



ISTANBUL MEDENIYET UNIVERSITY
INSTITUTE OF GRADUATE STUDIES
DEPARTMENT OF FOREIGN LANGUAGE EDUCATION
ENGLISH LANGUAGE EDUCATION

**EFL Learners' Morphological, Phonological, Orthographic
Awareness and Their Success in Reading Comprehension**

Master's Thesis

Selim YAVUZ

January, 2023



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Lect. PhD. Abdullah YILDIZ

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THESIS JURY APPROVAL

This Master's thesis titled "EFL Learners' Morphological, Phonological, Orthographic Awareness and Their Success in Reading Comprehension" written by Selim Yavuz at the Department of Foreign Language Education was accepted by our jury.

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STATEMENTS

Style and Reference Manual Statement

Having reviewed this thesis written under my supervision, I confirm that it has been written in accordance with APA (7th Edition) Manual of Style and used its [footnote/in text] reference format consistently throughout the entire text.

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Declaration of Originality

I hereby declare that all information in this dissertation has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conducts, I have fully cited and referenced all material and results that are not original to this work.

Signature

Selim YAVUZ

GENİŞ ÖZET

EFL Öğrencilerinin Morfolojik, Fonolojik, Ortografik Farkındalıkları ve Okuduğunu Anlamadaki Başarıları

YAVUZ, Selim

Yüksek Lisans, Yabancı Diller Eğitimi Anabilim Dalı,

İngiliz Dili Eğitimi Bilim Dalı

Tez Danışmanı: Öğr. Gör. Dr. Abdullah YILDIZ

Ocak 2023

Yabancı dil öğretiminde önemli olduğu düşünülen ve öğretim aşamasında geniş zaman ayrılan okuma becerisi, iki algılayıcı becerinin (dinleme ve okuma) daha kolay olanı olarak kabul edilmektedir. Bununla birlikte, iki beceriyi öğretmek için ayrılan zaman karşılaştırıldığında bu tam olarak doğru olmayabilir. Genel olarak okumadaki başarı, dil öğrenenlerin okuduğunu anlama üzerinde etkisi olabilecek diğer olası faktörler göz ardı edilerek, çoğunlukla hedef dilde geniş bir kelime bilgisi seviyesiyle ilişkilendirilir. Çok sayıda araştırma, bir çocuğun fonolojik farkındalığı ile okuma yeteneği arasında güçlü bir bağ olduğunu ve bu farkındalığın bu ilişkinin temelini vurguladığını göstermiştir (Calfee et al., 1973; Cossue et al., 1988; Juel et al., 1986; Liu, 2014; Stahl & Murray, 1994; Yeung et al., 2013; Yopp, 1988). Bu bağlamda, kelimelerin yazılışları ile okuma becerisinin kazanılmasındaki kritik becerilerden biri olan ve *hece*, *hece başlangıcı*, *kafiye* ile *sesbirim* düzeyinde kelime içi konuşma bölümlerinin farkındalığı olarak tanımlanan *fonolojik farkındalık* (Treiman, 1991) ve “bir öğrencinin morfolojik yapıyı kavrayışını (örneğin, biçimbirimlerin kelimelerle birleştiği yollar) ve bu bilgiyi morfolojik işlem sırasında görsel kelime tanımada kullanma yeteneği” olarak ifade edilen

(Koda, 2000: s. 299) *morfolojik farkındalığın* dil öğrenenlerin okuduğunu anlama üzerindeki etkilerine odaklanan çok sayıda araştırma yapılmıştır. Alanyazında fonolojik, morfolojik, fonemik farkındalık, ortografik işleme, yazım, kelime dağılımı vb. faktörlerin, yabancı dilde okuma becerisi üzerindeki etkilerini inceleyen araştırmalar bulunmaktadır. Bununla birlikte, alanyazında İngilizceyi yabancı dil olarak öğrenen Türk öğrenenlerin morfolojik, fonolojik, ortografik farkındalık düzeyleri ile okuduğunu anlama düzeyleri arasındaki ilişkiyi araştırmak için yürütülmüş çok az sayıda çalışma bulunmaktadır. Bu ilişkisel ve betimsel araştırma, Türkiye'de bir devlet üniversitesinde hazırlık sınıfında okuyan İngilizce öğrenenlerin farklı farkındalık türleri ve okuduğunu anlama arasındaki ilişkileri ayrı ayrı ve bütünsel olarak incelemeyi amaçlamıştır. İngilizceyi yabancı dil olarak öğrenenlerin fonolojik, morfolojik ortografik farkındalığı ve okuduğunu anlama arasındaki ilişki “İngilizceyi yabancı dil olarak öğrenenlerin öğrencilerinin morfoloji, fonoloji ve imla konusundaki farkındalık düzeylerinin okuduğunu anlama becerileri üzerindeki etkisi nedir?” araştırma sorusuna dayalı olarak araştırılmıştır. Araştırmanın kavramsal çerçeve bölümünde okuma becerisinin dildeki yeri ve öğrencileri bilgiyi işlemesi açıklanmaktadır. Bu konudan hareketle okuma sürecinin doğası, okuma becerisinin kazanılması, okuma becerisindeki farklılıklar, okumanın amaçları, okuma türleri, metin-okuyucu ilişkisi ve okuma süreçleri alt başlıklar halinde cümlede geçiş sırasına göre ele alınmıştır. Daha sonra bu bölümde okumanın bileşenleri ile ilgili sırasıyla kod çözme, kelime tanıma, dilsel anlama (Yabancı dil kelime bilgisi ve yabancı dil gramer bilgisi), dilsel farkındalık (morfolojik, fonolojik, fonemik, ortografik farkındalık) terimlerin tanımları ve açıklamaları verilmiştir. Son olarak kavramsal çerçeve bölümünde araştırmanın konusu ile ilgili daha önceden yürütülmüş alanyazındaki çalışmalar kronolojik olarak sıralanmaktadır. Araştırmada nicel araştırma yöntemlerinden ilişkisel tarama modeli kullanılmıştır. İki ve daha çok sayıdaki değişken arasında birlikte değişimin varlığını belirlemeyi amaçlayan tarama yaklaşımı olan ilişkisel tarama

modelinde, deęişkenlerin birlikte deęişip deęişmedięi; deęişme varsa bunun nasıl olduęu saptanmaya çalışılmıştır. Araştırmanın örneklemini, YÖK'e baęlı bir devlet üniversitesinde öğrenim gören 40 İngilizce hazırlık sınıfı öğrencisi oluşturmaktadır. Araştırma örnekleminin oluşturulmasında, amaçlı örneklem yöntemi kullanılmıştır. Fırat Üniversitesi Yabancı Diller Yüksekokulu'nda yapılan Yeterlik Sınavı'nın okuma becerisi ile ilgili bölümleri, Fonolojik Farkındalık Testi, Morfolojik Farkındalık Testi, Fonolojik Opaklık (Geçirimsizlik) Testi, Ortografik Seçim Görevi ve Yarı Yapılandırılmış görüşmeler içeren bir dizi araçla veri toplamak için karma yöntem araştırma tasarımı benimsenmiştir. Katılımcıların testlerden aldıkları puanlara göre, testlerin bulgu ve sonuçları sunulmuş ve açıklanmış, deęişkenler arasındaki ilişkiyi ortaya çıkarmak ve böylece farkındalık türlerinin okuduęunu anlama üzerindeki etkilerini açıklamak için istatistiksel ve tematik analizler yapılmıştır. Araştırmada kullanılan veri toplama araçlarından bu çalışmanın araştırmacısı tarafından hazırlanan/uyarlanan Fonolojik Opaklık (Geçirimsizlik) Testi, Ortografik Seçim Görevi ve Yarı Yapılandırılmış Görüşmeler veri toplama araçlarının güvenilirliğini tespit etmek amacıyla pilot çalışma uygulaması gerçekleştirilmiştir. Her iki testide 26 Nisan 2021 ile 2 Mayıs 2021 tarihleri arasında öğrencilerin erişimine açık olan süreli bir sınav olarak uygulamanın yapıldığı kamu üniversitesinin uzaktan eğitim sistemine kaydedilmiştir. İngiliz Dili ve Edebiyatı Bölümü'nden on birinci-sınıf öğrencisi ile gerçekleştirilen uygulama sonrası hazırlanan testlerin Cronbach's Alfa deęerleri $\alpha = .63$ ve $.68$ olarak bulunmuştur. Yarı yapılandırılmış görüşme soruları ise Whatsapp uygulaması üzerinden öğrencilere ulaştırılıp öğrencilerden gelen cevaplar anlaşılabilirliği kontrol edilmiştir. Veri toplama sürecinde ise öncelikle araştırmadaki çalışma grubu 2021-2022 Güz Dönemi başında 20 Eylül 2021 tarihinde Fırat Üniversitesi Yabancı Diller Yüksekokulunda uygulanan muafiyet sınavına girmiştir. Bu muafiyet sınavının okuduęunu anlama ile ilgili olan cümle tamamlama, paragraf tamamlama, paragraflardaki ilgisiz cümleyi belirleme, soruları çıkarım yaparak cevaplama ve verilen paragraflara göre ana

fikir veya detay bulma gibi soruları değerlendirilerek incelemeye dâhil edilmiştir. Araştırma süreci başlamadan önce araştırmanın konusu, araştırmada kullanılacak yöntem/teknikler ve veri toplama araçları İstanbul Medeniyet Üniversitesi etik kurulu tarafından onaylanmıştır. Bunun sonucunda tüm farkındalık testleri ve yarı yapılandırılmış görüşmeler dâhil olmak üzere çalışmaya gönüllü olarak katıldıklarını gösteren aydınlatılmış onam formunu imzalamaları istenmiştir. 2021-2022 Güz Dönemi'nde pandemi nedeniyle öğrencilerin tamamını okulda bulmak mümkün olmadığından Morfolojik Farkındalık Testi (MAT), Fonolojik Farkındalık Testi (PAT), Fonolojik Opaklık Testi ve Ortografik Seçim Görevi araştırmacı tarafından farklı haftalarda (18-22 Ekim, 1-5 Kasım ve 15-19 Kasım 2022) uygulanmıştır. Testlerin uygulanması 16 dakika, 13 dakika, 4 dakika ve 60 saniye ile tüm testler için yönergelere harcanan 10 dakikalık süre yani tüm testler için yaklaşık 45 dakika sürmüştür. Yarı yapılandırılmış görüşmeler ise Kovid-19 vakaları ve karantina nedeniyle bazı öğrencilerin veya tüm sınıfın okula gelmemesi nedeniyle 3-14 Ocak 2022 tarihleri arasında, nicel veriler toplandıktan birkaç ay sonra yapılmıştır. Araştırmada kullanılan testlerin sonuçları bağımlı ve bağımsız değişkenler için Morfolojik Farkındalık Testi bölümleri için ayrı ayrı ve bütün olarak tek test, diğer farkındalık testleri için ise tek bir test olarak SPSS 21 programında hesaplanmıştır.

Bu çalışmanın bulgular bölümünde, araştırma sorusuna cevap bulmak için katılımcıların testlerden aldıkları puanlar analiz edilmiş ve katılımcıların sahip oldukları eğilimi ve puanlarının nasıl dağıldığını netleştirmek ve göstermek için betimsel istatistikler (ortalama, minimum-maksimum puanlar, standart hata ve standart sapma) içeren raporlar sunulmuştur. Her bir testteki her madde için doğru ve yanlış cevapları tek tek grafikler, histogramlar ve tablolar aracılığıyla gösterecek şekilde madde analizleri yapılmıştır. Katılımcıların verdikleri test puanlarının normal dağılıp dağılmadığı kontrol edildiğinde, okuduğunu anlama testi puanlarının histogram grafiği, çarpıklık ve basıklık

değerlerinin analizi ile anormal bir dağılım gösterdiği tespit edilmiştir. Bu bulgudan yola çıkarak Spearman korelasyon ve ki-kare testi analizleri yapılmış ve değişkenler arasındaki ilişki varsa bu ilişkiyi aydınlatmak için tablolar, korelasyon matrisleri ve sözel betimlemeler halinde raporlanmıştır. Bu analizlere ek olarak, katılımcılar tarafından hazırlanan ve yarı yapılandırılmış görüşmeler yoluyla elde edilen cevaplar analiz edilmiş ve katılımcıların cevaplarında tematik kodlar aranmıştır. Saldana (2009)'un araştırmacılara kağıt üzerindeki nitel verileri manipüle etme olanağı ve kodların el yazısıyla yazılmasının onların iş üzerinde daha güçlü bir kontrole sahip olmalarını sağladığını belirttiği için, veriler manuel olarak analiz edilmiş ve kodlanmıştır. Braun ve Clarke (2006) tarafından belirtilen aşamalar doğrultusunda, katılımcılardan toplanan veriler, araştırmacı tarafından anlam ve örüntü arayışında aşinalık kazanmak için tekrar tekrar okunmuştur. Daha sonra temel ortak kalıplar, önceden kategorize edilmiş farklı farkındalık türleri için her başlık için bir kağıtta tematik bir haritada listelenmiştir. Sonraki adımda kodlar için daha önce oluşturulmuş haritalar, bunlara yeniden odaklanılarak ve ileriye dönük temaların ve alt temaların sınıflandırılmasıyla sonuca bağlanarak daha geniş ilişkilendirme haritalarına dönüştürülmüştür. Tüm veri alıntıları okunmuş ve tutarlılık içindeki örüntüleri açısından kontrol edilmiştir. Aday temalar gözden geçirilerek araştırmacı için tatmin edici hale geldiğinde, bireysel temaların geçerliliği, veri seti ile ilgili olup olmadıkları gözden geçirilmiştir. Tematik harita başarı düzeyine ulaştığında, temalar örüntülerin tutarlılığına göre, ilgili sınıflandırma ve neden ilginç olduklarına ilişkin açıklamalarla tanımlanmış ve sınırlandırılmıştır. Tematik analizlerin güvenilirliği sağlamak için katılımcıların cevapları, Türkiye'de bir devlet üniversitesinde İngilizce okutmanlığı yapan ve doktora derecesine sahip başka bir araştırmacı tarafından incelenmiştir.

Bu çalışmanın tartışma ve sonuç bölümünde, uygulanmış olan testlerden elde edilen verilerle ilgili yapılan analizlerin sonuçlarına göre bulguların bir kısmı

alanyazındaki alıřmaların sonuları ile uyumluyken, bulguların oėu, farkındalıėın farklı boyutlarında yapılan bazı arařtırmaların sonularıyla zıt dūřmekte veya rtūřmemektedir. Katılımcıların Okuduėunu Anlama Puanları ile Fonolojik Farkındalık Dūzeyleri arasındaki iliřkiye bakıldıėında, sonular okuduėunu anlama ile fonolojik farkındalık arasında anlamsız bir pozitif korelasyon ($\rho = .11$ olduėunu gstermiřtir. Fonolojik farkındalıėın okuduėunu anlama üzerindeki etkisi veya fonolojik farkındalık ile okuduėunu anlama arasındaki iliřki üzerine yapılan arařtırmaların oėu, iki deėiřken arasında anlamlı bir iliřki olduėunu, yani fonolojik farkındalıėın iyi bir okuduėunu anlamanın ok nemli bir yordayıcısı olduėunu ortaya koymuřtur. Fonolojik farkındalık ile okuduėunu anlama arasında gl bir iliřki olduėunu ortaya koyan alıřmaların aksine, bu alıřmanın sonuları, fonolojik farkındalıėın okuduėunu anlama iin olumlu bir faktr olabileceėini, ancak bařarılı bir okuduėunu anlama iin nemli bir bileřen olmadıėını gstermektedir.

Arařtırmaların oėu, iki deėiřken arasında gl bir iliřki olduėunu ne srse de, bu alıřmanın sonuları farklılık gstermektedir, nk muhtemelen arařtırmanın katılımcıları sesbilgisine yeterince odaklanılmamıř bir eėitim srecinden gemiřlerdir veya alıřılmıř bir dil edinme yolundan ayrılarak, dil ėrenme srecini tersi ynde deneyimlemiřlerdir. Diėer bir deyiřle, bir dilin doėal konuřanları gibi dinlemek ve konuřmak yerine, okuma yazma becerileri ile bir dili ėrenmeye bařlamak, sesbirimlerine odaklanmalarını engellemiř olabilir ve katılımcılar sesbirimlerine dikkat etmeleri gerekmediėini dūřnmř olabilirler. Katılımcıların morfolojik farkındalık dūzeyleri ile okuduėunu anlama puanları arasındaki iliřkiye bakıldıėında ise, sonular iki deėiřken, morfolojik farkındalık ve okuduėunu anlama arasında pozitif ancak anlamlı bir iliřki olmadıėını ($\rho = .27$) gstermiřtir. Alanyazındaki hemen hemen tm alıřmaların aksine bu alıřma, deėiřkenler arasındaki pozitif korelasyona raėmen, morfolojik farkındalıėın İngilizceyi yabancı dil olarak ėrenenlerin

okuduğunu anlama üzerinde doğrudan bir etkisinin olmadığını göstermiştir. Katılımcıların Ortografik Seçim Görevi ile ölçülen ortografik farkındalık düzeyleri ile okuduğunu anlama sonuçları temel alınarak yapılan korelasyon analizine göre, iki değişken arasında pozitif korelasyon ($\rho = .19$) vardır. Diğer bir ifadeyle katılımcıların okuduğunu anlama becerileri ile imla farkındalıkları arasında pozitif bir ilişkinin olduğu söylenebilir. Yani, katılımcıların ortografik farkındalıklarının okuduklarını anlamaları üzerinde olumlu etkisi vardır. Araştırmanın sonuç bölümünde ise çalışmanın sonuçları özetlenmiş ve daha sonra aynı konuda gerçekleştirilmesi muhtemel çalışmalar, öğretmenler ve yabancı dil ders kitabı yazarları için öneriler sunulmuştur.

Anahtar Kelimeler: Farkındalık, Fonolojik, Morfolojik, Okuduğunu Anlama, Ortografik.

ABSTRACT

EFL LEARNERS' LEVELS IN MORPHOLOGICAL, PHONOLOGICAL, ORTHOGRAPHIC AWARENESS AND SUCCESS IN READING COMPREHENSION

MASTER THESIS

YAVUZ, Selim

Master's Thesis, Department of Foreign Language Education,

English Language Education

Supervisor: Lect. PhD. Abdullah YILDIZ

January 2023

Very few studies have been conducted to investigate the correlation between morphological, phonological, orthographic awareness levels, and reading comprehension of Turkish EFL learners in EFL context. This correlational and descriptive study aimed to respectively and holistically examine the relationships between different types of awareness and reading comprehension of EFL learners in preparatory classes at a state university in Turkey. Mixed methods research design was adopted to gather data from 40 participants through a number of instruments; reading-related parts of the Proficiency Exam administered at Firat University School of Foreign Languages, Phonological Awareness Test, Morphological Awareness Test, Phonological Opacity Test, Orthographic Choice Task, and Semi-structured interviews. According to the scores of the participants in the tests, findings and results of the tests were presented and described, and consequently, statistical and thematic analyses were made to find out the correlation between the variables and thus to explain the impacts of awareness

types on reading comprehension. The results of the analyses showed that there was no significant relationship between morphological, phonological, phonemic awareness and reading comprehension, while there was a low level of positive correlation between orthographic awareness and reading comprehension. This result shows that the type of orthographic awareness in a foreign language has positive effects on reading comprehension.

Keywords: Awareness, Morphological, Orthographic, Phonological, Reading Comprehension.

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TABLE OF CONTENTS

THESIS JURY APPROVAL	i
STATEMENTS.....	ii
GENİŞ ÖZET.....	iii
ABSTRACT	x
ACKNOWLEDGEMENTS	xii
TABLE OF CONTENTS	xiii
LIST OF TABLES.....	xvii
LIST OF FIGURES.....	xix
LIST OF ABBREVIATIONS.....	xxi
CHAPTER I	1
INTRODUCTION	1
1.1. Background of the Study.....	1
1.2. Statement of the Problem and Significance of the Study	2
1.3. Objectives of the Study	3
1.4. Research Questions	3
1.5. Limitations of the Study	4
CHAPTER II	5
THEORETICAL BACKGROUND	5
2.1. Position of Reading in Language and Information Processing of Learners	5
Reading.....	5
2.1.1. Nature of Reading Process	7
2.1.2. Acquisition of Reading Skills.....	9
2.1.3. Differences in Reading Skills	11
2.1.4. Purposes for Reading.....	12

2.1.5. Types of Reading.....	13
2.1.6. The Relationship between the Text and Readers	14
2.1.7. Processes of Reading.....	15
2.2. The Components of Reading.....	17
2.2.1. Decoding.....	18
2.2.2. Word Recognition	18
2.2.3. Linguistic Comprehension.....	19
2.2.3.1. L2 Vocabulary Knowledge.....	19
2.2.3.1. L2 Grammar Knowledge	19
2.2.4. Reading Comprehension.....	20
2.2.5. Linguistic Awareness	20
2.2.5.1. Morphological Awareness.....	21
2.2.5.2. Phonological Awareness.....	22
2.2.5.3. Phonemic Awareness.....	23
2.2.5.4. Orthographic Awareness	23
2.3. Review of Literature	24
CHAPTER III.....	45
METHODOLOGY	45
3.1. Research Design	45
3.2. The Setting.....	46
3.3. The Participants	47
3.4. Data Collection Instruments	48
3.4.1. Reading Comprehension Test.....	49
3.4.2. Phonological Awareness Test (PAT)	49
3.4.3. Morphological Awareness Test (MAT)	52

3.4.4. Phonological Opacity Test	54
3.4.5. Orthographic Choice Task.....	55
3.5. Data Collection Procedures	56
3.5.1. Pilot Study	56
3.5.2. Data Collection.....	57
3.5.3. Data Analysis.....	60
CHAPTER IV	64
FINDINGS AND RESULTS.....	64
4.1. Reading Proficiency in Foreign Language	64
4.2. Phonological Awareness in Foreign Language	66
4.3. Morphological Awareness in Foreign Language.....	71
4.4. Phonemic Awareness in Foreign Language	81
4.5. Orthographic Awareness in Foreign Language	83
4.6. The Relationship Between EFL Learners' Reading Comprehension Scores and Phonological Awareness Levels.....	86
4.7. The Relationship Between Turkish EFL Learners' Reading Comprehension Scores and Morphological Awareness Levels	87
4.8. The Relationship Between EFL Learners' Reading Comprehension Scores and Phonemic Awareness Levels.....	91
4.9. The Relationship Between EFL Learners' Reading Comprehension Scores and Orthographic Awareness Levels.....	92
4.10. The Relationship Between EFL Learners' Reading Comprehension and Their United Awareness.....	93
4.11. The Relationship Between EFL Learners' Morphological, Phonological Phonemic and Orthographic Awareness Levels.....	95
4.12. Thematic Analysis for Awareness via Semi-Structured Interviews.....	96

CHAPTER V.....	106
CONCLUSIONS AND DISCUSSION.....	106
5.1. Discussion.....	106
5.1.1. The Relationship Between EFL Learners' Reading Comprehension Scores and Phonological Awareness Levels.....	107
5.1.2. The Relationship Between EFL Learners' Reading Comprehension Scores and Morphological Awareness Levels	108
5.1.3. The Relationship Between EFL Learners' Reading Comprehension Scores and Phonemic Awareness Levels	110
5.1.4. The Relationship Between EFL Learners' Reading Comprehension Scores and Orthographic Awareness Levels.....	112
5.1.5. The Relationship Between EFL Learners' Reading Comprehension and Their United Awareness.....	113
5.1.6. The Relationship Between EFL Learners' Morphological, Phonological, Phonemic, and Orthographic Awareness Levels.....	113
5.2. Conclusions	114
5.3. Recommendations	115
REFERENCES	117
APPENDICES.....	129
ÖZGEÇMİŞ	143

LIST OF TABLES

Table 1. The Studies Reviewed	43
Table 2: Data Collection Steps	59
Table 3: A brief summary of instruments and data analysis	63
Table 4: Descriptive statistics of Reading Comprehension Test (N=40)	65
Table 5: Descriptive Statistics of Phonological Awareness Test (N=40)	67
Table 6: Descriptive Statistics of Morphological Awareness Test (N=40).....	72
Table 7: Descriptive Statistics of MAT- Sentence Completion (Section 1) (N=40).....	74
Table 8: Suffix-wise Analysis of Sentence Completion.....	77
Table 9: Sub-Categorical Analysis of Derivational Suffixes	78
Table 10: Descriptive statistics of MAT-Word Relation (Section 2) (N=40)	79
Table 11: Descriptive Statistics of Phonological Opacity Test (N=40)	81
Table 12: Descriptive Statistics of Orthographic Choice Task (N=40).....	84
Table 13: Correlations Between Reading Comprehension Test and PAT Scores.....	86
Table 14: Chi-Square Tests for Reading Comprehension Test and PAT Scores	86
Table 15: Correlations Between Reading Comprehension Test and MAT Scores	87
Table 16: Chi-Square Tests for Reading Comprehension Test and MAT Scores.....	87
Table 17: Correlations Between Reading Comprehension Test and MAT-Sentence Completion Scores.....	88
Table 18: Chi-Square Tests for Reading Comprehension Test and MAT-Sentence Completion Scores.....	89
Table 19: Correlations Between Reading Comprehension Test and MAT-Word Relation Scores	90
Table 20: Chi-Square Tests for Reading Comprehension Test and MAT-Sentence Completion Scores.....	90

Table 21: Correlations Between Reading Comprehension Test and Phonological Opacity Test Scores.....	91
Table 22: Chi-Square Tests for Reading Comprehension Test and Phonological Opacity Test Scores.....	91
Table 23: Correlations between Reading Comprehension Test and Orthographic Choice Task Scores.....	92
Table 24: Chi-Square Tests for Reading Comprehension Test and Orthographic Choice Task Scores.....	93
Table 25: Descriptive Statistics of United Awareness (N=40).....	93
Table 26: Correlations Between Reading Comprehension Test and Tests for all Types of Awareness as a Whole.....	94
Table 27: Chi-Square Tests for Reading Comprehension Test and Tests for all Types of Awareness as a Whole.....	95
Table 28: Inter-Correlations Between Types of Awareness.....	96

LIST OF FIGURES

Figure 1: Histogram for Reading Comprehension Test scores	65
Figure 2: Item Analysis of Reading Comprehension Test	66
Figure 3: Histogram for Phonological Awareness Test Scores.....	67
Figure 4: Part Analysis of Phonological Awareness Test	68
Figure 5: Item Analysis of Phonological Awareness Test	69
Figure 6: 4th, 9th and 16th Questions of Phonological Awareness Test	70
Figure 7: 17th, 19th, 20th, 21st, 29th and 30th Questions of Phonological Awareness Test.....	71
Figure 8: Histogram for Morphological Awareness Test Scores	72
Figure 9: Item Analysis of Morphological Awareness Test.....	73
Figure 10: 14th and 19th Questions in Sentence Completion Section of MAT	73
Figure 11: 3rd, 5th, 9th and 16th Questions in Word Relation Section of MAT	74
Figure 12: Histogram for MAT- Sentence Completion (Section 1) Scores	75
Figure 13: Item Analysis of MAT-Sentence Completion (Section 1).....	75
Figure 14: 18th and 7th Questions in Sentence Completion Section of MAT	76
Figure 15: Histogram for MAT-Word Relation (Section 2) Scores.....	79
Figure 16: Item Analysis of MAT-Word Relation (Section 2)	80
Figure 17: 8th, 7th and 11th Questions in Word Relation Section of MAT	80
Figure 18: Histogram for Phonological Opacity Test Scores.....	82
Figure 19: 2nd, 4th and 8th Questions of Phonological Opacity Test	82
Figure 20: 7th and 23rd Questions of Phonological Opacity Test	83
Figure 21: Item Analysis of Phonological Opacity Test	83
Figure 22: Histogram for Orthographic Choice Task Scores.....	84
Figure 23: 4th, 9th and 16th Questions of Orthographic Choice Task.....	85
Figure 24: 4th, 22nd 23rd and 25th questions of Orthographic Choice Task	85

Figure 25: Item Analysis of Orthographic Choice Task 85

LIST OF ABBREVIATIONS

YDT: Yabancı Dil Testi (Test of Foreign Language)

YDS: Yabancı Dil Sınavı (Test of Foreign Language)

YÖKDİL: Yükseköğretim Kurumları Yabancı Dil Sınavı

(Test of Foreign Language for Higher Education Institution)

ÖSYM: Öğrenci Seçme ve Yerleştirme Merkezi (Student Selection and Placement Centre)

EFL: English as a Foreign Language

ELL: English Language and Literature

ELT: English Language Teaching

FUSFL: Fırat University School of Foreign Languages

CEFR: Common European Framework

MAT: Morphological Awareness Test

PAT: Phonological Awareness Test

Ph.D.: Doctor of Philosophy

CHAPTER I

INTRODUCTION

The present chapter respectively provides information about the position of English in the Turkish educational system in Section 1.1. Next, it states the problem and the significance of the study in Section 1.2. After that, it describes the goals of the study in Section 1.3. It presents the research questions that will be dealt with in Section 1.4. and lastly, it mentions the restrictions in which the study has been conducted in Section 1.5.

1.1. Background of the Study

English has taken an important part in the educational policy of Turkey as an international language of access to various fields of life. As in other parts of the world, learning English in classes ranging from 2nd grade in primary schools in Ministry of Education or private institutions to higher education is compulsory. Therefore, nearly all of the students in the educational system of Turkey are supposed to be exposed to English unavoidably. Doğançay-Aktuna (1998) described the role of English in Turkey as follows:

In Turkey English carries the instrumental function of being the most studied foreign language and the most popular medium of education after Turkish. On an interpersonal level, it is used as a link language for international business and for tourism while also providing a code that symbolizes modernization and elitism to the educated middle classes and those in the upper strata of the socioeconomic ladder. (p. 37)

Doğançay-Aktuna and Kızıltepe (2005), examining the position of English in Turkish national education from a detailed perspective, stated that the function of English in Turkey is mostly instrumental in state or private educational institutions acting as the foremost means of language use. Similarly, Bektaş-Çetinkaya and Oruç (2010) who conducted a study on motivation of Turkish learners of English at university reached to the result that their primary reason for learning English is finding a well-paid occupation with no difference between private and public university. In selected universities with English-medium instruction, English is

viewed as the high level of academic communication and promotion, putting pressure on faculty for international publication to be promoted, unlike Turkish that is viewed as the low one in this context (Doğançay-Aktuna and Kızıltepe, 2005). That is to say, having a good knowledge of English provides people with more opportunities for getting a job or being promoted in a profession in Turkey.

1.2. Statement of the Problem and Significance of the Study

EFL learners in the education system of Turkey go through a learning procedure in which they are exposed to or taught mostly and primarily explicit grammar and reading for different reasons. Particularly, the exams such as YDT, YDS, YÖKDİL that students or learners of English language will or have taken before, during or at the end of their elementary, high school, or university education contain types of questions that assess test-takers' knowledge of grammar, vocabulary, and reading. As writing, listening and speaking skills are not evaluated in exams that are administered by educators or institutions (such as ÖSYM), these skills are neglected in learning procedures in the EFL contexts in Turkey. When Turkish EFL learners prioritize English skills in learning, reading intrinsically surpasses other skills since they regard it as the first of their urgent needs.

Reading, which is thought to be important in foreign language teaching and allocated a large amount of time during the teaching phase (Meniado, 2016), may be the easier of the two perceptive skills (listening and reading). However, this may not be entirely accurate when comparing the time devoted to teaching the two skills. Generally speaking, success in reading is mostly associated with a wide level of vocabulary knowledge in the target language (Anderson & Freebody, 1981; Anglin, 1993; Mirhassani and Toosi, 2000), neglecting any other possible factors that might have an impact on reading comprehension of language learners as the following studies focused on. A great number of research has indicated that there is a strong bond between phonological awareness and the reading ability of a child, emphasizing the essentiality of this relationship (Calfée et al., 1973; Cossue et al., 1988; Juel et al., 1986; Liu, 2014; Stahl & Murray, 1994; Yeung et al., 2013; Yopp, 1988). In addition, it is not surprising that there have been studies examining the relationship

between children's morphological awareness and reading skills in foreign languages, which have a morphophonemic spelling structure like English (Chomsky & Halle, 1968; as cited in Templeton & Scarborough-Franks, 1985; Carlisle, 2000; Mahony et al., 2000; Nagy et al., 2006; Goodwin, 2010; Levesque et al., 2017). In Turkey, however, there are few studies investigating this relationship (Akbulut, 2019; Aksoy, 2015; Aydın & Yildirim, 2017). In this context, numerous studies have focused on the effects of phonological awareness, which is one of the critical skills in the acquisition of reading skills and the spelling of words, and defined as the awareness of parts of in-word speech at the level of *syllable*, *syllable beginning*, *rhyme* and *phoneme* (Treiman, 1991), and morphological awareness on language learners' reading comprehension, expressed as the ability to use this knowledge in visual word recognition during morphological processing (Koda, 2000). In the literature, many studies examine the effects of factors such as phonological awareness, morphological awareness, phonemic awareness, orthographic processing, spelling, vocabulary, etc. on foreign language reading skills. As there is little research on this field (as presented in detail in Chapter 2, Section 2.3.), this study has been conducted with foreign language learners of English at university to provide data for the gap in the Turkish EFL context.

1.3. Objectives of the Study

The primary objective of this study is to investigate the relationship between language learners' phonological, morphological, orthographic awareness, and reading comprehension to perceive whether learners' different kinds of awareness have any impacts on language learners' reading comprehension or not via tests of awareness and the results of proficiency test that participants of the study had taken at the beginning of the term.

