading.	1	2	3	4	5
8. I review the text first by noting its characteristics like length and organization.	1	2	3	4	5
9. I try to get back on track when I lose concentration.	1	2	3	4	5
10. I underline or circle information in the text to help me remember it.	1	2	3	4	5
11. I adjust my reading speed according to what I am reading.	1	2	3	4	5
12. When reading, I decide what to read closely and what to ignore.	1	2	3	4	5
13. I use reference materials (e.g. a dictionary) to help me understand what I read.	1	2	3	4	5
14. When text becomes difficult, I pay closer attention to what I am reading.	1	2	3	4	5
15. I use tables, figures, and pictures in text to increase my understanding.	1	2	3	4	5
16. I stop from time to time and think about what I am reading.	1	2	3	4	5
17. I use context clues to help me better understand what I am reading.	1	2	3	4	5
18. I paraphrase (restate ideas in my own words) to better understand what I read.	1	2	3	4	5
19. I try to picture or visualize information to help remember what I read.	1	2	3	4	5
20. I use typographical features like bold face and italics to identify key information.	1	2	3	4	5
21. I critically analyze and evaluate the information presented in the text.	1	2	3	4	5
22. I go back and forth in the text to find relationships among ideas in it.	1	2	3	4	5
23. I check my understanding when I come across new information.	1	2	3	4	5
24. I try to guess what the content of the text is about when I read.	1	2	3	4	5
25. When text becomes difficult, I re-read it to increase my understanding.	1	2	3	4	5
26. I ask myself questions I like to have answered in the text.	1	2	3	4	5
27. I check to see if my guesses about the text are right or wrong.	1	2	3	4	5
28. When I read, I guess the meaning of unknown words or phrases.	1	2	3	4	5
29. When reading, I translate from English into my native language.	1	2	3	4	5
30. When reading, I think about information in both English and my mother tongue.	1	2	3	4	5

SCORING GUIDELINES FOR THE SURVEY OF READING STRATEGIES

Student Name: _____ **Date:** _____

1. Write the number you circled for each statement (i.e., 1, 2, 3, 4, or 5) in the appropriate blanks below.
2. Add up the scores under each column and place the result on the line under each column.
3. Divide the subscale score by the number of statements in each column to get the average for each subscale.
4. Calculate the average for the whole inventory by adding up the subscale scores and dividing by 30.
5. Use the interpretation guidelines below to understand your averages.

Global Reading Strategies (GLOB Subscale)	Problem Solving Strategies (PROB Subscale)	Support Reading Strategies (SUP Subscale)	**Overall Reading Strategies (ORS)**
1. _____	7. _____	2. _____	**GLOB**
3. _____	9. _____	5. _____	_____
4. _____	11. _____	10. _____	**PROB**
6. _____	14. _____	13. _____	
8. _____	16. _____	18. _____	_____
12. _____	19. _____	22. _____	**SUP** _____
15. _____	25. _____	26. _____	
17. _____	28. _____	29. _____	
20. _____		30. _____	
21. _____			
23. _____			
24. _____			
27. _____			

_____ GLOB Score _____ PROB Score _____ SUP Score _____**Overall Score**

/ 13 **/ 8** **/ 9** **/ 30**

_____ GLOB Average _____ PROB Average _____ SUP Average ____ Overall average

KEY TO AVERAGES: 3.5 or higher = High 2.5 –3.4 = Medium 2.4 or lower = Low

INTERPRETING YOUR SCORES: The overall average indicates how often you use reading strategies when reading academic materials. The average for each subscale shows which group of strategies (i.e., Global, Problem Solving, or support strategies) you use most often when reading. It is important to note, however, that the best possible use of these strategies depends on your reading ability in English, the type of material read, and your reading purpose. A low score on any of the subscales or parts of the inventory indicates that there may be some strategies in these parts that you might want to learn about and consider using when reading (adapted from Oxford 1990, pp. 297-300).

Mokhtari, K., & Sheorey, R. (2002). Measuring ESL students reading strategies. *Journal of Developmental Education*, 25 (3), pp. 2-10.

