

THE EFFECT OF FORM-FOCUSED MORPHOLOGICAL INSTRUCTION ON
DERIVATIONAL MORPHOLOGICAL AWARENESS AND VOCABULARY
KNOWLEDGE OF 11TH-GRADE EFL TURKISH HIGH SCHOOL STUDENTS

CAN ÇAĞAN

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IN

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İHSAN DOĞRAMACI BILKENT UNIVERSITY

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To my beloved daughter...

...

The Effect of Form-Focused Morphological Instruction on Derivational
Morphological Awareness and Vocabulary Knowledge of 11th-Grade EFL Turkish
High School Students

The Graduate School of Education

of

İhsan Doğramacı Bilkent University

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GRADUATE SCHOOL OF EDUCATION

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I certify that I have read this thesis and have found that it is fully adequate, in scope and in quality, as a thesis for the degree of Master of Arts in Teaching English as a Foreign Language.

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ABSTRACT**THE EFFECT OF FORM-FOCUSED MORPHOLOGICAL INSTRUCTION ON
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MA in Teaching English as a Foreign Language

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January 2024

The aim of this research was to investigate the effect of form-focused morphological instruction including free base words and derivational suffixes on derivational morphological awareness (MA), and vocabulary knowledge of 11-grade EFL learners studying at a private high-school in the province of Hatay in Türkiye. This study had a quasi-experimental pretest-posttest non-equivalent control group research design. A total of 61 EFL students participated in the study (experimental group: 30; control group: 31). The participants were selected with the use of convenience sampling. Before the intervention, all participants took EF Standard English Test (EF SET), an English proficiency test administered online. During a 6-week timeframe, the students in the experimental group received form-focused morphological instruction twice a week and attended 2 review sessions. On the other hand, the students in the control group continued with their usual school timetable, and received no form-focused morphological training. The Test of Morphological Structure (derivational MA test) (Carlisle, 2000), and updated Vocabulary Levels Test (vocabulary knowledge test) (Webb et al., 2017) were administered to all participants as pre- and post-tests. The data analyses were conducted using independent and paired samples *t*-tests. The results indicated that while both experimental and control groups made statistically significant gains in derivational MA, the experimental group significantly outperformed the control group. However, neither group showed any improvement in vocabulary knowledge after the intervention.

Keywords: EFL, form-focused morphological instruction, derivational morphological awareness, vocabulary knowledge

ÖZET

Biçim Odaklı Morfolojik Öğretimin İngilizceyi Yabancı Dil Olarak Öğrenen 11.

Sınıf Türk Lise Öğrencilerinin Türetimsel Morfolojik Farkındalıklarına ve Sözcük

Bilgilerine Etkisi

Can Çağan

Yabancı Dil Olarak İngilizce Öğretimi Yüksek Lisans Programı

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Bu araştırmanın amacı, serbest temel sözcükleri ve yapım eklerini içeren biçim odaklı morfolojik öğretimin, Türkiye'nin Hatay ilindeki özel bir lisede öğrenim gören 11. sınıf İngilizce öğrencilerinin türetimsel morfolojik farkındalıkları ve sözcük bilgileri üzerindeki etkisini araştırmaktır. Bu çalışma yarı deneysel ön test-son test eşdeğer olmayan kontrol gruplu bir araştırma desenine sahiptir. Çalışmaya toplam 61 öğrenci katılmıştır (deney grubu: 30; kontrol grubu: 31). Katılımcılar kolayda örnekleme yöntemi kullanılarak seçilmiştir. Müdahaleden önce, tüm katılımcılar çevrimiçi olarak uygulanan bir İngilizce yeterlilik testi olan EF Standart İngilizce Testi'ne (EF SET) katılmıştır. Deney grubundaki öğrenciler 6 haftalık bir zaman dilimi boyunca haftada iki kez biçim odaklı morfolojik eğitim almış ve 2 tekrar oturumuna katılmışlardır. Öte yandan, kontrol grubundaki öğrenciler normal okul programlarına devam etmiş ve biçim odaklı morfolojik eğitim almamışlardır. Morfolojik Yapı Testi (türetimsel morfolojik farkındalık testi) (Carlisle, 2000) ve güncellenmiş Kelime Düzeyleri Testi (kelime bilgisi testi) (Webb vd., 2017) tüm katılımcılara ön ve son test olarak uygulanmıştır. Veri analizleri bağımsız ve eşleştirilmiş örneklemeler *t*-testleri kullanılarak gerçekleştirilmiştir. Sonuçlar hem deney hem de kontrol grubunun türetimsel morfolojik farkındalıklarında istatistiksel olarak anlamlı kazanımlar elde ettiklerini, ancak deney grubunun kontrol grubundan önemli ölçüde daha iyi performans gösterdiğini ortaya koymuştur. Fakat her iki grup da müdahaleden sonra kelime bilgisinde herhangi bir gelişme göstermemiştir.

Anahtar kelimeler: İngilizceyi yabancı dil olarak öğrenme, biçim odaklı morfolojik öğretim, türetimsel morfolojik farkındalık, sözcük bilgisi

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TABLE OF CONTENTS

ABSTRACT.....	iii
ÖZET	iv
ACKNOWLEDGEMENTS	v
TABLE OF CONTENTS.....	vi
LIST OF TABLES	x
LIST OF FIGURES	x
CHAPTER 1: INTRODUCTION	1
Introduction.....	1
Background	4
Classification of English Morphemes	4
Comparison of Word Formation Through Inflection and Derivation in English.....	5
Morphophonemic Nature of Written English.....	6
Metalinguistic and Morphological Awareness.....	9
The Relation Between Morphological Awareness and Vocabulary.....	11
Morphological Instruction as a Way of Developing Morphological Awareness and Vocabulary Knowledge	13
Problem	14
Purpose.....	17
Research Questions	17
Significance.....	17
Definition of Key Terms	19
CHAPTER 2: REVIEW OF RELATED LITERATURE.....	20
Introduction	20
Theoretical Framework	20

Cognitive Linguistics Theory	20
The Noticing Hypothesis	23
The Interaction Hypothesis.....	26
The Interface Hypothesis.....	28
Conceptual Framework	35
Form-Focused Instruction	36
Explicit Focus-on-FormS (FonFS)	36
Focus-on-Form (FonF)	38
Planned Focus-on-Form and Incidental Focus-on-Form.....	40
Input Flood	41
Oral Corrective Feedback.....	42
Written Corrective Feedback.....	45
Vocabulary Knowledge.....	46
Derivational Morphological Awareness	48
Measuring Morphological Awareness	52
Morphological Instruction.....	54
Empirical Studies on Morphological Instruction and Its Effects on Morphological Awareness and/or Vocabulary Knowledge.....	61
International Research	61
Local Research	69
CHAPTER 3: METHOD	75
Introduction.....	75
Research Design.....	75
Setting	76
Participants.....	78

Instrumentation	80
The EF Standard English Test (EF SET)	80
Participant Performance on the EFSET	81
The Test of Morphological Structure (TMS)	82
The Updated Vocabulary Levels Test (UFLT).....	85
Selection of Derived Words	89
The Instructional Process and Classroom Assessment	90
Method of Data Collection.....	96
Methods of Data Analysis.....	98
CHAPTER 4: RESULTS	100
Introduction.....	100
Results of the Study	102
Analysis of the First Research Question—The Effect of Form-Focused Morphological Instruction on English Derivational MA of Participants	102
Analysis of the Second Research Question—The Effect of Form-Focused Morphological Instruction on the Vocabulary Knowledge of Participants.....	107
CHAPTER 5: DISCUSSION.....	113
Introduction.....	113
Overview of the Study	113
Discussion of Major Findings	114
The Effect of Form-Focused Morphological Instruction on English Derivational MA of Participants	114
The Effect of Form-Focused Morphological Instruction on the Vocabulary Knowledge of Participants	117
Implications for Practice	120

Implications for Further Research.....	122
Limitations	124
REFERENCES.....	126
Appendix A	170
Appendix B	171
Appendix C	176



LIST OF TABLES

Table	Page
1 Types of Corrective Feedback.....	42
2 Number of Participants in Experimental and Control Groups	80
3 Gender Information of Participants	80
4 Independent Samples <i>t</i> -test Results for EF SET Scores.....	81
5 The Rasch Reliability and Separation Estimates for Form A and Form B.....	87
6 Participant Numbers Divided by Time (Pre-test and Post-test) and Groups (CG and EG).....	101
7 Overview of Research Questions and Corresponding Methods of Data Analyses.....	101
8 Composite Performance of Groups (CG and EG) on TMS.....	103
9 Independent Samples <i>t</i> -test Results for Pre-test TMS Scores (CG and EG).....	103
10 Independent Samples <i>t</i> -test Results for Post-test TMS Scores (CG and EG).....	104
11 Paired Samples Correlations for Pre- and Post-test TMS Scores.....	105
12 Paired Samples <i>t</i> -test Results for CG Pre- and Post-test TMS Scores.....	106
13 Paired Samples <i>t</i> -test Results for EG Pre- and Post-test TMS Scores.....	106
14 Performance of Groups (CG and EG) on UVLT.....	107
15 Independent Samples <i>t</i> -test Results for Pre-test UVLT Scores (CG and EG).....	108

16	Independent Samples <i>t</i> -test Results for Post-test UVLT Scores (CG and EG).....	109
17	Paired Samples Correlations for Pre- and Post-test UVLT Scores...	109
18	Paired Samples <i>t</i> -test Results for CG Pre- and Post-test UVLT Scores.....	110
19	Paired Samples <i>t</i> -test Results for EG Pre- and Post-test UVLT Scores.....	110
20	Overview of Research Questions, Related Methods of Data Analysis, and Significance of Results.....	111

LIST OF FIGURES

Figure		Page
1	A Noun Cluster From the Updated Vocabulary Levels	
	Test.....	86



CHAPTER 1: INTRODUCTION

Introduction

Without vocabulary, any language would be rendered dysfunctional, and thus comprehending words is critical for both native and foreign language speakers.

While the importance of vocabulary is now widely recognized, little attention was paid to it in the past, and grammar teaching used to be prioritised over vocabulary teaching (Chacón-Beltrán et al., 2010). It was believed that learners would acquire the vocabulary they need for specific communicative situations in due time through exposure to language (Chacón-Beltrán et al., 2010). Nation (2022) states that this thinking of the past has now changed and that there has been a substantial amount of research on learning vocabulary by non-native speakers in the 21st century, with an impressively steady rate of production. For example, Laufer and Goldstein (2004) reported that a considerable portion (42.6%) of the differences in grades in a foreign language class could be attributed to the students' vocabulary knowledge.

Vocabulary knowledge has a pivotal function in understanding various types of English texts. Nation (2022) reports that 98% lexical coverage is essential for fluent and unaided comprehension of authentic English. He further states that to reach the 98% coverage (including proper nouns), a vocabulary of 9,000 word-families is required for novels, 8,000 for newspapers and 7,000 for spoken English—a word family is composed of a main word, its inflections and its associated derivations (Nation, 2022). However, while most educated adult native English speakers know around 15–20,000 word families, many English as a foreign language (EFL) learners struggle to learn even the 2,000 most common word families (Web &

Nation, 2017). Receptive vocabulary size test results of EFL university learners from various countries show that their vocabulary size mostly ranges between 2,000-5,000 word families (Al-Masrai & Milton, 2012; Biseko, 2023; McLean et al., 2014; Nurweni & Read, 1999; Sudarman & Chinokul, 2018; Wero et al., 2021). These figures suggest that the number of word families known by most adult EFL learners is well below the optimum thresholds required for unassisted comprehension, even after receiving years of English instruction. Considering that the 9,000 most commonly used word families contain 42,613 individual (family member) words (Nation, 2022), the learning burden on EFL students becomes evident. Such a large number of words warrants an additional individual effort on the part of learners, and as Nation (2021) suggests, probably no classroom teaching could cover all those words.

According to Wolter (2001), native and non-native mental lexicons might be structurally similar; however, the differences between them are the result of the depth (the extent to which a word is comprehended) and breadth (size) of vocabulary knowledge. The noteworthy difference in vocabulary knowledge between native and foreign speakers of English reflects the linguistic conditions surrounding each group. As such, native language (L1) speakers have the privilege of hearing and learning the language from the moment they are born, and throughout their lives they are surrounded by a wide variety of highly contextualized linguistic situations feeding into the extent and complexity of their vocabulary knowledge. As a result of this, every year, young individuals who speak English as their first language acquire about 1,000 word families (Nation & Waring, 1997). On the other hand, foreign language learners usually begin to learn their target language later in life and have limited exposure to quality spoken language, which usually puts them behind native

language users in the race to acquire extensive and comprehensive vocabulary knowledge.

The limited exposure to the target language in a meaningful context hampers the ability of foreign language learners to acquire knowledge about word semantics, syntax, and morphology (Qian & Lin, 2019). One way to support EFL learners' vocabulary learning efforts is to increase their awareness of morphology.

Morphological awareness (MA) is defined as “the ability to reflect on, analyse, and manipulate the morphemic elements in words” (Carlisle, 2010, p. 466). Kieffer and Lesaux (2008) note that being able to break down multimorphemic words into their morphological components may result in better word learning and an increase in vocabulary size. Therefore, an important aspect of developing vocabulary is building MA, as it enables a deeper understanding of word usage and strengthens connections within a word family (Hayashi & Murphy, 2011).

Learners familiar with word parts may be better able to see the connections between related words, strengthen form-meaning connections and sometimes even infer the meanings of words (Nation, 2022). However, the path to developing derivational MA is not a straight one because many derivational suffixes trigger phonological and/or orthographic changes in the base they are attached to. This current study is, therefore, set to investigate the effect of form-focused morphological instruction on derivational MA and vocabulary knowledge of EFL learners.

Background

Classification of English Morphemes

In this intervention study, morphology is at the heart of its teaching activities; therefore, some morphology related terms and classifications will be explained in the following paragraphs.

“Morphology is the study of the structure or form of words in a particular language, and of their classification” (Brinton, 2000, p. 10). As the word’s etymology suggests, morpho+logy deals with the shape or form of words, and therefore it is the knowledge (science) of forms in a language.

A morpheme is the most fundamental meaningful component within a linguistic system and cannot be divided into smaller parts (Brinton, 2000). Morphemes are classified into free and bound morphemes (Crystal, 2008). A free morpheme has the ability to operate as a word on its own and is either a lexical word (e.g., learn, drive) or a functional/grammatical word (e.g., and, the). Lexical words can act as free base words to form new words. For example, ‘agree’ in ‘agreement’ is the free base word providing the essential meaning to the word. Grammatical morphemes, on the other hand, are used to show grammatical relationships between words and the contexts they appear in, such as plurality or past tense (Crystal, 2008).

A bound morpheme, as its name suggests, cannot stand alone and must be attached to another morpheme. Affixes form the main type of bound morphemes in the English language (Crystal, 2008). Affix is an all-encompassing term that covers both prefix and suffix. While a prefix is attached before the base (e.g., ‘-un’ as in ‘unhappy’), a suffix is attached after the base (e.g., ‘-er’ as in ‘washer’). Additionally, some bases may act as bound morphemes since they cannot exist independently (e.g., ‘-ceive’ as in ‘perceive’ and ‘-mit’ as in ‘admit’); thus, they are

called bound bases (Birch & Fulop, 2020; Bowers, 2006; Bowers & Kirby, 2010; Sleeman, 2019).

This current morphological intervention research will use a pre-selected set of free base words and derivational suffixes.

Comparison of Word Formation Through Inflection and Derivation in English

Crystal (2008) indicates that the two primary word-formation processes in English are referred to as 'inflection' and 'derivation'. While English derivational morphology is responsible for generating new vocabulary words, inflectional morphology does not cause the formation of new lexemes but only changes their grammatical function.

English inflectional affixes always take the form of a suffix and are attached to a base word. The function of inflectional suffixes is to signal grammatical information—tense, possession, number and degrees of adjectives. For native English-speaking children, inflectional morphology, which is rule-based (Bauer & Nation, 2020; Schmitt & Meara, 1997), is easier to master than derivational morphology (St-Pierre, 2018). As such, inflectional morphology is typically acquired at a young age by native speakers of English (Bauer & Nation, 2020; Kuo & Anderson, 2006; Mann, 2000). A similar trend is also observed among second language (L2) English learners as they acquire inflectional morphology before derivational morphology (Gardner, 2007).

In English, derivation is defined to be the most common word-formation process (Yule, 2017). The English language primarily utilises two types of derivational affixes: derivational prefixes, and derivational suffixes. With the exception of the unproductive prefixes 'a-', 'be-' and 'en-', when attached to a base word, a derivational prefix changes the meaning of the word without affecting its

part of speech (Brinton, 2000). Unlike inflectional suffixes and the majority of derivational prefixes, however, derivational suffixes added to a base word can change either the word's class or meaning or both. Derivational suffixes may often cause semantic opacity (e.g., husband → husbandry), as well. English has a larger quantity of derivational suffixes than inflectional suffixes, and derived forms usually make up the lower-frequency word stock (Kuo & Anderson, 2006; Reed, 2008).

Idiosyncratic nature of the relationship between English derivational suffixes and individual words makes the English derivational morphology more challenging for EFL learners to acquire than inflectional morphology (Schmitt & Meara, 1997). Some studies conducted with EFL students showed that the students had insufficient knowledge of derivational suffixes in comparison to inflectional suffixes (e.g., Mochizuki & Aizawa, 2000; Schmitt & Meara, 1997). Similarly, McLean (2018) found that Japanese EFL university students had limited comprehension of derived forms compared to inflected forms, and this was true even for advanced learners. As the current research suggests, receiving some instruction in derivational suffixes and their role in the creation of new lexemes might be useful for EFL learners to improve their derivational MA and general vocabulary knowledge.

Morphophonemic Nature of Written English

Written English has morphophonemic nature (Birch & Fulop, 2020; Bowers & Bowers, 2018; Carlisle, 2003; Chen & Schwartz, 2018; Chomsky & Halle 1968; Levesque & Deacon, 2022; Templeton & Scarborough-Franks, 1985), which means that English spelling relies on both phonemes and morphemes (Birch & Fulop, 2020; Bowers & Bowers, 2018; Carlisle & Stone, 2005). Graphemes and phonemes in English do not always correspond directly to each other (Bowers & Bowers, 2018; Hayes-Harb & Barrios, 2021; Share, 2008; To et al., 2016), and therefore spoken

English does not always map exactly onto written English. Thus, morphophonemic features make encoding and the linguistic system's capacity to represent both sound and meaning orthographically difficult (Benson-Goldberg, 2014). Since the pronunciation of morphemes depends on morphophonemic rules, EFL learners need to be aware of the changes initiated by morphophonology to make better form-meaning connections.