1.4. Research Questions

The relationship between language learners' phonological, morphological, orthographic awareness, and reading comprehension is inquired based on the following research question:

- What is the impact of EFL learners' awareness levels in morphology, phonology, and orthography on their reading comprehension skills?

1.5. Limitations of the Study

Students in preparatory classes of ELL and ELT departments in a state university in Turkey were selected as research samples to represent the study's population. Whereas some of the tests were adapted from previous reliable studies, others were prepared by the researcher meaning they were supposed to be validated by their application to students in a pilot study before the actual research commenced. However, it took very long time to find enough participants owing to the pandemic and consequently the online/distance education. Besides, most students did not participate in the reading comprehension test, which was essential to be compared with the results of awareness tests. As a consequence, unfortunately, the reading comprehension test chosen for the study was taken out, and the proficiency/exemption exam that students had taken was used instead. Some parts (items from 36-75) of the proficiency exam that were related to reading comprehension were used for this study. Additionally, awareness tests were administered in different sessions, days or weeks for some groups because all students were not allowed to take education in the same week due to the pandemic.

Apart from that, the study had to focus on certain suffixes that were thought to be common and to change the form and meaning of the words when they were added to the words, which foreign researchers in EFL contexts around the world mostly studied.

CHAPTER II

THEORETICAL BACKGROUND

The present chapter describes the position of reading in language and information processing of learners in Section 2.1. including nature of reading process, acquisition of reading skills, differences in reading skills, purposes for reading, types of reading, the relationship between the text and readers and processes of reading under the subheadings in the order they appeared in the sentence. After that, it provides definitions and explanations of the terms related to the components of reading in Section 2.2. with the successive subtopics of decoding, word recognition, linguistic comprehension (L2 vocabulary knowledge and L2 grammar knowledge), linguistic awareness (morphological, phonological, phonemic, orthographic awareness). Finally, it lists the studies in the literature conducted on the same issue in Section 2.3.

2.1. Position of Reading in Language and Information Processing of Learners

Reading

Reading has always been regarded as a complex activity as in the definition by Haring “Reading is a complex behavior for a child who is just beginning to learn how to read, and the teaching of reading is a complex behavior for a teacher” (as quoted in Masland and Cratty, 1971: p. 235) and defined differently by use of various words and aspects (Liu, 2010). Reading, one of the receptive skills in a foreign language, can be defined as “a cognitive ability which a person is able to use when interacting with texts” (Urquhart & Weir, 1998: p. 88).

Goodman (1967: 126) defined reading as “a psycholinguistic guessing game” which contains interaction between the thought and the language. He stated that proficiency in reading is a result of talent for picking the rarest, most creative clues required to generate deductions which are true for the first time, but not a consequence of exact insight and recognition of all essentials. He denied the simply stated shared belief that reading is an accurate process which has precise, comprehensive, consecutive discernment and recognition of letters, words, spelling patterns and larger language units.

Lieberman (1983) describes reading as a fairly notable phenomenon in which apparently linguistic manners become vastly specific as speech and language are learnt more. It is viewed as a secondary and quite distinctive kind of activity primarily based on readers' awareness of speaking and listening, generally viewed as primary linguistic activities. On the other hand, the common sense notion is that reading is considered a parallel process to listening. Written text is input perceived by the eye, and speech is input heard by the ear in accordance with their ways of being sensed and with a common internal representation of the two inputs at the earliest possible stage. From this stage forward, these two processes are alike. Speech naturally precedes reading since this learning emerges principally as an intermodal conveyance. By doing so, one attains the skill of carrying out visually what he already knows how to carry out aurally. As Fries (1962) puts it:

Learning to read...is not a process of learning new or other language signals than those the child has already learned. The language signals are all the same. The difference lies in the medium through which the physical stimuli make contact with his nervous system. In "talk" the physical stimuli of the language signals make their contact by means of sound waves received by the ear. In reading, the physical stimuli of the same language signals consist of graphic shapes that make their contact with the nervous system through light waves received by the eye. The process of learning to read is the process of transfer from the auditory signs for language signals which the child has already learned, to the new visual signs for the same signals. (p. xv)

This view does not hold the idea that the two processes are directly identical even though it is obvious that the same linguistic processes as listening are anyway used in reading. In reality, relevant dissimilarities exist between the two processes which are impossible to put down to the modality difference and which thus pose obstacles to the belief of directly intermodal parallel (Lieberman, 1983).

Likewise, Gates (1949) stated that reading is a skill requiring an intricate configuration of patterns of more advanced mental processes which probably should hold all sorts of deeds such as thinking, evaluating, judging, imagining, reasoning, and problem-solving (Hoover & Tunmer, 1993).

Apart from the views mentioned above, there have been other different definitions or descriptions for reading. Reading has been diversely called "a reasoning process" by Thorndike (1917), "communication with an author" by Strang (1942), "obtaining meaning from the printed page" by Harris (1956) (as quoted in Calkins, 1971: p. 237).

Also, Pang et al. (2003) defines reading as a skill that will strengthen those who learn it in that they can have access to information storage in written materials, at long last to the chance of contributing to that information. As a matter of fact, learning to read and reading to learn benefit to students thanks to proper teaching.

2.1.1. Nature of Reading Process

Some different dimensions of the reading process need to be scrutinized to be able to unfold its nature. Reading is a dynamic process which requires its readers to figure out whatever the text provokes in its readers' minds by its writer. In this process, readers are induced or led to unfold the character and features of the text. In line with Goodman (1967)'s psycholinguistic guessing game, Iser (1972) stated that Sterne's conception of a literary text holds that it is a kind of arena in which the writer and the reader join in an imagination game. If all the elements in the story were explicitly given to the reader, nothing would be left for the reader to do, s/he would not have to employ her/his imagination, and tediousness would face the reader unavoidably. When the reader becomes active and creative, reading will be just a pleasure for him, meaning that a literary text should be presented in a way that can call forth the reader to use his imagination while reading the text. It can be understood from the fact that the reality of a specific text can have different impacts on entirely different readers that there is sufficient proof of the degree to which literary texts alter reading into a creative process beyond sheer apprehension of what is written. As it is stated, reading activity can be regarded as a type of mixture of viewpoints, preconceptions, evocations. Each sentence of a text includes a preview for the next and creates a viewfinder for what is going to come; thus, this alters the "preview" and turns into a "viewfinder" for what the reader has read (Iser, 1972).

Bloome (2015) describes reading as a social process and a communicative process, which indicates that social relationships among people (between teachers and

students, among students, between parents and children, and between authors and readers) are involved in reading. Via reading, social relationships establish social groups and provide opportunities for obtaining status /social position and for interacting with others as well as likelihoods for acquisition of culturally suitable ways of thinking, problem-solving, valuing, and feeling. For instance, students can reach a social status by reading orally with no error or accurately answering the questions asked by their teachers when they are requested to read a text in a suitably designed atmosphere for students in an educational setting.

More importantly, reading contains interrelated cognitive skills and processes to avoid the obstacles that may cause comprehension failure (Cain and Oakhill, 2007; as cited in Woolley, 2011) since reading comprehension requires deriving meaning from the same or similar words in different ways or aspects in various contexts. Readers' understanding and deriving meaning of the text rely on a variety of reader-related, text-related, and situational factors (De Corte et al., 2001; as cited in Woolley, 2011).

To draw a clearer picture of the process of reading, it is necessary to revise what readers do while reading a text. As one reads a paragraph in a text, if s/he is a skilled reader, s/he will pay attention to the topic and what will be mentioned. After that, eyes of the reader will move together in a quick and well-coordinated way by making a series of fixations, skipping from line to line on the printed page. By doing so, readers identify the words or phrases in the text to derive meaning from them. This process called "pattern perception" by which readers distinguish words remains an unsolved problem in physiology, and is therefore has not yet been theorized clearly. Readers can recognize words even if words are presented in different type-faces or in different cursive styles. Most of this word recognition is clearly based on signs from letters comprising the words. Apparently, word perception is a skill developed through practice and exposure because the possibility of recognizing a word is connected quite vastly with its frequent use (Masland and Cratty, 1971). Although the focus has been on combinations of letters to recognize words in a text, awareness for letters may not be sufficient to know or interpret the meaning because English involves plentiful homographs--word that is spelt like another word but has a different meaning from it, and may be pronounced differently. For example, the

word “well” has two different meanings stemming from the context in the following sentences

- i. “*Well* done! You passed the exam”
- ii. “This well has no water.”

The next step of the reading process should be finding a way to create a meaningful message. It is significant for figuring out the way the two are connected with each other as word recognition constitute a channel between visual information processing skills and comprehension (Massaro, 2009). According to Goodman (1967), four cycles exist during the reading process: the *visual*, the *perceptual*, the *syntactic* and the *semantic*. Reading commences with a visual cycle in which the brain detects the input. As the spelling of the words or written language (secondary representation of speech) is not known innately and easily, acquiring the lexicon by corresponding each written word to an oral word allows access to meaning.

Scientific research provides beneficial information and implications for reading instruction. As reading is a skill based on language which does not occur by nature or spontaneously for nearly all of children, word-recognition and reading comprehension should be involved in curricula and taught in a direct and systematic way in order to make students familiar with the words and structures in language (Lyon, 1998).

2.1.2. Acquisition of Reading Skills

As noted previously, reading has been viewed as a complex process. This is mostly related to other fields, skills, or components of language or its structures. Kirk (1983) states that reading and spelling are closely similar for learners at the beginner level. Written language skills necessitate plenty of stored information, namely data base, acquired from experiences in childhood (Weiner, 1980), which is comprised of the following elements:

- i. inherent information of the language system,
- ii. expectancy of meaning that might be gathered from and stated in written form,
- iii. a memory of lookup for functional information among the visuals around,

- iv. the ability to notice models in the surroundings and employ the structures without their presence (Gibson & Levin, 1975).

Stored information within the data base that includes world vision and competence in language learning are important elements indispensable for learning to read and spell. Besides, this data base is beneficial to mastering novel and complicated rules of language systems to read the information on the printed page. It may be sufficient for some children to have reading instruction and exposure to print to access rule systems needed for spelling while others require overt reading instruction. The users' level depends on the automatic use of the fundamentals of reading skills. When learners reach the level the reading process is automatized, they own the freedom to prefer to use or not to use syntactic and semantic structures that make text meaningful. Proficient reading resembles thinking in which the current knowledge leads to acquisition of new perceptions (Gibson & Levin, 1975).

According to Ehri (1995; 2005), who stated that readers could recognize words and their meanings instantly with little effort for decoding when they take a look at them, categorized the course of reading development into four phases to detect and identify important progress that occur while learning to read words by sight. These phases of sight-word learning theory by Ehri (1995; 2005) are named for the sort of alphabetic knowledge that outweighs the number of networks formed. During the process of sight word reading, readers are considered to establish connections that associate written form of the words with their pronunciations and meanings, which is stored in their vocabulary bank and employed when necessary. The four phases of sight word learning include pre-alphabetic, partial alphabetic, full alphabetic, and consolidated alphabetic, which are described below.

In the *pre-alphabetic phase*, children read words by not forming letter-sound connections but by recalling specific visual characteristics, for they experience a non-alphabetic process and do not know much about the alphabetic system.

Once children acquire the names or sounds of alphabet letters and utilize them to recall to read words, they reach the *partial alphabetic phase*. Yet, this does not mean they can properly create connections between all of the names and sounds of letters.

Their formation of connections results in only some of the letters and sounds in words, which are identified easily, often the initial and terminative letters.

During the *full alphabetic phase*, readers at the beginner level recall words through exact connections between letters beheld in the written forms of words and phonemes identified in their pronunciations since they figure out the way graphemes represent phonemes in the customary spelling system.

In the last phase, *consolidated alphabetic*, readers can remember and use established connections that relate the written form of the words and their pronunciations and meanings in memory fluently and immediately when they are faced with printed versions of words in reading. These established connections involve the words learned with recurrent patterns of letters that are representatives of common affixes, syllables, or sub-syllabic units.

2.1.3. Differences in Reading Skills

Readers are classified in different levels or by different names such as skilled readers, less skilled readers, normal readers, proficient readers, or disabled readers by many researchers in various studies and books (see. Goodman, 1967; Massaro, 2009; Thompson et al., 1993). In addition, readers are claimed to be on different levels due to the diverse components of the language. At the initial stage of acquisition, phonological information is important for readers, whereas automatic recognition of high frequently used words is established in the minds of good readers (Siegel, 1993). At this very early stage, Gibson and Levin (1975) who stated that for skilled readers, instruction or practice means reading itself suggest that reading practice puts the emphasis not only on the purpose of reading (obtaining meaning from the printed word) but also on what is required for reading, potential use of all information sources: phonological, graphemic, semantic, and syntactic. They emphasize the importance of practice for the development of any skill. (as cited in Kirk, 1983)

Gough (1972) described the good reader as a fluent decoder who did not use context. Alternatively, the fluent decoder employed adopted rules related to letter-sound correspondence. While learning to read, children learn to decode, that is, to transform graphic characters into phonemes, thus, written form could correspond to its spoken

form. According to this model, the child must learn to change letters into systematic phonemes as the reader does. By doing so, the child must turn into a decoder, namely the reader who identifies the rules about the connection of intangible existence to another as the child cannot do innately. Guessing could only be employed when there was a breakdown in the reading process in case of difficulty in decoding.

Similarly, Lyon (1998) stated that good readers use their awareness of phonemes and correspondence in written form, the alphabetic principle, and differently from Gough (1972)'s model, they accordingly put to use these skills in a quick and fluent way with possession of profound word knowledge, syntactical and grammatical skills in addition to their relating reading to their own life experiences. Absence or deficiency in any of these parts can pose obstacles to reading development. Children should be exposed to inspiring literacy experiences at schools in terms of vocabulary development, perceiving the objectives of reading, and raising awareness of written and literacy concepts. Children who had no such early experiences are probably on the line of reading impairment. Mostly, poorness in reading results from the fact that readers are not constantly involved in any language play which may create an awareness of sound structure and language patterns. In a nutshell, poverty of input can be a possible reason for children in a such household with no or limited exposure to reading.

From a different perspective, Sheorey and Mokhtari (2001), who emphasized the necessity of the readers' experiences and metacognitive awareness for being skilled readers, suggest that what distinguishes the skilled from unskilled readers is a mixture of conscious awareness of strategic reading processes and actually applying reading strategies, which they think that readers employ their metacognitive knowledge with an awareness of a range of reading strategies.

2.1.4. Purposes for Reading

The goals of reading may provide readers with a good reason and motivation carefully to focus on what they read. Pang et al. (2003) state readers have several different purposes for reading a text. For example, a reader reads a text in order to perceive its meaning and benefit from this perception in his life. Additionally, a text can be read to learn, discover information, amuse, and practise in religion. As the

purpose for reading provides readers motivation for reading, it will have impact on the way they read the book. In an educational setting, knowing students' motivation for reading and the purpose that reading has in their lives helps teachers select the essentials to administer the reading process.

2.1.5. Types of Reading

Reading is thought to be comprised of different skills and constituents by a number of teachers, textbook preparers, and experts in testing and evaluation. Thus, as the claim went, various reading constituents offer beneficial outlines on which design of course, teaching, and test development can be based. Urquhart and Weir (1998) describes reading skills as cognitive abilities that a person can employ while forming an interaction with texts. Reading skills can be regarded as elements of the commonly known reading process in contrast to comprehension that is probably a meaning creation by reading a specific text.

According to Urquhart and weir (1998), reading is classified into five kinds: scanning, skimming, search reading, careful reading, and browsing, although they assert that this list does not include all kinds thoroughly. These are the terms that are mostly used, whereas their occurrences are seen in dissimilar ways in the literature.

Skimming: reading for the main idea through a kind of swift reading when it is necessary to find out the gist of a text (Richards et al., 1992; as cited in Liu, 2010).

Scanning: reading eclectically to reach fairly particular objectives e.g. finding a date, a name, number. The reader applies this kind to sort out a specific piece of information without a precise understanding of the other parts of the text or passage. The distinctive point of scanning is that the reader leaves out any part of the text with non-inclusion of the pre-chosen part of information.

Search reading: placing information on pre-set themes. The reader requests information to respond to determined questions or to offer data. Search reading deviates from scanning in the sense that the reader seeks specific keywords in search reading, whereas in scanning, there is no need for such effort. Besides, it is different from skimming in that there is no need to essentially perceive the main idea of the text as pre-set themes lead the reader to search for reading.

Careful reading: this kind of reading is the one that many educationalists and psychologists prefer to the other types, which is related to reading to learn, thus with the reading of textbooks. Urquhart and Weir (1998) point to the delineative traits of careful reading: (a) that the reader endeavors to understand most of the information in the text, namely it is not a selective process. (b) that the reader takes an obedient part in the process and admits the organization the writer presents, and (c) that the reader endeavors in order to construct a macrostructure. They can discriminate between careful reading at a local and global level.

Browsing: a type of reading that does not have well-defined aims, in which the reader may skip parts of a text arbitrarily with little effort to incorporate the information into a macrostructure.

No essential relation exists between a specific behavior of reading and a specific genre of text. In case of need, readers may divert from one type to another during the process of reading, that is, there is no necessity to keep a steady reading behavior from end to end.

Differently, authorities in language teaching categorize reading activities as extensive and intensive every now and then by making basically a pedagogical distinction. Intensive reading means reading at a slow speed which helps a better grasp than extensive reading that means reading in amount to obtain an overall perception of the text being read and intended to form proper reading habits, to develop a wide vocabulary and structure knowledge, and to stimulate an eagerness for reading (Liu, 2010).

2.1.6. The Relationship Between the Text and Readers

Reading requires an interaction between the reader and the text by which meaning is derived and constructed from the text by use of mental activities by readers. According to Elder and Paul (2004), as we live in the "Information Era", we must read well to learn well. Information has been swiftly altering, so students should be encouraged to develop good reading skills to be able to catch up with rapid improvements and alterations around them in the changing world where they live. Through good reading they can deliver and get messages efficiently and negotiate meaning in a text. As noted previously, reading is regarded as a complex process,

therefore, readers have to be perpetually occupied with a complex meaning. Consequently, they should critically evaluate interaction between text and surroundings around themselves. That is, they must become critical thinkers by making judgments on various sources of information worldwide to be proficient or skilled readers (Hosseini et al., 2012).

2.1.7. Processes of Reading

The goal of good reading involves a precise understanding of the text with inclusion of all aspects of meaning that exist in sole words, grammar and sentence structures, and text construction. Lower-level reading operations involve the identification of letters and words. Even if the reader operates a complete mastery of lower level reading, it is not enough to derivate meaning accurately as the identification of letters and words are not those which are essential for getting the meaning of the text. The reader may conduct the processes of identification, word identification, and comprehension of meaning, respectively on the same printed or written stimulus. (Smith & Holmes, 1971; as cited in Dennis, 1983). From a different perspective, Siegel (1993) proposed five processes considered to be crucial in developing reading skills in English Language. These processes are phonology, syntax, working memory, semantics, and orthography.

Phonological processing is claimed to be the most important core cognitive process in reading, and it has a number of functions, the most outstanding of which is the correspondence of the sounds with letters or combinations of letters, namely knowing grapheme-phoneme transformation rules and the exclusions of these rules. At the beginner level, the readers should understand rules of grapheme-phoneme transformation, or alternatively they can memorize every word with its graphic shape and create a meaningful connection with it. By doing so, learning can emerge, yet this kind of learning remains ineffective and necessitates huge burdens on visual memory. Unpredictable correspondences exist between graphemes and phonemes in English orthography, meaning one often cannot anticipate the pronunciation of the word while reading the graphemes. English does not have an exact correspondence between a letter and a sound, as the same letter can correspond to different sounds, and different letters may correspond to the same sound.

Semantic processing means the perception of the meaning. In theory, users of language code meanings of the words within semantic networks and retrieve them via these networks. In the reading context, semantic processing depends on retrieving the words accurately and properly. For instance, connections between a word and other words within a semantic network make it easy to retrieve its meaning more or less.

Orthographic processing means understanding the written forms of language and to know and use the correct and incorrect spellings of words. There are possible sequences of letters legally or illegally used in alphabetic systems of all languages and a proficient reader employs his knowledge of letter sequences to some degree accordingly. The skilled reader uses additional aspects of orthographic knowledge, the ability to decode and retrieve the sequence of letters in certain positions by predicting occurrences of positional constraints and possibilities.

Working memory is keeping the information in short-term memory during the process of information intake and retrieval of information from long term memory. It is closely related to reading since the reader has to decipher and/or distinguish words by recalling what he/she has read and bringing back information like the rules of grapheme-phoneme transformation. Working memory is likely to be important for reading of individual words especially at the beginner level of word reading skills, for one must hold the grapheme-phoneme transformation rule for each segment of the word in mind while processing the other segments of the word. Longer words with many syllables put growing burdens on working memory. Furthermore, complicated roles make it hard to recognize the words since the possibility of alternative pronunciations of grapheme-phoneme will probably have a negative impact on reading of a specific word.

Syntactic awareness, or in other words, *grammatical sensitivity*, is the capability of noticing the syntax of the language. Apparently, it is a significant ability to read a text fluently and effectively because the prediction of the words to appear next in the sequence is required. Syntactic features complicate reading words independently such as conjunctions, prepositions, which are hard to associate in a semantic network.

The phonological, syntactic, and working memory processes significantly contribute to the swift acquisition of reading skills. These processes are seriously broken up in children with disabled reading, while semantic and orthographic processes are not broken up to the same degree. Nonetheless, the lack of sufficient utilization of phonological processing and dependence nearly precisely on visual or semantic and orthographic processes result in disruption in reading. Deficiencies in phonological processing, syntactic awareness, and working memory comprise a basis for reading disability (Siegel, 1993)

2.2. The Components of Reading

Reading remains a bit unsolved or rather differently interpreted and explained in terms of what is required to reach a proficient level in this skill by many researchers, educators, curriculum developers and educational policy regulators. Mostly, it has been associated with a good knowledge of vocabulary in the language in question. When all definitions, types, processes, nature, phases of reading are taken into the consideration, it can be expressed that there is no clear-cut classification or categorisation concerned with the components of reading. Therefore, it is quite difficult to identify components of reading properly. Descriptions made for reading reveal this uncertain situation. Gates (1949) stated that reading is “a complex organization of patterns of higher mental processes...[that]...can and should embrace all types of thinking, evaluating, judging, imagining, reasoning, and problem-solving” (p. 3). Blank (1978) expressed:

Reading seems to require a type of visual information-processing that is quite different from the usual processing of visual information ... many of the physically salient dimensions of the printed word must be disregarded and strong, well-established predispositions in the visual sphere must be suppressed or inhibited (p. 120).

Perfetti (1977) proposed that understanding language comprehension and decoding is a prerequisite to the development of an understanding of reading comprehension. However, when the phases of the reading process by Ehri (1995; 2005) are considered, decoding may differ for readers of reading in English as a foreign language who have already learned to read in one language. As a result, the first two

phases, *pre-alphabetic* and *partial alphabetic*, may be skipped, and the other two next phases should be concentrated on.

2.2.1. Decoding

Decoding or phonological recoding can be defined as the process of converting graphemes into phonemes and blending the phonemes into pronunciations (Ehri, 1995). According to the simple view by Hoover and Tunmer (1993) decoding or more generally, skillful word recognition refers to the aptitude for derivation of images from the written form that provides adequate entry to vocabulary set by means of establishment of a connection between graphemes (written form of letters) and vocabulary set allowing to bring back semantic information of the words.

The simple view does not view word recognition as the only essential for reading. In addition, it suggests that reading contains a variety of linguistic skills required to understand language, including negotiation of intentional meaning of single words, adjustment of suitable syntactical structures to sentential structures, derivation of meaning from substantively constituted sentences, construction of meaningful utterance depending on meaning sentences. Word recognition is not sufficient for reading comprehension at a lack of such linguistic skills, thus, the process of reading would turn into recall of word that can only be pointless morphemic fragments that cannot be employed to get meaning on any basis. Concurrently, the simple view does not view linguistic comprehension as the only essential for reading as there would be no guidance for any of the deeds of linguistic comprehension and no foundation for proper meaning inference. In a nutshell, the simple view holds two assertions: (1) that reading is comprised of word recognition and linguistic comprehension; (2) each component is crucial for reading, meaning both of them is insufficient by itself.

2.2.2. Word Recognition

Smith (1971) describes recognition as the process of distinguishing, diagnosing, accurately organizing the letters of string in a word. It contains processing information established through experience. Naturally, the experience of a reader with words is generalization more to strings of real words rather than pseudo-words.

Word recognition is significant to understand the relationship between visual information processing skills and comprehension, for it establishes a connection

between them. When readers identify the letters of printed words, differentiate between them, correspond them with phonemes and derive meaning from the words by noticing their syntactic and semantic features. Doing so allows them to experience simultaneous processes and become second nature in reading.

Perfetti et al. (1979) accentuate that skilled readers are those who have a very high development of word recognition and decoding abilities no matter what talents they use discourse context for guidance to word recognition. Accordingly, less skilled readers in general reading skills are supposed to be unsuccessful with verbal coding rather than a failure to use discourse context, though some of them may experience this inability as well.

2.2.3. Linguistic Comprehension

2.2.3.1. L2 Vocabulary Knowledge

A deep vocabulary knowledge is thought to provide a strong prediction for success at school, and this language field is often involved in tests of intelligence comprising word definitions. Freyd and Baron (1982) expressed that morphologically complex words may be acquired in two ways: learning as integrated units and applying word formation rules in English. They doubted whether good learners of words acquire these rules better than normal learners of words, and whether normal learners of words can use these rules more through morphological instruction. Learners can learn derivatives of words as itself or as integrated units. In the circumstances, the application of derivational rules may untangle acquisition of derived words since the application of letter-sound correspondence rules may untangle acquisition of reading. If quick learners may be primarily dependent on the use of word formation rules, some children can probably accelerate their quickness of vocabulary learning by instruction on rules of word formation.

2.2.3.1. L2 Grammar Knowledge

Grammatical awareness, in other sayings syntactic awareness or grammatical sensitivity, is defined as the aptitude of consciously knowing morphological and syntactic structures in verbal language (Babayigit & Stainthorp, 2010). Much of the research on the relationship between grammar and spelling has explored the connection between the ability of processing morphemic and syntactic structures in

spoken language and to spell these structures. At this point, Siegel (1993) asserts that this ability or awareness apparently is fairly significant for reading a text fluently and efficiently as it demands predictions about the words, structures or phrases to appear in the next part of the text.

2.2.4. Reading Comprehension

Comprehension is a process in which the reader actively constructs meaning from words in a connected text. Not only does it involve vocabulary knowledge but also thinking and reasoning. So, it is not a passive process as the reader is actively involved in the text to build up meaning. This active involvement also contains the employment of the reader's earlier knowledge and experiences. It is necessary for the reader to make inferences from the words and expressions used to convey information, thoughts, and perspectives (Pang et al., 2003)

On the other hand, reading comprehension relies on various cognitive and linguistic processes. Verhoeven and Perfetti (2008) make a distinction between processes of letter-word level, which requires readers to read fluently and correctly and also to know the meaning of the words to perceive a text, and above-the-word-level comprehension, which demands readers to derive information from the text and to combine this information with prior knowledge. Ultimately, these processes occur in coordination with working memory (Muijselaar et al., 2017). In sum, it is essential to have a collective knowledge of grammar structure (syntactic knowledge), knowledge of vocabulary, and integration of derived meaning from text with the background knowledge; that is, awareness of the letters, morphemes, phonemes, affixes (prefix, suffix), grammar seems critical to develop an understanding into reading comprehension.

2.2.5. Linguistic Awareness

Language awareness refers to owning metacognitions about language as a whole, any part of it, a specific language that one possesses an ability to have a skillful control and a variety of perceptions (James, 1996).

2.2.5.1. *Morphological Awareness*

Morphological awareness is the skill of intentional examination, analysis and manipulation of morphological structure of words, namely morphemes that are the smallest units in words and the links between the base words as well as their connected inflectional and derivational formations. (Apel et al., 2012; Carlisle, 2003; Koda, 2012; Kuo & Anderson, 2006; Wolter et al., 2009). Morphemes consist of base words and affixes, in other saying prefixes and suffixes. Prefixes and suffixes can be inflectional morphemes that alter the base words in terms of time, number, or aspect (e.g. read-reading, pet-pets) and derivational morphemes that change base words in terms of word class and meaning (e.g., healthy-unhealthy, read-reader) (McLeod & Apel, 2015).

Morphology is the mind processing of word formation or the sub-discipline of linguistics which deals with various patterns such as words, their internal structure and their formation (Black et al., 2005). Hence, morphologists examine words, their internal structure, and the way they are shaped via the determination and study of *morphemes*, usually identified as the smallest linguistic units with a function of grammar (Aronoff & Fudeman, 2011). Morphemes are of two types: *Free* or *lexical* morphemes such as *book* as they are meaningful on their own, and *bound* morphemes such as *-ing* as they cannot exist on their own and can be an affix or a particle with a grammatical function (Black et al., 2005). To sharpen, a morpheme might be a word (e.g. *foot*) or a notional particle of a word (e.g. *-ing* of booking) which is inseparable from any smaller notional pieces (Aronoff & Fudeman, 2011). However, when people look up the meanings of the words in the dictionary, they will probably encounter different forms entries of a word or will not find any entries in the dictionary for these words, for instance, there are no entries for the versions of the verb *talk* as *talks*, *talked* and *talking*. Therefore, it is very important to make a distinction between the notions “word” and “lexeme”. Words are the smallest units of syntax which constitute sentences by keeping together (Black et al., 2005). However, lexemes are slightly different forms of words which are of tiny differences in terms of phonology or orthography, namely phonological or orthographic alteration/addition in the structure of the word. When words are transformed into lexemes by the application of grammatical rules like tokens of tenses (regular forms

of verbs e.g., *elects*, *elected*, *electing* or irregular forms of verbs e.g., *speak*, *spoke*, *spoken*), manifestation of gender (masculine, feminine, neuter e.g., *he*, *she*, *it*), state of quantity (singular, plural e.g., *cat*, *cats*). As clearly seen in the examples, when some of the affixes (prefix or suffix), which are called inflectional affixes, are added to a word, they undergo a transformation with some alterations of phonemes or spelling bearing additional meanings but not in their types of the words grammatically. On the other hand, *derivational* affixes lead to increase or change in meaning and quantity in the dictionary by generation of new words from old words or lexemes as in the example *elector*, *election*, *elective*. In other words, derivational affixes transform the words or lexemes into new words in consequence of change in the type of words (Aronoff & Fudeman, 2011). The new words (e.g., *elect*) formed by addition of an affix are called *complex* words, which can be separated as roots, stems and affixes, while the ones which cannot be divided into smaller parts are called *simplex* words (Black et al., 2005).

2.2.5.2. Phonological Awareness

“Phonology is the branch of linguistics which investigates the ways in which sounds are used systematically in different languages to form words and utterances.” (Katamba, 1989; p.1) Accordingly, phonological awareness is the ability to differently perceive tiny elements in the phonology of a language, such as sounds, phonemes, syllable structures, phonotactics, and rhythmic patterns (Cassady et al., 2005; Snow et al., 1998). There are aspects or features in phonological sensitivity to assess with the use of different types of tasks or activities (Cassady et al., 2005; Snow et al., 1998). Oral language can be analyzed by separating components into smaller units, sentences into words, words into syllables, and syllables into phonemes. Sounds are manipulated by their deletion, addition, or substitution with syllables or sounds. Therefore, tasks or tests of phonological awareness are supposed to be designed to evaluate different aspects and elements of verbal language (Park, 2019), through subtests for *Rhyming*, *Segmentation*, *Isolation*, *Deletion*, *Blending*, *Phoneme-Grapheme Correspondence*, *Phonemic Decoding*. (Robertson & Salter, n.d.)

2.2.5.3. Phonemic Awareness

Chard and Dickson (1999) expressed that the most sophisticated aspect or component of phonological awareness is phonemic awareness which is the act of understanding that words are comprised of individual sounds or phonemes and the ability to manipulation of these phonemes through segmentation, blending, or alteration of individual phonemes in words to generate new words. National Research Council report on reading makes a distinctive definition between phonological awareness and phonemic awareness:

The term phonological awareness refers to a general appreciation of the sounds of speech as distinct from their meaning. When that insight includes an understanding that words can be divided into a sequence of phonemes, this finer-grained is termed phonemic awareness. (Snow et al. 1998, p. 51)

Commonly, phonemic awareness is measured by tasks in which children are asked to analyze words into phonemes, combine phonemes into words, or change the sound structure of words, such as removing sounds from words and uttering the remaining part (Apel et al., 2012)

2.2.5.4. Orthographic Awareness

Henderson (1984) defines orthography as the graphemic forms of a written language and their correspondence with phonological, morphological, and semantic equivalence (as cited in Zhao, 2011). According to Ehri (2005), orthographic knowledge, as a linguistic device, establishes the relationship between graphemes and phonemes to link spellings of the words to their pronunciations and meanings in memory and is activated by phonemic awareness and by knowledge of the alphabetic system functioning as a strong predictor to consolidate remembrance of spellings in memory.

Apel et al. (2012) describe orthographic awareness as the skill of the rules and patterns of managing the way words are represented in writing on paper. When learners have a good orthographic awareness or knowledge including accurate spelling knowledge, they probably construct it within a regular analytic style during the process of reading (Barker, 1992)

When the processes of reading are taken into consideration, any kind of awareness is viewed as an important factor or predictor that influences reading ability and comprehension. They seem to be reciprocally related to each other, and each component may impact another. For instance, when base words are derived and converted into other words, an alteration may occur in the phonological structure of the base word (e.g., music/musician), the orthographic structure of the base word (e.g., empty/emptiness), a change in more than one type (e.g., permit/permission), or no change in any structure (e.g., drive/driver). Changes emerging in the phonological and/or orthographic structure between base word and its derivative is likely to demand extra effort for recognition of the connection between base words and their derivatives (McLeod and Apel, 2015).