OKUMA STRATEJİLERİ ANKETİ (Kouider Mokhtari and Ravi Sheorey, 2002)

Bu anketin amacı okul yaşantınızla ilgili İNGİLİZCE metinleri okurken kullandığınız çeşitli stratejiler hakkında bilgi toplamaktır (ödev veya sınavlar için ders kitaplarını okuma, makale okuma, vb.). Her bir cümlenin ardından 1, 2, 3, 4 ve 5 olmak üzere beş tane rakam gelir, ve bu rakamlar aşağıdaki anlamlara gelmektedir:

1:"Bunu **hiç/neredeyse hiç** yapmam."
2: "Bunu **yalnızca arada sırada** yaparım." (%50'den daha seyrek)
3: "Bunu **bazen** yaparım." (Yaklaşık %50 sıklık)
4: "Bunu **genellikle** yaparım."
5: "Bunu **her zaman/neredeyse her zaman** yaparım."

Her bir cümleyi okuduktan sonra, size uyan rakamı işaretleyiniz (1, 2, 3, 4, ya da 5). Bu anketteki maddelerden herhangi birinin doğru ya da yanlış cevabı olmadığını unutmayınız.

Maddeler	**Sıklık**				
1. Bir şey okurken aklımda bir amacım vardır.	1	2	3	4	5
2. Okurken okuduğumu anlamaya yardım etmesi için notlar alırım.	1	2	3	4	5
3. Okuduğumu anlamama yardım etmesi için ne bildiğim üzerine düşünürüm.	1	2	3	4	5
4. Ne hakkında olduğunu anlamak için, okumadan önce okuma metnine şöyle bir göz gezdiririm.	1	2	3	4	5
5. Okuma metni zorlaşınca, okuduğumu anlamama yardım etmesi için yüksek sesle okurum.	1	2	3	4	5
6. Okuma metninin içeriğinin benim okuma amacıma uyup uymadığı düşünürüm.	1	2	3	4	5
7. Okuduğumu anladığımdan emin olmak için yavaş ve dikkatli bir şekilde okurum.	1	2	3	4	5
8. Öncelikle uzunluk ve düzen gibi özelliklerini not ederek okuma metnini gözden geçiririm.	1	2	3	4	5
9. Dikkatimi kaybettiğimde, geri toplamaya çalışırım.	1	2	3	4	5
10. Hatırlamama yardım etmesi için, metindeki bazı bilgilerin altını çizer ya da yuvarlak içine alırım.	1	2	3	4	5
11. Ne okuduğuma göre okuma hızımı ayarlamaya çalışırım.	1	2	3	4	5
12. Okurken, neyi dikkatle okumam gerektiğine ve neyi göz ardı etmem gerektiğine karar veririm.	1	2	3	4	5
13. Okuduğumu anlamama yardım etmesi için, sözlük gibi ek kaynaklar kullanırım.	1	2	3	4	5
14. Okuma metni zorlaşınca, ne okuduğuma daha çok dikkat ederim.	1	2	3	4	5
15. Okuduğumu daha iyi anlamak için, metindeki tablolar, şekiller ve resimlerden faydalanırım.	1	2	3	4	5
16. Zaman zaman durup, okuduğum şey üzerine düşünürüm.	1	2	3	4	5
17. Okuduğumu daha iyi anlamama yardım etmesi için metindeki ipuçlarını kullanırım.	1	2	3	4	5
18. Okuduğumu daha iyi anlamak için, metindeki fikirleri kendi cümlelerimle ifade ederim.	1	2	3	4	5
19. Okuduğumu hatırlamama yardım etmesi için, metindeki bilgiyi kafamda canlandırmaya çalışırım.	1	2	3	4	5
20. Metindeki anahtar bilgileri tespit etmek için koyu renk ve italik gibi baskı özelliklerinden faydalanırım.	1	2	3	4	5
21. Metinde sunulan bilgiyi eleştirel bir şekilde analiz eder ve değerlendirdim.	1	2	3	4	5
22. Metindeki fikirler arasındaki ilişkileri bulmak için, okuduklarıma geri döner ya daha ileriki satırlara göz gezdiririm.	1	2	3	4	5
23. Yeni bir bilgiyle karşılaştığımda, anlayıp anlamadığımı kontrol ederim.	1	2	3	4	5
24. Okurken, metnin içeriğini tahmin etmeye çalışırım.	1	2	3	4	5
25. Okuma metni zorlaşınca, okuduğumu daha iyi anlamak için tekrar okurum.	1	2	3	4	5
26. Kendime okuma metninde cevap verilmesini istediğim sorular sorarım.	1	2	3	4	5
27. Okuma metniyle ilgili tahminlerimin doğru olup olmadığını kontrol ederim.	1	2	3	4	5
28. Okurken, bilmediğim kelimelerin veya kelime gruplarının anlamını tahmin ederim.	1	2	3	4	5
29. Okurken, okuduğumu İngilizce' den Türkçe' ye çevirim.	1	2	3	4	5
30. Okurken, hem İngilizce hem de Türkçe olarak okuduğum metindeki bilgi üzerine düşünürüm.	1	2	3	4	5