English derivational morphology reflects morphophonemic features of the language, as derivational suffixes may result in phonological or orthographic changes. Take the derivational suffix '-ion' as an example, which has multiple allomorphs such as '-tion', '-(s)sion', '-ition', '-ation', '-ution', '-fication', '-faction' (Trevian, 2015). By attaching the derivational suffixes '-tion' and '-(s)sion' to the bases 'produce' /prə'dju:s/ and 'admit' /əd'mɪt/ respectively, the words 'production' /prə'dʌkʃn/ and 'admission' /əd'mɪʃn/ are formed. Consequently, the resulting words have transformed phonologically and orthographically. Derivational suffixes, thus, appear to be more problematic for EFL students to acquire when compared to other affixes, which is the motivation for the current intervention to focus on derivational suffixes.

Previous research (Apel & Henbest, 2020; Carlisle, 1987, 1988; Kieffer & Lesaux, 2008; Leong, 2000; Tighe, 2012, 2015; To et al., 2016) dealt with three types of transformations (shifts), and also a no-shift condition: phonological shift condition (e.g., major – majority), orthographic shift condition (e.g., continue – continuous), both-shift condition (both phonological and orthographic shifts) (e.g., describe – description), and no-shift condition (e.g., remark – remarkable). Similarly, this research study adopts the same classification of shift conditions.

Learners' awareness of morphemic structure is considerably affected by the transparency of the word's phonological and orthographic properties (Carlisle & Stone, 2005; Deacon et al., 2017). The relations between bases and derived forms might seem somewhat obscured due to phonological and/or orthographic changes. For instance, Carlisle (1988, 2003) reports that English-speaking (L1) middle and junior high school students showed poorer performance on oral tasks of parsing and producing derived forms that were both orthographically and phonologically opaque than on words both orthographically and phonologically transparent. Another research study conducted by Goodwin et al. (2013) showed that participants were less able to provide correct answers to phonologically opaque task items, with or without an orthographic change. In addition, a recent study involving a total of 2,527 native English-speaking school children across four grades (grades 3 through grade 6) found that the students were less accurate in answering opaque morphological awareness test items (having both-shift condition) compared to transparent ones (Apel et al., 2023).

Considering the transformation conditions described above and the morphological difficulties involved, it seems reasonable that enhanced MA might be useful for EFL learners to notice the existing morphophonological relations between bases and derived forms. Furthermore, since MA involves conscious awareness of morphemic structures and their manipulation, it could be argued that some explicit as well as implicit teaching is needed to develop this conscious awareness. In a similar vein, Schmitt and Zimmerman (2002) made the following suggestion in their research with undergraduate and graduate L2 students: "This study indicates that teachers cannot assume that learners will absorb the derivative forms of a word family automatically from exposure. Rather, in this area, explicit attention to form

may be of value” (p. 163). Similarly, Kim et al. (2023) state that some deliberate attention to derivational affixes and constituent morphemes of complex words could be worthwhile.

Metalinguistic and Morphological Awareness

In addition to the fact that morphemes are formal components of lexemes, they are also minimal meaning-bearing units of language. Thus, MA leads to an understanding of how words are made up of meaningful parts, or morphemes (Kieffer & Lesaux, 2008). Kieffer and Lesaux (2007) propose that students should learn morphology as a “cognitive strategy”, paying particular attention to constituent morphemes (p. 140). As such, this type of awareness requires noticing and reflecting on morphemic elements in words. In this regard, MA constitutes an aspect of metalinguistic awareness (Ke et al., 2023; Kuo & Anderson, 2006, Levesque et al., 2017), which is characterized by the combination of cognitive and language abilities (Carlisle, 2003).

Yücel-Koç (2015) reports that second language acquisition (SLA) research identifies metalinguistic awareness by various other names, such as “noticing”, “consciousness” and “consciousness raising” (p. 18). Additionally, consciousness-raising, focus on form, attention, awareness and input enhancement are some of the terms that have been used to describe ‘noticing’ in the past research (Dalili, 2011). This current research employs form-focused activities (with both explicit and implicit emphasis on form) in order to improve EFL learners’ MA as well as their vocabulary knowledge.

Littlemore (2009) states that “the acquisition of form–meaning mappings is related to factors such as frequency, salience and attention” (p. 69). Salience and attention are two important factors that have a special place in cognitive linguistic

theory. As Ellis (2008) notes, it may be necessary for L2 learners to pay deliberate attention to particular language areas that are not salient and therefore difficult to notice in the input. In the same way, Nassaji and Fotos (2011) state that some linguistic forms with low frequency and salience (e.g., morphology) might be more difficult to notice in the input, and therefore those features require more focused instruction. Morphology is one such area where form-focused instruction might be useful for L2 learners. Whong et al. (2013) note that morphology is known not to be easily acquired by L2 learners.

Historical evidence of French immersion programs has demonstrated that students in these programs obtained fluency but still failed to achieve linguistic accuracy in areas such as morphology and syntax (e.g., Lapkin et al., 1990; Cummins & Swain, 1986; Swain & Lapkin, 1989; Williams, 1995). To remedy this situation, different types of form-focused interventions have been proposed by researchers (Wong & Simard, 2016). Form-focused instruction (FFI) refers to any educational intervention that aims to guide learners' attention towards formal features of language (Wong & Simard, 2016), and it is based on the notion of noticing. Xu and Li (2021) describe FFI as an effective intervention in SLA. A meta-analysis (Kang et al., 2019) which sampled 54 empirical studies on FFI confirms the effectiveness of FFI. As such, the meta-analysis reports effect sizes of $g = .94$ for syntax, $g = .85$ for morphology, and $g = .32$ for pragmatics.

Some of the form-focused pedagogical interventions that have been proposed include enriching the input, directing learners' attention to non-salient L2 forms, encouraging more student language production (output), and providing corrective feedback on less-than-target-like utterances (Ranta & Lyster, 2007).

The current research study involves a similar form-focused pedagogical intervention to improve EFL learners' MA and their vocabulary knowledge consequently.

The Relation Between Morphological Awareness and Vocabulary

Morphological awareness and vocabulary knowledge are strongly connected (Crosson & Moore, 2017; Goodwin et al., 2013; Mc-Bride-Chang et al., 2005; Ramirez et al., 2014; Spencer, 2015). English is abundant with words that have complex morphology. More than 50% of the English words in the school texts of native speakers of English beyond the third grade are multimorphemic words (Anglin, 1993; Nagy & Anderson, 1984). According to an estimate provided Bromley (2007), meanings of 60% of the unfamiliar multisyllabic words can be inferred by using morphological constituent morphemes. Similarly, Bauer and Nation (1993) point out the importance of affixation knowledge for learners. Their assertion is that an improvement in the knowledge of affixation would bring about an increase in the size of the word family. Thus, by knowing a base word or even a derived word, learners may recognise other members of the family without much effort. If learners direct their attention to word parts, they can maximise their current knowledge of word families and remember new complex words (Nation, 2022).

Deacon et al. (2017) emphasise three possible dimensions of morphological awareness, which are “morphological structure awareness”, “morphological decoding”, and “morphological analysis” (p. 2). Morphological structure awareness is identified as learners' awareness of morphological composition of multi-morphemic words (Deacon et al., 2017). Structural awareness enables learners to see how base words and their derivations are related (Carlisle, 2000). For example, upon encountering the derived word ‘publicity’, learners with structural awareness would

know that the word is a combination of the base word ‘public’ and the suffix ‘-ity’, thereby avoiding any misinterpretation (e.g., ‘publicity’ does not include the word ‘city’).

Morphological decoding is a widely used term in morphological research (Carlisle & Stone, 2005; Deacon et al., 2017; Geiser, 2021; Kart, 2022; Kuo & Anderson, 2006; Mendes, 2021; Savage et al., 2023). Morphological decoding is the process of recognizing the division of morphemes when one reads multi-morphemic words (Savage et al., 2023), whereas phonological decoding simply refers to the ability to link graphemes to phonemes (Mendes, 2021). Morphological decoding, thus, requires breaking down a multi-morphemic word into its component morphemes in order to pronounce the word accurately (Deacon et al., 2017; Levesque et al., 2017; Levesques & Deacon, 2022; Savage et al., 2023). By means of morphological decoding, it is possible, for example, to read and pronounce the word ‘mishap’ accurately as ‘mis + hap’ rather than ‘mish + ap’.

According to the results of a study conducted by Mann and Singson (2003), contribution of phonological awareness to reading skills of native English-speaking children gradually decreases as they move up through the school grades. On the other hand, their study showed that the contribution of MA to reading takes on an increasingly important role from the fourth grade onwards. With each passing grade, MA becomes a better predictor of decoding ability. This trend is also confirmed by Nagy et al. (2014). A recent longitudinal study involving English-speaking school children indicated that morphological awareness was closely associated with gains in morphological decoding from Grade 3 to 4 (Levesque & Deacon, 2022).

Inferring the meaning of a multi-morphemic word with the use of its constituent morphemes is defined as morphological analysis (Anglin, 1993; Savage

et al., 2023). Anglin (1993) also refers to this process as “morphological problem solving” (p. 143). In addition, he states that derived words are more amenable to morphological analysis. Take for example the derived word ‘unprofitable’. The word has three constituent morphemes (prefix ‘un-’, base ‘profit’, and suffix ‘-able’). Analysing component morphemes, learners might arrive at the meaning of the word ‘profitable’. Past research indicates a positive correlation between morphological analysis and vocabulary knowledge (Crosson & Moore, 2017; Davidson & O’Connor, 2019; Jenpattarakul, 2015; McCutchen & Logan, 2011). It should also be noted that some researchers point out the impact of prior L2 linguistic knowledge on the relationship between MA and word meaning inference (Koda & Miller, 2018). Morphological analysis typically develops when explicit instruction is provided (Mendes, 2021).

In the context of Türkiye, there are only a limited number of studies on MA of EFL learners (Akbulut, 2017, 2019; Akkan, 2008; Aksoy, 2015; Sözen, 2019; Tacir, 2016). Still fewer studies investigated the effect of MA instruction on MA or literacy skills (Akbulut, 2017, 2019; İlkbaşaran, 2020; Tacir, 2016).

Morphological Instruction as a Way of Developing Morphological Awareness and Vocabulary Knowledge

In comparison to the substantial amount of research done on phonological training, research studies on morphological training have only been conducted recently (Ardanouy et al., 2023).

Morphological instruction focuses learners on the internal morphological structure of words and facilitates learning of unknown words based on previously known word components (transfer effect) (Ke & Zhang, 2021). Thus, the goal of

morphological instruction is to foster morphological awareness of learners (Badawi, 2019).

Morphological instruction addresses sublexical features of a language; however, many morphological intervention studies have explored the possible improvement in lexical (e.g., spelling, vocabulary, word reading) (Akbulut, 2017; Bangs & Binder, 2016; Bowers & Kirby, 2010; Diaz Contreras, 2018; Good et al., 2015; Tsesmeli & Seymour, 2009) or supralexical literacy outcomes (e.g., reading comprehension and writing) (Akbay, 2019; Gilbert, 2020) as the transfer effect of the instruction provided.

Several previous research studies have used morphological (awareness) instruction in order to increase MA and have found positive results (Akbulut, 2017, 2019; Alsaeedi, 2017; Amirjalili et al., 2018; Amirjalili & Jabbari, 2018; Apel & Diehm, 2014; Ardanouy, 2023; Badawi, 2019; Nguyen, 2021; Tacir, 2016; Yücel-Koç, 2015; Zoski & Erickson, 2017). A number of previous morphological interventions have shown positive effects on vocabulary knowledge (Akbulut, 2017; Alsaeedi, 2017; Bangs & Binder, 2016; Bowers & Kirby, 2010; Contreras, 2018; Davidson & O'Connor, 2019; Good et al., 2015; Lin, 2019; Nunes et al., 2006).

Problem

Wagner et al. (2007) report a remarkable correlation value of .91 between MA and vocabulary knowledge. Although multiple correlational studies confirm the strong relationship between MA and vocabulary knowledge (Ku & Anderson, 2003; Mc-Bride-Chang et al., 2005; Nurhemida, 2007; Spencer et al., 2015; Zhang & Koda, 2012), morphology still largely remains a potential resource waiting to be tapped by both L1 and L2 users.

Despite the National Governors Association Center for Best Practices and Council of Chief State School's (2010) emphasis on word parts (prefixes, suffixes, root words) and word analysis skills in decoding words from second grade onwards, FFI is not a common classroom practice in the USA. Concurring with this view, Henbest et al. (2019) state that morphological awareness instruction is usually absent from classroom instruction. Moreover, school teachers spend little time providing focused instruction in this area because they may not be well-versed in pertinent morphological and pedagogical knowledge (Newton, 2018). The situation is no different with EFL classrooms. The explicit teaching of language forms is not a common practice in many EFL classrooms of today and does not receive as much attention as other aspects of English (Badawi, 2019). On a similar note, as Nation and Laufer (2023) point out, the use of word part knowledge in language learning has long been the subject of much interest, but is usually not put into practice.

As regards the situation in Türkiye, the 2nd – 8th Grades and the 9th – 12th Grades English Curricula place particular emphasis on communicative competence but have limited focus on language structures (Ministry of National Education of Türkiye, 2018a, 2018b). Aksoy (2015) reports that the majority of Turkish EFL university students she conducted a study on had a moderate level of MA.

Regarding the receptive vocabulary size of Turkish EFL high school students receiving intensive English education, Cellat and Durmuşoğlu Köse (2017) found that the majority were only able to master high-frequency word families (K2 and K3 word families). In another research, Şentürk (2016) indicated that EFL university students had relatively high scores at the 2000 word-level, moderate at the 3000 word-level and relatively low at the 5000 word-level. Considering the fact that 9,000 word-families are needed for novels, 8,000 for newspapers and 7000 for spoken

English (Nation, 2022), the above-mentioned levels can easily be considered insufficient.

There exists a number of research highlighting the positive effect of morphological instruction on MA (Amirjalili et al., 2018; Amirjalili & Jabbari, 2018; Badawi, 2019; Tacir, 2016) and vocabulary knowledge (Akbulut, 2017; Alsaedi, 2017; Bangs & Binder, 2016; Bowers & Kirby, 2010; Diaz Contreras, 2018; Good et al., 2015; Lin, 2019). However, the line of research that studies morphological instruction is still considered at its early stages (Ardanouy et al., 2023; Brandes & McMaster, 2017).

Referring to the importance of instructional studies, Amirjalili and Jabbari (2018) state that there are a limited number of morphological intervention studies conducted with EFL learners and that the majority of studies are correlational. Although correlational studies are helpful in many ways, they, however, fall short of establishing a causal link between the variables under investigation. In the context of Türkiye, there are only a few studies on EFL learners' MA (Akbulut, 2017, 2019; Akkan, 2008; Aksoy, 2015; Sözen, 2019; Tacir, 2016), and still fewer studies investigating the effect of morphological instruction on EFL students' vocabulary knowledge (Akbulut, 2017, 2019; Mahmoudi, 2017; Mahmoudi & Mirioglu, 2020). Therefore, further research is needed, especially in Turkish context, to analyse the effect of morphological instruction on MA and vocabulary knowledge.

To the best of the researcher's knowledge, the effect of form-focused morphological instruction on vocabulary knowledge and MA has not yet been studied in one single study in Turkish high school context.

Purpose

The present study aims to find out the effect of form-focused morphological instruction including free base words and derivational suffixes on derivational MA, and vocabulary knowledge of 11th-grade EFL high school students in Hatay-Türkiye.

Research Questions

The study addresses the following research questions:

1. Does form-focused morphological instruction increase English derivational morphological awareness of 11th-grade EFL learners studying at a private high school in Hatay region in Türkiye?
2. Does form-focused morphological instruction improve the vocabulary knowledge of these learners?

Significance

As reported by Bataineh et al. (2017) and Lloyd (2022), a wealth of empirical research attests to the effectiveness of FFI in the foreign language classroom. FFI is particularly effective when presented as combinations of techniques as this would allow learners engage in a range of cognitive processes (Bataineh et al., 2017). As such, a number of studies report the effectiveness of some combinations of FFI techniques on the acquisition of grammatical knowledge (Abadikhah & Shahriyarpour, 2012; Bataineh et al., 2017; Lylod, 2022; Spada et al., 2014). Based on their research findings, Bataineh et al. (2017) recommend that future studies investigate the effectiveness of different combinations of FFI techniques on linguistics elements in both basic and higher education. Morphological FFI provided within the scope of this intervention study employs more than one technique (e.g., explicit instruction, input flooding, and explicit and implicit corrective feedback).

Furthermore, Parsons (2020) and Beeninga (2022) point out the need for further research to identify effective morphological strategies and interventions. Thus, this present research could make a contribution to the existing literature on how better to present morphological instruction.

Phonological and orthographic changes triggered by the addition of derivational suffixes to base words adversely affect learners' awareness of morphemic structures (Carlisle & Stone, 2005; Deacon et al., 2017). In agreement with this evidence, research indicates that EFL learners have insufficient comprehension of derived forms compared to inflected forms (McLean, 2018; Ward & Chuenjundaeng, 2009). As Nation (2022) states, if learners focus on the morphological components of words, they can maximise their current knowledge of word families and commit new complex words to memory. Furthermore, referring to EFL learners' lack of word family knowledge, Nation and Laufer (2023), point out the urgent need to include morphological awareness instruction in the form-focused learning strand of language courses. In this regard, this study can contribute to the understanding how depth and breadth of EFL learners' vocabulary can be increased via derivational MA. It may also present the possibility of informing ELF teachers about how to better support learners in understanding relational, syntactic and distributional aspects of derivational morphology, which, in turn, could possibly have broad impact on their receptive and productive vocabulary knowledge.

At the local level, this study might be a source of inspiration for EFL teachers to make more use of morphology-related activities in their lessons. Additionally, the study might contribute to English curriculum design efforts by encouraging curriculum developers to include more form-focused activities, and thereby increasing EFL learners' MA and vocabulary knowledge.

At the global level, this study might contribute to the limited amount of existing research investigating the effects of morphological instruction on EFL learners' MA and vocabulary knowledge.

Definition of Key Terms

Morphology: It is the study of the inner composition of words, and of the regulations for creating new words (Fromkin et al., 2017).

Base: “The base carries the core meaning of a word, which is then modified by the affixes with which it is combined” (Bowers & Kirby, 2010, p. 524).

Morpheme: Morphemes represent the most basic units of meaning found in a word (Bowers & Kirby, 2010).

Free morpheme: A morpheme that can be used on its own (e.g., learn, cat, green) (Richards & Schmidt, 2010).

Bound morpheme: A morpheme that is never used independently and is reliant on the presence of another morpheme for its use (e.g., affixes) (Richards & Schmidt, 2010).

Prefix: “Affix that is attached at the left edge of a stem” (Booij, 2007, p. 320).

Suffix: “Affix that is attached at the right edge of a stem” (Booij, 2007, p. 322).