Notably, morphological awareness is viewed as related to and a unique predictor of literacy skills, even with the contribution of other factors (e.g., McCutchen et al., 2008; Singson et al., 2000). That is probably why most research has been done on the contribution or impacts of morphological awareness on reading skills, for it is believed that meaning is mostly conveyed through vocabulary and, thus, via shifts in morphological units in language.

2.3. Review of Literature

Templeton and Scarborough-Franks (1985) aimed to examine 6th and 10th-grade students' knowledge of derivative morphology in spelling and phonology and investigated the ability of good and bad spellers to generate orthographic and phonetic derivatives for the three dominant vowel transformation patterns characteristic of intrinsic derivational morphology. The results of the research confirm the hypothesis that generative knowledge of literary patterns precedes generative knowledge of patterns in phonology. Moreover, literary (visual) information has been found to be superior to phonetic (auditory) information in accessing appropriate derivative morphological rules.

Cossue et al. (1988), who conducted research on the awareness of phonological units and reading skills in English-speaking Italian children, compared the segmentation abilities of English-speaking American children and English-speaking Italian children by using the same assessment methods and subject selection criteria but not

making clear comparisons between languages even though they collected data from different languages. Stimulus materials such as training and test trials were used to assess both preschool and elementary-grade children's segmentation abilities, which have two- and three-syllable words as well as for three- and four-phoneme words with the stress on the first syllable. At the preschool level, the performance patterns of Italian children were in line with data previously collected from American children, although Italian children generally outperformed American children. After starting school, this pattern did not change in American children but reversed in Italian beginning readers. In both groups, syllable segmentation ability was stronger than phoneme segmentation. However, the ability of phonemic segmentation caused children to have different levels of reading skills in both languages. These differences between language groups reflect phonological and orthographic differences between languages.

Mahony et al. (2000) investigated the relationship between morphological sensitivity and decoding ability (the derivation of affixed words and the recognition of affixed words by learners when seen) in primary school classrooms and examined the morpho-phonological nature of English spelling. They applied two experiments to assess children's sensitivity and decoding abilities with different types of tests. In the first experiment, The Derivational Suffix Test, Reading tests (the Word Identification and Word Attack subtests of the Woodcock Reading Mastery Tests, Form A (Woodcock, 1973), IQ tests (The 'Vocabulary' and 'Digit Span' Verbal Subtests and the 'Block Design' Performance Subtest of the Wechsler Intelligence Scale for Children-Revised (Wechsler, 1974) were applied on 98 children from a mainly middle-class public elementary school in Newport Beach, California. Linear model was used to examine the contribution of morphological skills to reading variance on an individual basis from contributions produced by short-term memory, and item analysis was made through different subtests. As for the second experiment, the researchers applied Derivational Suffix Test to assess morphological awareness, Auditory Analysis Test by Rosner and Simon (1971) to measure phonological awareness, Word Identification and Word Attack sub portions of the Woodcock Reading Mastery Tests (Woodcock, 1973) to assess children's reading skills. The results of the study showed that children's recognition of word derivation

relationships improved with grade level. As expected, there was a strong correlation between sensitivity to word derivation and word meaning decoding, when word pairs were presented orally and even when phonological awareness was taken into account. Apart from sensitivity to the morphological structure, phonological awareness has a significant effect on later elementary grades' decoding skill.

Carlisle (2000) investigated 3rd and 5th grade students' awareness of the structure and meanings of derived words and the relationship of these morphological forms of awareness with word reading and reading comprehension. The study included 34 third graders (18 boys and 16 girls) and 26 5th graders (10 boys and 16 girls) in a private school in a middle- to upper-middle-class suburban community in the Midwest. In the study, the researcher applied Word Reading Test to measure reading abilities of children to read morphologically complicated words. Then the researcher administered Test of Morphological Structure to measure students' awareness of the relationships of base and derived forms, and The Test of Absolute Vocabulary Knowledge (Anglin, 1993) to assess children's vocabulary knowledge, as well as Comprehensive Testing Program, Vocabulary and Reading Comprehension subtests. The results of the research revealed that there was a significant bond between 3rd or 5th graders' awareness of structure and ability to define morphologically complex words. According to the results, the awareness of structure in the language was significantly related to the ability to identify morphologically complex words and to reading derived words, differently from the previous studies in which these aspects of morphology were not directly assessed to find out the link between relational knowledge and the ability to read derived forms.

In their longitudinal study that lasted for four years, Deacon and Kirby (2004) examined the effects of phonological and morphological awareness on reading skills of 2nd-5th grade students, which have been mentioned together in few studies. The study started with 143 children in Grade 2 from a wide range of schools in Kingston, Ontario, Canada that were chosen to exemplify a wide range of socioeconomic circumstances and ended up with 103 participants who continued with the study until Grade 5. Phonological awareness task adapted from Bradley and Bryant's (1985) was used to measure awareness of children through rhyme oddity task in which they are asked to choose four orally presented words with one different sound. The Nunes

et al. (1997a, 1997b) Sentence Analogy Task was used to measure morphological awareness. Additionally, two tests from the Das–Naglieri Cognitive Assessment System (Naglieri & Das, 1997) were used to measure verbal and nonverbal intelligence by means of *Figure Memory* in which children in Grade 2 are asked to recognize a formerly seen simple figure in a more complex figure. The researchers also used three subtests from the Woodcock (1987) Reading Mastery Tests—Revised to evaluate children’s reading comprehension. After three aspects of reading development (pseudo-word reading, reading comprehension, and single-word reading) were compared in the study, morphological awareness made significant contributions to pseudo-word reading and reading comprehension by guiding prior measures of reading ability, verbal and nonverbal intelligence, and phonological awareness. On the other hand, morphological awareness hardly ever donated considerably to single-word reading. Based on the results of the study, the researchers claimed to have provided evidence that morphological awareness has a broader role in reading development beyond phonological awareness.

In their review of morphological awareness and learning to read, Kuo and Anderson (2006) presented a critical synthesis of empirical studies on morphological awareness from a broad inter-lingual perspective. Research conducted on children speaking a number of languages shows that knowledge of derivational morphology and the morphology of compounds, which carry on to progress through elementary school precede knowledge of inflectional morphology. Research finds that morphological awareness donates to the decoding of morphologically complex words and to the development of reading comprehension, even though there most likely exists a reciprocal relationship between them instead of a unidirectional one. Besides, morphological awareness turns out to be a progressively more important predictor of reading measures directly proportional to children's age. Morphological awareness is interlaced with other aspects of linguistic competence and literacy such as phonological awareness, syntactic awareness, vocabulary, decoding skills, and short-term working memory, which diverse researchers define differently.

In their study, Kirk and Gillon (2009) explored the effects of integrated morphological awareness intervention as a tool to improve literacy through morphological awareness training along with other forms of language awareness,

including knowledge of phonology, spelling, syntax, and semantics, by randomly appointing 8- 16 children aged 11 years as the experimental and control groups. Results of the data obtained from the participants in the experimental group with an average of 19.4 sessions focusing on increasing morphological awareness depicted that participants in the experimental group achieved significantly greater gains on both experimental and standardized reading and spelling measures in terms of reading and spelling accuracy than those in the control group.

Berninger et al. (2010) conducted a study on the increase in phonological, orthographic, and morphological awareness in grades 1-6. Data were collected from 241 children who were Caucasian (65.1% of the participants), Asian American (22.4%), African American (7.9%), Native American (1.2%), Hispanic (08%), and the remaining sample (2.5%) incompatible with above-mentioned categories. Participants in the study were asked to do *Phonological Tasks (Syllable Deletion, Phoneme Deletion, Rime Deletion, Nonword Memory)*, *Orthographic Tasks (Receptive Coding, Expressive Coding)*, *Morphological Tasks (Comes From by Nagy et al., 2006, Adaptation of Derwing 1976, and Mahony et al., 2000, Signals by Nagy et al., 2003; Adaptation of Singson et al., 2000; and Tyler and Nagy 1989, 1990, Decomposition by Carlisle 2000, Derivation by Carlisle 2000 and Oral Vocabulary Tasks (The Weschler Intelligence Scale for Children, 3rd Edition (WISC-3) vocabulary subtest by Wechsler 1991)* in order to evaluate whether progression from first to fourth proceeded at the same rate in 4th to 6th grade. The growth curve analyses revealed that (a) phonological and orthographic awareness at the word level showed the greatest growth in the primary school grades but some additional growth thereafter, and (b) the three types of morphological awareness showed the greatest growth in the first three or four grades. According to the results of this study, it was concluded that phonological awareness is necessary but not sufficient for learning to read in English, and that all three types of language awareness that increase in primary school classrooms should be coordinated and applied to literacy learning.

Goodwin (2010) conducted a study to investigate the contributions of morphological awareness and phonological recoding to word decoding, reading comprehension, and vocabulary for 197 5th year Spanish-speaking English learners. Data were collected from the participants through tests and tasks (subtests) managed by trained research

assistants on two separate days and analyzed test the planned prototypes, and acquire the coefficients and their connected standard errors. According to the findings of the study, morphological awareness did not contribute to the analysis of word structure and meaning with oral vocabulary, which is an important mediator of this relationship, while it made an important and meaningful contribution to understanding the text (passage) and vocabulary by controlling phonological recoding. Besides, the findings of the study indicated that oral vocabulary knowledge was foreseen meaningfully with control for phonological recoding. The study also revealed that oral vocabulary knowledge facilitated morphological awareness to contribute to reading vocabulary and comprehension. Furthermore, the study showed that phonological recoding predicted pointedly reading with no inclusion of morphological awareness as a predictor. However, phonological recoding pointedly anticipated word reading with control for morphological awareness.

Tong et al. (2011) investigated the reading skills of those with poor reading comprehension at the end of their primary school years from various perspectives in their longitudinal studies. This study was conducted on 5th grade students who were matched on word reading accuracy and speed, nonverbal cognitive ability, and age: unexpected poor readers, expected average readers, and unexpected good readers. Measurements were taken through tests of Reading comprehension, Word identification, Word reading efficiency, Nonverbal ability, Vocabulary knowledge, Naming speed, Phonological awareness, Orthographic processing (*Word Chains*, *Word Likeness*, *Orthographic Choice*), Morphological awareness (*Word Analogy*, *Sentence Completion*). While these three groups, chosen from 132 English-speaking children (63 boys, 69 girls) by use of regression technique, performed similarly on phonological awareness, naming speed, and orthographic processing tasks, they differed in morphological awareness even when vocabulary was statistically controlled. Research findings revealed that poor morphological awareness adds to reading comprehension breakdown and that children who are at different reading comprehension levels can learn morphology at unlike proportions.

Guo et al. (2011) conducted a study to examine the structural relationships between vocabulary, morphological awareness, syntactic awareness, and reading comprehension in English-speaking adults. Data was gathered from 151 participants

in one old Black public university, and one private college in northwest Florida through measures of vocabulary knowledge (*Peabody Picture Vocabulary Test*, *The Expressive Vocabulary subtest of Comprehensive Receptive and Expressive Vocabulary Test*), morphological awareness (*Grammatical Application Test–Revised Wug Test*), Syntactic Awareness Questionnaire, Reading Comprehension (*Nelson-Denny Reading Test*, *Gates-MacGinitie Reading Test*). The results of the study revealed that the morphological awareness of the participants directly influenced their reading comprehension. Additionally, syntactic awareness of participants provided a direct and indirect understanding of reading comprehension by way of word knowledge. Word knowledge adds an independent positive influence on reading comprehension without those morphological and syntactic awareness.

Jeon (2011) investigated the contribution of foreign language morphological awareness to foreign language reading comprehension and collected data from 188 South Korean 10th grade students through Pseudoword Reading Test, Word Knowledge Test, Verbal Suffix Knowledge Test–Revised, Reading Comprehension Test, Listening Comprehension Test, and Metacognitive Awareness Reading Questionnaire. The researcher evaluated the data collected from 188 South Korean 10th grade students in terms of 6 variables (phonological decoding, listening comprehension, vocabulary, text (passage) reading comprehension, metacognitive reading awareness, and morphological awareness) related to reading and language by using a series of 10 sequential regression analysis. The results of the study depicted that especially morphological knowledge is an important factor to be considered in explaining foreign language reading comprehension among older readers.

Kirby et al. (2012) studied the effects of morphological awareness through five reading measures (word reading accuracy and speed, pseudoword reading accuracy, text reading speed and reading comprehension) on 103 children in grades 1-3. In Kindergarten, Raven’s Colored Progressive Matrices (Raven, 1965) was employed to measure children’s nonverbal ability, and The Peabody Picture Vocabulary Test, Third Edition (Dunn & Dunn, 1997) was applied to test verbal ability which needs pointing to one of the images to best represent a vocabulary item uttered by the investigator. Word Blending and Elision tasks were used to measure phonological awareness of children in the fall term of Grade 1. Word Analogy task was employed

to measure children's morphological awareness in the fall terms of Grades 1, 2, and 3. Different kinds of tests including Word Attack (Woodcock, 1998), Word Identification (Woodcock, 1998), the Test of Word Reading Efficiency (Torgesen et al., 1999), the Gray Oral Reading Tests (GORT 4; Wiederholt & Bryant, 2001), Passage Comprehension (Woodcock, 1998) were administered to test children abilities in reading in Grade 3. The results of their study showed that morphological awareness is an important predictor of word reading accuracy and speed, pseudo (fictional/non-real) word reading accuracy, text reading speed, and reading comprehension. Besides, researchers concluded that morphological awareness has significant impacts on word reading and reading comprehension. In point of fact, they suggested that it is essential to include it commonly in assessments and instruction.

Deacon and Benere (2013) conducted a study on the relationship between children's morphological awareness or their ability to recognize and use the smallest meaningful units in words and their reading accuracy. The study included 1000 2nd grade students enlisted from seven countryside schools in north-eastern North America as part of a larger longitudinal study of reading development, who were retested in 3rd grade through the tests of vocabulary (a modified version of the Peabody Picture Vocabulary Test–Third Edition by Dunn & Dunn, 1997), phonological awareness (an elision task based on Rosner and Simons, 1971), Nonverbal reasoning (the Matrix Reasoning subtest of the Wechsler Abbreviated Scale of Intelligence; Wechsler, 1999), morphological awareness (Sentence analogy morphological awareness task based on Nunes et al., 1997 and Word analogy morphological awareness task), and reading accuracy (subtests from the Woodcock Reading Mastery Test–Revised by Woodcock, 1998). The results of the tests were assessed under autoregression controls planned to present a perception of the temporary relationship between these two skills. In conclusion, it was found that there was a reciprocal relationship between the children's morphological awareness and reading accuracy.

Ram (2013) examined the role of phonological opacity and morphological information in predicting the reading skills of school-aged children. 53 participants out of 103 children enlisted for the study at the beginning of the procedure were

contained in the final analysis, all of whom were monolingual and native speakers of English. As for the tests, the researcher developed the main task with 70 items subdivided into three experimental tasks containing 20 items each. According to the results of the research, both phonological awareness and morphological knowledge explained the differences in children's reading skills. More importantly, syntactic knowledge of morphemes has been shown to be an important predictor of both word structure and meaning decoding and text (passage) comprehension skills of children.

Yeung et al. (2013) explored the effects of 12 weeks of language-enriched phonological awareness training on the reading skills of 76 Hong Kong young children. Children from four kindergartens in Hong Kong were allocated unsystematically into groups to get training on phonological awareness integrated into word learning activities and writing tasks with no explicit instruction in phonology skills. Before and after the implementation of the program, they had tests on phonological awareness in the areas of syllable, rhyme and phoneme, reading and spelling, and receptive and expressive vocabulary knowledge. The results of the study displayed that children who are receivers of phonological awareness training achieved meaningfully better than the control group in terms of reading English words, spelling, phonological awareness, and expressive vocabulary in the post-test in statistical controls of the age, general intelligence and pre-test scores.

Zhang and Koda (2013) studied the morphological awareness of young Chinese foreign language learners and its contribution to reading comprehension by using measures which included inflectional and derivational affixes and compounding. They worked on 245 6th grade students of a public elementary school in Northeast China with the use of a questionnaire administered to obtain children's background information and Raven's Standard Progressive Matrices (Raven et al., 2000) administered to supervise the impact of intelligence on the connection between morphological awareness and reading ability. The results of the research indicated that morphological awareness was a predictive factor on reading comprehension. Apart from that, according to the results of the research, the basic aspect of students' awareness of inflectional suffix was higher than the awareness of derivational suffix, that their awareness of compound words was higher than their awareness of derivation for both basic and purified/clarified aspects while compound awareness

above derivational awareness was lower for the basic aspect than for the purified/clarified aspect. Besides, this study revealed that foreign language morphological awareness occurs as a result of the mutual impacts of students' exposure to foreign language words and native language morphological experience.

In their longitudinal study, Deacon et al. (2014) assessed 100 3rd and 4th grade English-speaking children's morphological awareness, word reading and reading comprehension skills, also measuring their phonological awareness, vocabulary, and non-verbal abilities as control measures (designed to provide insight into the temporal relationship between the variables examined at the base of the research). In this respect, two separate evaluations were made, in one of which all variables were included in the measurement while only the main variables of the study were focused on in the other. Results of the study indicated that morphological awareness affects reading comprehension indirectly through word reading skills and directly through the language system by way of reading the individual words to support reading comprehension.

Liu (2014) investigated the relationships between phonological awareness, reading skills, and pronunciation of secondary school students in Taiwan. In the study, 82 Taiwanese 6th grade students in elementary schools in Kaohsiung, who were native speakers of Mandarin Chinese and having two classes of English at school, took seven tests of phonological awareness (phoneme blending, phoneme segmentation), alphabetic knowledge (letter-sound correspondence), word reading, word decoding, paragraph reading. Lastly, reading comprehension test was applied to perceive other probable factors that may be connected with their competency in English after filling in the background questionnaire. Data were collected during a term (three months) and analyzed both quantitatively and qualitatively. Correlation and descriptive statistics were counted to evaluate relationships between students' levels of phonological awareness and their scores in word reading, pseudo reading, paragraph reading and reading comprehension tests. The results of the research showed that phonological awareness affected the word-coding skills of the 6th grade students selected as participants for the research to some extent, and spelling knowledge played a vital role in the word-coding skills of the students. Also, English performances of EFL elementary students were not only related to age but also other

difficulties or strategies in learning English. The researcher suggests that educators of English can employ diverse activities and resources to improve alphabetic knowledge because this study proves importance of having alphabetic knowledge.

Aksoy (2015), who explored awareness of learners of English as a foreign language of the vocabulary and grammatical functions of certain suffixes in English, aimed to find out the contribution of morphological awareness in a foreign language to intermediate-level adult Turkish students' reading comprehension at the text (passage) level beyond reading-related factors such as vocabulary, grammar and the use of reading strategies. The researcher collected data from 87 EFL students by means of several instruments such as proficiency exam that the Anadolu University School of Foreign Languages held at the end of 2014-2015 fall semester, Survey of Reading Strategies by Sheorey and Mokhtari (2002), the two-section Morphological Awareness Test (MAT) that the researcher adapted from Mahony (1993). The results of the study showed that adult Turkish EFL learners in intermediate-level English had a temperate morphological awareness. It was discovered that participators were able to adjudicate if a morphologically complicated word stems from a simple word rather than they could recognize lexical and grammatical functions of some derivational suffixes in English. In addition, participators' performance was affected by different suffix categories in the study. The results of the tests and practices revealed that morphological awareness of foreign language does not directly affect intermediate-level adult Turkish students' reading comprehension in a foreign language, and vocabulary directly contributes to their foreign language reading comprehension. Conversely, additional exploration exposed that morphological awareness was likely to contribute indirectly to reading comprehension in the target language by contributing directly to vocabulary knowledge.

Clark (2017) investigated the connection between morphological, phonological, and orthographic processing skills and reading. Two studies were administered to examine and compare the impacts of variables on reading with or without the involvement of certain variables. The results of the data obtained from a sample of 274 students in the 5th and 8th grades in the first of the two studies revealed that the 8th grade students performed better in both the morphological production task and the parallel processing task, which is the orthographic production task. The results of the

other study, the main aim of which was to examine the nature of the relationship between morphological and orthographic production tasks and reading comprehension in more detailed with 304 4th and 5th grade students, showed that the unique contribution of the spelling production task to reading comprehension remained significant even after other variables were taken into account. The overall results of the study indicated that the unique contribution of morphological awareness did not become significant after the variables of spelling ability, phonological vocabulary skill, vocabulary and working memory were taken into account. However, morphological skill was highly correlated with reading comprehension, and all predictors showed a strong aggregate effect on reading comprehension.

Le Roux et al. (2017) conducted a quasi-experimental, pretest-posttest design study to investigate phonemic awareness, a specific sub-skill of phonological awareness of African 3rd year students learning English as a second language. The test of auditory processing skills (sub-tests to assess *Word Discrimination*, *Phonological Segmentation*, and *Phonological Blending*), *One-Minute Reading Test* (Transvaal Education Department, 1987) to evaluate accuracy in reading, *Spelling Test* (University of Cape Town, 1985) to measure the spelling skills were administered on participants in a random order by female English L1-speaking students that took training for conducting tests. The results of this study also support aforementioned theoretical hypothesis. Second language learners who had participated in the study had significant difficulties in phonemic awareness, particularly word discrimination and phoneme segmentation, as well as phonological blending. These difficulties negatively affected decoding (reading) and coding (spelling) skills.

Levesque et al. (2017), who investigated the relationship between morphological awareness and reading comprehension, evaluated four potential variables (word reading, vocabulary, morphological decoding, and morphological analysis) that could indirectly contribute to morphological awareness. Multivariate path analyses were used to assess the data that gathered from the participants through the tests of *Morphological Awareness*, *Morphological decoding*, *Reading Comprehension*, *Word Reading*, *Vocabulary*, *Phonological awareness* and *Nonverbal ability*. According to the data obtained in one direct and two indirect ways on 221 English-speaking 3rd

year students, through the first indirect path, morphological awareness had a positive impact on morphological decoding by affecting word reading and eventually reading comprehension. Besides, it made contributions to morphological analysis via a second indirect path. Moreover, morphological awareness contributes directly to reading comprehension with other variables and beyond all other variables.

Zhao et al. (2017) conducted a study to investigate the influence of phonological, morphological and orthographic awareness on word spelling performance of students in English in both EL1 and EFL contexts. The study contained 339 8th grade Chinese EFL learners in China and 166 3rd grade monolingual children who spoke English in the US. Measures for the study was administered at the end of the academic year in classrooms and an auditorium hall as part of the school day. Participants in the study took the tests of real word spelling, orthographic awareness (*Orthographic choice, Permissible letter strings*), morphological awareness (*Extract the base, Word Form Exercise*), phonological awareness (*Speech Sound and Syllable Counting, Sound Oddity Task*) and reading (*Gates-MacGinitie reading tests*). The researchers made a comparison of prototypes of metalinguistic awareness that may predict word spelling of English between the two groups through multiple regression and dominance analysis. Consequently, they reached to the conclusion that orthographic and morphological awareness were distinctively connected with spelling for the EL1 group while morphological, orthographic and phonological awareness distinctively connected with spelling for the EFL group when taking the impact of vocabulary into the consideration.

In a similar study carried out by Amirjalili and Jabbari (2018), they explored the effect of morphological training on awareness of relational, syntactic and distributional features of derivational morphology, and thus its impacts on reading comprehension of EFL learners at levels of lower intermediate and higher intermediate. The participants in the study were 129 students selected from 1st year students at Imam Javad University, Yazd, Iran, whose native language was Farsi. The study was of the design of a pretest-posttest quasi-experimental control group, and included derivational morphological awareness tests (measures of relational, syntactic, and distributional aspects) and a reading comprehension test. One of the researchers who taught all four classes applied morphological instruction that lasted

for 12 weeks (10 instructional sessions plus 2 review sessions) out of 16 weeks, which was the study duration. Participants in both experimental and control groups took the instruction by the researcher as the teacher of both classes once a week for 90 min., and pre and post-tests in the first and last two weeks of the course. Data analysis was made with SPSS software by conducting a mixed-design ANOVA and multiple pairwise comparisons on the scores of three aspects of derivational morphology. The morphological instruction which students were exposed to had positive influences on morphological awareness and reading comprehension by comparison with the ones that had general instruction. The results of the study demonstrated that students in the experimental groups pointedly performed quite better than the control groups on all three tests measuring derivational morphology, approving the affirmative impacts of morphological instruction on these three aspects. That is, EFL learners can obtain positive results by raising their awareness when they were overtly trained on the morphological rules of English words.

Bae and Joshi (2018) conducted a study to investigate the impact of morphological awareness on the reading comprehension of students in unlike language learning settings with the same mother language, Korean. There were 307 (50 Korean ESL and 257 Korean EFL students) consisting of 153 5th and 154 6th grade students in the study. Whereas EFL learners were taking education in Korea, ESL learners were being educated in the US where English is spoken as a dominant language of communication and is thought as a societal and institutional language. Participants were evaluated by means of measures of L2 (English) morphological, phonological, and orthographic awareness in addition to reading comprehension. Also, they were assessed in their native language. In consequence of the study, via the multiple-group path analysis, it was seen that L2 morphological awareness was the biggest predictor of reading comprehension in the target language among both groups' students. When examined from a cross-linguistic perspective, a statistically important difference was detected between the ESL and the EFL groups, which means the ESL participants' morphological awareness of mother language served a positive function to predict their reading comprehension in the target language, unlike their EFL peers.

In O'Toole's (2018) study, which was conducted to gain insight into various linguistic knowledge levels related to reading comprehension in children learning

English, participants were asked to complete English phonological awareness, word reading, vocabulary, and reading comprehension tasks, and the participants completed an experimental study based on the distributed link approach. They were assessed for their knowledge of English morphology through the Morphological Awareness Semantic Task. The results showed that learners of English as a foreign language could achieve scores in reading comprehension similar to those of native English speakers, although they produced slight differences in the morphological representations of English words.

Akbulut (2019) carried out a study for morphological development on 74 students in the department of translation and interpreting for two years, and experimentally investigated the relationship between morphological awareness and reading skills of Turkish students learning English as a foreign language. Pre-test and post-test were applied to the students in the control and experimental groups, and during the period between these tests, the same exercises and studies were completed with the control group students without focusing on morphological awareness, while development-oriented education was continued with the students in the experimental group. According to the results of the post-test at the end of the training, it was observed that the experimental group students performed better than the control group students. In other words, the morphological awareness of the students in the experimental group increased effectively, and their reading comprehension skills improved.

Badawi (2019) who investigated the impact of explicit morphology instruction on creating secondary school students' EFL morphological awareness and reading comprehension tested their two morphological aspects (inflectional and derivational skills) using a quasi-experimental control group design. The study included 98 secondary school students that were divided into two groups, one of which was employed as the experimental group exposed to explicit morphological instruction as well as their regular EFL classes, whereas the other one was the control group that had only regular EFL classes. The data were gathered by means of a morphological awareness test and a reading comprehension test designed, validated, and implemented by the researcher. Before the instruction, pre-tests were administered to measure the participants' morphological awareness and reading comprehension

levels. The results of the study discovered that morphological awareness and reading comprehension of EFL secondary school students was developed with explicit morphology instruction. Nevertheless, explicit morphological instruction affected more development of EFL secondary school students' morphological awareness more than their reading comprehension. As a result of the morphological instruction that they were exposed to, the participants in the experimental group performed better at analyzing derivational and inflectional aspects of words than the ones in the control group. Hence, explicit morphological instruction is likely to contribute to EFL learners' learning procedure.

James et al. (2020) conducted a study to investigate the relationship between morphological awareness and reading comprehension in beginner readers to young adolescents (three age groups: 6–8, N = 128; 9–11, N = 126; and 12–13, N = 147). Tasks administered by the researchers included awareness of compounds, inflections, and derivations. In these tasks, participants did individual and group-administered tasks that can lead to evaluating reading comprehension, word reading, phonological awareness, receptive vocabulary, nonverbal reasoning, and morphological awareness. Through principal component analysis that provided only main factor of morphological awareness for each age group, respective hierarchical multiple regressions indicated that this morphological awareness factor elucidated noteworthy distinctive discrepancies in reading comprehension for different aged groups, over and above age, phonological awareness, vocabulary, nonverbal reasoning and word reading. The study's findings showed that morphological awareness contributed significantly and uniquely to reading comprehension beyond the aforementioned variables. Besides, the study added the literature that morphological awareness provided an understanding of performance of different age groups separately.

Munawaroh (2021) studied the relationship between morphological awareness and reading comprehension on 5th semester students at Islam Malang University. Data were collected from 60 students selected by purposive-sampling technique and Google form via online messages. Morphological Awareness Test adapted from the one by Rebecca Curinga, and Reading Comprehension Test, a TOEFL test, obtained from Longman complete course were administered to investigate the impact of morphological awareness on reading comprehension. The results of the study pointed

out a strong relationship between the variables. Participants in the study had high scores in both tests, meaning that their performances were good at morphological awareness and reading comprehension. On the whole, it can be said that morphological awareness makes contribution to reading comprehension.

Qiao et al. (2021), who claimed that their study is the first attempt to explore the theoretical mechanisms of the way morphological awareness affects reading comprehension in L1 and L2, investigated the direct and indirect impacts that morphological awareness had on reading comprehension in L1 Chinese and L2 English once they controlled certain factors such as age, working memory and the other language's word definitions. The participants were 156 3rd and 4th grade Chinese students who were counted in the study from an elementary school in Hong Kong. The participants could speak Chinese (Cantonese) as L1 and English as L2, which had been taught in parallel since the age of 3.5 years. They were instructed in Cantonese while researching their morphological awareness and reading comprehension. Morphological awareness in Chinese and English of the participants was measured in terms of word reading, expressive vocabulary and reading comprehension as well as the inclusion of measures of age, working memory and the other language's word definitions as controllers. The study established that morphological awareness significantly impacted on both English and Chinese reading comprehension apart from mediators and control variables. Moreover, it significantly impacted in an indirect way on reading comprehension by means of word reading along with vocabulary and word reading when control variables were taken into account. However, vocabulary did not mediate for both language models. The study concluded that the results pointed out the significance of morphology for reading comprehension and demonstrated probable devices supporting the associations between L1 Chinese and L2 English.

In their study, Sun and Lee (2021) explored the impact of English proficiency on relationships between Chinese university EFL students' phonological awareness skills and their reading and listening comprehension abilities in English. The participants in the study were 1st year university students in college in China who had sat for the English test of the National College Entrance Examination. As instruments, five types of tests (phonological awareness, word decoding, vocabulary

size, listening comprehension, and reading comprehension) were asked to be taken by the participants. Respectively, participants took the phonological awareness test at a language lab, a word decoding test individually by all having their performances recorded, and two days later, a reading comprehension test, a vocabulary size test, and a listening comprehension test. They were exposed to the contents and features of tests one at a time, which were three kinds of tasks including oddity, segmentation, and deletion prepared to evaluate the three aspects of Phonological Awareness; syllabic, onset-rime, and phonemic awareness. According to the results of the study, the low proficiency group got significantly lower scores than the high proficiency group in all five tests. Phonological awareness was seen to substantially contribute to low proficiency learners' reading and listening comprehension, particularly an indirect impact through word decoding by increasing the sensitivity of less skilled learners to the phonological system of spoken English to encourage them to read and identify words rapidly and competently. Thus they will automatize their decoding strategies and employ more mental ways to grasp the meaning of the written materials; thus they will improve their reading comprehension. Besides, phonological awareness had an important predictive impact on improving low proficiency in listening comprehension. That is, it is essential for low proficiency group to increase the level of their phonological awareness as it will improve their listening comprehension concurrently.

Listyarini et al. (2022) attempted to examine the correlation between phonemic awareness and reading comprehension of EFL learners in their study. The researchers recruited a sample of 100 students in total as participants who were studying in the English Language Education Program, Universitas Brawijaya, Indonesia, especially the 3rd-semester students trained in the subjects of Introduction to Linguistics and Reading Comprehension. The participants were presumed to have been exposed to phonemes in English language, and additionally to the skills of reading comprehension so as to get suitable results. The instruments employed were Phonemic Awareness Test adapted from Rokhman et al. (2020), previously conducted by Heggerty and VanHekken (2003) to gather data about students' phonemic awareness, which contained three skills: Identification of onset fluency/initial sounds, identification of Medial sounds and identification of Final

sounds, and Reading Comprehension Test to assess their reading comprehension skills, which included a system of six-questions based on Revised Bloom taxonomy. According to the results of the study, phonemic awareness is viewed as an important skill in language learning, becoming one of the predictors for reading comprehension skills of Indonesian EFL adult learners. The three skills previously mentioned were seen as necessary and beneficial tools for learners to identify phonemes for their manipulation. In addition, once they have learned to manipulate phonemes, they will be able to recognize words and process them in their minds, thus which will construct one of the essential components to reading comprehension.

Most of the studies conducted on the relationship were mostly related to morphological awareness as it is both concerning the grammatical and semantical dimensions of a language, and a great majority of the studies were conducted with primary and elementary school students rather than adult learners. Whether or not the studies examining the relationship between morphological awareness and reading comprehension were conducted in native or EFL context, most of these studies reached to the result that it the former made primarily and basically an indirect contribution to reading skills in general, namely with the accompaniment of vocabulary knowledge. That is, when the impact of morphological awareness on reading comprehension were exclusively examined, it was found out that there was a weak positive correlation between the variables. However, when it was investigated with the power of vocabulary knowledge through explicit training of morphological awareness, it had many positive impacts on reading skills of language learners, which was obviously revealed by empirical studies carried out on this issue. In the second place, the relationship between phonological awareness and reading skills were investigated mostly in native contexts and a few foreign contexts, in which sound system and orthography jointly affect the process of learning to read, as English is a morphophonemic language and its sound system has impacts on the process of learning to read. The results of the studies on this issue mostly revealed that there was a positive correlation between two variables in most of the studies were conducted in native context that speakers of English learn to speak first in. On the other hand, very few studies focused on the phonemic and orthographic awareness of language learners in both contexts. Most of them were carried out in

both contexts particularly when generally language learners have difficulty in associating phonemes with their orthographic representations. A brief summary of the studies reviewed is listed in Table 1 below.