OKUMA STRATEJİLERİ ANKETİNİN PUANLAMA YÖNERGESİ

Öğrencinin Adı: **Tarih:**

1. Her bir madde için işaretlediğiniz rakamı (1, 2, 3, 4, ya da 5) o maddenin numarasına karşılık gelecek şekilde aşağıya yazın.
2. Her sütunun altına o sütundaki **rakamların toplamını** yazın.
3. Her sütunun altına, rakamların toplamını o sütunda bulunan rakam sayısına bölerek **ortalamayı** yazın.
4. Genel ortalamayı bulmak için ise, her bir sütunun altındaki toplamı toplayıp, 30'a bölün.

Genel Okuma Stratejileri (GLOB)	**Problem Çözme Stratejileri (PROB)**	**Destek Okuma Stratejileri (SUP)**
1. _____ 3. _____ 4. _____ 6. _____ 8. _____ 12. _____ 15. _____ 17. _____ 20. _____ 21. _____ 23. _____ 24. _____ 27. _____	7. _____ 9. _____ 11. _____ 14. _____ 16. _____ 19. _____ 25. _____ 28. _____	2. _____ 5. _____ 10. _____ 13. _____ 18. _____ 22. _____ 26. _____ 29. _____ 30. _____
TOPLAM: _____	**TOPLAM: _____**	**TOPLAM: _____**
ORTALAMA: _____ (Toplamı **13'e** bölün.)	**ORTALAMA: _____** (Toplamı **8'e** bölün.)	**ORTALAMA: _____** (Toplamı **9'a** bölün.)

GENEL PUAN: _____

(Yukarıdaki üç grubun toplamını yazın.)

GENEL ORTALAMA:_____

(GENEL TOPLAMI 30'a bölün.)

Appendix G-Semi-Structured Interview Questions

Part 1-Based on SORS:

1.1. Global Reading Strategies

1. Do you get prepared before reading such as taking an overall view of the text, noting its characteristics like its length and organization or thinking about your previous knowledge about the text?
2. While reading, do you use tables, figures, pictures, context clues, typographical features like bold face and italics?
3. Before and during reading, do you make guesses about the content of the text and check them later?

1.2.Problem Solving Strategies

1. What do you do to better understand/remember a reading text?
2. What do you do when you encounter with unknown words or phrases while reading a text?

1.3.Support Reading Strategies

1. While reading a text, do you take notes, underline or circle certain information?
2. Do you use a dictionary while reading a text? Bilingual or monolingual?
3. While reading a text in English, do you translate the information into Turkish?
4. What do you do if the text is too difficult for you? (Refers to problem solving strategies as well.)

Part 2- Reading and Morphological Awareness

1. What do you think is necessary to be proficient enough in reading in English? (To elicit the overall view of the participants-Mentioning the bond between reading proficiency and vocabulary knowledge)
2. What do you do to learn new words/ to guess the meanings of unknown words?
3. Do you pay attention to the meanings of prefixes and suffixes? If yes, does it help you? How? (To elicit the relationship between prefix/suffix knowledge and parts of speech, and the contribution of knowing this to efficiently using a word (vocabulary knowledge) and better understanding reading texts through syntax knowledge (grammar knowledge))
4. Would you like to be guided to gain more insights into the word structure? Why/Why not?

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