Form-Focused Instruction: Any instructional method that aims to guide learners' attention towards the formal aspects of language (Wong & Simard, 2016).

CHAPTER 2: REVIEW OF RELATED LITERATURE

Introduction

The purpose of this research is to explore the effect of form-focused morphological instruction including free base words and derivational suffixes on derivational MA, and vocabulary knowledge of eleventh-grade EFL learners who are students at a private high school in Hatay-Türkiye.

The aim of chapter 2 is to review the relevant literature to this study. The chapter will examine the theories and hypotheses which form the basis of this study. Additionally, the chapter will delve into some important concepts related to this research. Finally, a selection of empirical studies on morphological instruction and its effects on MA and vocabulary knowledge will be covered.

Theoretical Framework

The theoretical framework of this research study is based on the cognitive linguistics theory, the noticing hypothesis, and the interaction hypothesis. In this section, each of these will be presented and discussed in relation to the current study.

Cognitive Linguistics Theory

Cognitive linguistics (CL) is a branch of language research that investigates the relationship between language and cognition and seeks to understand their intersections (Cambridge University Press, n.d.). CL is distinguished by its emphasis on the inseparability of meaning and form in language study (Evans, 2011).

According to CL, language is not built from distinct modules such as phonology, morphology, syntax, and the like, and that there is no definite division between lexicon and grammar (Neset, 2019). It also maintains that language mirrors general cognitive processes instead of following a modular view of the mind (Evans, 2007).

Contrary to CL principles, Chomsky a generative linguist, argues the existence of an innate faculty called “language acquisition device” through which human experiences are turned into linguistic knowledge (1965). He also proposed the concept of “universal grammar” (UG) to explain this innate human faculty (1986). Thus, generative grammar holds that children have domain-specific language faculty—specifically geared towards linguistic knowledge—which makes language acquisition possible. This domain-specific mechanism refers to the processes that may involve certain rules or constraints that are in place at the time of birth or shortly thereafter (Rakison & Yermolayeva, 2011).

Cognitive linguists, however, argue that the cognitive processes overseeing and controlling language use and learning are basically the same as those underlie any other types of knowledge processing (Littlemore, 2009). According to this view, linguistic knowledge is represented in the same way that other conceptual structures are represented (Croft & Cruse, 2004). In other words, language learning is mainly governed by domain-general learning processes applicable to a wide range of knowledge areas and inputs (Rakison & Yermolayeva, 2011). This is, nevertheless, not a denial of an innate human capacity for language but rather is a rejection of an autonomous, special-purpose inborn capacity for language (Croft & Cruse, 2004). Accordingly, cognitive linguists mainly focus on the role of general cognitive abilities in language but not on innateness of cognitive abilities.

CL also assumes “a dynamic, usage based model of language processing and acquisition” (Madlener, 2015, p.3). Croft and Cruse (2004) state that usage-based model of language emerged as a reaction against the reductionist approaches of generative grammar and truth-conditional semantics, which are sometimes even claimed to be innately given and to govern linguistic knowledge. Instead, CL holds

the view that knowledge of language grows out of language use (Croft & Cruse, 2004). Luo (2021) describes the acquisition of grammatical rules of language as an inductive process of abstraction and schematization resulting from repetitive linguistic expressions. Thus, our perception of particular expressions used in specific situations is the foundation for the development of “categories and structures in semantics, syntax, morphology and phonology” (Croft & Cruse, 2004, p. 3-4).

As mentioned by Finley (2018), the majority of morphology learning theories can be classified either as generative theories or usage-based theories. The generative theories generally argue that language is formed through innate abilities. Moreover, they tend to adopt more domain-specific mechanisms, valuing competence more than performance. Finley (2018) notes that usage-based theories, on the other hand, adopt a more lexically-driven approach to language acquisition. For this reason, usage-based theories centre not on abstract grammatical principles that govern specific domains of language such as phonology and syntax, but on the principles forming words and word combinations. Accordingly, many usage-based theories suggest that domain-general learning mechanisms, such as attention and memory, play a major role when it comes to learning morphological patterns, and thus take a more functional, non-innate approach to language learning. Lastly, Finley (2018) points out that the majority of usage-based theories place more emphasis on performance than on competence, which often results in focusing on frequency effects.

Madlener (2015) states that CL is not a static theory, but rather a growing set of related approaches, including usage-based models, and Construction Grammar, among others. CL likens language to a big "construction", an extensive network of constructions, composed of form and meaning combinations that vary in complexity (Neset, 2019). Similarly, Madlener (2015) emphasises that language knowledge is

not organised as a generative algorithm, but as “a structured network of conventionalized form-meaning mappings” (p. 3). There is now general agreement that linguistic knowledge of native speakers is represented and learned in the form of constructions (Luo, 2021). There is also growing evidence that constructions provide the basis for the linguistic competence of L2 learners (Ellis & Wulff, 2015).

However, the acquisition of constructions depends on frequency of exposure (Ellis & Wulff, 2015). In this regard, type frequency is described to be a significant factor in morphological productivity (Bybee, 1985; Bybee & Hopper, 2001, Bybee, 2007). Type frequency can be defined as “the number of distinct realizations of a given construction” (Ellis & Wulff, 2015, p. 417). A higher type frequency allows the learner to uncover the structure of a word, which leads to a better depiction of the linguistic feature in the mind of the learner (Bybee, 2006; Ellis & Wulff, 2015). This makes the construction more accessible for both subsequent and alternative new uses (Bybee, 2006; Ellis & Wulff, 2015). The process is exemplified by Bybee (2006) as below:

If *happiness* is learned by someone who knows no related words, there is no way to infer that it has two morphemes. If *happy* is also learned, then the learner could hypothesize that *-ness* is a suffix, but only if it occurs on other adjectives would its status as a suffix become established. Thus a certain degree of type frequency is needed to uncover the structure of words and phrases. (p.15)

The Noticing Hypothesis

Before defining the Noticing Hypothesis, it would be useful to briefly explain four important concepts: input, intake, acquisition, production and interlanguage. VanPatten (1996) defines input as the language “that learners hear or see to which

they attend for its propositional content” (p. 10). Based on the computational model of second language acquisition (SLA), Trendak (2015) refers to ‘intake’ as the part of the input that is stored in the learner’s short-term memory. She further refers to acquisition as internalising the target features in long-term memory and to production as the written or spoken realisation of linguistic items. Lastly, American Psychological Association (n.d.) defines the interlanguage as a second language acquisitional state in which the learner has developed an internally coherent grammatical system with qualities of both L1 and L2.

In his Noticing Hypothesis, Schmidt draws a distinction between noticing and understanding (1990, 2001, 2012). Schmidt (2012) notes that ‘noticing’ (focal awareness) is “the conscious registration of attended specific instances of language”, whereas ‘understanding’ is “a higher level of awareness that includes generalizations across instances” (p. 32). Schmidt (2012) further suggests that “noticing is necessary for SLA, and that understanding is facilitative but not required” (p. 32).

Schmidt (1990) defines noticing as the key factor in the transformation of input to intake and intake as the part of the input that is noticed by the learner. Thus, Schmidt (2012) proposes that “input does not become intake for language learning unless it is noticed, that is, consciously registered” (p. 27). One may also notice the linguistics features in output (Olagboyega, 2013) and cognitively compare them with the ones in input, and subsequently make modifications to the interlanguage. Consequently, both input and output have a part to play in “noticing the gap” between the current status of the interlanguage and the positive evidence (input) (Ellis, 1997).

Schmidt (1995) maintains that “noticing is nearly isomorphic with attention” (p. 1) and appears to be connected to all learning. Schmidt (2001) acknowledges that

learners do not always have to direct their deliberate attention on each aspect of L2 input to learn them because attention can also be involuntarily attracted to stimuli. However, he further states that paying deliberate attention to less noticeable aspects of L2 might be justifiable. In a similar vein, Ellis (2008) suggests that deliberate attention may be necessary for particular language areas that are not salient or difficult for L2 learners to notice or that are processed differently from L1. For instance, Carlisle and Stone (2005) report that awareness of morphemic structures is adversely affected by the phonological and orthographic opacity of words. Similarly, the process of language learning may require different levels of attention and consciousness for aspects such as vocabulary and morphology compared to syntax (Schwartz, 1993).

Previous studies have suggested the necessity for additional attention to morphology. For example, a crosslinguistic and longitudinal adult language acquisition research study (Klein & Perdue, 1993) examining the interlanguage of 40 L2 adult learners found that despite the individuals' daily exposure to the language used in their social context through communication, functional inflection was absent from their speech. Similarly, Schmidt (2012) provides case study evidence of an L2 naturalistic English learner (a US immigrant of Japanese origin) who was unable to produce morphologically proper sentences even after several years. Although the person made progress in other areas of the language such as fluency, lexical development, conversational ability and pragmatic appropriateness, his morphological competence remained limited. Drawing on his own language learning experience, Schmidt presents another case study evidence for the Noticing Hypothesis, according to which his mostly naturalistic Portuguese learning and

subsequent production of linguistic output were limited to the linguistic features of the input he consciously noticed.

Naturalistic L2 immersion programs (Swain, 1985; Swain & Lapkin, 1989) and the above-examples of language learning experiences indicate to less-than-native like achievement in accuracy. Researchers have thus sought out ways to supplement meaning-centred teaching with form-focussed instruction (Ellis, 2015). Their research data shows that students who had form-focused instruction learn faster and make more progress overall in their interlanguage than those who learn in a naturalistic way.

Schmidt (2012) notes that language-focused learning is valued even by some experts of generative linguistics, especially when it comes to mastering functional morphology, which is considered an obstacle in SLA. Though this may be the case for inflectional morphology, derivational morphology, which is known to be particularly challenging for many EFL students (Lin, 2015; McLean, 2018; Rungrojsuwan, 2015; Schmitt & Meara, 1997; Ward & Chuenjundaeng, 2009), may need as much attention, if not more. In the relevant literature, copious amounts of research indicates the benefits of explicit teaching of morphological forms (Badawi, 2019; Bangs & Binder, 2016; Davidson, 2014; Davidson & O'Connor, 2019; Jenpattarakul, 2015; Sukying, 2020).

The Interaction Hypothesis

Krashen (1981) is known to support the idea that ‘comprehensible input’ is the main cause of acquisition. However, his views on input and its effect on acquisition have also been criticized. For example, while Long (1996) emphasizes the importance of input (positive evidence) as an essential part of acquisition, he also makes it clear that input alone is not sufficient if the goal is to achieve native-like

proficiency. As such, there may be some instances during which students may understand the whole message but may not notice some forms that are novel to them (Long, 1996):

Paradoxically, comprehensible input may actually inhibit learning on occasion, because it is often possible to understand a message without understanding all the structures and lexical items in the language encoding it, and without being aware of not understanding them all. (p. 425)

The Interaction Hypothesis (IH) (Long, 1996) therefore refers to the need of negative evidence (information about ungrammatical language) and the subsequent alteration of output (modified output). Here, positive evidence refers to permissible linguistic features, and negative evidence refers to what is not permissible (Nassaji & Fotos, 2011).

Having conversations with others (conversing orally and creating output) which involves working through communication difficulties (negotiation of meaning) can facilitate language acquisition and sets the stage for the promotion of internal processes responsible for interlanguage development (Ellis, 1999).

According to IH, ‘conversational interactions’ serve as a platform for learners to be aware of any linguistic problems (Gass, 2009). In this regard, Gass and Mackey (2015) state that “the cognitive constructs of attention, awareness, and the related construct of noticing are part of the interaction–L2 learning process” (as cited in Loewen & Sato, 2018, p. 292). Therefore, learners who are engaged in interaction might “notice the gap” between what they already know and what they view as part of the target language (Gass, 2009). This is made possible with the help of “selective attention” that learners employ during conversational interactions.

Learners' oral linguistic mistakes and following communication breakdowns provide opportunity for negotiation of meaning. Long (1996) proposes that negotiation for meaning has a facilitative role for language acquisition as it links input, the learner's internal capacities, especially selective attention, and language production in an efficient way. He additionally states that receiving negative feedback during negotiation or in other situations can be beneficial to L2 development.

The negotiation process requires the use of certain devices, which are used strategically to prevent conversational issues, and tactically to fix communication breakdowns that may arise (Long, 1996). Some of the devices that can be utilised are the followings: "comprehension checks, confirmation requests, clarification requests, and repetitions" (Hartono, 2017, p. 2).

The Interface Hypothesis

"The constructs of explicit knowledge and implicit knowledge" have been the subject of a much attention in SLA research (Suzuki & DeKeyser, 2017, p. 748). The distinction between these two constructs lies in cognitive psychology (Reber, 1989).

Explicit knowledge pertains to conscious understanding of language which can be expressed in words by language users (Kim, 2020). As this knowledge type is conscious, language users are aware of having this knowledge. On the other hand, implicit knowledge is defined as the knowledge type that learners can effortlessly access for spontaneous communication purposes (Loewen & Sato, 2017). However, unlike explicit knowledge, language users are not consciously aware of having implicit knowledge, and thus they cannot verbalise this type of knowledge. Implicit knowledge, otherwise known as procedural knowledge, is the driving force behind

communicative competence (Loewen & Sato, 2017). Similarly, the majority of experts in the field of SLA concur that implicit knowledge is the cornerstone of proficiency in a second language (Ellis, 2006).

Some researchers define the explicit and implicit distinction for classroom language learning purposes as declarative and procedural (e.g., Loewen & Sato, 2017; DeKeyser, 2007). Learners who focus more on grammatical and formal aspects of language (form-focused processing) and learners who focus on meaning (meaning-focused processing) may develop different types of knowledge (Kim, 2020). However, the possible contribution of explicit knowledge to implicit knowledge and vice versa is a topic that has been hotly debated to this day (DeKeyser, 2015; Kim & Godfroid, 2023; N. Ellis, 2005; Paradis, 2009; R. Ellis, 2006). A recent longitudinal experimental study (Kim & Godfroid, 2023) conducted in a naturalistic language immersion setting have demonstrated that morphosyntactic explicit and implicit knowledge had a two-way relationship, with each impacting and being impacted by the other. The study concluded that explicit and implicit knowledge operated as interdependent factors.

“The interface hypothesis” offers three different explanations for the connection between explicit and implicit knowledge as described in the relevant literature (Kim, 2020, p. 2). The first position to be discussed is the non-interface position. The non-interface position, as the name suggests, excludes the possibility of explicit knowledge becoming implicit knowledge. This position is grounded in generative SLA. The non-interface position is aligned with “the focus-on-meaning approach to teaching grammar” in terms of its pedagogical realisation (Dalili, 2011, p. 2118). The Monitor Hypothesis, an early example of the non-interface position, proposed by Krashen (1981), is based on a dual understanding of knowledge, namely

explicit and implicit. According to this sharp distinction, while learning is identified with explicit (conscious) knowledge, acquisition is identified with implicit subconscious knowledge. Monitor Hypothesis proposes that the ability to produce utterances (spoken or written) depends on our acquired system, but not on our learned system. In this view, learning (conscious knowledge) functions only as an editor or monitor. Thus, our learned knowledge is responsible for making changes in our language production. This can take place before the language production (speaking or writing) or after it (self-correction). The hypothesis also suggests that learning does not transform into acquisition. In other words, declarative knowledge cannot result in implicit knowledge (Krashen, 1981; Krashen, 1982; Krashen, 1985).

However, the Noticing Hypothesis proposed by Schmidt (1990, 1993, 2001) highlights the importance of consciousness for SLA. He suggests that the distinction between 'learning' and 'acquisition', proposed by Krashen (1981, 1982, 1985), does not get to the heart of the matter. He argues that 'noticing', "a low level of awareness", is almost isomorphic with attention and relates noticing to all learning. Schmidt (1995) expresses the difference between explicit learning and implicit learning as a matter of awareness level, "learning on the basis of conscious knowledge, insights, and hypotheses" versus "learning based on unconscious processes of generalization and abstraction" (p. 1).

In relation to the aforementioned strict learning and acquisition distinction, Krashen (1981, 1982, 1985) suggests that exposure to comprehensible input with low "affective filter" is sufficient for language acquisition, which occurs unconsciously and implicitly. In this view, grammatical accuracy should be relegated to a lower position in the SLA, while fluency is favoured. As such, Krashen's (1981, 1982, 1985) arguments are fundamentally in line with Chomsky's (1965) 'Language

Acquisition Device' (LAD). Krashen (1981, 1982, 1985) views LAD as responsible for both L1 and L2 acquisition. He illustrates the comprehensible input with the notation $i + 1$, which refers to a level slightly higher than the learner's current level of language ability. While input is crucially important for language acquisition (Gass, 1997; Zhang, 2009), the logic behind the concept $i + 1$ appears to be ambiguous and accordingly drew some criticism (Gregg, 1984, as cited in Doughty, 2001). Moreover, there are no proposed cognitive mechanisms to convert the comprehended $i + 1$ input into interlanguage mental representation (Doughty, 2001). Gass (2009) also indicates that within the scope of UG, input acts as a catalyst for the innate system, yet the study of what type or amount of input is necessary is not an issue of intense scrutiny.

The 'comprehensible input' perspective on language acquisition gave rise to Krashen and Terrell's (1983) Natural Approach, which is based on the provision of copious amounts of comprehensible input. In turn, this perspective on L2 learning has been instrumental in providing theoretical support for Communicative Language Teaching and the weak role of grammar in L2 classrooms (Richards & Rodgers, 2001, as cited in Nassaji & Fotos, 2011).

Krashen (1985) ascribes very limited role for formal instruction in SLA. He argues that as long as there is enough 'comprehensible input', the necessary grammar will take care of itself, and thus there is no need for the language teacher to deliberately teach the structures. "According to the Input Hypothesis, conscious rules do not facilitate acquisition" (Krashen, 1982, p. 121). In this view, formal instruction does not have a significant place in language teaching. Along the same lines, he argues that error correction and drills are of no use for language acquisition because acquisition, in this view, depends only on comprehensible input.

Schmidt (1990) points out that Krashen (1981) sees intake synonymous with comprehensible input. He goes on to say that “intake is that part of the input that the learner notices” (p. 139). Schmidt’s (1990) argument is twofold: input becomes intake as long as the linguistic form in question is noticed by the learner in input, whether by deliberately paying attention (“higher level of awareness”) or purely unintentionally (“a low level of awareness”). Speaking about his acquisition of Brazilian Portuguese, Schmidt (1990) reports that although there was a particular form in the comprehensible input around him that he was able to process for meaning, it was only after five months that he was able to notice the form, and so he eventually started to use it. Thus, Schmidt (1990) regards ‘noticing’ as a necessary cognitive process for the ‘input’ to turn into ‘intake’.