Table 1: Studies Reviewed

Study	Type(s) of Awareness
Templeton and Scarborough-Franks (1985)	Morphological-Phonemic-Orthographic
Cossue et al. (1988)	Phonological
Mahony et al. (2000)	Morphological-Phonological-Phonemic
Carlisle (2000)	Morphological
Deacon and Kirby (2004)	Morphological
Kuo and Anderson (2006)	Morphological
Kirk and Gillon (2009)	Morphological
Berninger et al. (2010)	Morphological-Phonological-Orthographic
Goodwin (2010)	Morphological-Phonological
Tong et al. (2011)	Morphological-Phonological-Orthographic
Guo et al. (2011)	Morphological
Jeon (2011)	Morphological
Kirby et al. (2012)	Morphological
Deacon and Benere (2013)	Morphological
Ram (2013)	Morphological-Phonological
Yeung et al. (2013)	Phonological
Zhang and Koda (2013)	Morphological
Liu (2014)	Phonological
Deacon et al. (2014)	Morphological-Phonological
Aksoy (2015)	Morphological
Clark (2017)	Morphological-Phonological-Orthographic

Le Roux et al. (2017)	Phonemic
Levesque et al. (2017)	Morphological
Zhao et al. (2017)	Morphological-Phonological- Orthographic
Amirjalili and Jabbari (2018)	Morphological
Bae and Joshi (2018)	Morphological
O'Toole (2018)	Morphological-Phonological
Akbulut (2019)	Morphological
Badawi (2019)	Morphological
James et al. (2020)	Morphological
Munawaroh (2021)	Morphological
Qiao et al. (2021)	Morphological
Sun and Lee (2021)	Phonological-Phonemic
Listyarini et al. (2022)	Phonemic

CHAPTER III

METHODOLOGY

This chapter provides a detailed description of the research design of the study in Section 3.1. Next, it gives information about the setting of the study in Section 3.2. Later, it describes the participants that are included in the study in Section 3.3., and defines the instruments (phonological awareness test, morphological awareness test, phonological opacity test, orthographic choice task, semi-structured interviews) employed in the study in details in Section 3.4. Lastly, it describes procedures of gathering data from the participants in Section 3.5. including the pilot study and process of data analysis.

3.1. Research Design

According to Marczyk et al. (2010), there are two wide-ranging terms that the researchers, quantitative and qualitative, should know. The former includes studies in which statistical analyses are employed to gather findings, while the latter contains studies, such as case studies and interviews, in which quantification is not made through statistical synopsis and analysis. Besides, qualitative research is employed to conduct a posterior examination of the quantitative measurement in a study (Marczyk et al., 2010). In the most general sense, numerical data are collected and analyzed in quantitative research, while data are gathered through narration and description of experience in qualitative research (Hayes et al., 2013). When there is use of both types of research in company, ‘mixed methods research’, in which both qualitative and quantitative data are integrated in a single study (Creswell et al., 2011, Wisdom et al., 2012) is adopted and employed. The present study investigates the correlation between the four different types of awareness and reading comprehension through the collection of numerical data and analysis of statistics as well as gathering data through interviews to figure out the way the participants perceive themselves, and make comments on their consciousness of levels of awareness and reading comprehension based on their responses to the interview questions. Accordingly, mixed methods research is preferred in the study to measure the correlation between four different types of awareness and reading comprehension and describe it properly by using their perceptions of their awareness.

There exist various types of interviews classified by many researchers such as Powney and Watts (2018) who distinguished interviews in two types: informant interviews, the aim of which is to develop an understanding of the perspective of a certain subject in a condition, and respondent interviews, the control of which belongs to the interviewer during the entire procedure. On the other hand, Robson (2002) and McKernan (2013) presented another classification of interviews in regard to their contents and organization; structured interviews in which respondents are addressed a set of specific questions, and their responses are noted on a standard list or table, semi-structured interviews in which a set of specific questions (Open-ended questions that may concern the context of the interview can be used, as well) are requested to answer with the contingency of changing their order by respondents and with the opportunity of explanations and examples if needed at any time, and unstructured interviews in which respondents are presented with a problem or a topic and permitted to start a topic providing they have a conversation on the problem or topic (Aksu, 2009). When compared to the other types, semi-structured interviews bear a resemblance the structured interviews in that they have a set of structured questions to be asked, but differ from them in that they are of open-ended questions to gather supplementary data by providing a broader scope for profound examination in educational researches (Aksu, 2009). In the present study, semi-structured interviews were employed as the participants in the study may adjust themselves by changing the order of questions, the amount of time, and their span of attention to the topic, and reflect their opinions in grander depth.

In the present study, a mixed method was applied to independently investigate the relationship between morphological, phonological, orthographic awareness and reading comprehension. Achievement tests with multiple primarily choice items and a few gap-filling question types were selected, adapted and/or prepared to gather quantitative data, which were described through statistical analyses on the IBM SPSS Statistics 21 program. In addition, semi-structured interviews were carried out to provide qualitative data to support the quantitative data by the triangulation of data/method, which is collection of the data about the same fact through the employment of multiple methods (Polit & Beck, 2012).

3.2. The Setting

FUSFL, which was founded in 2011, offers its students a modern and standardized language education based on Common European Framework Reference (CEFR) through effective and changeable techniques and resources according to the needs and levels of the students that take education at that school. FUSFL has always tried to implement an approach in which language skills and sub-skills are integrated to motivate language learners, students at preparatory classes for concurrent development of all fields or skills of a foreign language. *English File 4th Edition* by Oxford as a main course book and *Effective Academic Writing 2nd Edition* by Oxford for writing skills are used during the teaching process, for especially *English File* includes wide-ranging materials such as listening podcasts, videos related to the topics in each unit, teachers' resources for assessment of learning outputs and classroom activities.

FUSFL holds an exemption examination to determine proficiency levels of students who newly attend the school and accordingly decides whether students need to have language education that is required for their profession or department as appointed by a commission, depending on benchmarks of elegant nationwide universities and other universities in the vicinity and stated in the regulations published on government gazette. The exemption exam is proctored in two sessions; the first session, called as the written part of the exam, involves a multiple choice test that includes listening, vocabulary and grammar knowledge sections, reading, writing part, and the second session is the oral exam which is conducted to evaluate students' oral performances. The first session constitutes 75 % of the exam, while the second makes up 25 %. That is, students take two different points out of 100 points from these two sessions, and when these points are calculated and get the passing grade (60 or above), those who cannot succeed in this exam, in other words, the ones who obtain a point below 60 out of 100 in total, are supposed to take a foreign language education for two terms at their first year at university before they start to be trained at their own departments. As for those who obtain a higher point than 60 out of 100 are headed to their departments as they are regarded to be at B1 Level (the targeted level at the end of the preparatory year) and proficient enough to take education in their departments.

3.3. The Participants

Students who study in different departments learn English voluntarily and mandatorily in preparatory classes at FUSFL to reach the levels of B1 (for voluntary groups) and B1+ (Compulsory Groups) according to CEFR. As students of English Language Teaching (ELT) and English Language and Literature (ELL) in compulsory prep classes are good at reading when compared to the other skills and have to take language education at FUSFL, they have been selected as a sample group for the current study. Tests for awareness were administered to gather the needed data for the goals of the current study from 40 participants because the other students had not taken the exemption exam at the beginning of the term.

3.4. Data Collection Instruments

When the purpose of the current study, which is the exploration of the impact of morphological, phonological, phonemic, and orthographic awareness independently on reading comprehension, is taken into the consideration, reading comprehension appears as the dependent variable in the study while above-mentioned kinds of awareness are the independent variables.

In this respect, the reading part (items 36-80) extracted from the exemption exam (actually called the Proficiency Exam by the institution) that was administered at Fırat University School of Foreign Languages (FUSFL) at the beginning of the 2021-2022 Fall Term were evaluated as the reading comprehension test for the current study. Morphological awareness of students was measured through the Morphological Awareness Test (MAT), which was modified from Mahony (1993) by Aksoy (2015). Phonological awareness of students was measured via Phonological awareness test (PAT) by Sözen (2019). Phonemic awareness of students was measured by means of Phonological Opacity Test, which was adapted from Ram (2013) by the researcher. Orthographic awareness was measured with use of Orthographic Choice Task, which was adapted from Clark (2017) by the researcher. In addition, semi-structured interviews were administered to support the quantitative data collected through the instruments previously-mentioned with at least 8 students (meaning all of them were interviewed when they had similar scores on tests below or above the limit; for instance, 4 or 5 were included for the highest scorers), half of whom obtained the lowest scores while the half of the group

obtained the highest scores, for each awareness test/task, accounting for 20 percent of the whole sample for each test, also nearly half of the whole sample for all test/tasks since various students got the highest and lowest scores in different tests/tasks. In that way, the responses provided by the highest and lowest scorers could be examined and compared to determine whether they had the perception about their own awareness or not.

3.4.1. Reading Comprehension Test

As a reading comprehension test for the current study, a related part of the exemption exam administered at FUSFL at the beginning of the 2021-2022 Fall Term was extracted and evaluated for the participants. The test included multiple choice items comprised of questions like sentence completion, paragraph completion, identification of irrelevant sentences in paragraphs, answering the questions by making inferences, and finding the main idea or details according to the given paragraphs. Different instructors prepare these questions at FUSFL by generally being taken from reliable, confidential resources of course book that is provided by the publisher or adapted from some course books/websites which are used to teach or learn English. It would not be appropriate to present the questions in the exam on account of their copyrights and FUSFL uses alternatively these questions in different exams in different years by making alterations and modifications on them.

3.4.2. Phonological Awareness Test (PAT)

Phonological Awareness Test (PAT) was taken from Sözen (2019) who included different dimensions of phonological awareness in certain task types to assess the participants' awareness for the investigation. The PAT involved six different types of tasks presented in subdivisions to measure various difficulty levels of phonological awareness as previously mentioned in the theoretical background section. As it was told in Sözen (2019), expert opinion was required to validate the reliability of Phonological Awareness Test. The task types and test items in the PAT were checked with the opinions of two full professors presently working in the ELT department and of two colleagues presently doing a doctorate in the ELT department as well as the review of its last version by a British instructor at AUSFL before

recording. Its reliability was confirmed by statistical analysis and found Cronbach's $\alpha = .693$.

According to Sözen (2019), the reason for choosing the phonemes in the test was that they remained among a list of most frequently appearing phonemes in the English language (see “repository of cross-linguistic phonological inventory data” by Moren & McCloy, 2019; Hayden (1950)'s article). As soon as the phonemes in the sections were chosen, it was essential to produce items that include phoneme and the distractors chosen among minimal pairs or similar sounds; for instance, /b/ was involved among distractors while testing /p/ because both phonemes are plosive bilabials and likewise, /d/ was one of the distractors while testing /t/ because both phonemes are plosive alveolar consonants. As for vowels, items were similarly generated using similar phonemes or sounds, and the distractors were selected from diphthongs as well as monophthongs. To set an example, as it is made in a close to open mid, but near-front position, /æ/ was presented as one the distractors in the test item while testing /ʌ/ that is described as a back and open-mid monophthong.

As noted previously, the PAT involved six different types of tasks, namely six parts, each of which was designed to assess various difficulty levels of phonological awareness (see Appendix 1). In part 1 *Rhyme Recognition*, the way the task would be like was explained first both orally and in black and white, and an example was given the participants to make sure that they understood well what to do. In that part, the participants would hear a word and circle another word rhyming with this word they would hear among the four options while seeing its written form on the paper at the same time. There were five multiple choice test items in this part, including the phoneme pairs /t/-/d/, /k/-/t/, /eə/-/ɪ/, /p/-/b/ and the difference between the /ɪz/-/s/-/z/ forms of plural 's'. Each test item measured a different phoneme. The following sample item was extracted from *Rhyme Recognition* part.

	A	B	C	D
1. fat	cute	sat	fed	vet

In part 2 *Rhyme Application*, the way the task would be done was introduced first both orally and in black and white, and an example was given to the participants to ensure they understood well what to do. The participants would hear a word and would complete the word in the first blank, and after that they were supposed to come up with another word rhyming with the word they would hear, and write it in the second blank. The purpose of this part was to test their rhyme awareness at the production level. This part contained five items with one and half blank for each item, and the second blank was important and assessed by differing from the original part of this test since it would be too difficult to write two words while listening to the record. The following sample item was extracted from *Rhyme Application* part.

6. Sum_(mer)___ rhymes with___(drummer)___.

Parts 3, 4 and 5 were designed to measure similar aspects of participants' phonological awareness. In each part, the task was introduced orally and in written form, and an example was given to the participants to ensure they understood well what to do. In part 3 *Oddity- Beginning Sounds*, there were test items designed to evaluate participants' awareness of the beginning sounds in different words. In that part, the participants would hear four different words, three of which began with the same sound, and then would select the word beginning with a different sound. They were provided the options both vocally and in black and white to avoid the impacts of their possibly acquired wrong pronunciation of the words given as distractors. In this part, the phonemes that were included were /f/-/p/, /r/-/w/, /l/-/n/, /s/-/ʃ/, and /θ/-/t/. The following sample item was extracted from *Oddity- Beginning Sounds* part.

	A	B	C	D
11.	Physics	Practice	Finish	Fabric

In part 4 *Oddity- Final Sounds*, there were test items designed to evaluate participants' awareness of the final sounds in different words. In that part, the participants would hear four different words, three of which began with the same sound, and then would select the word ending with a different sound. They were provided the options both vocally and in black and white to avoid the impacts of

their possibly acquired wrong pronunciation of the words given as distractors. In this part, the phonemes that were included were /θ/-/ð/, /d/-/t/, /m/-/n/, /aɪ/-/ʌ/ and /ŋ/-/dʒ/. The following sample item was extracted from *Oddity- Final Sounds* part.

	A	B	C	D
16.	Smooth	teeth	tenth	filth

In part 5 *Oddity- Middle Sounds*, there were test items designed to evaluate participants' awareness of the middle sounds in different words. Similarly, the participants would hear four different words, three of which began and ended with the same sound, and then would select the word with a different middle sound. They were provided the options both vocally and in black and white to avoid the impacts of their possibly acquired wrong pronunciation of the words given as distractors just as in parts 3 and 4. This part included the phonemes /ʌ/-/æ/, /ɔ:/-/oo/, /ʊ/-/ʌ/, /ɔɪ/-/ɪ/ and /aʊ/-/əʊ/. The following sample item was extracted from *Oddity- Middle Sounds* part.

	A	B	C	D
21.	bug	hut	hat	hug

In part 6 *Blending- Phonemes*, phonemes of a word were presented separately to measure the participants' ability with a pause for two seconds before the next phoneme, and the participants were asked to blend them in their mind and to recognize the word among the four options given. They would hear phonemes one by one in each word and circle the word they heard. A sample item from that part in the PAT was given below.

	A	B	C	D
26. /'θ/, /ɔ:/, /t/	thought	fought	drought	great

3.4.3. Morphological Awareness Test (MAT)

Morphological Awareness Test (MAT) involves two sections: Sentence Completion and Word Relation, respectively. The aim of the first section, Sentence Completion, which is made up of 27 multiple choice test items, is to find out whether there is an awareness of grammatical and lexical functions of some common derivational suffixes in English in participants in the study or not. This section includes pseudo-words that are properly formed for the structure of English morphology. The derivational suffixes exemplified in this test are **-tion, -ist, -(i)ty; -ate, -ize, -fy and -ous, -ive, -al**, and can form nouns, verbs, and adjectives variably by means of their addition to different types of words. These suffixes are mostly preferred in morphological awareness tests, and naturally in this test since they are the suffixes that are among the most common ones in English (White et al., 1999; Montero-Fleta, 2011; Suhandoko, 2020). The suffixes **-tion, -(i)ty, -ous, -ive and -al** remain among the most frequent 20 suffixes by constituting 93 percent of occurrences in a corpus-based research by White et al. (1999). **-(at)ion, -ate, -ify, or -ize** remain among the most frequent suffixes as stated in their study by Suhandoko and Ningrum (2020).

The test items in this section have been taken and adapted by Aksoy (2015) from Mahony (1993) with slight modifications. During the administration of the Sentence Completion section, the participants were given instructions on selecting the best choice out of four options derived from the same root with suffixes which form different types of words to accurately fill in the gap in the sentences. As in the following example of test items, learners can fill in the gaps in the sentence with ease with the correct form of the word, designating that they have an understanding of English derivational morphology when they distinguish the functions of derivational suffixes -er, -ty, -tion and -ize, as sorted in the options in that order.

They _____ those fields early in the spring.

A-) fertilizer

B-) fertility

C-) fertilization

D-) fertilize (Correct answer)

(Mahony, 1993)

In Word Relation section, the participants are requested to identify whether the second word is a derivative of the first word in each pair in the list of 20 word pairs included in the test, and then to circle YES beside each pair, if they think the second word is a derivative of the first word, or NO if they think the second word is not a derivative of the first word as in the following sample test items presented below.

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

part → *party* YES - ☒ NO (Unrelated)

It was presumed that the participants would know words in this section of the test as they were among the very common words which also appeared in the course book as a part of their lesson. That is, the participants were expected to recognize the meaning of every single word in each pair, and thus they could understand whether or not the two words in each pair were morphologically connected. For this reason, this test was selected for the research.

While nine of these pairs of words were morphologically related, the rest of the pairs (11) in the test were morphologically unrelated. The participants were supposed to do practice of pairs with one morphologically related and the other morphologically unrelated word to ensure that they perceived what they were assumed to do. The word pairs in this section were accordingly designed by Aksoy (2015) by taking some of the word pairs from Mahony (1993). As the number of test items was 47, the participants would obtain at most 47 as the highest score, for 1 point was given for each correct answer. As it was told in Aksoy (2015), expert opinion was required to validate the reliability of Morphological Awareness Test. Both sections of the MAT were reviewed by four ELT professors, being also noticeably educated in English linguistics. After some tiny modifications were made to the test items, its reliability was confirmed by statistical analysis and found Cronbach's $\alpha=.78$, meaning it was adequate to measure the identical subject. Test items in both sections of the MAT were presented in Appendix 2.

3.4.4. Phonological Opacity Test

Phonological Opacity Test adapted from Ram (2013) involved 25 derived word pairs on which the participants would decide the degree of difference in sound pattern (not meaning or spelling) that they considered existing between them while they were hearing their pronunciation with 6 second-intervals between the word pairs. The task was introduced by a written explanation on paper. After they heard the pronunciation of the word pairs, they would rank this difference (by focusing on the number of phonemes changing in the base word-part written in bold) on a rating scale of 0 – 3 designated below. The pronunciation of the words was checked in <https://dictionary.cambridge.org/tr/> and recorded by the researcher. The sample items below were extracted from the test (for other items, see Appendix 3).

Rating Scale:

0: minimal difference (i.e., the base word is pronounced exactly the same in the derivative as when it is said by itself)

3: maximal difference

Word Pairs	minimal difference		maximal difference	
1. achieve- achievement	0	1	2	3
2. advantage- advantageous	0	1	2	3

3.4.5. Orthographic Choice Task

Orthographic Choice Task adapted from Clark (2017) included 25-word pairs, one of which in each pair was a real word while the other was incorrectly written form of the word. The participants were expected to select the correctly written word between word pairs in 60 seconds as many as they could. The incorrect forms of the words were taken from *Commonly misspelled English words* list in Wikipedia. The sample test items from this test were presented below (for other items see Appendix 4).

Which one is a real word?

1. **absence**- absense

2. amatuer- **amateur**

3.4.6. Semi-structured Interviews

Semi-structured interviews were conducted to support the quantitative data collected through the tests/tasks the Morphological Awareness Test (MAT), the Phonological Awareness Test (PAT), the Phonological Opacity Test, and the Orthographic Choice Task. Open-ended questions related to the morphological awareness were taken from Aksoy (2015), and other open-ended questions related to the other types of awareness which were investigated in the study were prepared by the researcher in order to reveal the relationship between reading and awareness types previously mentioned. The interview form involved six questions (Appendix 5), some of which were not essential to answer depending on the scores of the students in each test or task. However, the first three questions were directed to all of the participants that were chosen since they were related to reading and the essentials for proficiency in reading, while the others were respectively related to the MAT, the PAT/the Phonological Opacity Test and the Orthographic Choice Task.

3.5. Data Collection Procedures

3.5.1. Pilot Study

The two of tests in the present study were prepared by the researcher and needed checking before gathering the actual data. Both tests were recorded into the distance education system, as a timed examination which was remained accessible for students between 26th April 2021 and 2nd May 2021 with the right of two trials in case of a breakdown on the system, of FUSFL by which online education and exams were administered during 2020-2021 Spring term. 10 1st year students from ELL Department participated in the Phonological Opacity Test and the Orthographic Choice Task. For both tests, there were explanations in both English and Turkish to ensure they understood what to do in the tests. In Phonological Opacity Test, the participants were given 4 minutes to complete the test by selecting the best choice while listening to the recording that would start when they clicked on the exam and entered the test. In the same way, the Orthographic Choice Task remained accessible for students for 3 minutes as it would be difficult for most students to read and choose on their phones and computers due to potential internet connection problems. Once the data were gathered from participants, they were transferred onto the IBM

SPSS Statistics 21 program. Reliability analysis of the Phonological Opacity Test and the Orthographic Choice Task were found to be moderate, Cronbach's $\alpha = .628$ and $.617$. As for the qualitative method used in the study, Open-ended questions related to the morphological awareness and reading were taken from Aksoy (2015), and other open-ended questions related to the other types of awareness which were investigated in the study were prepared by the researcher in order to reveal the relationship between reading and awareness types previously mentioned. The interview questions were provided both in English and in participants' native language Turkish. After that, the interview questions with newly added items were checked by an associate professor at a state university in Turkey, and also were applied on 10 1st year students in the department of English Language and Literature, at Firat University in which the study was being conducted. The students in the pilot study were asked to answer all the questions with the newly added ones by sending voice mails on an application (WhatsApp) (because of the distance education during pandemic), and checked whether they needed any explanations or examples to ensure that they properly understood the process. The responses provided by the participants were transferred into a word document after they sent their answers by voice mails. The data gathered by voice mails were analyzed in terms of themes, and checked by another researcher/a second coder by following the steps described in the way it is explained in details in section 3.5.3 Data Analysis (p. 61) of this chapter. When the procedure of the research is reviewed, it can be said that the intelligibility and comprehensibility of the interview questions were provided through partly an expert assessment (the exposure of the interview questions to a critique by an expert in the field) and a field-testing (a technique by way of applying the interview questions on potential participants for the study) (Kallio, 2016).

3.5.2. Data Collection

Firstly, the participants had taken the exemption test administered at Firat University School of Foreign Languages (FUSFL) on 20th September 2021, at the beginning of the 2021-2022 Fall Term, and a related part of this exam was extracted and evaluated as the reading comprehension test for the participants in the current study. As they were related to reading comprehension, questions like sentence completion, paragraph completion, identification of irrelevant sentence in paragraphs, answering

the questions by making inferences and finding main idea or details according to the given paragraphs were evaluated and used for the investigation (as in the research of Aksoy, 2015), meaning that items/questions designed to directly test listening, grammar and vocabulary knowledge were not included in the investigation.

Secondly, the Morphological Awareness Test (MAT), the Phonological Awareness Test (PAT), the Phonological Opacity Test, and the Orthographic Choice Task were administered by the researcher in different weeks (18th-22nd October, 1st-5th November, and 15th-19th November 2021) during 2021-2022 Fall Term since it was not possible to find all of the students at school because of the pandemic. For each test, the participants were asked to read the instructions on the paper and additionally was introduced in Turkish to avoid of any possible confusion and/or misunderstanding about the test. In the order above, the tests were administered within 16 minutes, 13 minutes, 4 minutes and 60 seconds as well as 10-minute time spent for the instructions for all tests, namely approximately 45 minutes for all.

Lastly, semi-structured interviews were conducted on the days between 3rd-14th January, 2022, long after the quantitative data were gathered since some of the students or the whole class were absent at school because of the covid-19 cases and quarantine. Based on the participants' scores obtained from the awareness tests, nearly 25 out of 40 participants were interviewed in their classrooms during their intervals between the classes. There were four or five participants in each class (of six), and the interview questions were addressed to the participants of the study both in English and in Turkish (their native language) according to their preferences one by one. In order to ensure that they could understand the questions properly and avoid possible misunderstandings or misconceptions, definitions and explanations of the terms in the questions were presented orally and with a copy of questions by the researcher when they needed help. After each question, the participants were given some time to think about and state their answers to the questions individually in English or Turkish so that they could feel comfortable and express their opinions freely. Their responses were written by the researcher under the related question in a form including the interview questions, which was prepared for each participant. When all the interviews were conducted with the participants in each class within two weeks, participants' responses which were audio-recorded, were transcribed into

a word document and classified into groups in terms of their scores and types of awareness accordingly.

Before the research process started, the subject and instruments which would be used in the research had been approved by the ethics committee of the Istanbul Medeniyet University, and accordingly, all the participants were requested to sign the informed consent form, which shows that they all participated in the study voluntarily, including all awareness tests and semi-structured interviews. Data collection steps can be seen more clearly in the table below.

Table 2: Data Collection Steps

From 26th April, 2021 To 2nd May, 2021	Pilot Study
20th September, 2021	Proficiency Exam
18th-22nd October, 2021 1st-5th November, 2021 15th-19th November, 2021	All tests' administration at once, Morphological Awareness Test (MAT) Phonological Awareness Test (PAT) Phonological Opacity Test Orthographic Choice Task
3rd-14th January, 2022	Semi-structured interviews

3.5.3. Data Analysis

Data were gathered from 40 participants in the study, who were prep class students of ELT and ELL departments at Firat University, via the tests of Reading Comprehension Test (Proficiency Exam), Morphological Awareness Test, Phonological Awareness Test, Phonological Opacity Test, Orthographic Choice Task on different dates as stated in Table 2. Results of the tests were computed into SPSS 21 program for dependent and independent variables, respectively, for the sections of MAT separately, and also for the tests of awareness as if they were a single test.

In order to find out an answer to the research question of the study, the scores that the participants obtained from the tests were analyzed and explained by using reports for descriptive statistics including mean, scores of minimum-maximum, standard error, and standard deviation to clarify and show the tendency they had, and how their scores were distributed. Item analyses were made to indicate the correct and wrong answers for every item for each test one by one through graphs, histograms and tables. When the scores of tests provided by the participants were checked to see whether they were distributed normally or not, it was found that scores of the reading comprehension tests had an abnormal distribution by the analysis of histogram charts, values of skewness, and kurtosis. Based on that finding, Spearman correlation and chi-square test analyses were made and reported in tables, correlation matrices, and verbal descriptions to enlighten the relationship between the variables if there is. In addition to these analyses, the questions prepared and answered by the participants by means of semi-structured interviews were analyzed (in the form of written questions on a paper) and searched for thematic codes in their answers in relation to the test scores, which would have some supports their scores they obtained from the tests. Data are examined to identify, analyze and report themes/patterns in it by means of thematic analysis. Thus, the data in question are analytically structured and richly described in depth. Yet, beyond this, it provides diverse facets of the research topic (Boyatzis, 1998). However, there is a controversy on what counts as a theme in a data set, and there is no certain-satisfactory answer on what rate of data should be used in the descriptive analysis of themes. When there is no definite compromise on this issue, researchers may include various rates of themes in a data set, and the researcher's decision becomes more of an issue at that point (Braun & Clark, 2006).

Braun and Clark (2006) state that there were two major approaches to employ thematic analysis, inductive (e.g., Frith & Gleeson, 2004) versus theoretical (e.g. Boyatzis, 1998; Hayes et al., 1997). Theoretical thematic analysis deals with a detailed description of a particular part of the data more than a general perspective of the data, tending to be directed by the theoretical or analytic interest the researcher possesses in the field. On the other hand, inductive thematic analysis is made by the identification of themes strongly sticking to the data themselves but not attempting to mould it to a previously-prepared coding frame, or preconceived opinions of the researcher (Braun & Clark, 2006), which was preferred in the present study. By not having preconceptions about the themes to be identified in the data set, the thematic analysis was driven by the data itself based on the common themes which were included in the responses but with the presentation of all responses provided by participants in a list with their translated versions (if they answered in their native language). As there was a comparison of the responses provided by the highest scorers and the lowest scorers of each test, the participants were categorized as the highest scorers and the lowest scorers for each test based on the scores they obtained from the tests, in order to evaluate and group their responses in terms of similarities and differences. In that way, it became possible to develop an understanding of their perceptions of what they do or pay attention to while they were reading a text, to see whether they followed certain patterns during the reading process, and to make some generalizations about these two categories or groups.

The responses by the participants were transferred into a word document, and were translated into English when they had answered in their native language under the headings of their classified groups (the highest scorers and the lowest scorers) for each awareness test. The data were analyzed and coded manually, as Saldana (2009) states that this way provides researchers with manipulation of qualitative data on paper and handwriting of codes enables them to possess a stronger control over the work. In line with the phases stated by Braun and Clarke (2006), as the first phase of the analysis, the data collected from the participants were repeatedly read by the researcher to get familiarized in search of meanings and patterns in it. By reading all the data set actively at least twice, the researcher made himself immerse into the depth and breadth before the coding process was commenced. In the second phase,

after having being familiarized with the data, the basic common patterns were listed in a thematic map in a paper for each heading for different kinds of awareness categorized in advance (as the highest scorers and lowest scorers in each test). Initial codes were generated in the way of data-driven according to what is in the data and what is thought-provoking in them. The third phase contained the search for themes within the ideas or initial codes generated by sorting out them to lead to potential themes to work with. In that step, previously generated maps for codes were transformed into maps of broader bindings by refocusing on them and ending up with a classification of prospective themes and sub-themes. In the fourth phase, the prospective themes collected were reviewed in two levels. Firstly, all the data extracts were read and checked in terms of their patterns in coherence. When candidate themes became satisfactory for the researcher through reviewing them, secondly, the validity of individual themes was thought in that they related or did not to the data set. When the thematic map reached a level of success, in the fifth phase, themes were defined and refined based on their coherence of patterns by positing them under the related categorization and headings with explanations for why what was interesting in them and why they were so. In the last phase, fully worked-out themes were interpreted, generalized and reported by the researcher and checked by means of the themes found by the second coder, mentioned below, to provide the inter-rater reliability. Simultaneously, the responses by participants, which were already transferred into a word document and sent (with audiorecordings for the second coder to be able to check the accuracy of the utterances determined with pauses), were examined by another researcher, who is an English Instructor at a state university in Turkey and a Ph.D. graduate of ELT department at Çukurova University, Adana. The experienced researcher, who had also made a thematic analysis in his theses, reached similar findings as the questions required to answer with specific themes or points to *yes-no question* type or the question words *what*, *how*. The researcher and the second coder agreed on %85,7 of themes (54 of out of 63 utterances were determined same). However, as for the differentiating themes or points, they were negotiated with the second coder, and those on which the researcher and second coder reached a compromise were included in the analysis and

interpreted. In the table below, the research question of the study, a list of analyses and instruments are presented.

Table 3: A Brief Summary of Instruments and Data Analysis

Research Question	Instruments	Data Analysis
1. What is the impact of students' awareness levels in morphology, phonology and orthography on reading comprehension of EFL learners?	1. Reading Comprehension Test (Proficiency Exam) 2. Morphological Awareness Test 3. Phonological Awareness Test 4. Phonological Opacity Test 5. Orthographic Choice Task 6. Semi-structured Interviews	1. Descriptive Statistics 2. Correlation 3. Chi-Square Tests 4. Thematic Analysis

CHAPTER IV

FINDINGS AND RESULTS

The present chapter reveals the scores of the participants and the descriptive statistics of reading comprehension test, statistical data on their levels of success in the test in Section 4.1. Next, it presents numerical data and descriptive statistics via awareness tests about phonological awareness in Section 4.2., morphological awareness in Section 4.3., phonemic awareness in Section 4.4. and orthographic awareness in Section 4.5. Later, it gives the findings and results of analyses (correlation and chi-square tests) made on SPSS programme to describe the relationship between reading comprehension and phonological awareness in Section 4.6., the relationship between reading comprehension and morphological awareness in Section 4.7., the relationship between reading comprehension and phonemic awareness in Section 4.8., the relationship between reading comprehension and orthographic awareness in Section 4.9., the relationship between reading comprehension and all types of awareness as a whole in Section 4.10., the relationships between all types of awareness among themselves in Section 4.11. Lastly, it provides the thematic analysis based on the responses of the participants to the questions in semi-structured interviews in Section 4.12.

In the order mentioned in the previous subheadings, 40 participants of this study took Reading Comprehension Test, Phonological Awareness Test, Morphological Awareness Test, Phonological Opacity Test, Orthographic Choice Task, selected or/and prepared to assess their levels in different types of awareness in foreign language.

4.1. Reading Proficiency in Foreign Language

Participants' levels in reading comprehension were measured by a part of the Proficiency Exam administered at Firat University School of Foreign Languages at the beginning of the 2021-2022 academic year. The test included 75 items; however, 40 questions were evaluated and analyzed in the study as they were prepared to assess reading comprehension. Table 4 indicates the minimum and maximum scores of the participants from this test as well as the mean scores, standard error, and standard deviation. According to the table below, the participants obtained a mean

score of 24.78 out of 40 items from reading comprehension test ($M = 24.78$, $SD = 5.52$), meaning most of the participants answered correctly more than half of the questions in the test.

Table 4: Descriptive statistics of Reading Comprehension Test ($N=40$)

Min	Max	Mean	SE	SD
7	34	24.78	.87	5.52

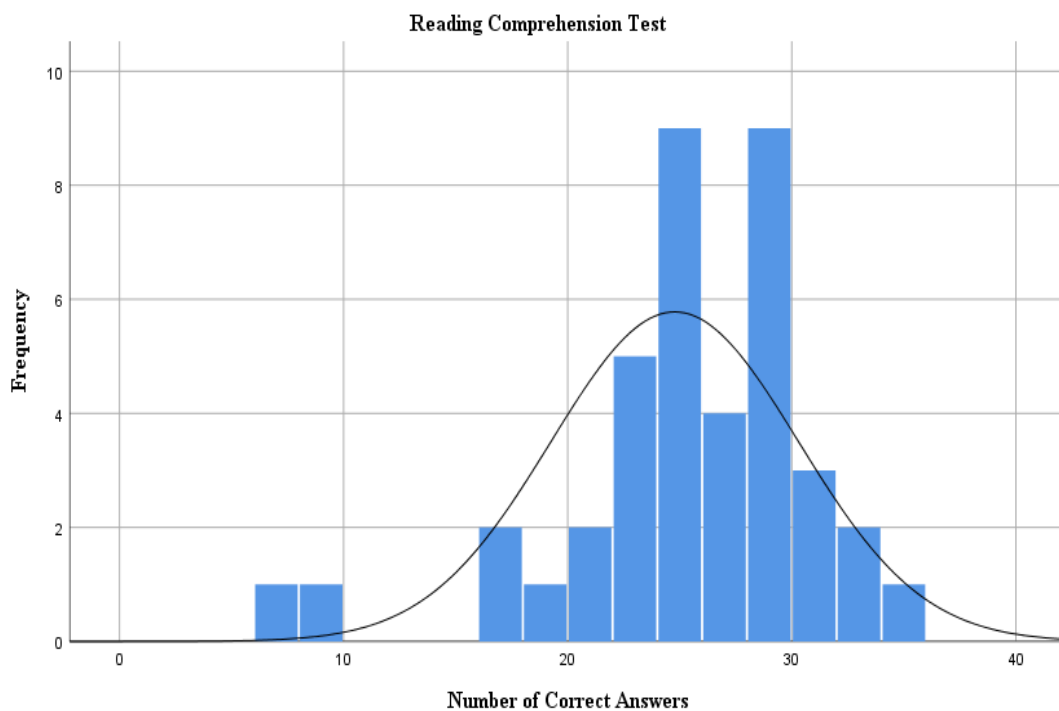


Figure 1: Histogram for Reading Comprehension Test scores

The histogram chart given above for Reading Comprehension Test scores indicates that there was no normal distribution as the participants' scores differed a lot; there was a dissimilar range of points on their scores, particularly when the skewness and kurtosis values of the test were analyzed on SPSS program.

Item analysis was conducted to demonstrate how the participants scored for each item in the test. Figure 2 shows the number of correct and wrong answers for each item in the test.

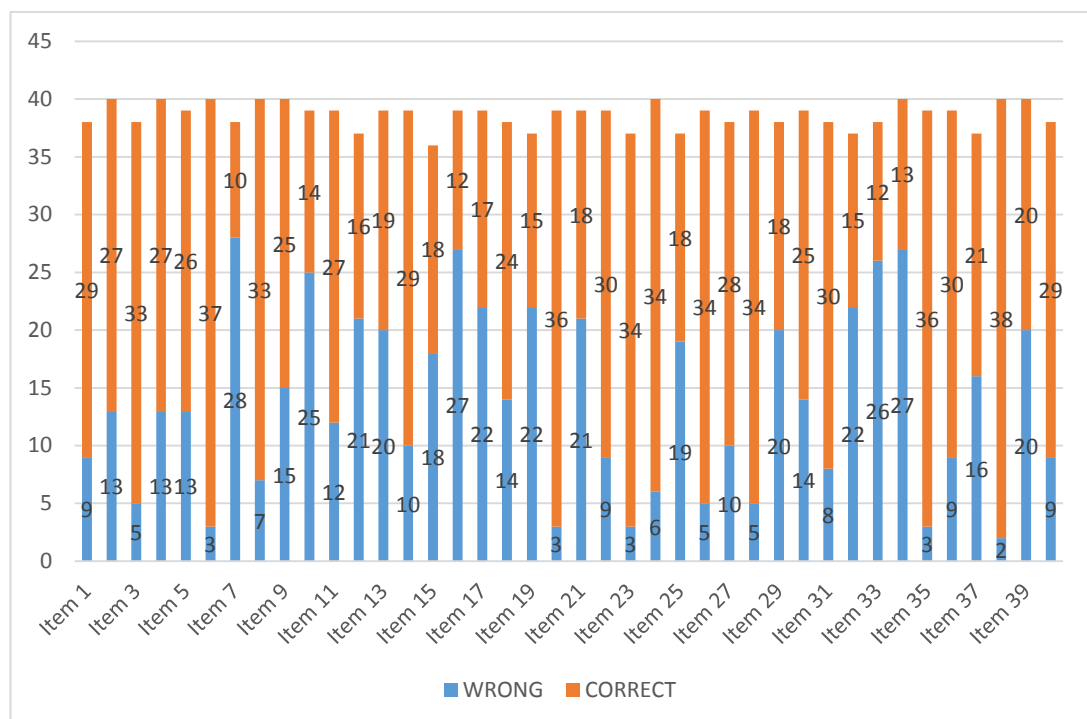


Figure 2: Item Analysis of Reading Comprehension Test

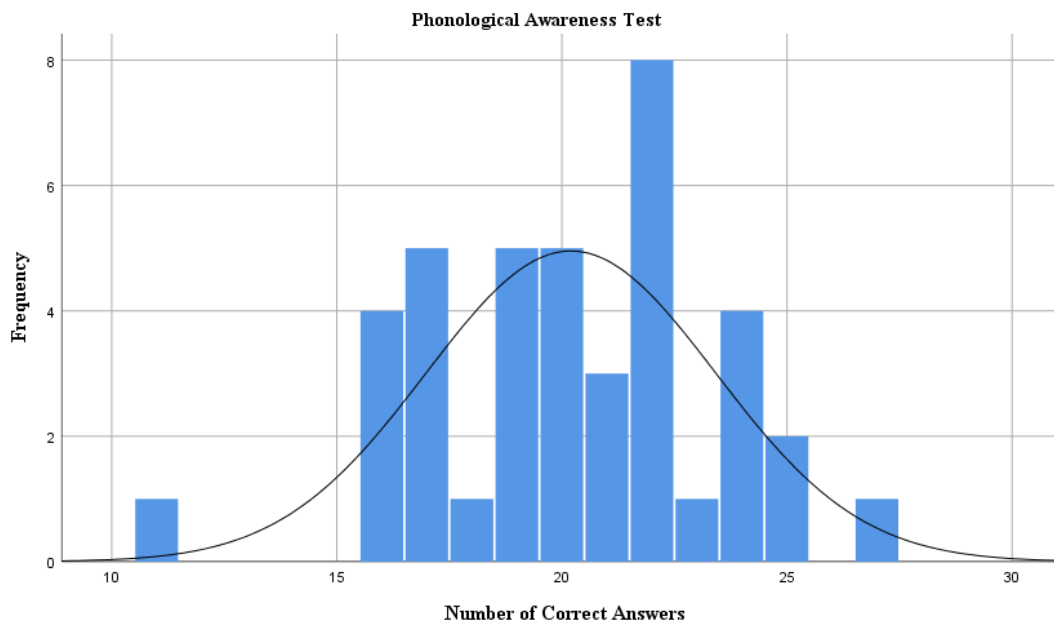
According to Figure 2, questions 7, 16, 34, and 33 (ordered from the most difficult to the less) were the most problematic items in the test. 28 out of 38 (2 students left the question unanswered) answered question 7 incorrectly/wrongly, while only 10 participants could answer it correctly. On the other hand, questions 38, 6, 35 and 20 were the easiest ones, with high numbers of correct answers.

4.2. Phonological Awareness in Foreign Language

Table 5 demonstrates descriptive statistics of the Phonological Awareness Test, which was conducted on 40 participants, including the minimum, maximum, mean, standard error and standard deviation of this test. The number of the correct answers by the participants was ranging from minimum score 11 to maximum score 27 with mean score 20.20 out of 30 questions and with values of standard error ($SE=.51$) and standard deviation ($SD=3.22$). That is, the results obtained from the participants were not very high since they answered more than half of the questions in the test with a small interval correctly.

Table 5: Descriptive Statistics of Phonological Awareness Test (N=40)

Min	Max	Mean	SE	SD
11	27	20.20	.51	3.22

**Figure 3:** Histogram for Phonological Awareness Test Scores

The histogram chart above presented for Phonological Awareness Test scores shows how the results are distributed among the participants. According to the data in Figure 3, the participants got scores generally ranging between 16 and 25 with two exceptions of minimum score 11 and a maximum score 27 out of 30. Also, this figure shows that no one got the highest point of 30 out of 30 on the test, and additionally no one got a lower point than 11 out of 30, meaning that the participants in the study had a fairly good level of phonological awareness.

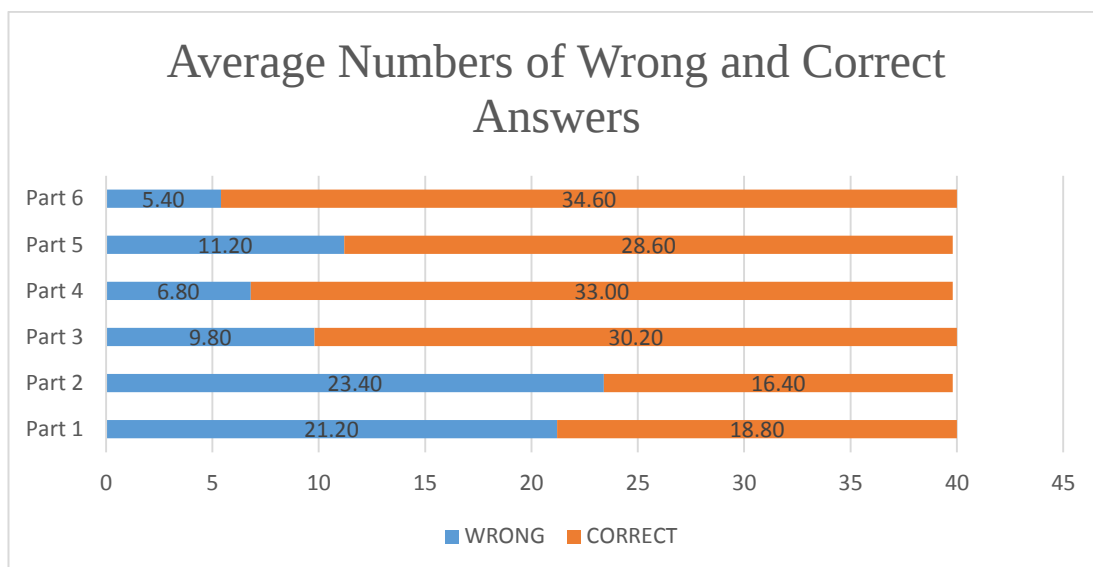


Figure 4: Part Analysis of Phonological Awareness Test

As noted previously, there were six parts (see Section 3.4.2. in Chapter 3 for detailed descriptions in methodology) in this test. When the parts in the test were analyzed, it was found that the participants in the study had difficulty most in Part 2 (Rhyme Application, designed to measure awareness for phonology in terms of rhyme production through writing a word rhyming with the one heard in the record) with an average of 23.40 wrong answers out of 30 by the participants while Part 6 (Blending, the part in which they were asked to select the word that contained the separate phonemes heard in the record) was found to be the easiest part of the test for the participants with an average of 5.40 wrong answers out of 30 as it was presented in Figure 4. Surprisingly, even if part 1 (Rhyme Recognition, the part in which participants were asked to circle the one rhyming with a word that they had heard and also given with its written form) seemed to be easy, it was the second most difficult part for the participants when the average number of wrong and correct answers were examined.

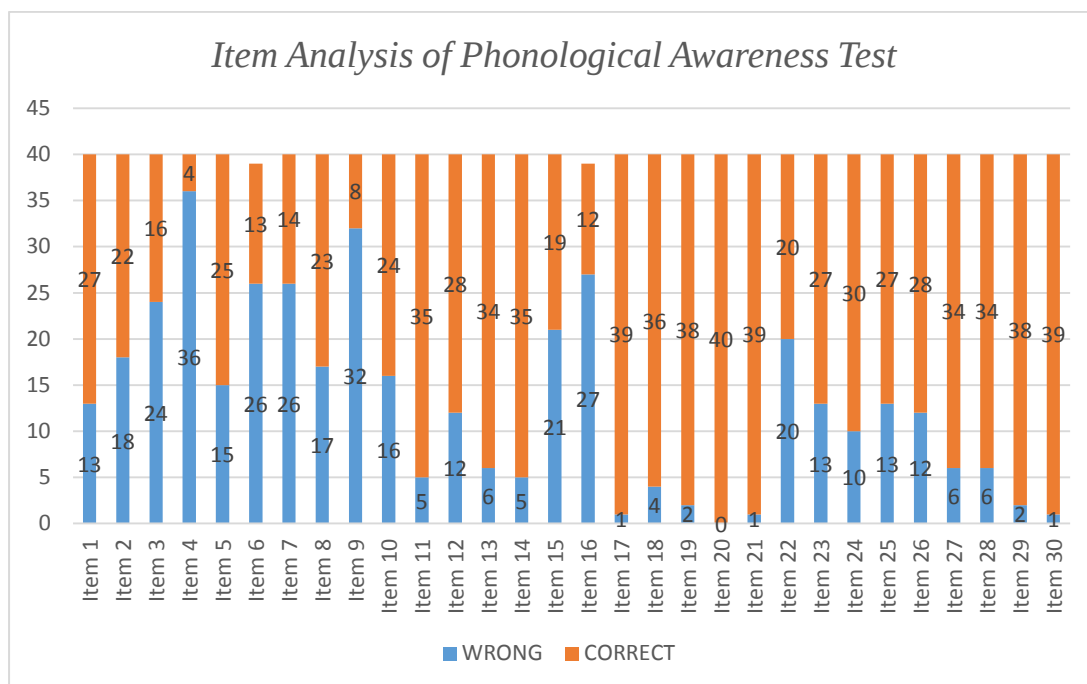


Figure 5: Item Analysis of Phonological Awareness Test

According to Figure 5, respectively, questions 4, 9 and 16 were the most difficult items in the test while questions 20, 17, 21, 30, 19 and 29 were the easiest ones for the participants in the study, with high numbers of correct answers. In Phonological Awareness Test, 36 out of 40 participants answered wrongly question 4 in Part 1, 32 out of 40 participants answered wrongly question 9 in Part 2 in the test, and 27 out of 40 participants answered wrongly question 16 in Part 4 in the test. The most wrongly answered questions are presented in the following figure.

Part 1. Rhyme Recognition

In this part you will hear a word. You need to choose another word that rhymes with the word you hear. Circle the correct option.

4. dump	dumb	bum	damp	grump
----------------	------	-----	------	-------

Part 2. Rhyme Application

In this part you will hear a word. Write the word you hear in the first blank. Then, write a second word that rhymes with the word you hear in the second blank.

9. Ye___(year) rhymes with_____.

Part 4. Oddity- Final Sounds

In this part you will hear four words. You need to decide which word **ends with a different sound**. Circle the correct option.

16.	Smooth	teeth	tenth	filth
------------	--------	-------	-------	-------

Figure 6: 4th, 9th and 16th Questions of Phonological Awareness Test

On the other hand, none of the participants in the study answered question 20 wrongly, while 39 out of 40 participants answered questions 17, 21 and 30 correctly and 38 out of 40 participants answered questions 19 and 29 correctly, with a very low numbers of wrong answers in the test. In the following figure, these questions which were mostly answered correctly, are presented.

Part 4. Oddity- Final Sounds

In this part you will hear four words. You need to decide which word **ends with a different sound**. Circle the correct option.

17.	Hand	bound	command	meant
19.	Rumba	replica	alibi	coma
20.	Bang	long	thing	singe

Part 5. Oddity- Middle Sounds

In this part, you will hear four words. You need to decide which word **has a different middle sound**. Circle the correct option.

21.	Bug	hut	hat	hug
-----	-----	-----	-----	-----

Part 6. Blending- Phonemes

In this part you will hear each sound of a word separately. You need to choose the word you hear among the options. Circle the correct option.

29. /b/, /i/, /f/	believe	bleed	beef	beat
30. /s'/ /k/, /ɔ:/, /d/	scored	soared	swore	sword

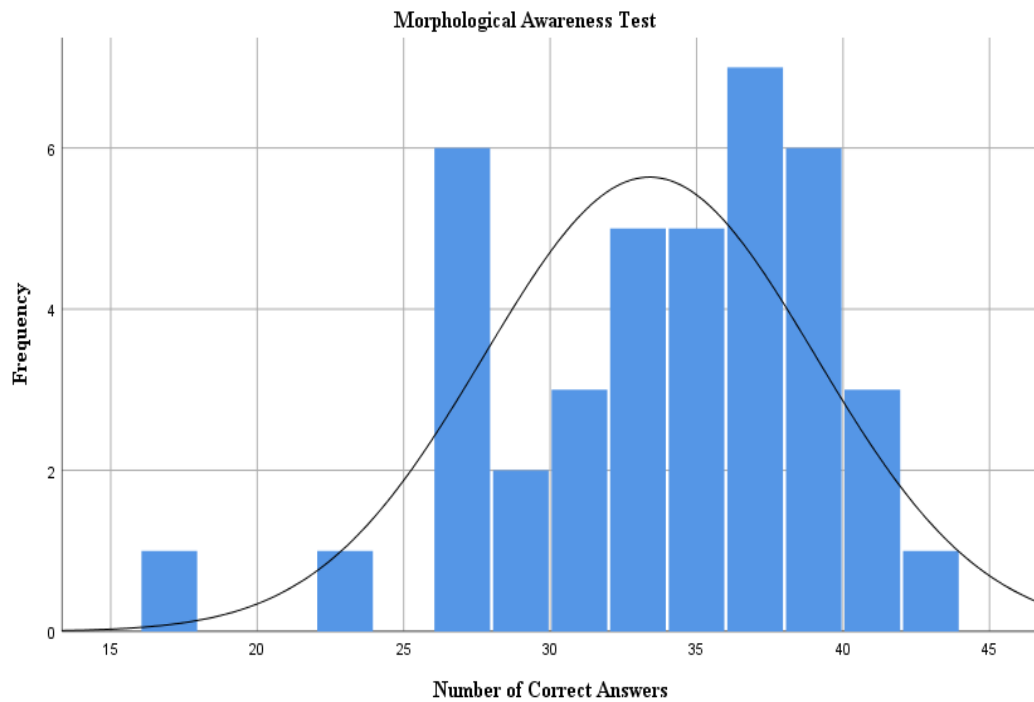
Figure 7: 17th, 19th, 20th, 21st, 29th and 30th Questions of Phonological Awareness Test

4.3. Morphological Awareness in Foreign Language

Participants' levels of morphological awareness were determined by the Morphological Awareness Test, which had two parts: Sentence Completion and Word Relation. Table 6 shows descriptive statistics of the Morphological Awareness Test, including the minimum, maximum, the mean, standard error and standard deviation of this test. The number of correct answers by the participants was ranging from minimum score 17 to maximum score of 43 with a mean score 33.40 out of 47 questions and with values of standard error (SE=.90) and standard deviation (SD=5.66). That is, the participants answered more than half of the questions in the test correctly, meaning they had a fairly good awareness of word forms in foreign language.

Table 6: Descriptive Statistics of Morphological Awareness Test (N=40)

Min	Max	Mean	SE	SD
17	43	33.40	.90	5.66

**Figure 8:** Histogram for Morphological Awareness Test Scores

The histogram chart above given for Morphological Awareness Test scores presents how the results are distributed among the participants. According to the data in Figure 8, the participants got the scores generally ranging between 27 and 42 with some exceptions of scores between 15-25, and the maximum score 43. Additionally, this figure depicts that no one got the highest point, 47 out of 47, from the test, and also no one got a lower point than 17 out of 47, meaning that the participants in the study had a fairly good level of morphological awareness.

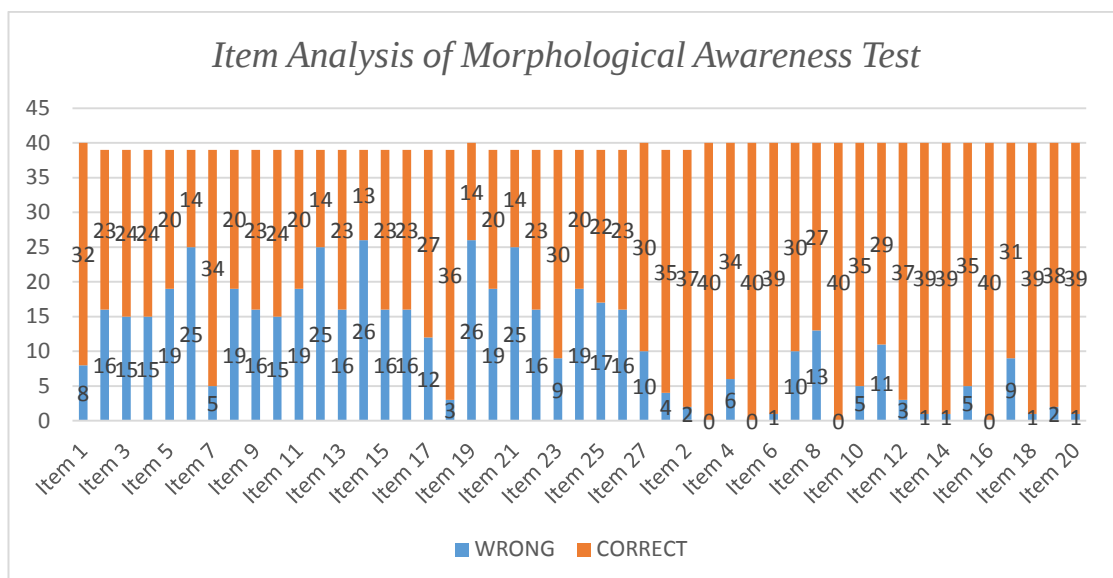


Figure 9: Item Analysis of Morphological Awareness Test

According to Figure 9, respectively questions 19 and 14 were the most difficult items in the first section *Sentence Completion* of the test with the highest numbers of wrong answers (26) for both items, while questions 3, 5, 9 and 16 were the easiest ones in the second section *Word Relation* of the test for the participants with high numbers of correct answers, rather with no wrong answers. 26 out of 40 participants answered wrongly questions 19 and 14 in the first section *Sentence Completion* of the test, and 27 out of 40 participants answered wrongly question 16 in Part 4 of the test. The most wrongly answered questions are presented in the following figure.

- 14.** Desert animals are not normally_____.
- A. commalianization B. commalious C. commalianism D. commalianize
- 19.** The breeders_____their stock every four generations.
- A. genilify B. genility C. genilification D. geniliar

Figure 10: 14th and 19th Questions in Sentence Completion Section of MAT

On the other hand, none of the participants in the study answered wrongly questions 3, 5, 9 and 16 in the second section *Word Relation* of the test. In the following figure, these questions which were mostly answered correctly are presented.

3. sun - sunny	YES	NO
5. fry - Friday	YES	NO
9. conscious - consciousness	YES	NO
16. popular - popularity	YES	NO

Figure 11:3rd, 5th, 9th and 16th Questions in Word Relation Section of MAT

Table 7 shows descriptive statistics of Sentence Completion Section of Morphological Awareness Test, including the minimum, maximum, the mean, standard error and standard deviation. The number of the correct answers provided by the participants was ranging from minimum score 1 to maximum score 25 with mean score 15.33 out of 27 questions with values of standard error (SE=.84) and standard deviation (SD=5.31).

Table 7: Descriptive Statistics of MAT- Sentence Completion (Section 1) (N=40)

Min	Max	Mean	SE	SD
1	25	15.33	.84	5.31

When the Histogram chart below given for Morphological Awareness Test-Section 1 scores is examined, it is clearly seen that there were few exceptions of low scores between 0-5 out of 27 questions, and most of the scores ranged from 8 to 25 out of 27 questions.

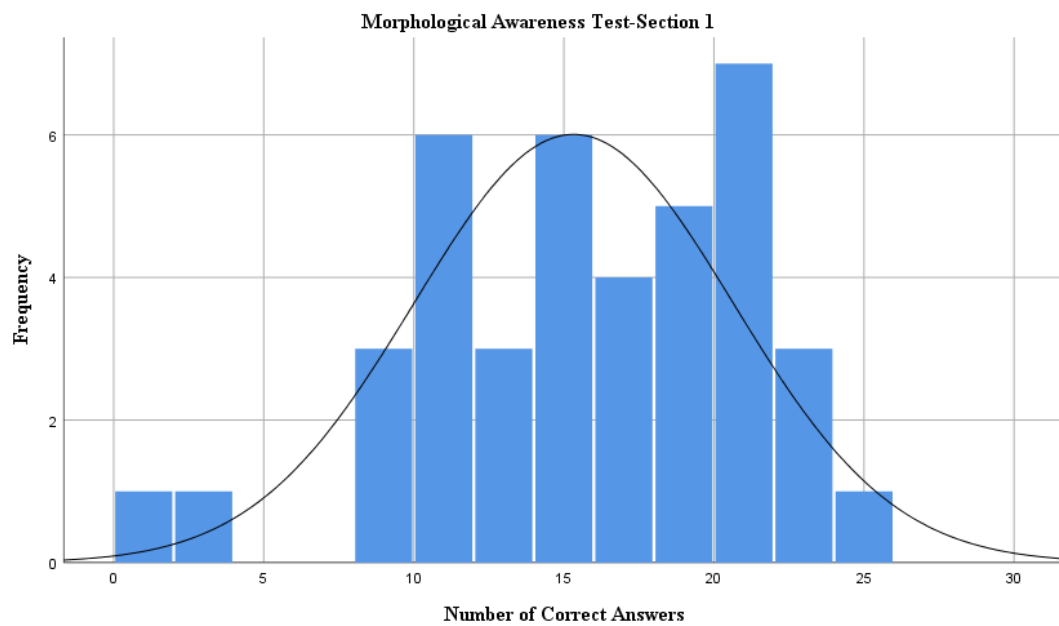


Figure 12: Histogram for MAT- Sentence Completion (Section 1) Scores

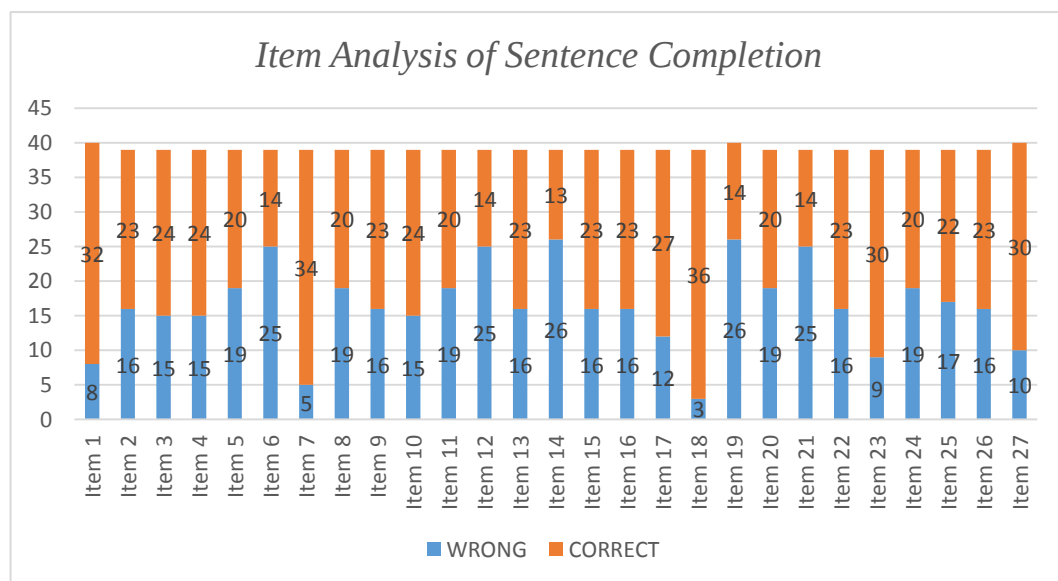


Figure 13: Item Analysis of MAT-Sentence Completion (Section 1)

As the most difficult items of the whole test, questions 19 and 14 have been presented in one of the previous figures (see Figure 13). However, questions 18 and 7 respectively were the easiest questions for the participants in Sentence Completion (Section 1) of the Morphological Awareness Test. Only 3 out of 40 participants answered question 18 wrong, while 36 out of 40 participants answered it correctly

in the section. Similarly, 5 out of 40 participants answered question 7 wrongly while 34 out of 40 participants answered it correctly in the section. Questions 18 and 7 as the easiest items of the Sentence Completion section are presented in the following figure.

7. Dr. Jones, a well-known _____, is speaking tonight.
circumtarios B. circumtarist C. circumtarify D. circumtarize
18. The new equipment will _____ everything automatically.
A. transurbate B. transurbativity C. transurbatist D. transurbative

Figure 14: 18th and 7th Questions in Sentence Completion Section of MAT

Sentence Completion (Section 1) of Morphological Awareness Test included three types of suffixes; *noun making derivational suffixes* “-tion, -ist, -(i)ty”, *verb making derivational suffixes* “-ate, -ize, -fy” and *adjective making derivational suffixes* “-ous, -ive, -al”. In Table 8 below, types of suffixes are presented one by one categorically with numbers of correct answers out of 40 participants and percentages accordingly for each item in this section. In the category of *noun making derivational suffixes*, average number of correct answers was 23.66 with 59.17 % of correct answers, and similarly *verb making derivational suffixes* had a closer mean score 24.22 with 60.55 % of correct answers. Lastly, *adjective making derivational suffixes* category was the one which was mostly answered wrongly with the least mean score 21.33 with 53.33 % of correct answers; that is to say, nearly one half of the participants circled the correct option in the items while half of the sample circled the wrong option in the items.

Table 8: Suffix-Wise Analysis of Sentence Completion

	Item No	Derivational Suffix	N	P
Noun Making Derivational Suffixes	1	-tion	32	80 %
	7	-ist	34	85 %
	9	-tion	23	57.5 %
	11	-ity	20	50 %
	12	-ity	14	35 %
	16	-ist	23	57.5 %
	21	-ity	14	35 %
	24	-ist	30	75 %
	26	-tion	23	57.5 %
Average			23.66	59.17%
Verb Making Derivational Suffixes	2	-ate	23	57.5 %
	4	-ize	24	60 %
	6	-fy	14	35 %
	10	-fy	24	60 %
	13	-ize	23	57.5 %
	18	-ate	36	90 %
	19	-fy	14	35 %
	23	-ize	30	75 %
	27	-ate	30	75 %
Average			24.22	60.55%
Adjective Making Derivational Suffixes	3	-ive	24	60 %
	5	-al	20	50 %
	8	-ous	20	50 %
	14	-ous	13	32.5 %
	15	-ive	23	57.5 %
	17	-al	27	67.5 %
	20	-ive	23	57.5 %
	22	-al	20	50 %
	25	-ous	22	55 %
Average			21.33	53.33%

N=Number of the participants out of 40 participants who answered correctly.

P=Percentage of the participants out of 40 participants who answered correctly.

On the other hand, a clear demonstration can be presented by a comparison of subcategories in three types of suffixes as in Table 8. Firstly, when the suffixes *tion*, *-ist*, *-(i)ty* in the category of *noun making derivational suffixes* were analyzed in

terms of number of correct answers provided by the participants, *-(i)ty* was the most difficult and the least correctly answered suffix with mean score 16 out of 40 participants and only 40 % of correct answers by the participants. The suffix *-ist* was the simplest one to be understood by the participants with mean score 29 out of 40 participants and 72.5 % of correct answers. Secondly, when the suffixes “*-ate, -ize, -fy*” in the category of *verb making derivational suffixes* were analyzed in terms of number of correct answers provided by the participants, the suffix *-fy* was the hardest and least correctly answered suffix with mean score 17.33 out of 40 participants and 43.33 % of correct answers while the suffix *-ate* was the easiest one to be understood by the participants with mean score 29.66 and 74.15 % of correct answers. Lastly, when the suffixes “*-ous, -ive, -al*” were analyzed in terms of number of correct answers provided by the participants, the suffix *-ous* was the most difficult and the least correctly answered suffix among others with mean score of 18.33 out of 40 participants and 45.83 % of correct answers by the participants while the suffixes *-ive* and *-al* had a nearly equally weighed difficulty for the participants with mean scores 22.33- 23.33 and 55.83-58.33 % of correct answers.

Table 9: Sub-Categorical Analysis of Derivational Suffixes

	Suffix	N (Average)	P
Noun Making Suffixes	-tion	26	65 %
	-ist	29	72.5 %
	-(i)ty	16	40 %
Verb Making Suffixes	-ate	29.66	74.15 %
	-ize	25.66	64.15 %
	-fy	17.33	43.33 %
Adjective Making Suffixes	-ous	18.33	45.83 %
	-ive	23.33	58.33 %
	-al	22.33	55.83 %

N=Number of the participants out of 40 participants who answered correctly.