Many language-teaching professionals agree that only meaning-focused language teaching with no focus on form would yield less than target-like results (Lapkin et al., 1990; Long, 2000; Nassaji & Fotos, 2011; Swain, 1985; Swain & Lapkin, 1989). Despite the proposition, advocated by naturalistic and strong version of the communicative language teaching approaches, that there should be almost no conscious focus on form for implicit language acquisition to take place, the results of years-long French immersion programmes revealed that students lacked linguistic competency and accuracy (Lapkin et al., 1990; Swain, 1985; Swain & Lapkin, 1989). These findings suggest that while comprehensible input is important for language acquisition, providing comprehensible input alone is not sufficient. Furthermore, many other SLA experts agree that form-focused instruction integrated into a meaningful communicative context is effective (Ellis, 2005; Lightbown & Spada, 2008; Nassaji & Fotos, 2011; Newton & Nation, 2020; Ranta & Lyster, 2007).

On another note, Krashen (1981, 1982, 1985) discounts the importance of productive skills, writing and speaking, as not directly contributing to language acquisition. Hence, in his view, output takes on a subsidiary role in acquisition. However, this approach to acquisition is certainly not exempt from criticism. Zhang (2009) states that interaction and output, as well as input, are critical factors in L2 acquisition. Similarly, Long's Interaction Hypothesis (IH) (Long, 1996) underscores the importance of interactional feedback for L2 acquisition. Unlike Krashen's proposition, what L2 learners need in order to achieve native-like accuracy is more than input that provides positive evidence (DeKeyser, 1998; Ellis et al., 2006; Mackey et al., 2003; Pica, 2002). As such, according to Nassaji and Fotos (2011), both positive and negative feedback is necessary for successful L2 acquisition. Consequently, both input and corrective feedback may function as sources of information for learners to notice the gaps between their utterances and correct target structures, potentially encouraging learners to revise their output and, in turn, leading them to make correct form-meaning connections (Perez, 2014).

The second position to be discussed is the strong-interface position. The strong-interface position, which makes use of information processing theories of cognitive psychology and is supported by DeKeyser (1998, 2007) contrasts with Chomsky's (1986) universal grammar (innate human faculty for language). This position is aligned with Skill Acquisition Theory (DeKeyser, 2015, 2017) and Cognitive-Connectionist Theory of SLA (Dalili, 2011). The position proposes a direct link between explicit knowledge/learning and implicit knowledge/learning, and it is mainly associated with explicit focus-on-forms instruction (Dalili, 2011).

DeKeyser (2017) states that declarative knowledge enables learners to perform the target behaviour, and using this declarative knowledge repeatedly—

performing this behaviour repeatedly—leads to procedural knowledge, which gives rise to automatized habit and sometimes to implicit knowledge. DeKeyser (2017) explains his position by stating that this whole process is “not like one brain circuit ‘infects’ the other, but rather that one memory system enables behaviors that lead to the gradual establishment of another memory system” (p. 19).

Suzuki (2015) also considers that it might be possible for proceduralised/automatized explicit knowledge to have an impact on implicit knowledge as one can quickly access to proceduralised explicit knowledge, thereby enabling more efficient input processing. According to this view, as a result of abundant communicative use, rules become automatic for learners, and thus they lose their awareness of the rules, which eventually amounts to proceduralised knowledge and its functionally equivalent (implicit knowledge) (DeKeyser, 2003). Based on the arguments of Skill Acquisition Theory, Dalili (2011) relates the strong-interface position to the ‘focusing-on-forms’ pedagogical approach (developing explicit knowledge of grammatical forms).

The third position to be discussed is the weak-interface position. The weak-interface position, developed by Ellis, (1997) holds to the view that explicit knowledge (conscious knowledge), acting as facilitator, may transform into implicit knowledge (and sometimes the opposite process is also true). Complying with Schmidt’s (1990) Noticing Hypothesis, the weak-interface position places emphasis on concepts such as ‘noticing’ and ‘noticing the gap’. As stated by Dalili (2011), the strong-interface position proposes a direct conversion of explicit knowledge to implicit knowledge via copious amounts of practice, whereas the weak-interface position maintains the conversion of explicit knowledge to implicit knowledge both in a direct and indirect manner. He further explains that explicit knowledge is

converted to implicit knowledge directly by the introduction of explicit rules; additionally, it is converted to implicit knowledge indirectly via ‘noticing’ and ‘noticing the gap’ cognitive processes.

According to Ellis (1997), the facilitating effect of explicit knowledge on implicit knowledge may be accomplished through three possible ways: 1) explicit knowledge assist learners to attend to linguistic features in the input; 2) learners can draw cognitive comparisons between the structures they notice in the input and those they produce as output, thereby noticing the gap; 3) using their explicit knowledge, learners can monitor their output, which eventually helps acquisition. Monitoring may also be instrumental in the conversion of implicit knowledge into explicit knowledge. Additionally, monitored output serves as ‘auto-input’ for acquisition.

The weak-interface position is commonly associated with the ‘focus-on-form’ instructional approach (Dalili, 2011). VanPatten (1990) states that because of limited attentional capacity, learners usually struggle to pay attention to both form and meaning while communicating. In focus-on-form instruction, learners’ attention is briefly drawn to some specific linguistic forms during a primarily meaning-based and communicative lesson (Ellis, 2016). By focusing on form when engaged in communicative activities, learners may improve their fluency, accuracy and comprehension of form-function mappings (Ellis, 2015, 2016). Focus-on-form, therefore, provides a middle ground for language learners and teachers to focus on both form and meaning in a single mainly communicative lesson.

Conceptual Framework

The conceptual framework of this intervention study is shaped around the following concepts: form-focused morphological instruction, derivational MA and vocabulary knowledge. Thus, the conceptual framework of the study is the effect of

form-focused morphological instruction on derivational MA and vocabulary knowledge.

Form-Focused Instruction

Ellis (2001) defines Form-Focused Instruction (FFI) as “any planned or incidental instructional activity that is intended to induce language learners to pay attention to linguistic form” (pp. 1-2). As indicated by Thornbury (1999), when some focus on form and corrective feedback is not provided, learners’ errors might persist and eventually be fossilised. FFI might particularly be needed for linguistics elements with low frequency and salience such as function words or some morphological features, as it may be difficult for L2 learners to notice them in the input (Nassaji & Fotos, 2011). For example, morphosyntax is a prime candidate to be considered for FFI, which is known to be difficult for L2 learners, mainly due to its low salience (Ellis, 2022; Ranta & Lyster, 2017). Regarding the implementation of FFI, Nassaji and Fotos (2011) recommend that EFL teachers adopt an eclectic approach and use both implicit and explicit instructional strategies.

Ellis (2001) states that FFI is an umbrella term that encompasses both focus-on-formS and focus-on-form instruction types. He, then, puts FFI into three categories: focus-on-formS (FonFS), planned focus-on-form (FonF) and incidental focus-on-form (FonF).

Explicit Focus-on-FormS (FonFS)

Ellis (2006) defines FonFS as the “instruction involving a structure-of-the-day approach, where the students’ primary focus is on form (i.e., accuracy) and where the activities are directed intensively at a single grammatical structure” (p. 100). The instruction follows a traditional approach to teaching grammar, in which pre-selected forms are presented by the teacher (Trendak, 2015). Pre-selected L2

forms are then taught in an organised way in accordance with their linguistic complexity (Norris & Ortega, 2005).

Explicit instruction requires directing learners' attention to linguistic features (e.g., morphosyntactic rules and patterns) in an overt manner (Loewen, 2020). DeKeyser (1995) states that learners involved in explicit learning process are aware of what they are learning. He further states that explicit learning involves "some sort of rule being thought about during the learning process" (p. 380). This can be achieved deductively or inductively (Ellis, 2001). Thornbury (1999) labels deductive learning and inductive learning as rule-driven and rule-discovery, respectively.

In deductive explicit instruction, linguistics forms are presented in isolation (Trendak, 2015). Presentation of a rule is the starting point for a deductive approach, which is then followed up with examples that show its application (Thornbury, 1999). Some example activities in the application of the rules could be completion, translation, or fill-in-the-blanks exercises (Pawlak, 2006). Trendak (2015) states that rules can be presented in a written or oral mode or a combination of the two. Furthermore, rules can be elucidated using demonstration, charts, symbols or visuals. Additionally, Jeffries (1985) notes that grammar terms to be used should be within the limits of learners' metalanguage.

Thornbury (1999), referring to some advantages of using the deductive approach, states that this approach is direct, and thus allows efficient use of time. It takes into account the intelligence and maturity of many learners, particularly adults, and recognizes the significance of cognitive processes in language learning. Additionally, it aligns with the expectations of learners with analytical abilities.

Alternatively, explicit FonFS can be realised inductively. In the inductive approach, learners are expected to figure the rules out by studying the examples in pre-selected linguistic data, which include some recurrent patterns (Thornbury, 1999). Therefore, rule-discovery is at the heart of inductive FonFS.

Thornbury (1999) refers to several benefits of the inductive approach. Learners who figure out rules for themselves are better able in accommodating the newly learned rules to their existing schemata, and thus these rules become more memorable and useful. Using inductive approach requires learners to put in mental effort, resulting in improved cognitive depth. Moreover, discovery learning promotes autonomy in learners. The pattern-recognition and problem-solving features of the approach make it particularly appealing to students who are up for a challenge. Lastly, working together on problem-solving provides learners with an extra chance to practice the target language.

An inductive approach to vocabulary learning could be using corpus data. Using concordancing programs, students can discover word frequencies and permissible word combinations (Thornbury, 1999). Furthermore, students can explore word registers with the aid of different types of corpora.

Focus-on-Form (FonF)

Today, many researchers devote their time to find the most effective combination of attention to language forms and language meaning in the classroom (Nation, 2022). Thus, FonF instruction is the result of this effort.

A focus-on-form intervention has always communication as its primary focus, with linguistic elements being addressed either intensively (systematically) or extensively (incidentally) (Benati, 2021). When engaging in focus-on-form activities, attention is primarily directed towards understanding meaning, yet attention may

occasionally (intentionally or unintentionally) shift to specific language forms that are present in the input or are necessary to convey a specific meaning (Ellis, 2016).

Although Long (1996) initially considered FonF instruction to be only implicit, he later realised that FonF could sometimes be quite explicit and even entail metalinguistic comments (Long, 2015, as cited in Ellis, 2016). For example, Ellis (2016) notes that ‘input flood’ is considered to be the least explicit, whereas metalinguistic comments made during pre-emptive FonF are considered to be quite explicit. Thus, the explicitness of various FonF types should be viewed as a continuous spectrum rather than a clear-cut division (Ellis, 2022; Loewen & Sato, 2017). On a similar note, presentation–practice–produce (PPP) teaching procedure, initially seen to be confined to FonFS instruction owing to its structural syllabus, can also be applied to FonF instruction (Ellis, 2016).

Referring to the difference between FonF and FonFS, Doughty and Williams (1998 as cited in Doughty, 2001) state that “a focus on form *entails* a focus on formal elements of language, whereas focus on formS is *limited* to such a focus ...” (p. 4). Therefore, FonF instruction, which includes both form and meaning, offers a more balanced approach to instruction and provides the necessary conditions for creating form-meaning mappings in the context of meaningful interactions (Ranta & Lyster, 2017). As such, Madlener (2015) states that FoF is a shorthand way of saying “focus on form-meaning mappings” (p. 83). Despite several meta-analyses that have sought to uncover the overall efficacy of explicit and implicit FonF instruction, the results remain inconclusive; while some studies point to explicit instruction being more advantageous (Good et al., 2015; Maeng, 2020; Norris & Ortega, 2000; Spada & Tomita, 2010), others demonstrate no difference (Kang et al., 2019; Kim, 2020; Schenck, 2019).

Ellis (2001) breaks down FonF instruction into two main categories: planned FonF (proactive) and incidental FonF (reactive and pre-emptive).

Planned Focus-on-Form and Incidental Focus-on-Form

Loewen (2020) notes that incidental focus on form could create conditions in which knowledge can be proceduralised and become implicit, whereas planned focus on form could facilitate the development of explicit knowledge by making the forms more salient.

In planned FonF, modified communicative tasks are designed to elicit specific linguistic forms from learners as they engage in meaningful language use (Ellis et al., 2002). Forms that are known to be problematic for learners and are regarded as the cause of persistent errors are selected—therefore, forms are not selected based on a linguistic syllabus (Pawlak, 2006).

Ellis et al. (2002) explain the similarity between planned FonF and FonFS instructions by noting that they both involve a pre-selected form for treatment. However, the same researchers also point out that FonF instruction differs from FonFS instruction in the following two respects: 1) attention to form takes place in a predominantly meaningful context; 2) learners are not informed that a particular form is the focus, so they are treated as 'language users' instead of 'learners' when they carry out the task.

In incidental FonF instruction, the forms to be focused on arise incidentally during otherwise meaning-oriented contexts (e.g., error correction). Incidental FonF can be either pre-emptive or reactive (Ellis, 2001). When a teacher or learner poses a question about a form that they thought to be problematic, pre-emptive FonF occurs, while reactive FonF takes place when the teacher responds to learners' errors in the

context of communicative activity (Ellis, 2001; Ellis, 2015; Pawlak, 2006; Tajik et al., 2020).

The commonality between planned FonF and incidental FonF is the fact that both occur in a meaning-oriented context. While the former requires the selection of particular linguistic forms to be the focus of attention, the latter does not impose such a requirement. In incidental FonF, the attention to form is extensive, meaning that attention is given to a wide array of forms rather than just one (Ellis et al., 2002).

Regarding the effectiveness of FonF and FonFS instruction types, Loewen and Sato (2017) report that recent research results indicate no conclusive difference between the two. They go on to say that both FonF and FonFS instruction types have their merits and can be effective, contingent on how they are administered.

Main types of FonF are as follows: input enhancement (input flood and textual enhancement), processing instruction, corrective feedback, consciousness-raising tasks, dictogloss, and structured output (Benati, 2021).

The present research study will address input flood and corrective feedback, offering an explanation for each.

Input Flood. Input flood is described to be one of the most implicit varieties of FonF (Loewen, 2011). In this technique, the input is seeded with numerous exemplars of the target form so that learners encounter with the form multiple times (Benati, 2021; Pawlak, 2006; Larsen-Freeman & DeCarrico, 2020). The idea in input flooding is that the more of the same form in the input, the more salient it becomes, and thus the likelihood of learners noticing the form increases (Nassaji & Fotos, 2011). Target form can be supplied either orally or in a written format (Loewen & Sato, 2017). Enriched input such as input flooding during a meaning-centred activity promotes implicit and incidental learning (Reinders & R. Ellis, 2009).

Loewen (2020) reports that past research investigating the effectiveness of input flood found inconclusive results. He also notes that while a number of studies have demonstrated some positive effect resulting from input flooding, but interestingly, the effect found was not much different from when input flood was combined with explicit attention to linguistics features. Thus, the literature is far from reaching a definitive conclusion, and there is a need for more research investigating the effectiveness of input flooding (Loewen, 2020).

Oral Corrective Feedback. Cognitive theories emphasise the importance of corrective feedback (CF) that is provided in a meaning-focused context and its facilitative effect on language acquisition (Sheen & Ellis, 2011). Providing feedback during meaning-centred activities improves noticing, enables cognitive comparisons and makes linguistic features that are already integrated into tacit knowledge more accessible, thereby creating the conditions for the macroprocesses of mapping and restructuring (Pawlak, 2006).

Similarly, FFI and interactionist theories highlight the importance of CF in language development (Pawlak, 2014). Schmidt's (1990, 2001) Noticing Hypothesis offers further support for providing CF. This position holds that language learning cannot occur without paying some degree of attention to the language features in the input, as this enables the learners make cognitive comparisons, and notice the gaps in their interlanguage (Pawlak, 2014). Table 1 below shows types of corrective feedback.

Table 1

Types of Corrective Feedback

Implicit		Explicit
Input-providing	Conversational recasts	Didactic recasts

Table 1 (cont'd)*Types of Corrective Feedback*

	Implicit	Explicit
		Explicit correction
		Explicit correction + metalinguistic explanation
Output-prompting	Repetition	Metalinguistic comments
	Clarification requests	Elicitation
		Paralinguistic signal

Note. From “Anniversary Article Focus on Form: A Critical Review,” by R. Ellis, 2016, *Language Teaching Research*, 20(3), p. 418

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Ellis (2016) points out that CF can be either implicit or explicit (Table 1), depending on the manner in which it is presented. According Ranta and Lyster (2007, 2017), oral feedback moves can be categorised under two overarching terms: reformulation and prompt.

As can be seen in Table 1, explicit corrections and recasts are defined as “input providing” feedback (Ellis, 2016). Explicit corrections and recasts are reformulations of the learner’s incorrect utterances, including the correct form of the mistake made. Explicit corrections include explicit reference to the inaccuracy (negative evidence) as well as the correct reformulation (positive evidence) of the non-target-like statement, whereas recasts merely offer the correct reformulation, maintaining the original message (Benati, 2021). Some error correction might also include metalinguistic information (e.g., using morphological terms such as ‘suffix’ and ‘base word’ in the correction).

Recast may take two forms: 1) conversational and implicit; when employed as a confirmation check in an attempt to understand the learner's utterance and to fix the communication problem. 2) didactic and more explicit; when the reformulation of the learner's incorrect utterance is provided despite the learner's mistake not causing a communication breakdown (Sheen & R. Ellis, 2011). Following the provision of recast, the learner is expected to modify his/her erroneous output. The modified and corrected output is called uptake (Benati, 2021).

Ranta and Lyster (2017) state that prompts, on the other hand, do not provide the correct form, but instead work as "signals" that "push" the learners to self-correct their mistakes; which are "elicitations, clarification requests, repetitions of learner error, metalinguistic clues or explanations, and paralinguistic signals" (p. 49).

Through elicitations, the teacher makes explicit effort to draw out the correction from the student, either by asking questions or repeating segments of the student's statement so that the student might complete it by providing the correct form (Ellis, 2017).

Nassaji and Fotos (2011) state that clarification requests are made when the teacher or any other person involved in the conversation doesn't fully understand the learner's statement and then requests them to rephrase for better understanding. They also state that in order to make a clarification request, phrases like "pardon me?", "sorry?" or "excuse me?" can be used (Nassaji & Fotos, 2011).

Paralinguistic signals include nonverbal feedback such as placing arms in the shape of a cross to signal word order (Nassaji & Fotos, 2011). All prompt types are classified as "output-prompting" feedback as their main purpose is to encouraging the learner to self-correct (Table 1).

Written Corrective Feedback

Learners who aim to develop effective writing skills may need CF in order to notice their errors in their written work. Pawlak (2014) states that while oral CF can be either explicit or implicit, written CF is always explicit as its permanent presence is evident to the learner. He further notes that “oral CF is typically available to other students in the classroom” (p. 8), but written CF is limited to single student's errors.