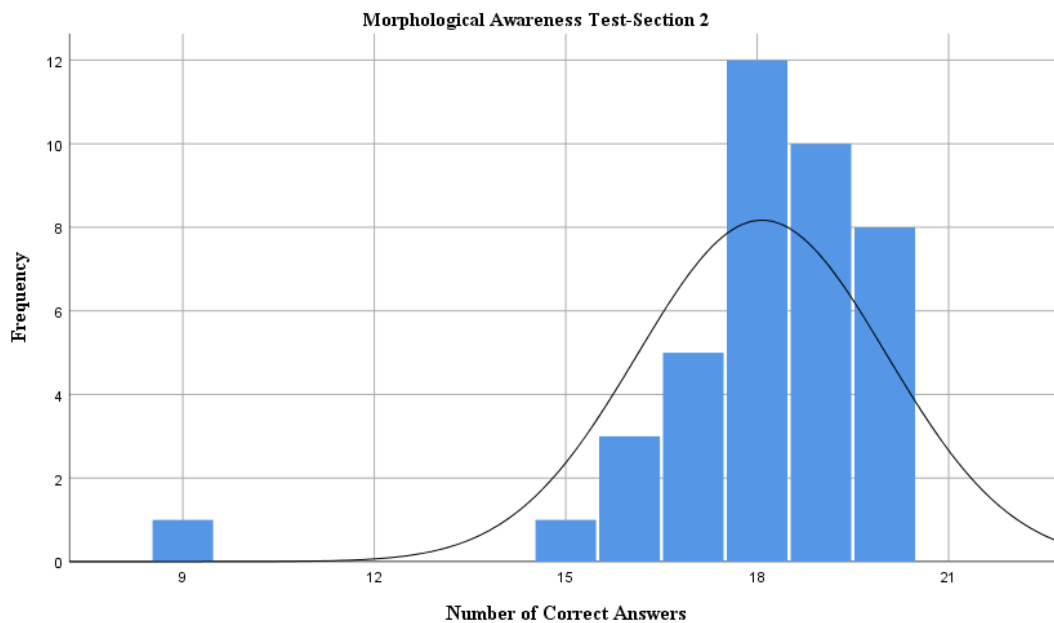
P=Percentage of the participants out of 40 participants who answered correctly.

Table 10: Descriptive statistics of MAT-Word Relation (Section 2) (N=40)

Min	Max	Mean	SE	SD
9	20	18.08	.31	1.95

Table 10 shows descriptive statistics of the Word Relation Section of Morphological Awareness Test, including the minimum, maximum, the mean, standard error and standard deviation. The number of the correct answers provided by the participants was ranging from minimum score 9 to a maximum score of 20 with a mean score of 18.08 out of 20 questions with values of standard error (SE=.31) and standard deviation (SD=1.95). The mean score of the section indicates that most of the participants answered the questions correctly nearly all of the questions in the test.

When the histogram chart below given for scores of Morphological Awareness Test-Section 2 Word Relation is examined, it is clearly seen that most of the scores piled up between 15 to 20 out of 20 questions except for one exception, which was the minimum score 9.

**Figure 15:** Histogram for MAT-Word Relation (Section 2) Scores

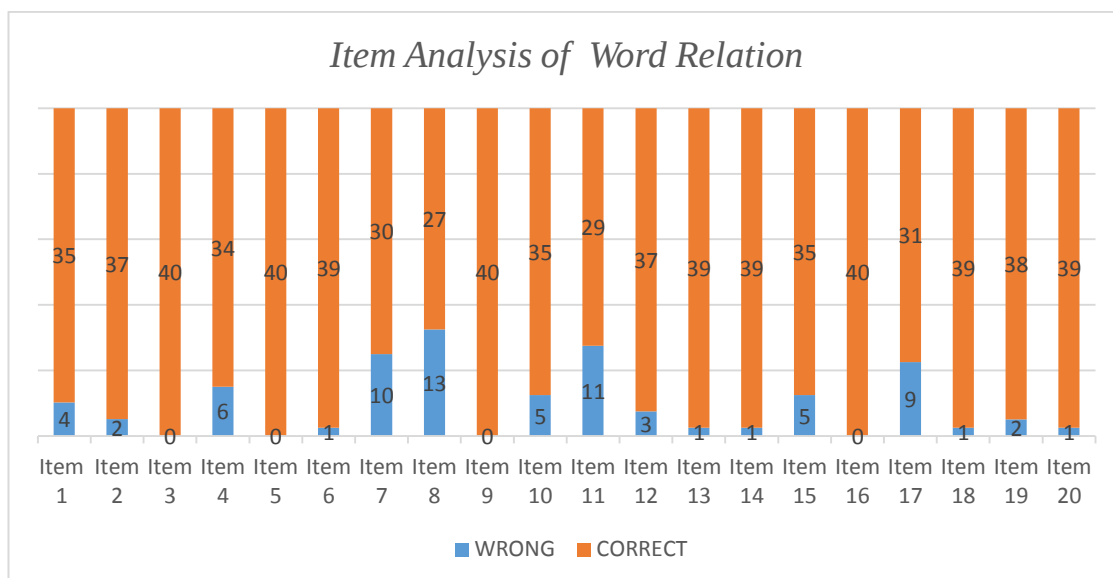


Figure 16: Item Analysis of MAT-Word Relation (Section 2)

As the simplest items of the whole test, questions 3, 5, 9, and 16 have been presented in one of the previous figures (see Figure 16). However, questions 8, 11, and 7 respectively were the hardest questions for the participants in the Word Relation (Section 2) of Morphological Awareness Test. 13 out of 40 participants answered question 8 wrongly, while 27 out of 40 participants answered it correctly in this section. Similarly, 11 out of 40 participants answered question 11 wrongly while 29 out of 40 participants answered it correctly in this section. Lastly, 10 out of 40 participants answered question 7 wrongly, while 30 out of 40 participants answered it correctly in this section. These questions as the easiest items of the Word Relation section are presented in the following figure.

8. numb - number	YES	NO
7. corn - corner	YES	NO
11. active - activist	YES	NO

Figure 17: 8th, 7th and 11th Questions in Word Relation Section of MAT

When the two sections' mean scores ($M=15.33$ out of 27 for Sentence Completion, $M=18.08$ out of 20 for Word Relation) are compared, it can be clearly seen that there was a huge difference between them, implying that participants probably got the

correct answers based on the meanings of the words in the options as in section 2 they had to grasp the associated meaning and could answer accordingly. However, they had to pay attention to the forms of the words to complete the gaps in the sentences in section 1 Sentence Completion. Lower scores in this section than the other section might mean that they can easily get confused when they encounter novel vocabulary items meanings of which they do not know as they experienced this with pseudo words in the test.

4.4. Phonemic Awareness in Foreign Language

Phonemic awareness of participants was measured by a test, which contained 25 questions designed to assess their awareness for phonemic alterations when the words were derived from a root to a stem created by addition of a suffix to their roots. Table 11 shows the minimum, maximum, the mean, standard error and standard deviation of this test. According to the table below, the average score of the test by 40 participants was 12.33 ($M=12.33$, $SD=3.31$), while the scores of the participants ranged from 3 to 18 out of 25 items. When the mean of this test are taken into consideration, it can be seen that the participants answered nearly half of the questions in the test correctly, meaning that they were not very successful or unsuccessful in the test.

Table 11: Descriptive Statistics of Phonological Opacity Test (N=40)

Min	Max	Mean	SE	SD
3	18	12.33	.52	3.31

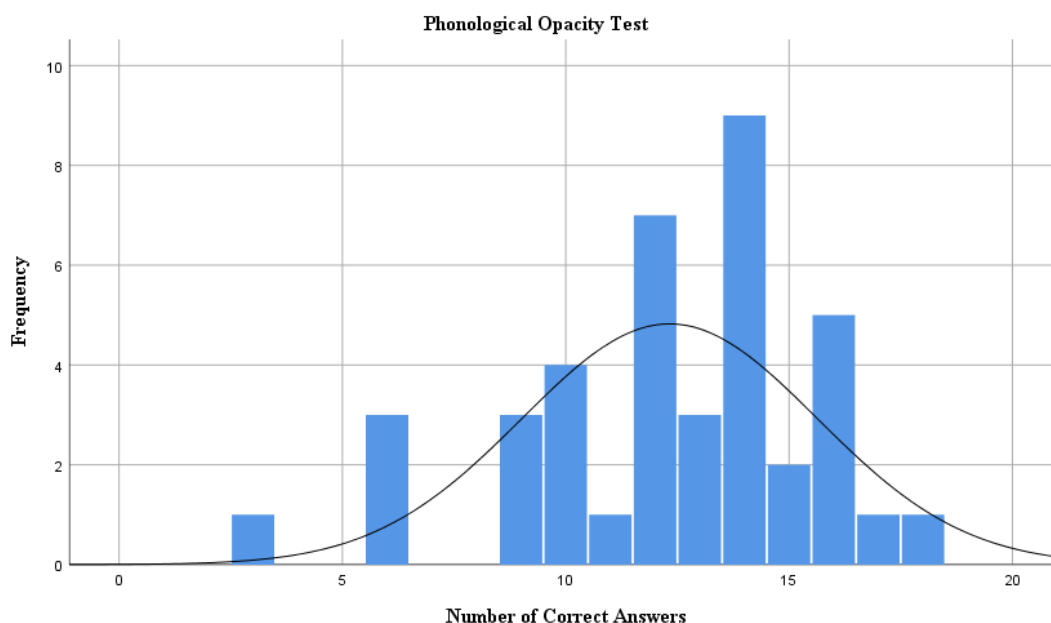


Figure 18: Histogram for Phonological Opacity Test Scores

There seemed to be a distribution that was very close to a normal distribution when the skewness and kurtosis values of the test were analyzed. However, the participants' scores differed a lot, and there was a dissimilar range of points on their scores with some outliers according to the histogram chart given Phonological Opacity Test above.

According to the item analysis conducted to reveal how the participants scored for each item in the test, Figure 19 below depicts the number of the correct and wrong answers for each item in the test. Questions 2, 4, and 8 were the most problematic and difficult items for participants in the test, while questions 7 and 23 were the items which had the least number of wrong answers in the test. 5 out of 40 participants answered question 2 correctly, and 7 out of 40 participants answered questions 4 and 8 correctly.

Word Pairs	minimal difference		maximal difference	
2. advantage- advantageous	0	1	2	3
4. confirm- confirmation	0	1	2	3
8. experiment- experimental	0	1	2	3

Figure 19: 2nd, 4th and 8th Questions of Phonological Opacity Test

As for the easiest or correctly answered questions at the largest number, 35 out of 40 participants answered question 7 correctly, and 34 out of 40 participants answered question 23 correctly.

Word Pairs	minimal difference		maximal difference	
7. establish- establishment	0	1	2	3
23. teach- teachable	0	1	2	3

Figure 20: 7th and 23rd Questions of Phonological Opacity Test

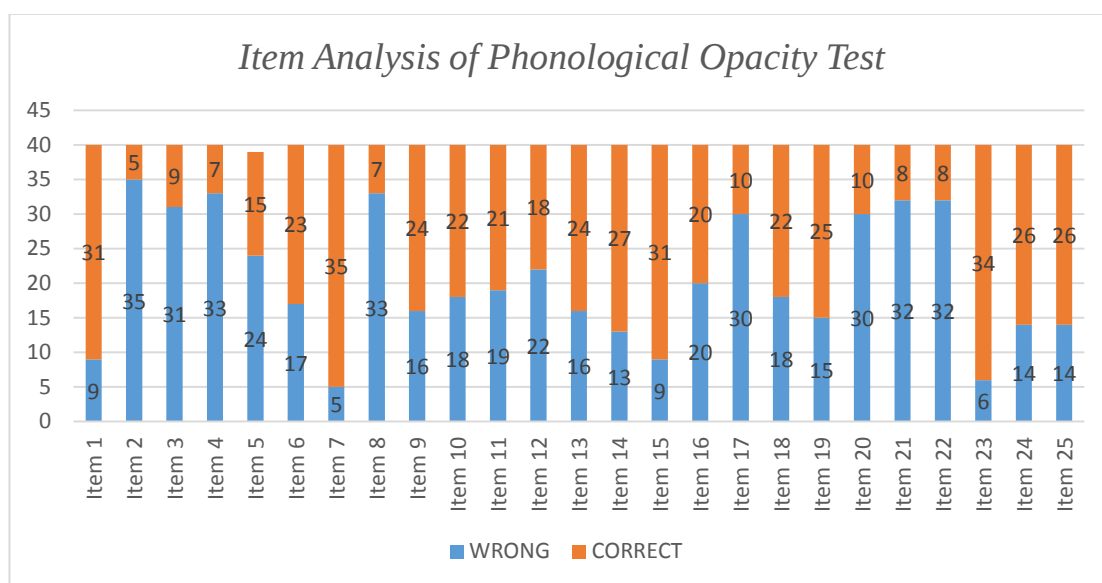


Figure 21: Item Analysis of Phonological Opacity Test

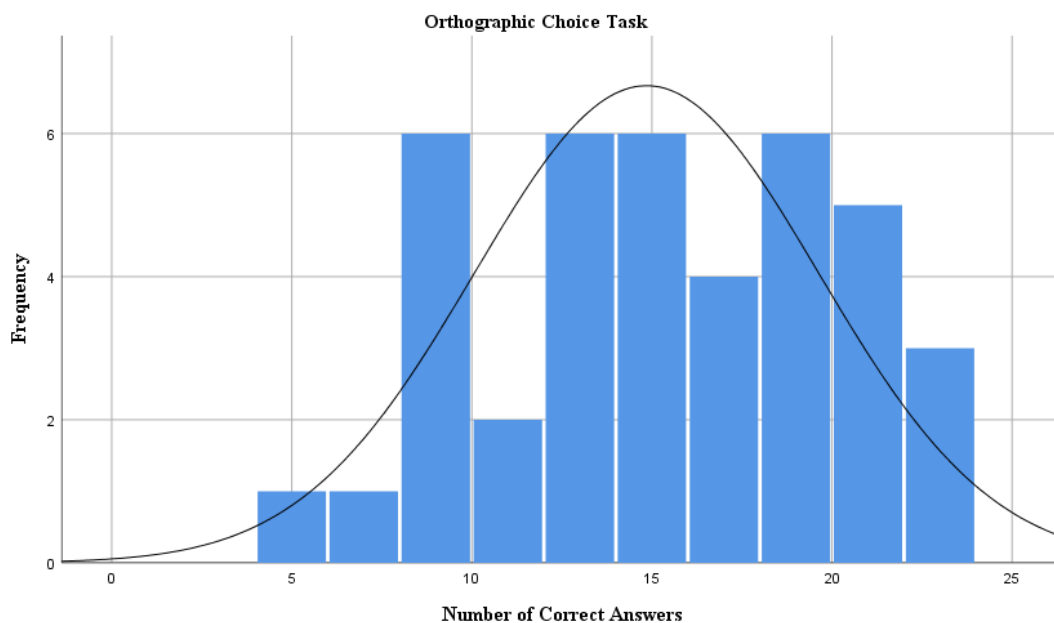
4.5. Orthographic Awareness in Foreign Language

Orthographic awareness of participants was measured by a test, which included 25 questions designed to assess their knowledge of orthography. Table 12 shows the minimum, maximum, mean, standard error, and standard deviation of this test. According to the table below, the average test score by 40 participants was 14.85 ($M=14.85$, $SD=4.79$) while the participants' scores ranged from 5 to 23 out of 25 items. When the mean of this test is taken into consideration, it can be seen that the participants answered slightly more than half of the questions in the test correctly, meaning that they could be regarded as quite successful in the test.

Table 12: Descriptive Statistics of Orthographic Choice Task (N=40)

Min	Max	Mean	SE	SD
5	23	14.85	.76	4.79

According to the histogram chart given for Orthographic Choice Task below, there seemed to be a normal distribution since the participants' scores bore a resemblance to each other as well as a similar range of points with no outliers, as well as the skewness and kurtosis values of the test.

**Figure 22:** Histogram for Orthographic Choice Task Scores

Based on item analysis conducted to indicate how the participants scored for each item in the test, Figure 22 below shows the number of correct and wrong answers for each item in the test. There were several unanswered questions in the test because participants were asked to quickly complete the test in a limited time. As a result, besides the wrong and correct answers, the number of participants was taken into consideration in selecting the most difficult and simplest items in the test. Accordingly, questions 8 and 15 were the most problematic and difficult items for participants in the test while questions 22, 4, 23, 25 were the items with the least number of wrong answers and evaluation of their proportional values when the unanswered questions were taken into consideration.

29 out of 40 participants answered question 8 correctly while 9 out of 40 participants answered it wrongly. Similarly, 25 out of 40 participants answered question 15 correctly while 9 out of 40 participants answered it wrongly.

8. concensus – consensus

15. pronunciation - pronunciation

Figure 23: 4th, 9th and 16th Questions of Orthographic Choice Task

As for the easiest or correctly answered questions at the largest number, firstly, 24 out of 40 participants answered question 22 correctly while no one answered it wrongly as well as 18 unmarked answers to that question. Secondly, question 4 was answered correctly by 38 out of 40 participants, while 2 of them answered it wrongly. Thirdly, question 23 was answered correctly by 22 out of 40 participants, while 1 out of 40 answered it wrongly and 17 unmarked answers to that question. Lastly, question 25 was answered correctly by 20 out of 40 participants, while 1 out of 40 answered it wrongly, and 19 unmarked answers to that question.

4. beautiful – beatiful

22. untill – until

23. vehicle – vehical

25. whether – wether

Figure 24: 4th, 22nd, 23rd and 25th Questions of Orthographic Choice Task

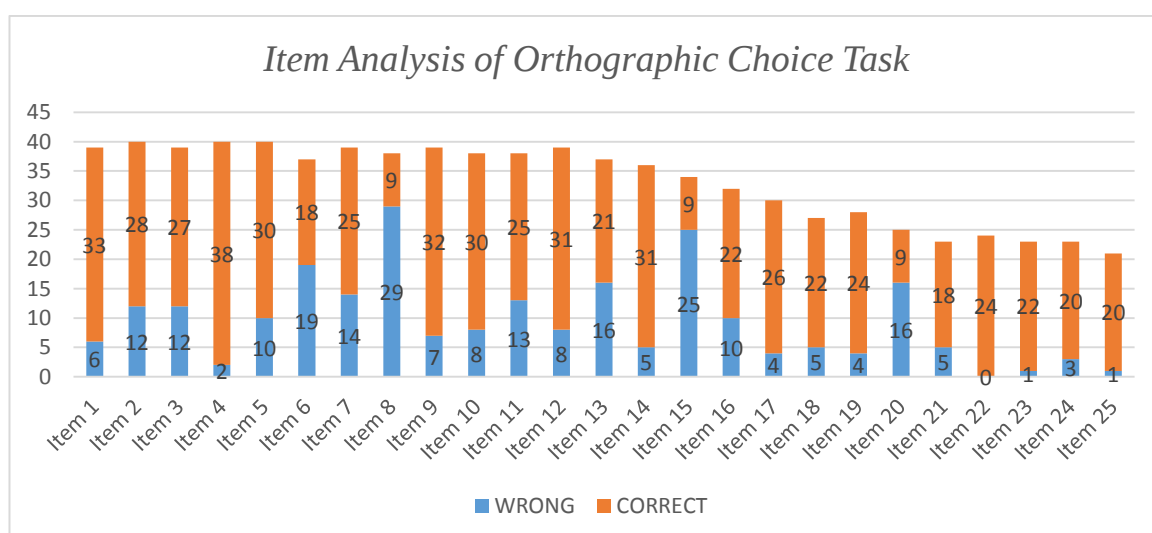


Figure 25: Item Analysis of Orthographic Choice Task

4.6. The Relationship Between EFL Learners' Reading Comprehension Scores and Phonological Awareness Levels

According to Table 13, there is a positive correlation between the reading comprehension scores of the participants and their phonological awareness levels measured by PAT ($\rho = .12$). In other words, it cannot be said that there is a relationship between participants' reading comprehension skill and their phonological awareness. As their levels of awareness of phonology increase, their reading comprehension levels also rise slightly simultaneously.

Table 13: Correlations Between Reading Comprehension Test and PAT Scores

		Phonological Awareness	Reading Comprehension
Spearman's rho	Phonological Awareness	Correlation Coefficient	1.00
		Sig. (2-tailed)	.
	Reading Comprehension	Correlation Coefficient	.12
		Sig. (2-tailed)	.47

In order to explore and consolidate the effect size of the relationship between Reading Comprehension and Phonological Awareness, chi-square tests were conducted and calculated based on the scores of these two tests. According to the results of the Chi-square test presented in Table 14 below, the phi coefficient value (.89) indicated that there was no significant correlation between the two variables.

Table 14: Chi-Square Tests for Reading Comprehension Test and PAT Scores

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	142.79 ^a	165	.89
Likelihood Ratio	99.01	165	1.00
Linear-by-Linear Association	.03	1	.86
N of Valid Cases	40		

a. 192 cells (100,0%) have expected count less than 5. The minimum expected count is .03.

Symmetric Measures			
		Value	Approximate Significance
Nominal by Nominal	Phi	1.89	.89
	Cramer's V	.57	.89
N of Valid Cases		40	

4.7. The Relationship Between Turkish EFL Learners' Reading Comprehension Scores and Morphological Awareness Levels

According to Table 15, when Morphological Awareness Test is evaluated holistically, there is a positive correlation between the variables, Reading Comprehension Scores of the participants, and their morphological awareness levels measured by MAT ($\rho = .27$). In other words, it can be said that there is a relationship between participants' reading comprehension skill and their morphological awareness.

Table 15: Correlations Between Reading Comprehension Test and MAT Scores

Correlations (N=40)			
		Morphological Awareness	Reading Comprehension
Spearman's rho	Morphological Awareness	Correlation Coefficient	1.00
		Sig. (2-tailed)	.27
	Reading Comprehension	Correlation Coefficient	.27
		Sig. (2-tailed)	.10

In order to explore and consolidate the effect size of the relationship between Reading Comprehension and Morphological Awareness, chi-square tests were conducted and calculated based on the scores of these two tests. According to the results of the Chi-square test presented in Table 16 below, the phi coefficient value (Asymp. Sig. = .60) indicated that the correlation between the two variables was not significant.

Table 16: Chi-Square Tests for Reading Comprehension Test and MAT Scores

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	263.32 ^a	270	.60
Likelihood Ratio	137.42	270	1.00
Linear-by-Linear Association	3.72	1	.05
N of Valid Cases	40		

a. 304 cells (100.0%) have expected count less than 5. The minimum expected count is .03.

Symmetric Measures		Value	Approximate Significance
Nominal by Nominal	Phi	2.56	.60
	Cramer's V	.66	.60
N of Valid Cases		40	

However, when Morphological Awareness Test is evaluated analytically, namely in two sections respectively, as it is seen in Table 17, there is a positive correlation between the variables, Reading Comprehension scores of the participants and their scores in Sentence Completion-Section 1 in MAT ($\rho = .29$). This result shows that there is a relationship between participants' reading comprehension skill and their morphological awareness according to the analytical evaluation with a slightly higher rate of correlation coefficient when compared to the holistic evaluation of MAT. As their levels of awareness for morphology increase, their reading comprehension levels also rise simultaneously.

Table 17: Correlations Between Reading Comprehension Test and MAT-Sentence Completion Scores

Correlations (N=40)				
		Morphological Awareness-Sentence Completion		Reading Comprehension
Spearman's rho	Morphological Awareness-Sentence Completion	Correlation Coefficient	1.00	.29
		Sig. (2-tailed)	.	.07
	Reading Comprehension	Correlation Coefficient	.29	1.00
		Sig. (2-tailed)	.07	.

Additionally, chi-square tests were conducted and calculated for two sections respectively in order to explore and consolidate the effect size of the relationship between Reading Comprehension and Morphological Awareness. Based on the scores of two tests, Reading Comprehension and Morphological Awareness-Sentence Completion Tests, chi-square tests were conducted and calculated. According to the results of Chi-square test presented in Table 18 below, the phi coefficient value (Asymp. Sig. = .57) indicated that the correlation between the two variables was not significant.

Table 18: Chi-Square Tests for Reading Comprehension Test and MAT-Sentence Completion Scores

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	235.26 ^a	240	.57
Likelihood Ratio	136.23	240	1.00
Linear-by-Linear Association	2.99	1	.08
N of Valid Cases	40		

a. 272 cells (100.0%) have expected count less than 5. The minimum expected count is .03.

Symmetric Measures			
		Value	Approximate Significance
Nominal by Nominal	Phi	2.42	.57
	Cramer's V	.62	.57
N of Valid Cases		40	

As for Section 2 in MAT, there is a positive correlation between Reading Comprehension and Sentence Completion scores of the participants ($\rho = .06$), meaning that there is a relationship between participants' reading comprehension skill and their morphological awareness, with quite low rate of correlation coefficient, when compared to the holistic evaluation of MAT as it is presented in Table 19.

Table 19: Correlations Between Reading Comprehension Test and MAT-Word Relation Scores

Correlations (N=40)				
			Morphological Awareness-Word Relation	Reading Comprehension
Spearman's rho	Morphological Awareness-Word Relation	Correlation Coefficient	1.00	.06
		Sig. (2-tailed)	.	.71
	Reading Comprehension	Correlation Coefficient	.06	1.00
		Sig. (2-tailed)	.71	.

In order to explore and consolidate the effect size of the relationship between Reading Comprehension and Morphological Awareness, chi-square tests were conducted and calculated based on scores of these two tests, Reading Comprehension and Morphological Awareness-Word Relation, on SPSS programme. According to the results of chi-square test presented in Table 20 below, the phi coefficient value (Asymp. Sig. = .15) indicated that the correlation between two variables was insignificant.

Table 20: Chi-Square Tests for Reading Comprehension Test and MAT-Sentence Completion Scores

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	104.12 ^a	90	.15
Likelihood Ratio	65.37	90	.98
Linear-by-Linear Association	.79	1	.38
N of Valid Cases	40		

a. 112 cells (100.0%) have expected count less than 5. The minimum expected count is .03.

Symmetric Measures			
		Value	Approximate Significance
Nominal by Nominal	Phi	1.61	.15
	Cramer's V	.66	.15
N of Valid Cases		40	

4.8. The Relationship Between EFL Learners' Reading Comprehension Scores and Phonemic Awareness Levels

According to Table 21, there is a negative correlation between reading comprehension scores of the participants and their phonemic awareness levels measured by the Phonological Opacity Test ($\rho = -.10$). In other words, it can be said that there is no relationship between participants' reading comprehension skill and their phonemic awareness, and that their phonemic awareness for phoneme alterations in words when they are added with suffixes decreases slightly as their scores increase.

Table 21: Correlations Between Reading Comprehension Test and Phonological Opacity Test Scores

Correlations (N=40)				
		Phonemic Awareness		Reading Comprehension
Spearman's rho	Phonemic Awareness	Correlation Coefficient	1.00	-.10
		Sig. (2-tailed)	.	.52
	Reading Comprehension	Correlation Coefficient	-.10	1.00
		Sig. (2-tailed)	.52	.

In order to explore and consolidate the effect size of the relationship between Reading Comprehension and Phonemic Awareness, chi-square tests were conducted and calculated based on scores of these two tests. According to the results of chi-square test presented in Table 22 below, the phi coefficient value (Asymp. Sig. = .58) indicated that there was no significant correlation between two variables.

Table 22: Chi-Square Tests for Reading Comprehension Test and Phonological Opacity Test Scores

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	160.73 ^a	165	.58
Likelihood Ratio	103.90	165	1.00
Linear-by-Linear Association	.10	1	.76
N of Valid Cases	40		

a. 192 cells (100.0%) have expected count less than 5. The minimum expected count is .03.

Symmetric Measures		Value	Approximate Significance
Nominal by Nominal	Phi	2.01	.58
	Cramer's V	.60	.58
N of Valid Cases		40	

4.9. The Relationship Between EFL Learners' Reading Comprehension Scores and Orthographic Awareness Levels

According to Table 23, there is a positive correlation between reading comprehension scores of the participants and their orthographic awareness levels measured by Orthographic Choice Task ($\rho = .19$). That is, there is a relationship between participants' reading comprehension skill and their orthographic awareness. As their levels of awareness for the spelling of words increase, their levels of reading comprehension also become slightly better at the same time.

Table 23: Correlations between Reading Comprehension Test and Orthographic Choice Task Scores

Correlations (N=40)				
		Orthographic Awareness		Reading Comprehension
Spearman's rho	Orthographic Awareness	Correlation Coefficient	1.00	.19
		Sig. (2-tailed)	.	.24
	Reading Comprehension	Correlation Coefficient	.19	1.00
		Sig. (2-tailed)	.24	.

In order to explore and consolidate the effect size of the relationship between Reading Comprehension and Orthographic Awareness, chi-square tests were conducted and calculated based on the scores of these two test. According to the results of chi-square test presented in Table 24 below, the phi coefficient value (Asymp. Sig. = .02) indicated that there was a significant correlation between two variables.

Table 24: Chi-Square Tests for Reading Comprehension Test and Orthographic Choice Task Scores

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	287.61 ^a	240	.02
Likelihood Ratio	142.43	240	1.00
Linear-by-Linear Association	4.09	1	.04
N of Valid Cases	40		

a. 272 cells (100.0%) have expected count less than 5. The minimum expected count is .03.

Symmetric Measures			
		Value	Approximate Significance
Nominal by Nominal	Phi	2.68	.02
	Cramer's V	.69	.02
N of Valid Cases		40	

4.10. The Relationship Between EFL Learners' Reading Comprehension and Their United Awareness

The participants' awareness has been assessed by means of a union of all awareness tests, and as in the table below, the scores were ranging from 56 (Min) to 102 (Max) out of 127 items in a total of the numbers included in 4 tests (Morphological + Phonological + Phonemic + Orthographic Awareness) with statistics of 80.78 (Mean), 82 (Median), 56 (Range) and 10.37 (Standard Deviation).

Table 25: Descriptive Statistics of United Awareness (N=40)

Min	Max	Range	Mean	Median	SD
56	102	56	80.78	82	10.37

Table 26 below shows the correlation between Reading Comprehension Test scores and scores of tests by regarding all awareness tests as a single test that is a merged version of them. According to the table, there is an insignificant positive correlation between participants' reading comprehension scores and their levels of awareness for all types unitedly evaluated (Morphological+Phonological+Phonemic+Orthographic Awareness) ($\rho = .27$).

Table 26: Correlations Between Reading Comprehension Test and Tests for all Types of Awareness as a Whole

Correlations (N=40)				
			Reading Comprehension	ALL Morphological Awareness, Phonological Awareness, Phonemic Awareness, Orthographic Awareness
Spearman's rho	Reading Comprehension	Correlation Coefficient	1.00	.27
		Sig. (2-tailed)	.	.09
	ALL Morphological Awareness, Phonological Awareness, Phonemic Awareness, Orthographic Awareness	Correlation Coefficient	.27	1,00
		Sig. (2-tailed)	.09	.

In order to explore and consolidate the effect size of the relationship between Reading Comprehension and all types of awareness as a whole, chi-square tests were conducted and calculated based on scores of these two tests. According to the results of chi-square test presented in Table 27 below, the phi coefficient value (Asymp. Sig. = .22) indicated that there was no significant correlation between the variables.

Table 27: Chi-Square Tests for Reading Comprehension Test and Tests for all types of awareness as a whole

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	380.36 ^a	360	.22
Likelihood Ratio	159.06	360	1.00
Linear-by-Linear Association	3.37	1	.07
N of Valid Cases	40		

a. 400 cells (100.0%) have expected count less than 5. The minimum expected count is .03.

Symmetric Measures			
		Value	Approximate Significance
Nominal by Nominal	Phi	3.08	.22
	Cramer's V	.80	.22
N of Valid Cases		40	

4.11. The Relationship Between EFL Learners' Morphological, Phonological, Phonemic and Orthographic Awareness Levels

In the table below, correlations between types of awareness are presented mutually. When the correlations between the types of awareness, the relationship between morphological and phonological awareness of participants seems to be higher with value ($\rho = .34^*$, $p < .05$) than the other types, which are found to be lower value for the correlation between morphological and phonemic awareness ($\rho = .23$) and for the correlation between morphological and orthographic awareness ($\rho = .20$). When the relationship between phonological and phonemic awareness, it is seen that there is a positive correlation between them ($\rho = .19$), and also there seems to be a negative correlation between phonological and orthographic awareness ($\rho = -.14$). Similarly, the correlation between phonemic and orthographic awareness is a negative one ($\rho = -.06$).

Table 28: Inter-Correlations Between Types of Awareness

Inter-Correlations (N=40)			Morphological Awareness	Phonological Awareness	Phonemic Awareness	Orthographic Awareness
Spearman's rho	Morphological Awareness	Correlation Coefficient	1.00	.34*	.23	.20
		Sig. (2-tailed)	.	.03	.15	.27
	Phonological Awareness	Correlation Coefficient	.34*	1.00	.19	-.14
		Sig. (2-tailed)	.03	.	.24	.39
	Phonemic Awareness	Correlation Coefficient	.23	.19	1.00	-.06
		Sig. (2-tailed)	.15	.24	.	.70
	Orthographic Awareness	Correlation Coefficient	.20	-.14	-.06	1.00
		Sig. (2-tailed)	.22	.39	.70	.

* Correlation is significant at the 0.05 level (2-tailed).

4.12. Thematic Analysis for Awareness via Semi-Structured Interviews

As noted previously in Chapter 3 Methodology, semi-structured interviews were conducted to support the quantitative data collected through the tests/tasks the Morphological Awareness Test (MAT), the Phonological Awareness Test (PAT), the Phonological Opacity Test and the Orthographic Choice Task as well as reading comprehension skill. Six open-ended questions were addressed to the participants who got the highest scores and lowest scores in each test respectively, and they were requested to answer the questions that were directly in relation to the tests that they got the highest scores and lowest scores. As the participants could have answered the questions either in Turkish or in English, accordingly, original answers given in quotation marks and translated versions were given in square brackets immediately after the original ones in the following line. The six questions are presented below:

1. What do you pay attention to *before*, *while* and *after* reading a text?
2. What do you think is essential for an effective comprehension in reading?
3. How do you cope with unfamiliar words you encounter in a text?

4. Are you aware of the word forms (verbs, noun, adjective...etc.) or affixes (prefixes or suffixes such as un-, in-, ir- or -less, ness, -ion, -ity...etc.)? Do they affect your comprehension of text?

5. Are you aware of the phonemes in the words in a text? Does your awareness affect your reading comprehension? How?

6. Are you aware of the spellings of the words in a text? Does your awareness affect your reading comprehension? How?

For the first 3 questions, answers given by the highest scorers in Reading Comprehension Test since these questions are the ones that investigate the participants' perceptions of what they do while they are reading a text and whether they possess an awareness for components of a text.

(1) Some of the participants who got the highest scores from Reading Comprehension Test reported that they mostly paid attention to the *title, topic sentence* and the *length/shortness of the text* before reading, *the types or functions of the words* (such as *adverbs, adjectives, conjunctions, proper nouns*), *tenses of the sentences, unknown words* while reading, and *the unity/integrity or appraisal of the text* after reading.

“Okumadan önce başlıklara, okurken bağlaçlara ve zarflara, okuduktan sonra metnin bütünlüğüne dikkat ediyorum.”

[I pay attention to the titles before reading, to the conjunctions and adverbs while reading, and to the integrity of the text after reading it.]

“Özel isim, tarih, tense, bağlaç, bilmediğim kelimelere dikkat ediyorum.”

[I pay attention to the proper name, date, tense, conjunction, words that I do not know.]

“Bir metni okumadan önce başlığa, uzunluğuna/kısalığına, okurken içeriğine, noktalama işaretine, vurgulara ve okuduktan sonra metni kendime göre değerlendiririm.”

[Before reading a text, I pay attention to the title, length/shortness, then content, punctuation, emphasis while reading, and evaluate the text in my own way after reading.]

“Önce topic cümleye daha sonra genel olarak birkaç saniye paragrafın bütününe göz gezdiririm.”

[I skim through the topic sentence first and then the entire paragraph for a few seconds in general.]

Some of the participants who got the lowest scores from Reading Comprehension Test did not answer the question properly or at all while others reported ambiguously (not stating when they do the things that they claim to do) that they paid attention to the *proper nouns, tenses, conjunctions, unknown words*, or did not pay attention to specific things in a text, or different things such as *novelty of the text, understanding the text* or *sharing what is read with people*.

“İlk önce başlığından fikir yürütürüm. Okudukça kitap içindeki olayları anlamaya çalışırım. Okumadan sonra da farklı değerlendirmelerde bulunurum.”

[First of all, I will speculate from the title. As I read, I try to understand the events in the book. After reading, I make different evaluations.]

“Okuyacağım metnin ilgimi çeken bir metin olmasına dikkat ederim. Metni anlamaya, okuduklarımı insanlarla paylaşmaya dikkat ederim.”

[I care that the text I am reading is one that interests me. I attach importance to understanding the text and sharing what I read with people.]

“Özel isim, tense, bağlaç, bilinmeyen kelimelere dikkat ediyorum.”

[I pay attention to proper noun, tense, conjunction, unknown words.]

(2) Some of the participants who got the highest scores from Reading Comprehension Test reported that *knowledge of vocabulary (or being accustomed to vocabulary items)* was one of the essential component to reading comprehension apart from *reading fluently* while other participants who got the highest scores from Reading Comprehension Test paid attention to the *silence of the atmosphere* while reading a text, and *simplicity of the text*.

“Kelime bilgisinin ve akıcı okumanın gerekli olduğunu düşünüyorum.”

[I think vocabulary and fluent reading are essential.]

“Kelime bilgisine ve kelimelere alışkın olmak.”

[Being accustomed to the knowledge of vocabulary, and words.]

“Okuduğumu etkili bir şekilde anlamak için sessizlik olması gerekir, çünkü sesli ortam dikkatimi dağıtır. Okuduğum metnin anlamı sade olmalı, anlaşılır olmalı, mecaz kelimeler olmamalı.”

[There needs to be silence to effectively understand what I'm reading, because the noisy atmosphere distracts me. The meaning of the text I read should be simple, understandable, not metaphorical words.]

“Okuduğunu anlamak için türlü metinler okunmalı, farklı alanlardan metinler incelemek gerekir.”

[In order to understand what is read, various texts should be read and it is necessary to examine texts from different fields.]

Some of the participants who got the lowest scores from Reading Comprehension Test reported that *deep knowledge of vocabulary or association of unknown words to the known ones* was one of the essential component to reading comprehension while others who got the highest scores from Reading Comprehension Test reported that they paid attention to the *silence of the setting* while reading a text, and to some irrelevant components like *applying oneself to the text, sticking to the text and ending reading deed swiftly in order not to be distracted*.

“Kelime bilgisinin daha çok olması veya o metindeki anlaşılan kelimelerle bağlantı kurmak.”

[Having more vocabulary or making connections with the understood words in that text.]

“Ortamda sessizliğin gerekli olduğunu düşünüyorum.”

[I think silence is necessary in the setting.]

“Öncelikle kendimi esere vermeye çalışırım. Eserden uzak kalmayarak, anlam bütünlüğünü sağlamak için okuduğumu erken bitirmeye çalışırım.”

[First of all, I try to give myself to the work. I try to finish my reading early to ensure the integrity of meaning by not staying away from the work.]

(3) Some of the participants who got the highest scores from Reading Comprehension Test reported that they tried to grasp the meaning of unknown words in a text from the context or with association of overall meaning of the sentence with the unknown words. On the other hand, others said that they ask people that they have known or search for unknown words on the internet, and checking their meanings and usage.

“Bilmediğim kelimenin anlamını, cümlenin vermeye çalıştığı konu ile bağdaştırarak tahmin etmeye çalışıyorum.”

[I try to guess the meaning of the word I do not know by associating it with the meaning of the sentence.]

“Bağlamdan anlamını az çok anlıyorum.”

[I more or less understand the meaning from the context.]

“Bir metinde karşıma çıkan bilinmeyen kelimeleri ilk başta tanıdığım kişilere sorarım eğer onlar da bilmezse internetten araştırırım.”

[At first, I ask people I know about unknown words that I come across in a text, if they don't know, I will search on the internet.]

“Kelimeleri not alıyorum, daha sonra anlamlarına, cümle içinde nasıl kullanılmış olduğuna bakıyorum.”

[I write down the words, then check their meanings and how they are used in a sentence.]

Some of the participants who got the lowest scores from Reading Comprehension Test reported that they tried to grasp the meaning of unknown words in a text from others preceding or following words or with inference of overall meaning from the rest of the sentence. On the other hand, others said that they tried to understand the

meaning of unknown words and checked their meanings in a dictionary that is described as a reliable source by them if they do not understand from the sentence.

“Önceki veya sonraki kelimelerle bağlantı kurarak anlamaya çalışıyorum.”

[I try to understand by linking with preceding or following words.]

“Sözlükten ve çeviriden bakıyorum.”

[I look up in a dictionary and translation application.]

“Metinde bilmediğim kelimeler karşıma çıkınca, genel olarak parçanın bana ne anlatmak istediğini anlamaya çalışıyorum ve kendimce kelimelerin anlamını tahmin ediyorum.”

[When I encounter words that I do not know in the text, I generally try to understand what the text wants to tell me, and guess the meaning of the words myself.]

“Önce cümlelerin gelişine göre anlam vermeye çalışırım, anlamazsam doğruluğundan emin olduğum kaynaktan sözlük anlamına bakarım.”

[First, I try to make sense of the sentence, if I don't understand, I check its dictionary meaning from the source that I am sure of its reliability.]

The following 3 questions were closely concerned with certain types (morphological, phonological/phonemic, orthographic) of awareness, and accordingly they were answered by both the highest and lowest scorers in each awareness test/task, and presented below in the order stated in parenthesis above.

(4) Some of the participants who got the highest scores from Morphological Awareness Test reported that they were *aware* of affixes or word forms, and these *affected their reading comprehension* somehow in terms of roots, forms of the words. However, some others stated that words forms or affixes did not affect their comprehension. one exceptional participant reported that he/she was *not aware* of any morphological units.

“Kelimenin köküne bakıp onunla bağdaşan başka kelimeler ile tahmin etmeye çalışırım. Belki kökleri aynı ise hemen hemen aynı anlamı veriyor olabilir.”

[I look at the root of the word and try to guess its meaning with other words that are compatible with it. If the roots are the same, it can give almost the same meaning.]

“Fark etmiyorum. Direkt okuyorum.”

[I am not aware. I'm reading directly.]

“Fiile ya da özneye bakarken etkiliyor.”

[It affects when looking at a verb or a subject.]

“Bir cümledeki kelime türlerini ve ekleri fark edebilirim. Kelime türleri veya ekler metni anlamamda bir sorun oluşturmaz.”

[I can recognize word types and suffixes in a sentence. Word types or suffixes do not interfere with my understanding of the text.]

Likewise, most of the participants who got the lowest scores from Morphological Awareness Test reported that they were aware of affixes and word forms, claiming that this awareness affected their understanding/comprehension in direct contradiction to their scores from the test.

“Evet, genelde fark ederim. Çünkü bu cümlelerin gidişatını değiştirebilir. Bu sebeple kelime türleri metnin anlamını etkiler.”

[Yes, I usually notice because this can change the course of the sentence. For this reason, word types affect the meaning of the text.]

“Yes I do. I am aware of affixes and suffixes.”

“Sometimes I can't realize. I think it does. We understand the word better as we know it.”

“Yes I do, because these forms (of) the words or affixes greatly affect the text.”

“Evet, fark ederim, cümleyi doğru anlamamı sağlıyor. Çünkü kelime türünü bilmezsem veya fark etmezsem paragrafı da anlayamam.”

[Yes, I notice, it helps me understand the sentence correctly. Because if I don't know or notice the word type, I can't understand the paragraph either.]

(5) Phonemic awareness were also included in that question along with phonological awareness as it was actually a sub-skill of phonological awareness. Strikingly, most of the participants who got the highest scores from Phonological Awareness Test reported that they were unaware of phonemes in the words, stating that it *did not*

affect their understanding while some others reported that they were aware of phonemes could get the meaning of the sentence that they read, thanks to this awareness.

“Aslında fark edemiyorum, bu yüzden etkilemiyor.”

[I can't actually notice, so it doesn't affect.]

“Farkında değilim.”

[I am not aware.]

“Farkındayım, ses birimlerine göre okuduğum cümlelerin hedefini anlarım.”

[I am aware; I understand the target of the sentence I read according to the phonemes.]

“No, I am not.”

“Farkındayım, benzer kelimelerin telaffuzlarına dikkat ederek karışıklık olmasını engellerim ve okuduğum metin daha anlaşılır olur.”

[I am aware, I avoid confusion by paying attention to the pronunciation of similar words, and the text I read becomes more understandable.]

Most of the participants who got the lowest scores from Phonological Awareness Test/Phonological Opacity Test reported that they were *aware* of phonemes in the words, stating that it *affected their understanding/comprehension* as they thought the text can be misunderstood by differences of phonemes or they could understand the text properly without confusion of the words while one participant reported that he/she was *unaware* of phonemes.

“Evet dikkat ederim, çünkü ses farklılığı kelimenin yanlış anlaşılmasına ve okunmasına neden olabilir.”

[Yes, I pay attention, because the sound difference can cause the word to be misunderstood and read.]

“Evet farkındayım. Böylelikle kelimeleri karıştırmıyorum ve kelimeyi doğru anlıyorum.”

[Yes I am aware. That way I don't get confused by the meanings of the words, and I get the word right.]

“No I don't. I don't understand.”

“Sesbirimlerini fark etmemin metni anlamamı güçlendirdiğini düşünüyorum.”

[I think being aware of the phonemes strengthens my understanding of the text.]

(6) Nearly all of the participants who got the highest scores from Orthographic Choice Task reported that they were aware of the spellings of the words in a text and this awareness affected their comprehension in reading by preventing from misunderstanding or confusion.

“Yes, I am. No, it doesn't affect my awareness, my reading comprehension.”

“I'm aware. It affects.”

“Evet farkındayım. Etkiliyor. Metni daha iyi anlıyorum ve Kelimelerin anlamlarını karıştırmıyorum.”

[Yes, I am aware. It affects. I understand the text better and do not get confused about the meanings of the words.]

“Farkındayım ama anlamamı etkilemez, genelde yazarın ne kastettiğini anlarım.”

[“I'm aware, but it doesn't affect my understanding. I usually understand what the text writer means.”]

“Bildiğim kelimelerin doğru yazılıp yazılmadığının farkındayım. Evet, etkiliyor. Çünkü değişen bir kelime, kelimenin anlamını tamamen değiştirebilir. Yanlış bildiğin kelince anlatılmamak istenen düşünceyi yanlış anlamamıza neden olabilir.”

[I am aware of whether the words I know are spelled correctly. Yes, it affects because a varying word can completely change the meaning of the word. Misinterpreted word may cause us to misunderstand the thought that is not meant to be told.]

On the other hand, the participants who got the lowest scores from Orthographic Choice Task reported that they were aware of the spellings of the words in a text and this awareness affected their comprehension in reading and helped them understand the text better.

“Evet, farkındayım, bir yanlışlık varsa gözümü tırmalar ve dikkatimi çeker, aslında daha iyi anlamamda etkili olur.”

[Yes, I am aware, if there is a mistake, it will catch my eyes and attract my attention, actually it will help me understand better.]

“Genel olarak birçok kelimenin yazılışının farkındayım, bu farkındalığım okuduğumu anlamama çok yardımcı oluyor.”

[I am aware of the spelling of many words in general, this awareness helps me a lot to understand what I read.]

“Kelimelerinin yazılışlarının genellikle farkındayım, bu onları öğrenirken nasıl, nerede kullanıldığını öğrenmeme yardımcı oluyor ama bazı zamanlarda kendim yazarken karıştırabiliyorum yazılışlarını.”

[I'm usually aware of the spelling of words, this helps me learn how and where to use them while learning them, but sometimes I might get confused while I'm writing.]

“Uzun ve hafif tekrarlı kelimelerde, doğru ve anlamı bozmadan okumaya özen gösteririm bu da anlam bütünlüğü ve akıcılığını bozmadan bana fayda verir.”

[In long and slightly repetitive words, I take care to read correctly and without disorienting the meaning, which will benefit me without disorienting the integrity and fluency of meaning.]

“Evet, kelimelerin yazılışına dikkat ederim. Yine aynı şekilde kelimeyi yanlış yazmak farklı anlamlar çıkarılmasına neden olabilir.”

[Yes, I pay attention to the spelling of words. Likewise, spelling the word wrongly may cause to infer different meanings.]

Overall, when the answers given to the interview questions have been examined, students' scores obtained from reading comprehension test and awareness tests reach an agreement, to some extent, with their opinions or perceptions of how they think about the way they do while reading a text with some exceptions.

CHAPTER V

CONCLUSIONS AND DISCUSSION

In this chapter, there will be the discussion of the findings and results of the present study, recommendations for further research, teachers, textbook writers, and a summary of the entire study.

5.1. Discussion

The present study explored the relationship between reading comprehension and language awareness levels of preparatory class students in a state university in Turkey by a comparison of their scores that they obtained from a reading comprehension test and their awareness levels separately and unitedly based on the results obtained from four tests for four different aspects of awareness. According to the results of the analyses made, some of the findings are compatible with the results of the studies in the literature; however, most of the findings confront or do not conform to the results of some studies in different dimensions of awareness.

The present study differs from other studies conducted in Turkey in that it focuses on various dimensions of awareness, unlike the fact that most of the studies on this issue in the literature were based on solely one aspect of language awareness, and additionally tries to fill the gap in the literature as there have been very few studies on this subject. On the other hand, when the studies on this issue are examined globally, it can be seen that the situation of research does not differ in the global context. As obviously stated in Chapter 2, Section 2.3, most of the studies conducted over the relationship(s) between language awareness and reading ability/comprehension have been concentrated merely on morphological awareness in the first place, and some of the studies have been concentrated only on phonological awareness in the second place while phonemic and orthographic awareness have been examined rarely in an unaccompanied way or they have been investigated together with morphological and phonological awareness as a concurrent variable. Accordingly, the results or findings will be presented over the relationship(s) between types of awareness and reading comprehension, compared

with the studies in this field, and the contingent reasons will be discussed about the similarities and differences.

5.1.1. The Relationship Between EFL Learners' Reading Comprehension Scores and Phonological Awareness Levels

Descriptive statistics of the Phonological Awareness Test revealed that the participants answered correctly more than half of the questions in the test with a mean score 20.20 out of 30 questions and with values of standard error ($SE=.51$) and standard deviation ($SD=3.22$), and the number of the correct answers provided by the participants was ranging from minimum score 11 to maximum score 27. As for the relationship between the Reading Comprehension Scores and Phonological Awareness Levels of the participants, the results have shown that reading comprehension and their phonological awareness have a positive correlation ($\rho=.12$). That is, it can be said that there exists a relationship between participants' reading comprehension skill and their phonological awareness. When their phonological awareness levels go up, their levels of reading comprehension also increase slightly simultaneously. Yet, according to the results of the chi-square tests, phi coefficient value (.89) depicts this relationship between two variables is not significant.

Most of the studies such as Cossue et al. (1988), Mahony et al. (2000), Goodwin (2010), Ram (2013) Yeung et al. (2013) Liu (2014), and Sun (2021) conducted on the influence of phonological awareness on reading comprehension or the relationship between phonological awareness and reading comprehension established that there was a significant correlation between two variables, meaning that phonological awareness is a very important predictor of a good reading comprehension. In discordance with the studies which revealed that there as a strong relationship between phonological awareness and reading comprehension, the results of the present study claim that phonological awareness may be a positive factor for reading comprehension but not an significantly essential component to a successful reading comprehension, in accordance with the studies Berninger et al. (2010), Clark (2017) and O'Toole (2018). While much of the research suggests that there is a strong relationship between two variables, the results of the present study differ a lot,

probably because the participants in the study have gone through an educational setting in which phonology has not been focused enough or they have experienced the language learning process backwards, straying from the usual way of acquiring a language. In other words, starting learning a language with skills of reading and writing, instead of listening and speaking the way normally speakers of a language do, might have impeded their foci, and they might think that they do not need to pay attention to the phonemes while reading a text unless the text is read aloud. The reason for why the results of the present study differ from the previous studies conducted on the relationship between the phonological awareness and reading skills may be that most of the studies aforementioned were conducted in native context or EFL context with speakers of languages such as mostly Chinese and Korean, sound system or phonemes of which are regarded as a very important factor in learning to read. When some of the participants were asked for their opinions about why they did not pay attention to the sounds or phonemes in words while they were reading, they replied that there was no need to be aware of them in the words of a text, and they did not need to learn or use while reading a text. As knowing meaning of the words in a text was sufficient to pass the exams they had taken and would take, they found enough to know and follow typical reading strategies to sort out the correct answers among the options. Accordingly, when the answers of the participants who got the highest scores from Phonological Awareness Test to the question about the impact of their phonological awareness on their reading comprehension were examined, the more common theme when compared to others was that they are *unaware* of phonemes in the words, and it *does not affect their understanding*.

5.1.2. The Relationship Between EFL Learners' Reading Comprehension Scores and Morphological Awareness Levels

It can be said that the participants probably got the correct answers based on the meanings of the words in the options as in section 2 they had to grasp the associated meaning and could answer accordingly. In the sentences in section 1-Sentence Completion, they should have paid attention to the forms of the words to complete the gaps. Lower scores that the participants got from this section, when compared to the scores in the other section, might indicate that novel vocabulary items meanings of which they do not know may cause them to get confused easily by distracting their

attention from the forms of the words as they were exposed to this situation with pseudo words in the test.

When it comes to the relationship between the participants' levels of morphological awareness and reading comprehension scores, the results showed that there was an insignificant positive correlation ($\rho = .27$) between two variables, morphological awareness, and reading comprehension. As a result, it can be reached that there is not a relationship between participants' reading comprehension skill and their morphological awareness. Unlike nearly all of the studies Carlisle (2000), Mahony et al. (2000), Deacon and Kirby (2004), Kuo and Anderson (2006), Kirk and Gillon (2009), Goodwin (2010), Tong et al. (2011), Guo et al. (2011), Jeon (2011), Kirby et al. (2012), Deacon and Benere (2013), Ram (2013), Zhang and Koda (2013), Deacon et al. (2014), Aksoy (2015), Clark (2017), Levesque et al. (2017), Amirjalili and Jabbari (2018), Bae and Joshi (2018), Akbulut (2019), Badawi (2019), James et al. (2020), Munawaroh (2021), Qiao (2021) conducted over the relationship between morphological awareness and reading comprehension did before, the present study has showed that morphological awareness does not have a direct impact on reading comprehension of EFL learners despite the positive correlation between the variables. Most of the studies on this topic were conducted in native contexts, and did not only focus on the the formation of the words but also on the power of vocabulary in reading skills and comprehension. As in sample studies Aksoy (2015) and Akbulut (2019) conducted on this issue in Turkish EFL context, suggesting that there is a positive relationship between two variables, morphological awareness has an indirect contribution to reading comprehension but not a direct one, which is relatively similar to the result of the present study. In the former study, morphological awareness has an impact on reading comprehension with the accompaniment of the effect of vocabulary knowledge, while the latter was investigating the impact of explicit practice of morphological awareness on reading skills through an obvious emphasis. That may be the reason for why the present study has reached a different result. On the other hand, the vocabulary knowledge probably affected their comprehension because both the participants who got the highest and the participants who got the lowest scores from MAT stated that they are aware of the morphological units of words in a text even if they are not. Furthermore,

the scores they got from the Mat-Section 2 concerning the word relation in terms of meaning indicate that they only pay attention to the meaning of the word pairs, and that may lead them to neglect the forms of the words. The findings obtained via thematic analysis of the answers the participants provided for interview questions related to what they pay attention to *before, while and after reading a text* support the result above-mentioned as they stated that they pay attention to the types or functions of the words (such as *adverbs, adjectives, conjunctions, proper nouns*), *unknown words*. As the test evaluated in the present study was very important and different from the previous tests that the participants had taken before in that it included listening, reading and writing simultaneously, most of the participants stated that they did not read the questions carefully and chose between the options to be able to spare more time for writing part of the test. They preferred allocating more time for the other parts of the test. As a result, they may have focused on the shorter questions including grammar and vocabulary parts. Moreover, some of the participants stated that they just pay attention to core meanings of the vocabulary items in the texts as they do not own a good competence in differentiating the types or the functions of the words even in their native language. To be more precise, they may have chosen between the options based on their semantic associations of the words without being aware of the types or functions of the words or by not being able to be aware of them.

5.1.3. The Relationship Between EFL Learners' Reading Comprehension Scores and Phonemic Awareness Levels

When the phonemic awareness, which is a sub-skill of phonological awareness, was examined particularly in the alteration of phonemes in the derivatives, the participants could answer correctly only half of the questions. In addition, the range of the test was 15, from 3 to 18 out of 25 items, which means that the most successful participant's score was a bit far away from the highest score that can be obtained from the test. The correlation analysis made over the reading comprehension scores of the participants and their phonemic awareness levels measured by the Phonological Opacity Test indicates that there is a negative correlation ($\rho = -.10$) between the two variables. To put it differently, it can be interpreted that there is almost no relationship between participants' reading

comprehension skill and their phonemic awareness with a very slight decrease as their scores increase or vice versa. The results of chi-square tests conducted so as to explore and consolidate the effect size of the relationship between reading comprehension and phonemic awareness show that the correlation between two variables is not meaningful (Asymp. Sig. = .58).

On the contrary to the closely related studies such as Le Roux et al. (2017), Sun and Lee (2021) and Listyarini et al. (2022) suggesting that there is a strong relationship between phonemic awareness and reading comprehension, or rather phonemic awareness of EFL learners is an important factor for their reading comprehension and its improvement, the present study claims that there is no positive impact of phonemic awareness on reading comprehension. The reason for why the results of the present study differ from the previous studies conducted on the relationship between the phonemic awareness and reading skills may be that most of the studies aforementioned were conducted in EFL context with speakers of languages, sound system or phonemes of which are regarded as a very important factor in learning to read or in which mostly speaking skills are practised in language learning. However, possibly the participants of the present study do not pay attention to the phonemes in words in a text by considering that they do not need to notice or have phonological information, and that orthographic representations of phonemes are sufficient to go to grasp the meaning of the sentences in a text while reading a text. The more common themes, when compared to others, were that they are *unaware* of phonemes in the words, that it *does not affect their understanding*, and their awareness for orthographic representations of the phonemes in words *affects their comprehension* in reading by *preventing from misunderstanding or confusion* while reading a text. Along similar lines of phonological awareness, phonemic awareness as its sub-skill is underestimated in the educational setting of the participants, which is a very common instance. Some of the participants claim that they have never taken education on phonology or the phonetic alphabet. When some of the participants were asked for their opinions about why they did not pay attention to the sounds or phonemes in words while they were reading, they replied that there was no need to be aware of them in the words of a text, and they did not need to learn or use while reading a text. As knowing meaning of the words in a text was sufficient to pass the

exams they had taken and would take, they found enough to know and follow typical reading strategies to sort out the correct answers among the options.

5.1.4. The Relationship Between EFL Learners' Reading Comprehension Scores and Orthographic Awareness Levels

The results of the Orthographic Choice Task revealed that the average score of the 40 participants was 14.85 ($M=14.85$, $SD=4.79$) with the range of the scores from 5 to 23 out of 25 items. The mean of the test shows that the participants can be viewed as quite successful now that they answered slightly more than half of the questions in the test correctly. According to the correlation analysis based on the reading comprehension scores of the participants and their orthographic awareness levels measured by the Orthographic Choice Task, there is a positive correlation ($\rho = .19$) between two variables. In other words, it can be stated that a positive relationship exists between participants' reading comprehension skills and their orthographic awareness. That is, the participants' orthographic awareness has a positive effect on their reading comprehension. The results of the Chi-square tests conducted to explore and consolidate the effect size of the relationship between reading comprehension and orthographic awareness reveals that this correlation is meaningful to prove the relationship between two variables on the grounds of the phi coefficient value (Asymp. Sig. = .02).

The result of the present study is in line with a few studies, Berninger et al. (2010), Tong et al. (2011) and Clark (2017), on this issue in that orthographic awareness or processing has a constructive influence on reading comprehension especially when its impact is taken into consideration conjointly with morphological awareness. That may be because Turkish EFL learners mostly give importance to spellings of words in it while they are reading a text as they stated that they could differentiate the meanings of the words especially when they have similar spellings. Also, they have gone through an educational domain, which requires reading and writing texts more than training of sounds or phonemes in the words. The answers reported by the participants to the question about orthographic awareness and reading comprehension support the impact of awareness of orthography to some extent. Both nearly all of the participants who got the highest scores and the participants who got

the lowest scores from the Orthographic Choice Task claim that they are *aware of the spellings of the words* in a text, and *this awareness affects their comprehension* in reading and *helps them understand the text better*. That is probably because the setting in which the participants or techniques used to teach them reading is more likely to focus on the spelling of the words but not on the phonemes in them unless they are not supposed to read the text aloud.

5.1.5. The Relationship Between EFL Learners' Reading Comprehension and Their United Awareness

In order to have a general insight into language awareness in common, Reading Comprehension Test scores and scores of all awareness tests have been counted as a whole, and the correlation has been calculated on the scores. Based on the positive correlation between participants' reading comprehension scores and their levels of awareness for all types unitedly (Morphological+Phonological+Phonemic+Orthographic Awareness) ($\rho = .27$), it can not be said that having an awareness of language components has a positive impact on reading comprehension skill of the participants as the result of chi-square test (Asymp. Sig.= .22) reveals that this relationship is insignificant.

5.1.6. The Relationship Between EFL Learners' Morphological, Phonological, Phonemic, and Orthographic Awareness Levels

When the relationships between types of awareness mutually based on the results of correlation analyses are examined, it has been found that particularly morphological and phonological awareness of the participants are closely related to each other when compared to the other pairs of variables. In addition, morphological and phonemic awareness are quite related to each other. That is, awareness for morphological and phonological units affects one another somehow. Besides, morphological and orthographic awareness reciprocally affects each other. Interestingly, phonological awareness and its sub-skill, phonemic awareness have a positive relationship. That is probably because the Phonological Opacity Test (for phonemic awareness) is concentrated on the alterations of phonemes when suffixes are added to words while Phonological Awareness Test contains 5 more sections as well as the one which especially highlights phonemes. On the other hand, orthographic awareness and

phonological/phonemic awareness do not have any positive impacts on each other with a negative insignificant correlation values between them.

5.2. Conclusions

The objective of the present study was to explore the correlation between preparatory class students' different types of awareness and reading comprehension skills, respectively and unitedly.

In this regard, the question below has been attempted to be answered:

- What is the impact of students' awareness levels in morphology, phonology and orthography on EFL learners' reading comprehension?

This study was administered on 40 preparatory class students in ELL and ELT departments of a state university in Turkey. The study contained five tests, one of which was the Reading Comprehension Test while the others were the tests for Morphological, Phonological, Phonemic, Orthographic Awareness. Data were gathered from the participants by administration of the awareness tests in succession for each group (six prep classes), while Reading Comprehension Test was constituted by extracting the most related parts of FUSFL Proficiency Test. Data were captured into SPSS Statistics 2021 program, and based on these data certain analyses were made to determine which type of analysis were going to be employed, parametric or non-parametric. After having checked the skewness and kurtosis values of the tests, Spearman correlation analyses and Chi-square tests were made as the data in Reading Comprehension Tests had a skew distribution (non-parametric). Afterward, the participants were asked to answer six questions about reading and types of awareness to improve their cognition of what they thought they had done while reading. After the data analyses, the tests' results, the tests' findings, and the participants' answers to the interview questions were presented and described.

Firstly, it was found that there was an insignificant positive correlation between morphological awareness and reading comprehension unlike the usual studies with positive significant correlation in the literature. As this correlation is not significant according to the results of Chi-Square tests, it can not be stated that morphological awareness might have a positive, constructive effect on reading comprehension one way or the other, namely with or without the impact or power of vocabulary

knowledge. Secondly, the study revealed that the correlation between phonological awareness and reading comprehension was positive but not significant, which means that there is no evidence that the former had any positive impact on the latter in discordance with the studies in the literature. Thirdly, it was seen that there existed an insignificant negative correlation between phonemic awareness and reading comprehension, which showed that there was no relationship between the two variables, and was a token of the ineffectiveness of phonemic awareness on reading comprehension. Fourthly, the study had the result that the correlation between orthographic awareness and reading comprehension was positive, which meant that the former variable affected the latter variable positively. Lastly, the study concluded that the four tests for all types of awareness are taken into consideration as a single integrated test, the correlation was positive but insignificant, indicating that holistic language awareness did not have a positive influence on the reading comprehension skills of the participants. When it comes to an overall evaluation of the relationships between the awareness types, they were found to have impacts reciprocally on one other. It can be reached that it is probably essential to develop an integrated language awareness in language learners since the different types of awareness themselves have mostly positive impacts on another as well as their positive effects on reading comprehension.

5.3. Recommendations

This study attempted to reveal the relationships between the different awareness types and reading comprehension skills of Turkish EFL learners in preparatory classes of ELT and ELL departments at a state university in Turkey, and the relationships between the different awareness types themselves. Four types of awareness were tested and evaluated, mostly based on the suffix-oriented tests of morphological and phonemic awareness. When these aspects of the present study are taken into consideration, some other students from any other departments who takes education in preparatory classes in order to learn English may be included in research if the circumstances allow. Besides this, tests or tasks including prefix only or in company with suffixes simultaneously can be prepared and applied to assess students' awareness levels from different perspectives.

Reading comprehension is regarded as an important skill for Turkish students in particularly in the exams administered by OSYM. For this reason, teachers can increase language learners' linguistic awareness in various aspects so that their learners can improve their reading skills as well as their phonological, morphological, phonemic, and orthographic awareness when language teachers emphasize the root, type of word, the way it is pronounced, the sound/phoneme alteration (if there is) and the change of meaning in the derivative when a suffix is added to the base of a word. By doing so, they will contribute not only to their students' reading comprehension skills, but also to their pronunciation and speaking skills.

Textbooks for a main course are generally designed to present language skills in an integrated way, and include some parts which are given under subheadings such as vocabulary or word formation. Still, these sections are prepared to emphasize the morphological/lexical and semantic relations a word can have or by its new form. Therefore, these sections can be designed to include some other aspects of language such as phonemes or sounds so that they will probably assist language learners to increase their awareness levels simultaneously in different dimensions, and thus will improve both their reading comprehension and performance in pronunciation.