When learning a language, it is essential to both understand and be understood in the language being studied. Therefore, many EFL and ESL teachers provide assistance and guidance to learners to overcome any communication breakdown that occurs in the classroom. However, while oral corrective feedback can be offered either to remedy any disruption in communication or to call attention to language features used incorrectly by learners, written corrective feedback is employed only for the latter purpose (Pawlak, 2014).

The written feedback provided within the scope of this study is restricted to targeted written corrective feedback on erroneously used base words or derivational suffixes, rather than on a broad range of error categories (Bitchener, 2021). As Bitchener (2021) notes, “often the choice of error coincides with the grammar focus of lessons leading up to the writing of texts in which learners have a range of opportunities to demonstrate the extent to which they can use a particular form or structure with target-like accuracy” (p. 208). Therefore, the type of written corrective feedback provided in this particular research study is closely related to the FFI nature of the lessons and the dependent variables of the study, namely derivational MA and vocabulary knowledge.

In this study, direct feedback is preferred over indirect feedback because “it is a quick and efficient form of feedback” (Bitchener, 2021, p. 208). Direct feedback,

as its name suggests, provides the learners with the correct form (Sheen & Ellis, 2011) such as marking an incorrectly used word, adding the missing element, and writing the correct form above or close to the error (Pawlak, 2014).

Vocabulary Knowledge

Vocabulary is an essential and integral element of any language. Thus, Schmitt et al. (2017) state that “knowledge of vocabulary is fundamental to all language use” (p. 213). Stæhr, (2009) defines vocabulary knowledge as a reliable predictor of second or foreign language proficiency. For the same reason, Laufer and Nation (1999) describe vocabulary as “enabling knowledge”. Everyone speaks, writes, reads, and comprehends the language through their vocabulary knowledge.

According to Nation (2022), knowing a word involves form, meaning, and use. “Form” refers to knowledge of spoken and written forms and word parts. “Meaning” includes knowledge of form and meaning, concept and referents, and associations. Lastly, “use” refers to knowledge of grammatical functions, constraints on use, and collocations. All these aspects of word knowledge contribute to depth of vocabulary knowledge, the extent to which those words are understood. Therefore, knowing a word is more than learning a word’s primary meaning only and includes several other aspects. Nagy (2005) defines vocabulary learning as a lengthy and comprehensive process.

As Kieffer and Lesaux (2008) note, the ability to analyse morphologically complex words into their morphemes may result in better word learning and an increase in vocabulary size. Knowledge of word parts and their functions can be a way to improve vocabulary knowledge, and learners with enhanced MA might better able to recognise the internal structures of words. In this regard, Nation (2022) states that there are two reasons for learners to focus on word parts. First, focusing on word

parts and using them as memory aids, EFL learners could better recall new words. Second, being familiar with word parts, learners can identify the relationship between various words in the same family. Thus, by improving learners' MA, it is possible to deepen their vocabulary knowledge, to enable them to make deeper associations with members of word families they know, and ultimately to lead to the growth of their vocabulary (Hayashi & Murphy, 2011).

Schmitt (2008) refers to form-meaning mapping as the most important aspect of vocabulary knowledge. Loewen (2020) illustrates this notion with an example: while words 'bird' and 'fish' have obviously different forms and meanings, words 'fish' and 'fishing' have closely related forms and meanings. He goes on to say that while 'fish' and 'fishing' are different words, the connection between them is greater than the connection between 'fish' and 'bird'. This closer relationship is attributable to the fact that the words 'fish' and 'fishing' are in the same word family. In the same way, while English derivation produces new lexemes, the connection between base and derived words is oftentimes still discernible. For example, words 'divide' and 'division' have related forms and meanings. Loewen (2020) therefore points out that vocabulary knowledge involves, among other things, an awareness of the grammatical features of words, such as their inflectional and derivational forms. Thus, it can be concluded that "the semantic relatedness of the words decreases the learning burden" (Loewen, 2020, p. 127) for EFL learners.

When learning a new word, learners attach a small network of links to other nodes which characterize the word's pronunciation, meaning, and other aspects through connecting it to words in the current network (Hudson, 2008). This can be described by what Hudson (2008) refer to as "cognitive network of units" (p. 92). In the same way, Chen and Schwartz (2018) state that "morphological awareness

functions similarly to cognitive skills” (p. 1686). Hence, learning morphologically related vocabulary words within a word family could be a process that broadens the cognitive network of words. As an illustration, consider the words ‘reduce’ and ‘reduction’. Familiarity with the form, use and meaning of the word ‘reduce’ facilitates the learning process of its derivative ‘reduction’. As one learns the word ‘reduction’, they build a web of connections with the nodes associated with the base word ‘reduce’. They also learn any orthographic and phonological shifts that might occur as a result of derivational process.

According to Nation and Laufer (2023), the lack of word family knowledge among EFL learners highlights the urgent need to include instruction in morphological awareness in the form-focused learning strand of language courses. However, the explicit instruction of language forms is not a widespread practice in modern EFL classrooms and is not given as much importance as other aspects of English (Badawi, 2019). Brown and Abeywickrama (2018) note that during the 1980s and 1990s, language teaching saw a shift towards the Communicative Approach, which placed a strong emphasis on meaning and fluency. The same researchers indicate that this paradigm shift sometimes led to the neglect of focus on form. It may be argued that a similar instructional approach still dominates the national curricula for English as a foreign language in Türkiye. While communicative competence is the main focus of the English curricula for grades 2-8 and 9-12 in Türkiye, language structures receive limited attention (Ministry of National Education of Türkiye, 2018a, 2018b).

Derivational Morphological Awareness

The focus of this research is on form-focused morphological instruction and its effects on derivational MA and vocabulary knowledge. Therefore, derivational

MA, one of the dependent variables of this study, merits particular consideration in this section.

Before proceeding, it is important to clarify some relevant terms. In agreement with Bowers (2012), this thesis will treat the term morphological knowledge as the general term covering both MA and morphological processing. Unlike MA, which is about conscious understanding of the morphemic makeup of words (Carlisle, 1995), morphological processing, refers to the tacit use of morphology, and therefore it shows lower levels of consciousness (Bowers et al., 2010, Bowers, 2012). Given the fact that MA is a conscious type of awareness, it could be more responsive to external intervention. Thus, this present research explores the effect of form-focused morphological instruction on learners' conscious awareness of morphemic structures, i.e., their MA.

The relevant literature defines three types of MA: awareness of compounds, awareness of inflections, and awareness of derivations (James et al., 2021; Kuo & Anderson, 2006). Despite the three-fold distinction in the relevant literature, Chen and Schwartz (2018) report that alphabetic language investigations (e.g., English) mainly focus on inflectional and derivational awareness. Crystal (2008) provides support for this research preference by identifying 'inflection' and 'derivation' as the two primary word-formation processes in English. Since the acquisition of derivational morphology in English is more difficult for EFL learners than the acquisition of inflectional morphology (Schmitt & Meara, 1997) and since derivation is responsible for new lexeme creation, the scope of this present study is limited to derivational awareness only. Derivational MA refers to the ability to manipulate derived words, to recognise relations between various morphological forms of a

word, and to generate new derivational forms of known words (Kieffer & Lesaux, 2008).

Previous research refers to three aspects of derivational MA, which are “relational, syntactic and distributional” (Tyler & Nagy, 1989, p. 649). First, relational awareness is the ability to notice the existing relationship between two words sharing the same base morpheme. For instance, if a learner is able to see the relation between the words ‘admission’ and ‘admit’, and notice that they share the same base, it means that this learner has relational awareness. Second, learners with syntactic awareness notice that the addition of a derivational suffix may change the part of speech of the word. A learner with such awareness would know that the words ‘reliance’ (noun) and ‘reliable’ (adjective) belong to two different word classes as a result of the suffixation process. Third, distributional awareness is the ability to notice the constraints on combining suffixes and stems. Some suffixes can only be attached to stems belonging to a specific grammatical category. For instance, the suffix ‘-tion/sion’ exclusively applies to verbs (e.g., produce → production or decide → decision). Nation (2022) notes that while relational and syntactic awareness is necessary for receptive use, distributional awareness and knowledge of formal changes (changes in pronunciation, written form, and stress that come with affixation) are necessary for productive use.

Research suggests that being able to understand and critically evaluate morphological components of words is a significant factor in literacy development (Bangs & Binder, 2016; Chen & Schwartz, 2018). Note that “in contrast to phonemes, morphemes have not only meaning and structure, but also syntactic, selectional, phonological, relational, and distributional properties” (Mahony, 1994, p. 20). Similarly, Kuo and Anderson (2006) indicate that MA is closely linked to

phonological awareness, syntactic awareness, and vocabulary knowledge. It is also pertinent to note that knowledge of morphophonemic nature of English orthography has a unique role in the development of MA and literacy. As such, derivational suffixes attached to base words may cause phonological and orthographic changes (e.g., describe+tion=description).

Morphology has a binding role in the realisation of the English language. Sublexical, lexical and supralelexical features of the language are all interconnected through various operations and processes. Kirby and Bowers (2017) put forward “the binding agent theory of morphological knowledge” (p. 439), which links semantics, orthography, and phonology with one another. The aforementioned researchers suggest that morphology can aid in the incorporation of mental images of words. “Morphology provides clues to meaning from both orthography and phonology, clues to how to write words (orthography) from both semantics and phonology, and clues to phonology (how to say a word) from both orthography and semantics” (Kirby & Bowers, 2017, p. 440).

Numerous researchers refer to the significant relationship between MA and word reading (Carlisle, 1995, 2000; Fowler & Liberman, 1995; Kirby et al., 2012; Roman et al., 2009; Singson et al., 2000; Windsor, 2000). Furthermore, MA contributes significantly to reading comprehension beyond phonological awareness (Deacon & Kirby, 2004). Wagner et al. (2007) report a high correlation value of .86 between MA and reading comprehension. In a similar way, numerous other researchers also point to a positive correlation between MA and reading comprehension (Carlisle, 1995, 2000; Deacon and Kirby, 2004; Kirby et al., 2012; Ku & Anderson, 2003; Nagy et al., 2006; Wilson-Fowler & Apel, 2015).

Evidence suggests that MA is a good indicator of vocabulary knowledge (Kuo & Anderson, 2003; Mahony et al., 2000; Mc-Bride-Chang et al., 2005; Nurhemida, 2007; Spencer et al., 2015; Zhan & Koda, 2011). Wagner et al. (2007) report a remarkable correlation value of .91 between MA and vocabulary knowledge.

Last but not least, MA has been shown to contribute to spelling skills (Deacon et al., 2009; Goodwin & Ahn, 2010, 2013). Deacon et al. (2009) point out that MA accounts for an important amount of spelling differences, independently from confounding variables such as communication- and non-communication-based intelligence, and phonological awareness. The same researchers also state that MA contributes to children's spelling beyond phonological awareness.

Measuring Morphological Awareness

In the literature, the three aspects of derivational morphology (Tyler & Nagy, 1989), either one or several of them, have been tapped by researcher-developed measures or their adapted versions (e.g., Amirjalili & Jabbari, 2018; Amirjalili et al, 2018; Ardanouy, 2023; Katz, 2004; Kieffer & Lesaux, 2012; McCutchen et al., 2008; Nguyen, 2021). Apel et al. (2013) report that the majority of the previous research aiming to measure MA and its transfer effect on literacy skills employed the following three broad tasks: judgement tasks (e.g., Berninger et al., 2010; Carlisle & Nomanbhoy, 1993; Derwing, 1976; Ku & Anderson, 2003; Mahony et al., 2000; Nagy et al., 2006), production tasks (e.g., Carlisle, 1987, 1995, 2000; Carlisle & Nomanbhoy, 1993; Casalis & Cole, 2009; McCutchen et al., 2008), and analogy tasks (e.g., Bryant et al., 1997; Kirby et al., 2012; Roman et al., 2009; Tsesmeli & Seymour, 2006).

Today, the construct of MA remains a focus of research, with numerous SLA experts investigating its dimensions, and its relationship to vocabulary and other

literacy skills (Kristensen et al., 2023; Spencer et al., 2015; Tighe & Schatschneider, 2015; Wang & Zhang, 2023). MA tasks utilised by researchers include either inflectional (e.g., Tighe, 2015) or derivational items (e.g., Carlisle, 1987; Carlisle 2000) or both (e.g., Carlisle & Nomanbhoy, 1993; Kirby et al., 2012; Nagy et al., 2006). In judgement tasks, students are required to make decisions by noticing the existing relations between words or judging the semantic accuracy. Judgement tasks, known as “comes from task”, are designed to assess students’ comprehension of the semantic relations between two words, and thereby assessing the student’s relational awareness of derivational morphology. (e.g., ‘sign’ and ‘signature’ are related, but ‘dust’ and ‘industry’ are not). Some other judgement tasks involve multiple-choice questions asking to choose the suffixed word that correctly fills in the blank in a sentence provided (e.g., “A. identical B. identify C. identification D. identity. Those two dogs are almost———”; e.g., Amirjalili & Jabbari, 2018; Berninger et al., 2010; Nagy et al., 2003; Nagy et al., 2006).

Apel et al. (2013) explain that one commonly used derivational MA production/structure task asks students to complete sentences with derived or base forms (e.g., Carlisle, 2000). Some production tasks also distinguish between transparent and opaque derivations of words to better capture actual morphophonemic processes (e.g., Carlisle, 1987, 2000; Tighe, 2012, 2015; To et al., 2016). As stated by Tighe and Schatschneider (2015), contextual cues play an important role in morphological structure tasks (e.g., Carlisle, 2000).

Analogy tasks, on the other hand, require students to complete a given pattern using analogical reasoning. There are two commonly used analogy tasks, word analogy (e.g., Kirby et al., 2012; Nunes et al., 1997; Tighe, 2015) and sentence analogy (e.g., Deacon, 2012; Nunes et al., 1997). In a word analogy task, students are

to supply the missing word by paying attention to the given pattern (e.g., drive: driver :: teach : _____). As for sentence analogy tasks, students are required to complete a sentence based on a pattern (e.g., Ken walks the dog: Ken walked the dog :: Ken feeds the dog : _____). Lastly, some tasks assess MA by using pseudowords with real affixes (McBride-Chang et al., 2005; Tighe, 2012). This last type of MA task is typically employed to assess learners' conscious awareness of affixes. By utilising a MA test to compare inflected and derived words, real words and pseudowords, and the presence or absence of contextual cues, it is possible to gain a deeper understanding of the construct and its link to vocabulary knowledge (Tighe & Schatschneider, 2015).

In the relevant literature, MA tasks have been administered in a variety of modes: (a) orally (e.g., Carlisle, 1987, 1988, 2000; Carlisle & Nomanbhoy, 1993; Deacon et al., 2009; McBride-Chang et al., 2005; Wagner et al., 2007), (b) written (e.g., Kotzer et al., 2021; Mahony, 1994; Singson, 2000), and (c) both orally and written (e.g., Nagy et al., 2006; Singson et al., 2000; Tighe, 2015; Wagner et al., 2007).

Morphological Instruction

The aim of morphological instruction is to improve learners' MA (Badawi, 2019; Goodwin & Ahn, 2010). In other words, morphological instruction aims to raise learners' conscious awareness of the morphemic building blocks within words so that they might be able to carefully consider and modify that structure (Carlisle, 1995). Accordingly, Amirjalili and Jabbari (2018) describe morphological instruction as focus on form instruction.

Schmitt (2010) explains that more and better engagement with vocabulary words results in better vocabulary learning. He goes on to say that factors facilitating

vocabulary learning include increased exposure, attention, manipulation, and time spent on vocabulary. Receiving morphological training enables learners to manipulate words, see form-meaning connections and strengthen associations between word family members. Thus, morphological instruction might provide extra help for students to accelerate their vocabulary learning process, both in terms of quality and quantity.

More than 60% of the words that native English-speaking children encounter in school texts have relatively transparent morphological structures (Nagy & Anderson, 1984). However, learning these words may not always be an easy task as they usually undergo several changes such as spelling, meaning, stress, class, and pronunciation (Lin, 2019). Therefore, morphological instruction can be provided to have students notice those changes as well as the relations between words.

A number of research studies in the relevant literature investigated the role of phonological and orthographic transformations in MA (Apel & Henbest, 2020; Carlisle, 1987, 1988; Kieffer & Lesaux, 2008; Leong, 2000; Tighe, 2012, 2015; To et al., 2016). Take for example the derived word ‘reduction’. After the base ‘reduce’ takes the suffix ‘-tion’, both orthographic and phonological transformations are triggered. Teaching these transformations explicitly might help students better understand the spelling and pronunciation conventions in English derivational morphology. As a result, learners might have a better command of word family members and improve their vocabulary knowledge. Furthermore, learners engaged in morphological analysis can develop relational, syntactic and distributional awareness of derivational morphology. After being exposed to morphological instruction, learners can gain a better understanding of the connections between words that share a common base (relational awareness), the syntactic behaviour of suffixes (syntactic

awareness) and the constraints on permissible suffixes (distributional awareness) (Amirjalili & Jabbari, 2018; Amirjalili et al., 2018).

Nation (2022) states that being word conscious includes, among other things, an interest and awareness of word parts. Nation (2022) provides two reasons for focusing on words. First, affixes and stems can serve as effective memory aids for learners, as they connect new words with the meanings of familiar components. Second, learners might see the connections between word family members with the help of affixes as long as they are already familiar with a few member words. Therefore, failing to offer instruction on morphological analysis could put students who are not linguistically inclined at a disadvantage, potentially causing them to fall behind their classmates in their vocabulary development (Carlisle, 2003).

Bauer and Nation (2020) offer seven reasons for EFL learners to familiarise themselves with the word-building system of English: 1) inflectional and derivational affixes are used very frequently in English that more than one in five running words have an inflectional suffix, and one in eight running words include a derivational affix (Nagy & Anderson, 1984); 2) affixes affect word meanings; 3) misusing affixes affects the correctness of the communication; 4) contributes to vocabulary growth through derivation; 5) every encounter with an inflected or derived form of a base word constitute a repetition, and therefore reinforces the vocabulary knowledge; 6) learners may use word parts to figure out word meaning, and this process helps them remember words; 7) morphological knowledge and word analysis contribute to the deeper processing of words.

Drawing on meta-analysis, Kirby and Bowers (2018) critically reviewed past studies on morphological instruction. Regarding how morphological instruction is taught, Kirby and Bowers (2018) report that while a number of studies concentrated

exclusively on oral teaching, the majority targeted both written and oral morphology. They go on to say that over 50% of the studies they looked at addressed phonological and orthographic shifts. Lastly, they report that morphological instruction was either delivered in isolation as a separate subject or in combination with other pedagogical methods for language and literacy. Integrated instruction yielded more substantial effect sizes at the lexical (.46) and supralexicial (.37) levels than isolated instruction did (.38 and .26, respectively) (Bowers et al., 2010).