REFERENCES

- Anderson, R. C., & Freebody, P. (1981). Vocabulary knowledge. *Comprehension and teaching: Research reviews*, 77-117.
- Akbulut, F.D. (2019). Role of morphological and metalinguistic awareness on reading among Turkish EFL learners. *International Journal of Contemporary Educational Research*, 6(2), 261-277. DOI: <https://doi.org/10.33200/ijcer.56413>
- Aksoy, F. (2015). *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*. ((Publication No. 28635811) [Published Master's Thesis, Anadolu University] ProQuest Dissertations Publishing.
- Aksu, H. H. (2009). Questionnaires and interviews in educational researches. *Journal of Graduate School of Social Sciences*, 13(1), 201-216.
- Anglin, J. M., Miller, G. A., & Wakefield, P. C. (1993). Vocabulary development: A morphological analysis. *Monographs of the Society for Research in Child Development*, 58(10), i-186. <https://doi.org/10.2307/1166112>
- Apel, K., Wilson-Fowler, E. B., Brimo, D., & Perrin, N. A. (2012). Metalinguistic contributions to reading and spelling in second and third grade students. *Reading and Writing*, 25(6), 1283-1305. <https://doi.org/10.1007/s11145-011-9317-8>
- Aronoff, M., & Fudeman, K. (2011). *What is morphology?* John Wiley & Sons.
- Aydin, F., & Yildirim, O. (2017). A study on the morphological awareness of intermediate level adult Turkish EFL learners. *JELE (Journal of English Language and Education)*, 3(2), 65-73. <https://doi.org/10.26486/jele.v3i2.261>
- Babayiğit, S., & Stainthorp, R. (2010). Component processes of early reading, spelling, and narrative writing skills in Turkish: A longitudinal study. *Reading and Writing*, 23(5), 539-568. <https://doi.org/10.1007/s11145-009-9173-y>

- Badawi, M. F. A. (2019). The Effect of explicit English morphology instruction on EFL secondary school students' morphological awareness and reading comprehension. *English Language Teaching*, 12(4), 166-178.
- Bae, H. S., & Joshi, R. M. (2018). A multiple-group comparison on the role of morphological awareness in reading: within-and cross-linguistic evidence from Korean ESL and EFL learners. *Reading and Writing*, 31(8), 1821-1841. <https://doi.org/10.1007/s11145-017-9795-4>
- Barker, T. A., Torgesen, J. K., & Wagner, R. K. (1992). The Role of orthographic processing skills on five different reading tasks. *Reading Research Quarterly*, 27(4), 335–345. <https://doi.org/10.2307/747673>
- Bektaş-Çetinkaya, Y., & Oruç, N. (2010). Turkish students 'motivation to learn English at public and private universities. *Procedia-Social and Behavioral Sciences*, 2(2), 4662-4666. <https://doi.org/10.1016/j.sbspro.2010.03.746>
- Berninger, V. W., Abbott, R. D., Nagy, W., & Carlisle, J. (2010). Growth in phonological, orthographic, and morphological awareness in grades 1 to 6. *Journal of Psycholinguistic Research*, 39(2), 141-163. <https://doi.org/10.1007/s10936-009-9130-6>
- Blank, M. (1978). Review of "Toward an understanding of dyslexia: Psychological factors in specific reading disability." In A. L. Benton & D. Pearl (Eds.), *Dyslexia—An appraisal of current knowledge*. Oxford University Press.
- Bloome, D. (1985). Reading as a social process. *Language Arts*, 62(2), 134–142. <http://www.jstor.org/stable/41405591>
- Boyatzis, R. E. (1998). *Transforming qualitative information: Thematic analysis and development*. Sage Publications, Inc.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101. <https://doi.org/10.1191/1478088706qp063oa>
- Calfee, R. C., Lindamood, P., & Lindamood, C. (1973). Acoustic-phonetic skills and reading: Kindergarten through twelfth grade. *Journal of Educational Psychology*, 64(3), 293–298. <https://doi.org/10.1037/h0034586>

- Calkins, E. O. (Ed.). (1971). *Reading forum: A collection of reference papers concerned with reading disability* (No. 11). National Institute of Neurological Diseases and Stroke.
- Carlisle, J. F. (2000). Awareness of the structure and meaning of morphologically complex words: Impact on reading. *Reading and Writing*, 12(3), 169-190. <https://doi.org/10.1023/A:1008131926604>
- Cassady, J. C., Smith, L. L., & Huber, L. K. (2005). Enhancing validity in phonological awareness assessment through computer-supported testing. *Practical Assessment, Research, and Evaluation*: Vol. 10, Article 18. <https://doi.org/10.7275/j0aw-xp53>
- Chard, D. J., & Dickson, S. V. (1999). Phonological awareness: Instructional and assessment guidelines. *Intervention in School and Clinic*, 34(5), 261–270. <https://doi.org/10.1177/105345129903400502>
- Chomsky, N., & Halle, M. (1968). *The sound pattern of English*. Harper & Row.
- Clark, T. L. (2017). *The connection among morphological, phonological, orthographic, and processing skills, and reading*. [Doctoral dissertation, University of Washington]. Research Works Archive. <https://digital.lib.washington.edu/researchworks/handle/1773/39852>
- Commonly Misspelled Words in English (Retreived January 15, 2021) from https://en.wikipedia.org/wiki/Commonly_misspelled_English_words#A%E2%80%93B
- Cope, D. G. (1969). Methods and meanings: Credibility and trustworthiness of qualitative research. *Number 1/January 2014*, 41(1), 89-91. <https://doi.org/10.1188/14.onf.89-91>
- Cossu, G., Shankweiler, D., Liberman, I., Katz, L., & Tola, G. (1988). Awareness of phonological segments and reading ability in Italian children. *Applied Psycholinguistics*, 9(1), 1-16. <https://doi.org/10.1017/S0142716400000424>
- Deacon, S. H., & Kirby, J. R. (2004). Morphological awareness: Just "more phonological"? The roles of morphological and phonological awareness in

reading development. *Applied Psycholinguistics*, 25(2), 223.
<https://doi.org/10.1017/S0142716404001110>

Deacon, S. H., Kieffer, M. J., & Laroche, A. (2014). The relation between morphological awareness and reading comprehension: Evidence from mediation and longitudinal models. *Scientific Studies of Reading*, 18(6), 432-451. <https://doi.org/10.1080/10888438.2014.926907>

De Corte, E., Verschaffel, L., & Van De Ven, A. (2001). Improving text comprehension strategies in upper primary school children: A design experiment. *British Journal of Educational Psychology*, 71(4), 531-559. <https://doi.org/10.1348/000709901158668>

Dennis, M. (1983). *The developmentally dyslexic brain and the written language skills of children with one hemisphere*. Academic Press, Inc.

Dogancay-Aktuna, S. (1998). The spread of English in Turkey and its current sociolinguistic profile. *Journal of Multilingual and Multicultural Development*, 19(1), 24-39. <https://doi.org/10.1080/01434639808666340>

Ehri, L. C. (1995). Phases of development in learning to read words by sight. *Journal of Research in Reading*, 18(2), 116–125. <https://doi.org/10.1111/j.1467-9817.1995.tb00077.x>

Ehri, L. C. (2005). Learning to read words: Theory, findings, and issues. *Scientific Studies of reading*, 9(2), 167-188. https://doi.org/10.1207/s1532799xssr0902_4

Elder, L. and R. Paul. (2004). Critical thinking ... and the art of close reading (Part IV). *Journal of Developmental Education*, 28(2): 36-37.

Freyd, P., & Baron, J. (1982). Individual differences in acquisition of derivational morphology. *Journal of Verbal Learning and Verbal Behavior*, 21(3), 282-295. [https://doi.org/10.1016/S0022-5371\(82\)90615-6](https://doi.org/10.1016/S0022-5371(82)90615-6)

Fries, C.C. (1962). *Linguistics and reading*. Holt, Rinehart and Winston.

Frith, H., & Gleeson, K. (2004). Clothing and embodiment: Men managing body image and appearance. *Psychology of Men & Masculinity*, 5(1), 40–48. <https://doi.org/10.1037/1524-9220.5.1.40>

- Gates, A. I. (1949) Character and purposes of the yearbook. In N. Henry (ed.) *The Forty-eighth yearbook of the national society for the study of education: Part II. Reading in the elementary school* (pp. 1-9). University of Chicago Press.
- Gibson, E. J., & Levin, H. (1975). *The psychology of reading*. The MIT Press.
- Goodwin, A. P. (2010). *Does meaning matter for reading achievement? Untangling the role of phonological recoding and morphological awareness in predicting word decoding, reading vocabulary, and reading comprehension achievement for Spanish-speaking English language learners*. (Publication No. 3424784 [Published Doctoral dissertation, University of Miami]. ProQuest Dissertations Publishing.
<https://www.proquest.com/openview/1f066c1d1615fc057a3d455f02d2fcb0/1?pq-origsite=gscholar&cbl=18750>
- Gough, P. B. (1972). One second of reading. *Visible Language*, 6(4), 291-320.
- Guo, Y., Roehrig, A. D., & Williams, R. S. (2011). The relation of morphological awareness and syntactic awareness to adults' reading comprehension: is vocabulary knowledge a mediating variable? *Journal of Literacy Research*, 43(2), 159-183. <https://doi.org/10.1177/1086296X11403086>
- Harris, A. J. (1956). *How to increase reading ability; A guide to developmental and remedial methods* (3rd ed.). Longmans, Green.
- Hayes, B., Bonner, A., & Douglas, C. (2013). An introduction to mixed methods research for nephrology nurses. *Renal Society of Australasia Journal*, 9(1), 8-14.
- Hoover W., Tunmer W. E. (1993). The components of reading. In Thompson G. B., Tunmer W. E., Nicholson T. (Eds.), *Reading Acquisition Processes* (pp. 1–19). Multilingual Matters.
- Hosseini, E., Khodaei, F. B., Sarfallah, S., & Dolatabadi, H. R. (2012). Exploring the relationship between critical thinking, reading comprehension and reading strategies of English university students. *World Applied Sciences Journal*, 17(10), 1356-1364.

- Iser, W. (1972). The Reading Process: A Phenomenological Approach. *New Literary History*, 3(2), 279–299. <https://doi.org/10.2307/468316>
- James, E., Currie, N. K., Tong, S. X., & Cain, K. (2021). The relations between morphological awareness and reading comprehension in beginner readers to young adolescents. *Journal of Research in Reading*, 44(1), 110-130. <https://doi.org/10.1111/1467-9817.12316>
- Jeon, E. H. (2011). Contribution of morphological awareness to second- language reading comprehension. *The Modern Language Journal*, 95(2), 217-235. <https://doi.org/10.1111/j.1540-4781.2011.01179.x>
- Kallio, H., Pietilä, A. M., Johnson, M., & Kangasniemi, M. (2016). Systematic methodological review: Developing a framework for a qualitative semi- structured interview guide. *Journal of Advanced Nursing*, 72(12), 2954-2965. <https://doi.org/10.1111/jan.13031>
- Katamba, F. (1989). *An Introduction to Phonology* (Vol. 48). Longman.
- Kavanagh, J. F., & Mattingly, I. G. (1972). *Language by ear and by eye; The relationships between speech and reading*. Mit Press.
- Goodman, K. S. (1967). Reading: A psycholinguistic guessing game. *Literacy Research and Instruction*, 6(4), 126-135. <https://doi.org/10.1080/19388076709556976>
- Kirby, J. R., Deacon, S. H., Bowers, P. N., Izenberg, L., Wade-Woolley, L., & Parrila, R. (2012). Children's morphological awareness and reading ability. *Reading and Writing*, 25(2), 389-410. <https://doi.org/10.1007/s11145-010-9276-5>
- Kirk, U. (Ed.) (1983). Introduction: Toward an understanding of the neuropsychology of language, reading, and spelling. In *Neuropsychology of language, reading and spelling* (pp. 3-31). Academic Press.
- Kirk, U. (Ed.). (2012). *Neuropsychology of language, reading and spelling*. Elsevier.

- Koda, K. (2000). Cross-linguistic variations in L2 morphological awareness. *Applied Psycholinguistics*, 21(3), 297-320.
<https://doi.org/10.1017/S0142716400003015>
- Sterne, L. (1956). *Tristram Shandy II*. Everyman's Library.
- Levesque, K. C., Kieffer, M. J., & Deacon, S. H. (2017). Morphological awareness and reading comprehension: Examining mediating factors. *Journal of Experimental Child Psychology*, 160, 1-20.
<https://doi.org/10.1016/j.jecp.2017.02.015>
- Liberman, A. M. (1983). *Status and progress of studies on the nature of speech, instrumentation for its investigation and practical applications*. Haskins Labs., New Haven, Conn. [Interim Scientific Report, 1 Apr.- 30 Sep. 1983].
- Lin, M. F. (2019). Developing EFL learners' morphological awareness: Instructional effect, teachability of affixes, and learners' perception. *International Review of Applied Linguistics in Language Teaching*, 57(3), 289-325.
<https://doi.org/10.1515/iral-2015-0081>
- Listyarini, A. A., Lintangari, A. P., & Emaliana, I. (2022). The influence of English phonemic awareness to reading comprehension: A study on Indonesian EFL learners. *JEES (Journal of English Educators Society)*, 7(1), 35-42.
<https://doi.org/10.21070/jees.v7i1.1287>
- Liu, F. (2010). Reading abilities and strategies: A short introduction. *International Education Studies*, 3(3), 153-157.
- Liu, J. (2014). *The impact of phonological awareness on EFL students' learning*. [Unpublished master's thesis]. National Pingtung University of Education.
- Lyon, G. R. (1998). Why reading is not a natural process. *Educational Leadership*, 55(6), 14-18.
- Mahony, D., Singson, M., & Mann, V. (2000). Reading ability and sensitivity to morphological relations. *Reading and Writing*, 12(3), 191-218.
<https://doi.org/10.1023/A:1008136012492>

- Marczyk, G. R., DeMatteo, D., & Festinger, D. (2010). *Essentials of research design and methodology* (Vol. 2). John Wiley & Sons.
- Masland, R. L., & Cratty, B. J. (1971). The nature of the reading process, the rationale. In *Reading Forum: A collection of reference papers concerned with reading disability* (No. 11, p. 141). National Institute of Neurological Diseases and Stroke.
- Massaro, D. W. (2009). *Letter and word perception: Orthographic structure and visual processing in reading*. Elsevier.
- McKernan, J. (2013). *Curriculum action research: A handbook of methods and resources for the reflective practitioner*. Routledge.
- McLeod, A. N., & Apel, K. (2015). Morphological awareness intervention: Study of a child with a history of speech and language impairment. *Communication Disorders Quarterly*, 36(4), 208-218. <https://doi.org/10.1177/1525740114560371>
- Meniado, J. C. (2016). Metacognitive reading strategies, motivation, and reading comprehension performance of Saudi EFL students. *English Language Teaching*, 9(3), 117-129. <http://dx.doi.org/10.5539/elt.v9n3p117>
- Mirhassani, A., & Toosi, A. (2000). The impact of word-formation knowledge on reading comprehension. *IRAL - International Review of Applied Linguistics in Language Teaching*, 38(3-4). <https://doi.org/10.1515/iral.2000.38.3-4.301>
- Montero-Fleta, B. (2011). Suffixes in word-formation processes in scientific English. *LSP Journal-Language for Special Purposes, Professional Communication, Knowledge Management and Cognition*, 2(2), 4-14. <https://doi.org/10.1080/10888438.2017.1278763>
- Muijselaar, M. M., Swart, N. M., Steenbeek-Planting, E. G., Droop, M., Verhoeven, L., & de Jong, P. F. (2017). Developmental relations between reading comprehension and reading strategies. *Scientific Studies of Reading*, 21(3), 194-209. <https://doi.org/10.1080/10888438.2017.1278763>
- Munawaoh, S. (2021). The students' morphological awareness on derivational morphemes and its relationship to reading comprehension on seventh semester

- students at University of Islam Malang. *Jurnal Penelitian, Pendidikan, dan Pembelajaran*, 16(2), 1-19.
- Nagy, W., Berninger, V. W., & Abbott, R. D. (2006). Contributions of morphology beyond phonology to literacy outcomes of upper elementary and middle-school students. *Journal of Educational Psychology*, 98(1), 134–147. <https://doi.org/10.1037/0022-0663.98.1.134>
- Oakhill, J., & Cain, K. (2007). Introduction to Comprehension Development. In K. Cain & J. Oakhill (Eds.), *Children's comprehension problems in oral and written language: A cognitive perspective* (pp. 3–40). The Guilford Press.
- Pallant, J. (2020). *SPSS survival manual: A step by step guide to data analysis using IBM SPSS*. Routledge.
- Pang, E. S., Muaka, A., Bernhardt, E. B., & Kamil, M. L. (2003). *Teaching Reading* (Vol. 6). International Academy of Education.
- Park, M. S. (2019). *An exploratory study of foreign accent and phonological awareness in Korean learners of English*. Teachers College, Columbia University.
- Perfetti, C. A. (1977) Language comprehension and fast decoding: Some psycholinguistic prerequisites for skilled reading comprehension. In J. T. Guthrie (ed.) *Cognition, Curriculum and Comprehension* (pp. 20-41). International Reading Association.
- Polit, D.F., & Beck, C.T. (2012). *Nursing research: Generating and assessing evidence for nursing practice*. Lippincott, Williams and Wilkins.
- Powney, J., & Watts, M. (2018). *Interviewing in educational research*. Routledge.
- Ram, G. (2013). Role of Phonological Opacity and Morphological Knowledge in Predicting Reading Skills in School-Age Children (*Doctoral dissertation*, Ohio University).
- Robertson, S & Salter, W. *Academic Therapy Publications*. (Retrieved January 15, 2021) <https://www.academictherapy.com/detailATP.tpl?eqskudatarq=DDD-2436>

- Robson, C. (2002). *Real world research: A resource for social scientists and practitioner-researchers*. Wiley-Blackwell.
- Qiao, S., Liu, Y., & Yeung, S. S. S. (2021). Mechanisms by which morphological awareness contributes to Chinese and English reading comprehension. *Journal of Research in Reading*, 44(1), 189-209. <https://doi.org/10.1111/1467-9817.12345>
- Saldaña, J. (2021). *The coding manual for qualitative researchers*. Sage Publications, Inc.
- Sheorey, R., & Mokhtari, K. (2001). Differences in the metacognitive awareness of reading strategies among native and non-native readers. *System*, 29(4), 431-449. [https://doi.org/10.1016/S0346-251X\(01\)00039-2](https://doi.org/10.1016/S0346-251X(01)00039-2)
- Siegel, L. S. (1993). The development of reading. *Advances in child development and behavior*, 24, 63-97. [https://doi.org/10.1016/S0065-2407\(08\)60300-6](https://doi.org/10.1016/S0065-2407(08)60300-6)
- Smith, F., & Holmes, D. L. (1971). The independence of letter, word, and meaning identification in reading. *Reading Research Quarterly*, 394-415.
- Snow, C. E., Bums, M. S., & Griffin, P. (Eds.). (1998). *Preventing reading difficulties in young children*. National Academy Press.
- Sözen, E. (2019). *Contribution of L2 morphological awareness and L2 phonological awareness to L2 listening comprehension of Turkish EFL learners*. [Unpublished master's thesis]. Anadolu University.
- Stahl, S. A., & Murray, B. A. (1994). Defining phonological awareness and its relationship to early reading. *Journal of Educational Psychology*, 86(2), 221-234.
- Stanovich, K. E., Cunningham, A. E., & Cramer, B. B. (1984). Assessing phonological awareness in kindergarten children: Issues of task comparability. *Journal of experimental child psychology*, 38(2), 175-190. [https://doi.org/10.1016/0022-0965\(84\)90120-6](https://doi.org/10.1016/0022-0965(84)90120-6)
- Strang, R. M. (1942). *Exploration in reading patterns*. University of Chicago Press.

- Suhandoko, S., & Ningrum, D. R. (2020). A corpus-based list of academic English derivational suffixes. *Indonesian Journal of Applied Linguistics*, 10(2), 481-490. <https://doi.org/10.17509/ijal.v10i2.28589>
- Sun, H., & Lee, B. (2021). The Role of English Proficiency in the Interactions of Phonological Awareness and Reading/Listening Comprehension. *영어학*, 21, 211-225. <https://doi.org/10.15738/kjell.21..202103.211>
- Templeton, S., & Scarborough-Franks, L. (1985). The spelling's the thing: Knowledge of derivational morphology in orthography and phonology among older students. *Applied Psycholinguistics*, 6(4), 371-389.
- Thompson, G. B., Tunmer, W. E., & Nicholson, T. (Eds.). (1993). *Reading acquisition processes* (Vol. 4). Multilingual Matters.
- Thorndike, E. L. (1917). Reading as reasoning: A study of mistakes in paragraph reading. *Journal of Educational psychology*, 8(6), 323-332. <https://doi/10.1037/h0075325>
- Treiman, R. (1991). Phonological awareness and its roles in learning to read and spell. In *Phonological awareness in reading* (pp. 159-189), Sawyer, D.J., Fox, B.J. (eds). Springer.
- Urquhart, A.-Weir, C. J. (1998). *Reading in a second language: Process, product and practice*. Longman.
- Weiner, P. S. (1969). The cognitive functioning of language deficient children. *Journal of Speech and Hearing Research*, 12(1), 53-64. <https://doi.org/10.1044/jshr.1201.53>
- White, T. G., Sowell, J., & Yanagihara, A. (1989). Teaching elementary students to use word-part clues. *The Reading Teacher*, 42(4), 302-308.
- Wolter, J. A., Wood, A., & D'zatko, K. W. (2009). The influence of morphological awareness on the literacy development of first-grade children. *Language Speech and Hearing Services in Schools*, 40(3), 286-298. [https://doi.org/10.1044/0161-1461\(2009/08-0001\)](https://doi.org/10.1044/0161-1461(2009/08-0001))

- Woolley, G. (2011). Reading comprehension. In *Reading comprehension* (pp. 15-34). Springer. https://doi.org/10.1007/978-94-007-1174-7_2
- Yeong, S. H., & Liow, S. J. R. (2012). Development of phonological awareness in English–Mandarin bilinguals: A comparison of English–L1 and Mandarin–L1 kindergarten children. *Journal of Experimental Child Psychology*, 112(2), 111-126. <https://doi.org/10.1016/j.jecp.2011.12.006>
- Yeung, S. S., Siegel, L. S., & Chan, C. K. (2013). Effects of a phonological awareness program on English reading and spelling among Hong Kong Chinese ESL children. *Reading and Writing*, 26(5), 681-704. <https://doi.org/10.1007/s11145-012-9383-6>
- Yopp, H. K. (1988). The validity and reliability of phonemic awareness tests. *Reading Research Quarterly*, 159-177. <https://doi.org/10.2307/747800>
- Zhang, D., & Koda, K. (2013). Morphological awareness and reading comprehension in a foreign language: A study of young Chinese EFL learners. *System*, 41(4), 901-913. <https://doi.org/10.1016/j.system.2013.09.009>
- Zhao, J. (2011). *Spelling English words: Contributions of phonological, morphological and orthographic knowledge in speakers of English and Chinese*. Texas A&M University.
- Zhao, J., Joshi, R. M., Dixon, L. Q., & Chen, S. (2017). Contribution of phonological, morphological and orthographic awareness to English word spelling: A comparison of EL1 and EFL models. *Contemporary Educational Psychology*, 49, 185-194. <https://doi.org/10.1016/j.cedpsych.2017.01.007>

APPENDICES

Appendix 1

Morphological Awareness Test (MAT) Section I.

Sentence Completion Test

Instruction: Each of the following 27 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). Choose 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. dispribration 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. vergaliatate C. vergalify D. vergalist
17. He is so_____that he offends almost everyone.
- A. dictiopithify B. dictiopithification C. dictiopithial D. dictiopithity
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. antiflidize C. antiflidacious D. antiflidicity
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, Aksoy-Aydin (2015).

Instruction: Below are 20 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 2

Phonological Awareness Test (PAT)- Recording Version

Part 1. Rhyme Recognition

In this part you will hear a word. You need to choose another word that rhymes with the word you hear. Circle the correct option.

e.g. “**hat**” and “**bat**” rhyme.

Which word rhymes with **brown**?

- a. Drone b. Drown c. Clone d. Draw

“Brown” rhymes with “drown” in option B.

Now, it is your turn. Listen to the words and circle the correct answer. You will hear the words only once.

	A	B	C	D
e.g.	drone	drown	clone	draw
1. fat	cute	sat	fed	vet
2. shake	eight	snack	snake	paint
3. chair	clear	choir	care	chore
4. dump	dumb	bum	damp	grump
5. prizes	crisis	rises	plays	please

Now, you have ten seconds to check your answers.

Part 2. Rhyme Application

In this part you will hear a word. Write the word you hear in the first blank. Then, write a second word that rhymes with the word you hear in the second blank.

e.g. **hat** rhymes with _____ **cat** _____.

6. Sum _____ rhymes with _____.

7. Deco _____ rhymes with _____.

8. Sp _____ rhymes with _____.

9. Y_____ rhymes with_____.

10. W_____ rhymes with_____.

Now, you have ten seconds to check your answers.

Part 3. Oddity- Beginning Sounds

In this part you will hear four words. You need to decide which word **starts with a different sound**. Circle the correct option.

e.g. **milk**, book, bank, break. “**Milk**” starts with a different sound. Which word below **starts with a different sound?**

a. Crown

b. Cruise

c. Celebrity

d. Cream

“Celebrity” starts with a different sound.

Now it is your turn. Which word **starts with a different sound?** Circle the word.

	A	B	C	D
e.g.	Crown	Cruise	Celebrity	Cream
11.	Physics	Practice	Finish	Fabric
12.	Whale	Wreck	Writing	Rhino
13.	Knife	Life	Nice	Knee
14.	Smell	Snake	Shower	Surprise
15.	Thorough	Thanksgiving	Trumpet	Theory

Now, you have ten seconds to check your answers.

Part 4. Oddity- Final Sounds

In this part you will hear four words. You need to decide which word **ends with a different sound**. Circle the correct option.

e.g. milk, book, silk, bring. “**Bring**” ends with a different sound. Which word below **ends with a different sound?**

- a. Occurred b. Puzzled c. Stopped d. Proud

“Stopped” ends with a different sound.

Now it is your turn. Which word **ends with a different sound**? Circle the word.

	A	B	C	D
e.g.	Occurred	puzzled	stopped	proud
16.	Smooth	teeth	tenth	filth
17.	Hand	bound	command	meant
18.	Handsome	cream	reform	clown
19.	Rumba	replica	alibi	coma
20.	Bang	long	thing	singe

Now, you have ten seconds to check your answers.

Part 5. Oddity- Middle Sounds

In this part you will hear four words. You need to decide which word **has a different middle sound**. Circle the correct option.

e.g. milk, book, silk, bring. “**Book**” has a **different middle sound**. Which word below has a **different middle sound**?

- a. How b. Aloud c. Crowd d. Poor

“Poor” has a different middle sound.

Now, it’s your turn, circle the word that has a **different middle sound**.

	A	B	C	D
e.g.	How	aloud	crowd	poor
21.	Bug	hut	hat	hug
22.	Frog	snob	pot	broke
23.	Put	nut	cut	but

24.	Point	quoit	moist	quick
25.	Allow	brown	throne	crown

Now, you have ten seconds to check your answers.

Part 6. Blending- Phonemes

In this part you will hear each sound of a word separately. You need to choose the word you hear among the options. Circle the correct option.

e.g. /'b/, /əʊ/, /t/ becomes /boat/. How about /'k/, /əʊ/, /t/? ____/coat/____

Now it's your turn. Listen carefully and circle the word you hear among the four options.

	A	B	C	D
e.g. /'k/, /əʊ/, /t/	coke	cute	coat	goat
26. /'θ/, /ɔ:/, /t/	thought	fought	drought	great
27. /'eə/	hair	air	pair	are
28. /'dʒ/, /əʊ/, /k/	choke	joke	rake	juke
29. /b/, /i/, /f/	believe	bleed	beef	beat
30. /s'/ /k/, /ɔ:/, /d/	scored	soared	swore	sword

Now, you have ten seconds to check your answers.

This is the end of the practice. Thank you for your participation.

Appendix 3

Phonological Opacity Test

Instructions: Please read each of the 25 derived word pairs listed below. “A derived word is formed by adding a suffix to a root word which may cause a change in the grammatical category of the root word. For example, *watchful*, is a derived adjective which consists of a base word *watch* (verb) and a suffix *-ful*. In each of the following word pairs, the first word is the base word (e.g., puzzle) and second word is a derivative of the base word (puzzlement).” Think each pair in terms of the degree of difference **in sound pattern** (not meaning or spelling) you consider to exist between them. Please rank this difference (**by focusing on the number of phonemes changing in the base word-part written in bold**) on a rating scale of 0 - 3 designated below. Please choose the suitable number next to each word pair.

Rating Scale:

0: minimal difference (i.e., the base word is pronounced exactly the same in the derivative as when it is said by itself)

3: maximal difference

Examples: difference	minimal difference		maximal	
a) puzzle- puzzlement	0	1	2	3
b) clear- clarify	0	1	2	3
Word Pairs	minimal difference		maximal difference	
1. achieve- achievement	0	1	2	3
2. advantage- advantageous	0	1	2	3
3. beauty- beautiful	0	1	2	3
4. confirm- confirmation	0	1	2	3
5. courage- courageous	0	1	2	3
6. delete- deletion	0	1	2	3

7. establish- establishment	0	1	2	3
8. experiment- experimental	0	1	2	3
9. face- facial	0	1	2	3
10. fact- factual	0	1	2	3
11. guide- guidance	0	1	2	3
12. immigrate- immigrant	0	1	2	3
13. migrate- migration	0	1	2	3
14. occur- occurrence	0	1	2	3
15. pave- pavement	0	1	2	3
16. period- periodic	0	1	2	3
17. practical- practicality	0	1	2	3
18. progress- progression	0	1	2	3
19. rare- rareness	0	1	2	3
20. reside- residence	0	1	2	3
21. sign- signature	0	1	2	3
22. simple- simplify	0	1	2	3
23. teach- teachable	0	1	2	3
24. teen- teenager	0	1	2	3
25. verify- verification	0	1	2	3

Appendix 4

Orthographic Choice Task

Instructions: In this task, there are pairs of words. Both of them may look like a real word, but only one is a real word. You should choose the real word in each pair. You will have **60 seconds** to answer as many as you can. Let's try some practice. Which one is a real word?

room	rume
snoe	snow

Do you have any questions? Ready?

1. absence- absense
2. amatuer- amateur
3. argument – arguement
4. beautiful – beatiful
5. beginning – begining
6. cemetary -cemetery
7. colleague – collaegue
8. concensus – consensus
9. definately - definitely
10. dissapoint - disappoint
11. existence – existance
12. license – lisence
13. neccessary - necessary
14. perceive – percieve
15. pronounciation - pronunciation
16. quarentine - quarantine

17. relevant – relevent

18. repetition – repitition

19. secratary -secretary

20. seperate – separate

21. successful – succesful

22. untill – until

23. vehicle – vehical

24. wierd – weird

25. whether – wether

Appendix 5

Interview Questions

1. What do you pay attention to *before*, *while* and *after* reading a text?
2. What do you think is essential for an effective comprehension in reading?
3. How do you cope with unfamiliar words you encounter in a text?
4. Are you aware of the word forms (verbs, noun, adjective...etc.) or affixes (prefixes or suffixes such as un-, in-, ir- or -less, ness, -ion, -ity...etc.)? Do they affect your comprehension of text?
5. Are you aware of the phonemes in the words in a text? Does your awareness affect your reading comprehension? How?
6. Are you aware of the spellings of the words in a text? Does your awareness affect your reading comprehension? How?

Görüşme Soruları

1. Bir metni *okumadan önce*, *okurken* ve *okuduktan sonra* nelere dikkat ediyorsunuz?
2. Okuduğunu etkili bir şekilde anlamak için neyin/nelerin gerekli olduğunu düşünüyorsunuz?
3. Bir metinde karşılaştığınız bilinmeyen kelimelerle nasıl başa çıkıyorsunuz?
4. Kelime türlerini (fiil, isim, sıfat... vb.) veya eklerin (un-, in-, ir- veya -less, lise, -ion, -ity gibi ön ekler veya son ekler vb.) fark eder misiniz? Kelime türleri metni anlamınızı etkiliyor mu? Etkiliyorsa nasıl?
5. Bir metindeki sözcüklerdeki ses birimlerinin farkında mısınız? Bu farkındalığınız okuduğunu anlamınızı etkiliyor mu? Etkiliyorsa nasıl?
6. Bir metindeki kelimelerin yazılışlarının farkında mısınız? Farkındalığınız okuduğunu anlamınızı etkiliyor mu? Etkiliyorsa nasıl?

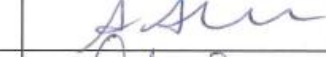
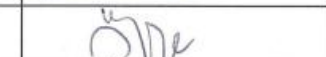
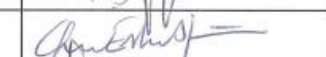
Appendix 6

Ethics Committee Approval (Etik Kurul Onay Formu)

 İSTANBUL MEDENİYET ÜNİVERSİTESİ	T.C. İSTANBUL MEDENİYET ÜNİVERSİTESİ EĞİTİM BİLİMLERİ ETİK KURULU KARARI
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Tarihi 01/03/2021	Sayısı 2021/03-18
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ARAŞTIRMA BAŞLIĞI	Fonolojik ve Morfolojik Farkındalığın Okuduğunu Anlama Üzerindeki Etkisi: İngilizce Hazırlık Sınıfı Öğrencilerinin Morfolojik, Fonolojik, Ortografik Farkındalık Düzeyleri ile Okuduğunu Anlama Testindeki Başarıları Arasındaki İlişkinin İncelenmesi
ARAŞTIRMANIN TÜRÜ	Nicel Araştırma
ARAŞTIRMACI(LAR)	Öğr. Gör. Selim Yavuz Doç. Dr. Özge Cengiz
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Başkan	Prof. Dr. Halil İbrahim SAĞLAM	
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Üye	Doç. Dr. Yeşim GÜLEÇ ASLAN	
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Üye	Doç. Dr. Özcan Erkan AKGÜN	
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ÖZGEÇMİŞ

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2011-2022	Fırat Üniversitesi	Okutman/Öğretim Görevlisi

YABANCI DİLLER

İngilizce İleri Seviye

Almanca Başlangıç Seviyesi

HOBİLER

Müzik dinlemek, film izlemek, kitap okumak.