However, as reported by Goodwin and Ahn (2013), interventions that solely targeted morphology showed similar effectiveness to those that integrated it into a more comprehensive instructional framework (the effect size in each group was .31). Additionally, the results of Bowers et al.'s (2010) meta-analysis indicate that morphological instruction had a mean effect of .35 on the lexical level, but this diminished to .20 when compared to an alternative treatment (e.g., phonological treatment). Goodwin and Ahn (2013) also noted that the level of schooling had an influence on the effect sizes observed for literacy outcomes, with the largest effects seen among preschool students (.68).

Kirby and Bowers (2018) arrived at the following three main patterns regarding the overall effects of morphological instruction: 1) morphological instruction had approximately the same effect on vocabulary, word reading, and spelling; 2) morphological instruction tended to perform equally well, if not slightly better, compared to other interventions; 3) effects were stronger at the lexical level compared to the supra-lexical level.

According to another meta-analysis of morphological interventions and their effects on literacy outcomes by Goodwin and Ahn (2013), the following mean effect values were reported for each literacy measure: "morphological knowledge ($d =$

0.44), phonological awareness ($d = 0.48$), vocabulary ($d = 0.34$), decoding ($d = 0.59$), and spelling ($d = 0.30$)” (p. 257). The largest effect was for decoding ($d = 0.59$), followed by phonological awareness ($d = .48$) and morphological knowledge ($d = .44$). Goodwin and Ahn (2013) interpret these close values as the combined effect of morphology and phonology. The researchers go on to say that morphological instruction supports general decoding with the help of phonological and morphological knowledge. Regarding the positive effect of morphological instruction on vocabulary knowledge, they state that this is due to students' use of morphological analysis and constituent morphemes to infer the meanings of morphologically related words. As for the length of the morphological instruction, Goodwin and Ahn (2013) report that the average duration of morphological interventions had no effect on the overall means (despite the largest significant mean difference being for interventions that exceeded 20 hours).

A considerable amount of research is available in the relevant literature emphasising the positive effect of morphological instruction on MA and vocabulary knowledge (Akbulut, 2017; Alsaeedi, 2017; Amirjalili & Jabbari, 2018; Amirjalili et al., 2018; Badawi, 2019; Bangs & Binder, 2016; Bowers & Kirby, 2010; Contreras, 2018; Good et al., 2015; Lin, 2019; Tacir, 2016). The results of Ardanouy et al.'s (2023) research demonstrate that intensive and explicit teaching of derivational morphology had a significant effect on MA, for both trained words, and words containing trained affixes and untrained roots. Moreover, four months after the conclusion of the intervention, the significant effect of the derivational morphology instruction on MA was still present, as noted by the same researchers. There are also a number of research studies indicating no relationship between MA and vocabulary knowledge (Al Farsi, 2008; Alsalamah, 2011). Furthermore, Ferguson (2006) found

no proximal transfer effect of morphological instruction on words with trained suffixes.

A more recent scoping review of 12 morphological instruction studies by Ke and Zhang (2021) showed that morphological instruction had effect sizes ranging from small to large for MA and vocabulary. Ke and Zhang (2021) recommend that future studies explore transfer effects of morphological instruction (e.g., its impact on learning new vocabulary items in English or on reading skills in another language).

Kang et al. (2019), reporting on the 35 years of form-focused instruction, state that syntax was found to be the most effective target of instruction, resulting in an effect size of $g = 0.94$. This was followed by morphology with an effect size of $g = 0.85$ (Kang et al., 2019). Furthermore, Kang et al. (2019) note that the acquisition of morphological forms is more difficult due to their low salience and susceptibility to cross-linguistic influence.

As noted by Gellert et al. (2021), the reported mean effect sizes for vocabulary show a wide range of results in studies on morphological awareness. They also point out that there is a lack of research on transfer effects, and the ones that have been reported are difficult to compare. Furthermore, transfer effects were not specifically addressed in some past meta-analyses, and there was no distinction made between proximal and distal effects (Gellert et al., 2021). According to Gellert et al. (2021), when assessing the results of morphological training, it is important to consider a spectrum of transfer effects, “from proximal to distal” (p. 597). While proximal effects are linked to directly taught items (morphemes, words), more distal effects are associated with untrained items (Gellert et al., 2021). Using researcher-developed tests, several research studies have shown the proximal effects of

morphological instruction on vocabulary (Baumann et al., 2002, 2003; Bowers & Kirby, 2010; Davidson & O'Connor, 2019). On the other hand, as opposed to researcher-developed measures, standardized tests do not typically show significant transfer effects as they involve a large number of untrained items (Gellert et al., 2021). For example, using standardised vocabulary tests, Gellert et al. (2021) and Torkildsen et al. (2022) report non-significant distal effect sizes of .04 – .06, and .08 – .04, respectively.

Pawlak (2006) states that a language lesson could be designed to include focus on forms as well as planned and incidental focus on form. The outline of a lesson, a modified version of Pawlak's (2006) lesson plan, could be as follows: at the beginning of the lesson, learners could be directed to perform a receptive focus-on-forms task inductively (e.g., using a meaningful context such as a listening text including derived words) "to activate their knowledge of the form, meaning, and use of" (Pawlak, 2006, p. 322) particular linguistic features (suffixes derived words), with the aim of preparing them for the ensuing structural focus in the lesson. An example focus-on-forms task carried out inductively might have the following steps (adapted from British Council, n.d.): students are asked to listen to an audio recording which includes several derived words. The teacher checks whether the students have understood the meaning of the derived words and the constituent suffixes by asking comprehension questions based on the listening text. The teacher then directs learners' attention to form, using examples taken from the text to elicit rules about the form, its use and pronunciation.

The next stage could involve a transition to a deductive focus-on-forms instruction (analysing derived words, and discussing orthographic and phonological changes), which is followed by a fill-in-the-gap activity. Thereafter, learners could be

asked to listen to an audio recording of a story containing the linguistic features of the lesson (planned focus-on-form), and to discuss the listening topic in groups and present their views to the class. At this stage, the teacher could provide some corrective feedback (incidental focus-on-form) in response to learners' non-target-like utterances. Finally, the learners are assigned homework (consolidation and reinforcement).

Empirical Studies on Morphological Instruction and Its Effects on Morphological Awareness and/or Vocabulary Knowledge

This section of the thesis focuses on research conducted both worldwide and in the local area, examining the impact of morphological instruction on MA and/or vocabulary knowledge.

International Research

Bowers and Kirby (2010) conducted a quantitative study to explore the effects of morphological instruction on vocabulary acquisition. A total of 81 fourth-grade and fifth-grade children from Ontario (Canada) participated in the study. The research design employed was a pretest-posttest experimental design with one control group ($n = 43$) and one experimental group ($n = 38$). This intervention study did not include any training for a specific set of prefixes, suffixes or bases. Instead, visual depictions of the word components such as “word matrix” and “word sum” were employed to explore words in the same family (Bowers & Kirby, 2010, p. 520). The Peabody Picture Vocabulary Test III (PPVT-III) (Dunn & Dunn, 1997) was used as the pre-test of the study. Two researcher-developed tests were administered as the post-test measures of the study, a Base Identification and a Morphological Vocabulary test. The words used in the post-tests were grouped into three levels of transfer categories: “Word Taught”, “Base Taught”, and “Affix Taught” (Bowers &

Kirby, 2010, p. 523). The experimental group received 50 minutes of morphology instruction, three or four times each week until 20 sessions were completed. Students were taught how to discern morphemes in shift words. After accounting for the initial vocabulary knowledge, the study results demonstrated that teaching morphology had a notable effect on explicitly trained words and on unfamiliar words containing bases previously introduced in other derivations, but not on words with untrained bases.

Nguyen (2021) carried out a study utilizing a mixed-method research design to investigate the effect of morphological instruction on derivational MA and vocabulary knowledge of tenth-grade Vietnamese EFL English learners. The participants were selected with the use of convenience sampling. Initially, there were an equal number of students in both control and experimental groups (35 students in each group). However, the data collected from two students were excluded from the analysis due to attrition. Therefore, the study ended up with 34 students in each group. The students' English proficiency levels were reported to be at around A2 or B1 according to CEFR. The participants in the experimental group were provided with explicit derivational morphological instruction including roots and derived words for three weeks (two 45-minute lessons each week). In the meantime, those in the control group did not receive any special treatment but continued to learn vocabulary in a traditional way. A MA test with its 4 parts and a test vocabulary size test (TVS) were used as pre-tests and post-tests. All the tests employed in the study were modified versions of previously used tests in the literature. The MA test in this study tapped into the relational and syntactic aspects of derivational MA but not the distributional aspect. Furthermore, the MA test included both morphological identification and morphological manipulation sections. Before the intervention was introduced, the groups did not exhibit any significant difference in terms of both MA

and vocabulary size. For data analysis, independent and paired sample *t*-tests were used to compare and contrast the groups' performance on MA and vocabulary knowledge gains (using a value of $p < 0.001$). The results revealed that the students in the experimental group significantly outperformed the students in the control group on both MA (relational and syntactic) and vocabulary size. During the pre-test to post-test period, the experimental group showed notable progress on the MA test and vocabulary size test, with Cohen's *d* calculations revealing effect sizes of 1,93 and 1,78, respectively. Lastly, six students responded positively to an interview invitation. The data gathered through interviews showed that experimental group students made use of the morphological knowledge they acquired to decode the internal structures of the words in the TVS and also to infer their meanings. In addition, students expressed positive opinions about morphological instruction.

In another study, Alsaeedi (2017) examined how explicit instruction on basic analytical and synthetic word formation rules of morphology affected the MA and vocabulary knowledge of EFL Saudi students. 60 preparatory university students participated in the study. The sampling method employed in the study was convenience sampling. The experimental group was provided with explicit MA instruction for 6 weeks; however, the control group continued their standard educational practices and received no special treatment. While the whole set of pre- and post-tests were administered to the experimental group, only the post-tests were administered to the control group. The researcher identified this aspect of the study as one of its limitations. The Morphological Awareness Test adapted from McBride-Chang et al. (2005) and the New Vocabulary Level Test adapted from McLean and Kramer (2015) were the measuring instruments of the study. The Morphological Awareness Test had two parts: the Morpheme Identification Test and the

Morphological Structure Test. In the Morpheme Identification Test, the students were asked to break the decontextualized words into their constituent morphemes and to write the meaning of each morpheme. On the other hand, in the Morphological Structure Test, the students were expected to synthesise words that fit in the given sentence frame provided. The test included word stems and both inflectional and derivational affixes. According to the research results, students in the experimental group surpassed their counterparts in the control group and demonstrated statistically significant improvements on both tests.

In a large-scale research study, Nunes et al. (2006) designed an intervention program. The focus of the program was on the teaching of morphemes and the impact of this teaching on vocabulary growth. The research had an experimental design. The design included a pre-test, a post-test and a delayed post-test. All the twelve schools participating in the research were in the West London area. While seven schools formed the experimental group by implementing the morpheme teaching programme, the remaining schools formed the control group by implementing other programmes focusing on speaking and listening skills. Students from 3rd to 7th grades were included in the study. A total of 501 students took part in the study (182 formed the control group and 319 formed the intervention group). A vocabulary test and a pseudoword-definition test were used for data collection. Due to practical factors, a limited number of students were able to partake in the assessment of outcome measures. The vocabulary test was administered to 206 students in the morpheme group and to 121 students in the control group on all three testing sessions. The pseudoword-definition test was administered to 170 children in the morpheme group and 104 in the control group on all three testing sessions. The analysis revealed that the morpheme teaching intervention was effective for both low

and high achievers. The delayed post-test showed that the knowledge gained from the intervention was sustained even after 8 to 10 weeks. The delayed post-test showed no signs of regression. Moreover, the students who started out with low scores made even further progress. The researchers concluded that, based on sustained gains in the pseudoword definition task, students learned a word-attack strategy that they can generalise to polymorphemic words in the future.

Amirjalili and Jabbari (2018) investigated the effect of morphological instruction on MA and reading comprehension of EFL learners. Participants of the study were 129 intermediate EFL learners who were first-year university students in Iran. The research had a pretest-posttest quasi-experimental control group design. Based on the outcomes of the Oxford Placement Test, participants were divided into two proficiency levels, with four subgroups. One class from each proficiency level was randomly assigned to the experimental and control groups. While the experimental group received MA instruction for 12 weeks, the control group received no special treatment and continued their regular instruction. In total, 30 suffixes were chosen for the morphological instruction. The instruction included both orthographically transparent and opaque words; however, the research did not specifically investigate phonological transformations. The measuring instruments in this study were a homogeneity test, a researcher-adapted derivational MA tests (relational, syntactic and distributional) and a standard reading comprehension test (the standard Nelson–Denny Reading Test). The results of the study showed that morphological instruction positively affected both MA with its three aspects and reading comprehension. The results also showed that reading comprehension gains for the higher intermediate level were greater as compared to that for the lower intermediate level. Regarding aspects of derivational morphology, it was concluded

that the lower intermediate level benefited more from the instruction. According to results, a connection has been established between reading comprehension and aspects of derivational morphology, with the distributional aspect showing the strongest correlation.

Yücel-Koç (2015) in her doctoral thesis investigated the impact of explicit morphology instruction on adult second language learners' MA, academic vocabulary and reading comprehension skills. The study had a pre-test-post-test quasi-experimental non-equivalent control group design. The participants were 35 adult second language students who came to the USA to learn English and subsequently pursue an academic degree. Participants were selected with the use of convenience sampling. The numbers of students in the experimental and control groups were 17 and 18, respectively. The students in the experimental group received morphological instruction twice a week for 75 minutes for eight weeks. In each lesson, students were taught three to four suffixes and two words with one low and one high frequency. Students spent time working on a variety of tasks such as derivation, decomposition, creating nonsense words, and completing cloze tests. On the other hand, the students in the control group did not receive morphological instruction and continued their regular schedule with their teachers. Analysis of the pre- and post-test scores of the groups revealed that experimental group students performed better in the tests of MA, academic vocabulary, and reading comprehension. Statistical analyses indicated a significant difference in performance between the groups.

Sukyng (2020) carried out a quasi-experimental research study investigating the impact of affix instruction on acquiring morphologically complex words. In this study, participants were given a pre-test, a post-test, a delayed post-test and a five-

point Likert questionnaire. Participants of the study, who were Thai native speakers, were second-year English majors at a Thai university. At the time of the study, all participants were taking an English analytical reading course. As part of the experiment, the students in the experimental group were provided with two additional hours of instruction focused on English affixes and word families. However, the students in the control group did not receive this training. While there were 60 students in the treatment group, there were only 32 students in the control group. All participants took both receptive and productive affix knowledge tests. The receptive affix knowledge task consisted of multiple-choice questions using pseudowords and real affixes. The productive affix knowledge task included sentences, each with a missing word. Students were required to fill in the blanks using the prompt word and their affix knowledge. The research findings revealed that the treatment group had a significantly better performance than the control group on receptive and productive affix knowledge tasks. The results indicated that both the treatment and control groups gained higher scores on the receptive affix knowledge task than on the productive affix knowledge task. Student responses given to the questionnaire suggested that Thai university students had a favourable view of affix instruction.

Apel and Diehm (2013) designed and implemented an 8-week MA intervention on kindergarteners ($n = 27$), first ($n = 22$) and second grade ($n = 26$) students from low-socioeconomic-status families. In order to investigate the effect of MA intervention on participants, a pretest/posttest group design was used. The goal of the intervention was to enhance “students’ awareness of affixes and relations between base words and inflected and derived forms”. Randomly selected students at each grade level were assigned to intervention or control groups. Overall, 151

students participated in the study. Students were of diverse ethnic backgrounds, yet English was the primary language of all. Morphological instruction was provided to small groups of the same grade (4 or 5 students) four times a week, each lasting 25 minutes. The control group students did not receive any special morphological treatment, but continued their regular lessons at the school. Two MA tasks (the Relatives and Rehit tasks) and two word-level reading tasks were administered before and after the intervention to all grade levels. Unlike first and second graders, who focused on both spoken and printed morphology, kindergarteners were introduced to only spoken forms. All multimorphemic words used in MA tasks were phonologically transparent (e.g., friend/friendly). A total of 11 inflectional and derivational affixes were taught to students (i.e. plural -s, third-person -s, present progressive -ing, past-tense -ed, prefix un-, prefix re-, prefix dis-, suffix -er (person), suffix -ly, suffix -ness, suffix -er (more)/-est). The research results indicated that experimental group students at all grade levels generally benefited from the intervention and exhibited statistically significant improvement in their MA. Although reading skills were not directly addressed in the intervention, the first and second graders showed small practical gains that were statistically insignificant. According to the researchers, these small gains in reading comprehension might be due to students' increased decoding skills.

In an experimental research study by Yuan and Tang (2023), the effects of MA training on receptive and productive academic vocabulary knowledge of EFL Chinese learners were investigated. The study employed a pretest-posttest control-experimental group design. 50 college freshmen students participated in the research and randomly assigned to control or experimental groups. The selection was limited to students with a pre-intermediate level of English proficiency. Using Coxhead's

(2000) word list (AWL), researchers chose 36 words with Latin roots. The selected words were derivatives of 11 different and productive (high frequency) Latin bound roots such as ‘cap’, ‘fac’, ‘vid’, and ‘gen’. Most of the selected words contained productive suffixes or prefixes (i.e., re, con, pre). The selection of high frequency roots and affixes was informed by Lane et al.'s (2019) study. The research had two measuring instruments: the receptive academic words knowledge test (RAWKT) and the productive academic word knowledge test (PAWKT). The MA intervention lasted for 6 weeks. There were 18 sessions of 10 minutes each. In each session, the teaching procedure employed was as follows (Yuan & Tang, 2023): 1) identifying target words; explaining target words' morphological structure; 2) analysing meaning of morphemes and relation between morpheme meaning and word meaning; 3) learning words sharing the same affixes, including some familiar words; 4) review of learned morphemes. Control group students were taught the same target words using a traditional approach, but no morphological insights were shared with them. The results showed that the receptive academic vocabulary knowledge of the experimental group students increased significantly compared to the students in the control group. No statistically significant increase in productive academic knowledge was seen for neither group, however.

Local Research

Akbulut (2017) aimed to explore the effect of MA on second language vocabulary knowledge in the context of Türkiye. The study had a pretest-posttest experimental control group design. 52 university preparatory class students were divided into control and experimental groups. Nation's (2001) Vocabulary Level Test and Morphological Awareness Test were the measuring instruments of the study. According to the pretest results, there was no significant difference between

the groups in vocabulary knowledge and MA. While the experimental group received specialised instruction focusing on affixes, root words, collocations and synonyms, the control group received traditional vocabulary instruction (using dictionaries and memorising vocabulary lists etc.). The treatment lasted for 12 weeks. The students in the experimental group received 3 hours of instruction each week, making a total of 36 hours. At the end of the treatment period, the findings of the study revealed that the students in the experimental group performed significantly better than the students in the control group in both tasks.

In another study Akbulut (2019) investigated the effect of explicit morphological instruction on Turkish EFL learners' MA and reading comprehension. The participants of the study were 74 first-year undergraduate students majoring in translation and interpreting at a Turkish state university. Before the commencement of the morphological intervention, participants were administered the Oxford Quick Placement Test (OQPT), Nation's Vocabulary Knowledge Test (NVK), and a questionnaire. The questionnaire, which included demographic questions as well as individual assessment of English skills, served as a tool to assess the consistency of OQPT and NVK results. Using the results of the OQPT and NVK, the researcher randomly divided the participants into experimental (N=38) and control (N=36) groups, based on their level of English. The intervention lasted 22 weeks, during which a total of 32 prefixes, 23 suffixes and 27 roots were taught. The base words used in the treatment were selected from the "Longman Communication 3000" word list (https://www.lex tutor.ca/freq/lists_download/longman_3000_list.pdf). The teaching protocol involved introducing prefixes, suffixes and base words, providing their definitions, combining the morphological elements, explaining word class of resultant derived words, and giving examples. In the study, the Morphological

Correction Test (MCT) and the Reading Comprehension Test (RCT), an adaptation of Bian (2017), were used as pre- and post-tests. The results revealed that the experimental group students performed statistically significantly better than the control group students on both MCT and RCT tasks.

In a study carried out by Tacir (2016), the impact of explicit derivational suffix instruction on MA and vocabulary development was investigated. The participants of the study were 28 sixth-grade students studying at a state school in Türkiye. At the time of the study, all students had been learning English as a foreign language for 3 years. The participants were chosen with the use of convenience sampling. This research study did not include experimental and control groups. The study had a mixed-method design. The quantitative data collection tools of the study were a derivation task, a decomposition task and a multiple choice vocabulary test. Interviews were conducted to collect qualitative data; thus, students' opinions about the given morphological training were investigated. The participants were given a 6-hour morphology training in suffixes that derive nouns and adjectives. Participants' MA and vocabulary knowledge were measured before and after the intervention. Additionally, a delayed post-test was administered 8 weeks after the completion of morphological training. The results of the derivation task showed that students were more successful in analysing the structure of derived nominals than adjectivals. They also performed significantly better on familiar words than on unfamiliar words. Overall, they had more difficulty in the derivation task than in the decomposition task. The researcher argues that phonological and orthographic changes may be another reason for students' low performance on certain words. Pre, post and delayed post results indicated that students' MA increased as a result of the training provided. There was no significant difference between post-test and delayed post-test results.

In this study, participants stated that they gained useful insights into the word structure of English.

In the study she conducted, İlkbařaran (2020) investigated the effect of morphological analysis instruction on Turkish 9th grade EFL learners' vocabulary learning as well as the relationship between participants' learning styles and morphological analysis as a vocabulary learning strategy. The quasi-experimental research had a pretest-posttest experimental and control group design. A total of 38 students participated in the study, all of whom were female. In the study, which lasted for five weeks, experimental group students received morphological analysis instruction. The instruction involved parsing words into their constituent morphemes and working out their meanings through morphological analysis. The instruction, which adopted a problem solving approach, included the following morphological teaching techniques: "word detectives", "divide and conquer", "word spoke", "word sums" and "word matrix". Students received morphological analysis instruction three times a week for 15 minutes each during the school's regular 40-minute class hours. In total, students were taught fifteen morphological elements (ten bases and five derivational prefixes) and 60 words of Graeco-Latin origins. In the meantime, control group students were taught the same items through oral repetition, reciting wordlists, and note-taking. Oxford Quick Placement Test, and Vocabulary Size Test (VST) (Nation & Beglar, 2007) were administered to all participants before the intervention. In this study, the results of Oxford Quick Placement Test were instrumental in deciding the frequency of words and thus the range of the word families to be tested in VST. Morphological Analysis Test (MAT), which was created by the researcher herself, was conducted as pre- and post-test to assess the effect of the morphological instruction. Independent and paired samples *t*-test results

revealed that experimental group students' performance in the MAT was significantly better than that of the control group students. Therefore, it was inferred that students with increased MA as a result of morphological analysis activities were better at remembering the meanings of newly learned words. A Turkish translated version of Learning Styles Checklist (Brown, 2000) was given to experimental group students after the completion of the posttest. The result of the questionnaire revealed that the experimental group students had right-brain dominance. The experimental group students were able to improve their vocabulary knowledge after having received morphological analysis instruction, and therefore this result proves contrary to the view that people with left-brain dominance are better at analytical thinking and language learning (Brown, 2000; Morris, 2006).

In his master's thesis, Mahmoudi (2017) explored the impact of etymological and morphological vocabulary instruction on EFL undergraduate level students' receptive/productive vocabulary, and their written spelling skills. The study had an explanatory sequential mixed-method research design. 48 EFL preparatory class students were equally and randomly divided into control and experimental groups. Both groups had the same number of males and females. The etymological and morphological intervention involved several activities such as the teaching of roots, morphemes and affixation, guessing word meanings using morphological components, and searching for word etymologies. The intervention lasted for 60 days. Prior to the administration of the pre-tests, participants were given a questionnaire and the Michigan Test of English Placement (MTELP). The questionnaire aimed to investigate the social status of the participants' parents as this parameter was regarded by the researcher as an important factor in SLA (Montreo et al., 2014). The results indicated that there was no statistically significant difference

between the social status of the parents of the experimental and control group students. As determined by the MTELP, the English level of all participants was B1 according to the CEFR. In the study, receptive and productive knowledge tests, based on Wesche and Paribakt's (1996) Vocabulary Knowledge Scale (VKS), and a written spelling test were administered as pre- and post-tests. Statistical analysis revealed that experimental group students significantly outperformed control group students in all three tests. Additionally, an open-ended questionnaire given to some experimental group students after the completion of the treatment period showed that the students had positive views on etymological and morphological vocabulary instruction. The researcher concluded that the etymological and morphological instruction provides participants with a meaningful vocabulary learning strategy through which they can form mental connections between words and accommodate the new knowledge to their existing knowledge.

CHAPTER 3: METHOD

Introduction

This chapter provides a description of the methodology used in the current study, which includes the research design, setting, selection of participants, data collection and analysis procedures.

The present study sought to explore the effect of form-focused morphological instruction including free base words and derivational suffixes on derivational MA of 11th-grade EFL high school students in Hatay-Türkiye. This study also aimed to investigate the effect of form-focused morphological instruction on vocabulary knowledge of these learners. In this regard, this study was designed to investigate the following research questions:

1. Does form-focused morphological instruction increase English derivational MA of 11th-grade EFL learners studying at a private high school in Hatay region in Türkiye?
2. Does form-focused morphological instruction improve the vocabulary knowledge of these learners?

Research Design

The present study adopted a quantitative approach for the investigation of the research questions and analysis of the research findings. Gay et al. (2012) define quantitative research as the process of gathering and analysing numerical data to describe, explain, predict, or control the phenomena of interest to the researcher. Quantitative methods emphasise objectivity and provide numerical data required for statistical analysis.

Experimental research is the most powerful of all quantitative research designs. Experimental research involves the manipulation of treatment conditions and control of extraneous variables, thereby enabling a cause-and-effect link to be established between independent and dependent variables. In experimental research, at least one independent variable is manipulated while other relevant variables are controlled, and the effect on one or more dependent variables is observed (Gay et al., 2012).

The aim of the study was to investigate the effect of form-focused morphological instruction (independent variable) on derivational MA (dependent variable), and vocabulary knowledge (dependent variable). A pretest-posttest non-equivalent control group design was chosen for this experimental intervention study. As Creswell (2015) notes, there may be some situations, especially in the context of ongoing school activities, where it may not be possible to randomly assign participants to control and experimental groups. While true experimental research requires random assignment of participants to groups, a quasi-experimental research design does not involve random assignment (Creswell, 2015). Hence, the current research design was structured as a quasi-experimental design. The decision of the design was reached based on prior consultation with the school where the research was carried out.

Setting

This study took place in a private high school in Hatay- Türkiye. The school is part of a larger educational institution encompassing PreK-12 (kindergarten), primary school, middle school and high school. Each school has its own administration, led by a principal, and the principals are accountable to the school board, the majority of whose members are experienced teachers. The educational institution had been providing educational services for 24 years as of 2022.

The high school (hereinafter referred to as “the school”) offers several services in order to ensure the physical and psychological well-being of students. The health centre, counselling services and school lunch are among those services. The school organises activities such as field trips, spring festivals and visiting nearby book fairs and universities on a regular basis. Indoor and outdoor sports halls, a swimming pool, a library, a canteen, a cafeteria, school science labs, and a school IT room are among the physical facilities available on the school campus, covering an area of 10,000 square metres.

The school offers merit-based scholarships of various amounts to successful students at the beginning of each educational year. The scholarship recipients are selected through a timed achievement test covering core subjects. Thus, in terms of its student body, the school has a fair representation of the society in which it operates by opening its doors to less privileged students in the community.

This study was conducted in the fall term of the academic year 2022-2023. At the time of the intervention and data collection, the school had around 272 students and 5 teachers of English. The ages of English teachers ranged between 26 and 52. All the teachers employed were non-native EFL teachers. As regards the teaching experience of the EFL teachers, the average was approximately 10 years, with a minimum experience of 3 years and a maximum of 28 years. All the teachers hold bachelor’s degrees in ELT. The educational background of the teachers working in this school is consistent with the rest of EFL teachers in Türkiye. The majority of EFL teachers working in Turkish private or state schools have degrees at bachelor’s level (Babanoğlu & Yardımcı, 2017; Mohammed, 2016; Pınar et al., 2021; Yolcu & Akçayoğlu, 2022;).

Participants

The participants of this study were 11th-grade EFL learners studying at a private high school in Hatay region in Türkiye.

The school had two types of classes at each grade level, called “Anatolian” and “Science”. Both types of classes followed the same curriculum. Students started their regular daily lessons from Monday to Friday at 8.30 and finished at 16:40. The school provided eight forty-minute regular EFL lessons per week. At the time of this study, all participants had been learning English for 8 years.

Participation was on a voluntary basis. As the participants in the research were minors, all parents of the participants received letters of information explaining the research study and processes involved. Only the students whose parents submitted their signed written consent were admitted to the study. The parents were informed that they had the option to withdraw their consent at any point during the study if they wished to do so. The parental consent form is included in Appendix A. As a result, 61 students participated in the study. All participants were fully briefed before the study commenced.

Participants were chosen with the use of convenience sampling, a non-probability sampling. Fraenkel and Wallen (2009) define the convenience sample as a group of individuals who are readily available for a research study, and thus forming a sample that is easily accessible.

Regarding experimental studies, Gay et al. (2012) note that it is recommended to have at least 30 participants in each group (e.g., experimental and control groups). Due to the internal rules and regulations of the school in which the research was conducted, the maximum size of each class was approximately 20 or fewer students. Therefore, four classes (two Science and two Anatolian) were

conveniently selected to form the experimental and control groups. The selection of classes was based on their availability in the school timetable. While two separate classes formed the control groups, the other two merged into one class to form the experimental group. This arrangement was decided due to the insufficient number of students in each class. Moreover, it was necessary to merge the experimental groups to ensure that the students in the experimental group receive the same treatment. However, the two separate control groups were naturally not merged to avoid disrupting the school's educational activities and since unlike the experimental groups it was not necessary to put these students together for instruction purposes.

Prior to the commencement of the intervention, the EF SET (EF Education First, n.d.), an online English proficiency test, was administered to all participants in the first week of the research. The EF SET provides the test takers' results using both the EF SET 0-100 score scale, and the Common European Framework of Reference for Languages (CEFR) six-point scale (A1, A2, B1, B2, C1, C2) (Council of Europe, n.d.). In the report explaining the technical details of EF SET (EF Education First, 2014), the following corresponding levels are given between the EF SET 0-100 point scale and the CEFR six point scale: 1 – 30 = A1, 31 – 40 = A2, 41 – 50 = B1, 51 – 60 = B2, 61 – 70 = C1, and 71 – 100 = C2. The test results revealed that the majority of the students in the Science classes were at level B1 according to the CEFR while the majority of the students in the Anatolian classes were at level A2. In an attempt to control for the extraneous variable language proficiency and thus to obtain more homogenous groups, one class from each class type was assigned to experimental and control groups. The assignment of the classes was determined by the flip of a coin. One Anatolian and one Science class were merged to form a large experimental group and received form-focused morphological instruction. The details of the

instruction received will be explained in more detail below. In this study, there were two control groups. The control groups (Control Group A- Anatolian and Control Group B- Science) continued with their regular school timetable and curriculum, and received no special treatment.

Table 2 shows the number of participants in each group.

Table 2

Number of Participants in Experimental and Control Groups

Group size	Experimental Group (Anatolian + Science)	Control Group A (Anatolian)	Control Group B (Science)
n	30	18	13

Table 3 presents the gender information of the participants.

Table 3

Gender Information of Participants

Gender	Experimental group (Anatolian + Science)	Control group A (Anatolian)	Control group B (Science)
Female	16	9	6
Male	14	9	7

Instrumentation

The research instruments in this study attempted to measure the following variables: English proficiency, derivational MA, and vocabulary knowledge.

The EF Standard English Test (EF SET)

The EF SET, an online standardised English proficiency test, comprises two sections, the listening and the reading sections. The EF SET is available online and

free of charge. The EF SET has a computerized adaptive multistage design. The difficulty level of each next question in the test is determined by the answer that the test taker gives to the preceding question. Test takers do not lose points for wrong answers. Test results are reported using a 0-100 scale. In addition to the 0-100 scale, the results are also reported using the CEFR classification (A1, A2, B1, B2, C1, C2). In addition to reporting individual reading and listening scores, the EF SET also gives an overall score based on the average of these two skills.

More information regarding the EF SET test design, test specifications, item analysis and quality control processes can be found in a report prepared by EF Education First (2014).

Participant Performance on the EFSET

The purpose of the *t*-test is to test whether the means of two samples differ significantly or not (Hinton et al., 2014). To check whether the experimental group and control group had a statistically similar level of English proficiency before the intervention started, an independent two-tailed samples *t*-test was run using the participants' EF SET scores.

As shown in Table 4, CG and EG achieved very close mean values on the EF SET proficiency test, 36.00 (*SD* =14.99) and 36.53 (*SD* = 14.42), respectively. The independent two-tailed samples *t*-test results for EF SET scores are presented in Table 4 below.

Table 4

Independent Samples t-test Results for EF SET Scores

Data Source	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>
CG	36.00	14.99	-0.14	59	.888
EG	36.53	14.42			

According to the independent samples *t* test results (Table 4), the mean difference ($M = -.53$) between the groups in terms of their EFSET scores was found to be non-significant, $t(59) = -.14$, $p = .888$, two-tailed. In other words, there was no statistically significant difference in between CG ($M = 36.00$, $SD = 14.99$) and EG ($M = 36.53$, $SD = 14.42$) in terms of their English language proficiency before the intervention began.

The Test of Morphological Structure (TMS) (Carlisle, 2000)

The Test of Morphological Structure is a non-standardized researcher-developed MA production task designed to assess learners' awareness of derivational morphology. It is the most commonly used metric of morphological awareness in the literature (Bernstein et al., 2020). The test consists of two tasks, the derivation and the decomposition. The base and derived forms are equivalent in word frequency on both the derivation and decomposition tasks. As stated by Carlisle (2000), the TMS uses the following suffixes on both tasks: '-th' (e.g., growth), '-ance/ence' (e.g., assistance), '-er' (e.g., farmer), '-ity' (e.g., humanity), '-tion/sion' (e.g., reduction), '-ous' (e.g., dangerous), '-able' (e.g., agreeable). The number of suffixes of each type is equal on both tasks. For instance, the suffix '-able' is used three times on each task. Likewise, the suffix '-ity' is used four times on each task.

The tasks in the TMS serve different purposes. Katz (2004) clarifies that the decomposition task aims to assess only explicit relational awareness, whereas the derivation task aims to assess syntactic and distributional awareness in addition to explicit relational awareness. She further states that relational, syntactic, and distributional awareness can be explained as a function of phonological and orthographic transparency. For instance, while some base words can be recognised without much effort in their derivatives (e.g., reason vs. reasonable), some others

cannot, and this can be a function of phonological and orthographic transparency (e.g., division vs. divide).

When designed by Carlisle, the TMS was used as an oral morphological awareness measure. As described by Katz (2004), for the decomposition task, the examiner read out a derived word which was followed by a short sentence. Each sentence had a missing word in the final position, and students were required to orally produce the base form of the derived word to finish the sentence. For the derivation task, the examiner read out a base word followed by a short sentence. Each sentence had a missing word in the final position, and students were required to orally produce a derived form of the base word to finish the sentence. Both phonologically transparent and phonologically opaque words were used in the two tasks.

Along with phonological transformations discussed in the TMS, the morphological instruction within the scope of this intervention study also took into account the orthographic transformations caused by suffixation. In this study, the experimental group students were taught the following three types of derivational shifts (transformations), and also a no-shift case: one-shift (phonemic), one-shift (orthographic), two-shift (phonemic & orthographic) and no-shift. In agreement with several previous investigations (Apel & Henbest, 2020; Carlisle, 1987, 1988; Kieffer & Lesaux, 2008; Leong, 2000; Tighe, 2012, 2015; To et al., 2016), the aforementioned transformation-based categories were adopted in this study.

The current study administered the TMS to participants in written mode with its two tasks (decomposition and derivation). Researchers commonly use oral tasks for measuring MA in order to avoid confounding morphological knowledge with variables such as orthographic knowledge and reading ability (Bowers, 2006).

However, Bowers (2006) puts a special emphasis on the benefits that students would likely gain from being able to recognise how written morphemes convey meanings and semantic connections between words, regardless of changes in pronunciation. Thus, students might better understand the consistent orthographic representations of morphemes and make use of them in reading. Similarly, the morphological instruction within the scope of this intervention study aimed to draw learners' attention not only to phonetic changes but also to orthographic changes. Therefore, in this study, the TMS was administered in written form. Kotzer et al. (2021) report a Cronbach's alpha coefficient of .73 for the TMS administered in written form.

Each task in the TMS contains 28 questions. For the decomposition task, in each question, participants were given a derived word and asked to provide the morphological base form that fits into the sentence context (e.g., Driver. Children are too young to _____). For the derivation task, in each question, participants were given a base word and asked to provide the morphological derived form that fits into the sentence context (e.g., Help. My sister is always _____). The presence of contextual cues in tasks can encourage learners to utilize their decoding skills and vocabulary knowledge to infer morphologically complex words (Tighe & Schatschneider, 2015). As used by Spencer et al. (2015) and Katz (2004), dichotomous scoring was implemented for the TMS. A correct answer received one point, and an incorrect answer or no answer received zero point in the assessment. Each task in the TMS included two practice items.

The TMS was originally designed for and administered to the US 3rd and 5th graders. Therefore, in this current study, the researcher sought to establish language equivalence of school grade levels of both countries (the USA and Türkiye) in order to determine the applicability of the TMS to the local research sample. To this end,

the researcher obtained samples of texts from the research setting for each school grade level, and analysed them using the Flesch-Kincaid Grade Level test (FGLT) (Microsoft, n.d.). The FGLT determines the U.S. school grade level that best reflects the complexity of the text. For example, if a text receives a score of '4', it indicates that it can be understood by a US 4th grader. Using the FGLT, the researcher analysed 6 texts from each school grade level in the school. The results of the 9th grade level texts were 2.4, 3.3, 3.4, 3.4, 3.6, and 4.2. The results of the 10th grade level texts were 2.3, 3.8, 3.8, 3.9, 4.2, and 4.5. The results of the 11th grade level texts were 3.5, 4.0, 4.0, 4.9, 5.2, and 5.4. Lastly, the results of the 12th grade level texts were 4.9, 5.4, 5.8, 6.1, 6.2, and 7.0. Consequently, all of these results indicated that 11th grade English texts used in Türkiye were approximately equivalent to 3rd and 5th grade English texts used in the USA.

The Updated Vocabulary Levels Test (UVLT) (Webb et al., 2017)

In this study, receptive vocabulary knowledge is the aspect of literacy expected to benefit from form-focused morphological instruction. To measure the possible transfer effect, all participants were given two equivalent forms of the updated Vocabulary Levels Test (UVLT) (Form A and Form B) (Webb et al., 2017), with Form A administered before the intervention and Form B after the intervention.

The test measures vocabulary knowledge at five different word-frequency levels: 1000, 2000, 3000, 4000, and 5000 word-family levels. As Webb et al. (2017) explain, the first 1000 word-family level refers to the most frequent 1–1000 word families, the second 1000 word-family refers to the most frequent 1001–2000 word families etc. The British National Corpus/Corpus of Contemporary American English (BNC/COCA) (Nation, n.d.) word-family lists were used in the process of creating the UVLT.

The UVLT presents the questions at each level using a matching format. At each level, there are 5 noun clusters, 3 verb clusters, and 2 adjective clusters, making a total of 10 clusters per level and 50 clusters overall (Webb et al., 2017). Each cluster includes 3 definitions and 6 items to choose from. Participants were asked to put a check under the word that corresponds to each definition. Each correct response is worth a point, and thus the highest possible score for each level is 30. The test includes two practice items. Figure 1 shows an example noun cluster taken from the 1000-word level.

Figure 1

A Noun Cluster From the Updated Vocabulary Levels Test

	boy	rent	report	size	station	thing
how big or small something is						
place buses and trains go to						
young man						

Note. From “The Updated Vocabulary Levels Test: Developing and Validating Two New Forms of the VLT,” by S. Webb, Y. Sasao, and O. Ballance, 2017, *International Journal of Applied Linguistics*, 168(1), p. 37

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Messick's (1989, 1995) framework served as the basis for Webb et al.'s (2017) validation of the two versions of the UVLT, Form A and Form B. Test validation can be achieved from a range of perspectives with the aid of Messick's (1989, 1995) framework (Webb et al., 2017). Table 5 below compares the Rasch reliability and separation estimates between Forms A and B.

Table 5

The Rasch Reliability and Separation Estimates for Form A and Form B

	No. of items	No. of test-takers	Person reliability	Person separation	Item reliability	Item separation
Form A	150	127	.96	4.89	.96	4.72
Form B	150	123	.96	5.09	.96	4.81

Note. From “The Updated Vocabulary Levels Test: Developing and Validating Two New Forms of the VLT,” by S. Webb, Y. Sasao, and O. Ballance, 2017,

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The person separation index reflects the extent to which individuals are differentiated based on the measured variable (Tennat & Küçükdeveci, 2023). The item separation index, on the other hand, offers an estimate of the distribution or separation of the test items on the measured continuum (Bond & Fox, 2015). In other words, while person separation index is employed to put individuals into distinct categories (e.g., high achievers vs. low achievers), item separation index is used for the classification of item difficulty (e.g., more difficult items vs. less difficult items). It is recommended that the person and item separation indices be higher than 2 (Fox & Jones, 1998). As can be seen in Table 5, person separation and item separation indices for the UVLT are 4.89 and 4.72, respectively. Thus, the UVLT is a reliable instrument for categorizing individuals based on their levels of achieving the measured variable (vocabulary knowledge), and similarly it is also reliable for determining item difficulty hierarchy.

Furthermore, the person reliability index demonstrates the reliability of person ordering if this sample of individuals were administered a parallel set of items assessing the same construct (Bond & Fox, 2015). The item reliability index is an indicator of the consistency in item placement within a hierarchy of items along the measured variable when the same items given to another group of individuals with comparable abilities (Bond & Fox, 2015). Person and item reliability can take values between 0 and 1 (Cantó-Cerdán, 2021), and a reliability value of more than 0.8 is considered to be a high value (Bond & Fox, 2015). As Table 5 displays, person and item reliability values of the UVLT are both .96, and therefore the test is highly reliable in classifying individuals according to the measured variable (vocabulary knowledge) and differentiating items based on their difficulty levels. Additionally, the number of items and sample size are essential factors in obtaining high separation and reliability values (Souza et al., 2017). The UVLT has high separation and reliability values (Table 5), thereby affirming the adequacy of both the number of test items (Form A: 150 and Form B: 150) and sample size (Form A: 127 and Form B: 123).

The UVLT uses the word-family as the unit of counting. If a learner knows the base word or some other members of the family, and if the learner is familiar with the form and meaning of affixes, recognising another family member would require no or little additional learning (Bauer & Nation, 2020). Therefore, the same assumption is adopted in this study. It was expected that the experimental group students would benefit from form-focused morphological instruction and be able to recognise some unknown word family members upon encountering them. As Webb et al. (2017) note, this type of recognition refers to receptive knowledge of word

parts, which is useful for deciphering unknown derivations when listening or reading.

Selection of Derived Words

In this study, the morphological intervention course was centred around noticing free bases, derivational suffixes, and derived words through awareness-raising FonFS and FonF activities. For each question in decomposition and derivation tasks, the TMS requires learners to fill in the blank in the final position with either the base or derived form of the given word. Each task contains 28 questions, and thus making a total of 56 words that need to be manipulated to fit into the sentence context.

According to Gairns and Redman (1986), eight to twelve vocabulary items can be presented per lesson. Adopting their suggestion, 8 derived words were presented in each lesson using FonFS and FonF tasks. The morphological course included a total of 96 derived words, with 8 new words presented in each lesson over 12 class hours (excluding 2 review sessions). Therefore, in addition to the 56 words already available in the TMS, a further 40 derived words were selected following a protocol to bring the total number of words to 96. The additional 40 words were selected in accordance with a protocol to ensure their psycholinguistic difficulty levels were similar to the 56 words in the TMS.

The selection of the 40 words was conducted by proportionally evaluating the 56 words in the TMS based on their presence in the BNC/COCA word family lists, frequency distributions and morphonological transformations. A careful examination of the 56 free base words used in the TMS revealed that all of them fall within the range of the first four lists of the BNC/COCA. Therefore, the additional 40 words

were selected from the following the BNC/COCA word-family lists: K1, K2, K3, and K4.

The frequency value of each derived word in the TMS was identified by using the 5-point frequency scale of the Collins Dictionary website (<https://www.collinsdictionary.com/>). Cobb (n.d.) explains that Compleat Lexical Tutor website includes a “Familiarizer/Lemmatizer” tool, allowing users to display family lists from any given text. The selection of the 40 additional words was carried out by using the aforementioned digital tool. Proportional criteria for the number of words, frequency values and types of morphonological transformations at each K level were calculated before the selection of the additional words in order to maintain psycholinguistic consistency with the TMS. Only the derived words having the same suffixes used in the TMS were selected. Furthermore, because all the words used in the TMS are within the range of US primary and middle school levels, the words not complying with this condition were excluded. School grade levels of words were determined by using the website called “Dictionary.com” (<https://www.dictionary.com/>).

The Instructional Process and Classroom Assessment

“Noticing”, “morphological awareness”, “schematization”, and “form-function mappings”, and “interaction” are some of the key terms which define the morphological instruction provided within the scope of this intervention study. Accordingly, this study was based on the cognitive linguistics theory, the noticing hypothesis, and the interaction hypothesis.

According to Reinders and Ellis (2009), “noticing” pertains to the mental activity that learners become involved in as they deliberately pay attention to a particular linguistic element found in the input (p. 2). They go on to state that when

individuals take note of the linguistic feature, it is more probable that it will become part of their interlanguage. Aligning with the views that language learning is mainly governed by general cognitive abilities (Rakison & Yermolayeva, 2011) and schematization resulting from repetitive linguistic expressions (Luo, 2021), the current intervention research employed awareness-enhancing explicit and implicit form-focused instructional approaches as its teaching method.

Based on cognitive usage-based theories, this research focuses on analysing derived vocabulary words with some repetitive use of derivational suffixes. It was expected that EFL students exposed to form-focused morphological instruction through both explicit and implicit form-focused teaching methods would notice and assimilate the relevant morphological constructions and be able to form stronger schematic representations by the end of the instructional period. In turn, this might have a transfer effect on vocabulary knowledge. In this regard, noticing, which is a cognitive process (Littlemore, 2009), might stand out as an important factor in developing morphological awareness. Nation (2022) states that a well-balanced language course includes both meaning-focused and form-focused learning. Accordingly, both FonFS and FonF activities were part of the morphological instruction provided in this study. A sample lesson plan can be seen in Appendix B.

The school's English curriculum prescribed 8 class hours (40 minutes each) of regular English instruction per week. However, as the morphological instruction (2 hours per week) was delivered during the regular English class hours provided by the school, the students in the experimental group received 6 class hours of regular English instruction a week. The morphological training was given to experimental group students 2 times a week for a total of 6 weeks between October and November, during the academic year 2022-2023. Additionally, the experimental

group students attended 2 review sessions, one in week 3 and one in week 5. Thus they received 5 class hours of their regular English instruction during those weeks. Altogether, the experimental group students had 12 class hours of morphological training and 2 review lessons. Meanwhile, the students in the control groups continued with their usual school timetable; therefore, they had 8 regular English classes per week, but no morphological training.

The decision on the duration of the intervention was reached after close consultation with the school where the research was carried out. According to a meta-analysis of morphological interventions in English by Goodwin and Ahn (2013), there is no specific and effective amount of instructional time. Goodwin and Ahn (2013) concluded that despite the biggest impact being recorded for interventions longer than 20 hours, no statistically significant variances were found, and even interventions with durations of less than 5 hours produced reasonable improvements in literacy.

Both Science classes that were part of the study received their regular English instruction from the same school teacher. Similarly, both Anatolian classes that took part in the study were taught regular English by another teacher in the school. While the regular English instruction was provided to all groups by the school teachers, the morphological instruction was delivered to the experimental group by the researcher of this current study.

Starting with K1 level words, the form-focused instruction employed a gradual decrease in word frequency over the course of 6 weeks. The morphological instruction presented the same set of derivational suffixes used by Carlisle (2000) in the TMS. In this study, the form-focused morphological training followed the Presentation, Practice and Production (PPP) teaching procedure. The PPP procedure

is often associated with FoFS instruction (Ellis, 2022; Dalili, 2011); however, FonF can also have a place in the PPP procedure, especially in its production stage (Ellis, 2022). The morphological course started by explaining the rationale for morphological instruction. Each lesson included a brief review of the content taught in the previous lesson.

In this course, Larsen-Freeman's (2014) "three-dimensional grammar framework" (form-meaning-use) was utilised (p. 258). For this particular morphological course, knowledge of form refers to morphosyntactic patterns (i.e., forming a new word by combining a base word and a derivational suffix, and the change in word class as a result of suffixation), and phonemic and orthographic patterns (i.e., phonological and orthographic changes triggered by suffixation). Knowledge of meaning refers to grammatical meaning of derivational suffixes (i.e., the meaning added by the derivational suffix as in 'wash-er' and 'protect-ion'), and lexical meaning of derived words (i.e., dictionary definition). Knowledge of use refers to the selection of appropriate derivational affixes to form new words (the suffix '-tion/sion' can only be attached to verbs as in produce → production), and being aware of the registers in which derivatives are used (formal or informal registers). Whenever possible, visual aids were used to better convey word meanings.

At the beginning of the presentation stage, first, students were directed to perform a receptive FonFS task inductively (e.g., using a meaningful context such as a reading or listening task including the derived words of the lesson) to activate their prior knowledge (schema) of the form, meaning, and use of suffixed derived words, with the aim of preparing them for the following structural focus in the lesson.

The inductive phase is then followed by a transition to a deductive FonFS instruction (e.g., raising students' awareness of word-formation processes through

explicit analysis of derived words, explicitly introducing the meaning that the suffix adds to the word, providing student-friendly definitions of base and derived forms, discussing orthographic and phonological changes resulting from suffixation, explaining the word class of each derived word with the help of suffixes).

The practice stage provided students with controlled practice activities such as parsing words into their constituent morphological parts, drilling derived forms with the aim of developing accuracy and “muscle memory”, reading a text containing words ending in learned suffixes and answering comprehension questions, sentence completion activities (using base or derived forms), listening cloze tests assessing phonological and orthographic awareness, matching base words with suffixes and forming derived words, and doing crossword puzzle.

In the final stage of the lesson, the production stage, students produced the language forms they had mastered in the practice stage. The production stage involved output-oriented planned FonF activities containing derived words of the lesson such as role play, information gap, listening or reading task followed by discussion, writing sentences, and answering questions orally. At this stage, the researcher provided corrective feedback (incidental FonF) in response to learners’ non-target-like utterances. The rationale of the production stage was to have students use the learned language structures in a freer and more communicative context.

Before the conclusion of each lesson, students were assigned homework to consolidate and reinforce what was learned. Some of the homework included doing a corpus query to find out word registers, identifying derived words with the help of descriptions provided, sentence completion activity using derived or base forms, writing a short text, and exploring synonyms. Students were estimated to have engaged in doing homework for about 240 minutes (an estimated 20-minute work for

each assignment). Taking the in-class instructional time and the time spent for out-of-class activities together, the students had around 800 minutes of engagement in learning morphology through form-focused activities.

The alignment of assessment tasks and classroom activities with intended learning outcomes is an important consideration in developing a course. “The learning outcomes identify what we want our students to know, be able to do and/or value by the end of the course” (Cheng & Fox, 2017, p. 41). Taking learning outcomes as a starting point, “backward design” was used to plan classroom activities and assessment tasks. This course adopted a bottom-up approach to language teaching. Bottom-up processing is defined as “a focus on the “bits and pieces” of language, breaking language into component parts and giving them central focus, eventually working toward meaning” (Brown & Lee, 2015, p. 628). The lessons, which started with inferring form, meaning and use of derived words by induction, moved on to introducing new base words and derivational suffixes by deduction, and gradually progressed towards freer language production.

This course incorporated the following performance-based assessment forms: discussions, oral responses, written responses, integration of listening and speaking, and reading and writing. Additionally, impromptu feedback, unplanned comments, informal observations, student journal entries, informal quizzes, self-assessment, and reading and checking comprehension with a partner made up the formative assessment component of the course. Informal quizzes were given every two weeks, and their purpose was to demonstrate whether the students had acquired the skills up to that level in the course. For example, students were asked to match derived words to their definitions or base words to suffixes, write a short response text, listen to cloze tasks, and take a vocabulary quiz.

Students were asked to keep a journal of each derived word they learned and to group them into phonological/orthographic shift categories. In this course, feedback was one of the important components of the formative assessment provided. Corrective feedbacks, impromptu words of encouragement, and comments on student journal entries were some of the instances during which the students received individual feedback.

In this study, the morphological form-focused instruction involved meaningful oral interactions during which several oral error correction devices were utilised (e.g., recasts, clarification requests, elicitations, and metalinguistic comments). Negotiation for meaning mainly took place in the course of discussion tasks, and comprehension checks. It was thus expected that meaningful interactions involving ‘noticing’ would further strengthen form-meaning mappings. Additionally, direct written corrective feedback was provided in response to learners’ incorrect use of base and suffix morphemes (e.g., scratching out an incorrectly used word, adding the missing linguistic feature, and writing the correct form above or close to the error).

Both the TMS (pre-test) and formative assessments worked as diagnostic tools for the course. The end-of-course administrations of the TMS and the UVLT formed the summative component of the assessment provided in the course.

Method of Data Collection

This intervention study involved high school students as its participants. Before collecting any data, the necessary permission was obtained from the Ministry of National Education of Türkiye. The related document can be seen in Appendix C.

In the week prior to the commencement of the morphological instruction, the EFL SET was administered to all participants in the experimental and control groups

in order to assess their level of English. Due to logistic and equipment constraints on the research site, each participant completed the EF SET on their own personal computer by logging in to the relevant online platform. Before the self-administration process of the test began, all participants were provided with an overview of the rules and regulations. To that end, an instructional document was first presented at the site and then shared with all participants via online student and parent WhatsApp groups. Additionally, all parents were requested to co-operate to ensure reliable administration of the test.

The test started with the reading section and continued with the listening section. The EF SET online platform allowed the test takers a maximum of 25 minutes for each section of the test. When a test taker finished the first section before the completion of the 25 minutes, they were allowed by the system to proceed to the next section. The test takers had to finish the test within 50 minutes.

The pre-test TMS and the pre-test UVLT were conducted on consecutive days (Monday and Tuesday) during the first week of the intervention to avoid fatigue. All participants took the tests. The tests were administered in a large and quiet exam hall and invigilated by the researcher and two school teachers. Classes were taken to the exam hall in groups of two. The administration of the TMS took 40 minutes (one class period) to complete, and the administration of the UVLT took 50 minutes.

Immediately after the end of form-focused morphological instruction, the post-test TMS and post-test UVLT were conducted on all participants in the sixth week in the same manner as the pre-tests.

Methods of Data Analysis

This study had one experimental and two control groups (CG A and CG B). Data analyses were performed using the EG scores and combined scores of CG A and CG B.

This quasi-experimental study included quantitative data. Both descriptive and inferential statistics were used via IBM SPSS statistical software. Based on the results of the EF SET, TMS, and UVLT, the mean scores, standard deviations, and minimum and maximum scores of both experimental and control groups were computed and presented.

For inferential statistical analyses, independent-samples *t*-tests and paired-samples *t*-tests were conducted. The purpose of the independent-samples *t*-test is to analyse the data and provide statistical evidence as to whether the two population means are significantly different (Aldrich & Cunningham, 2016). The purpose of the paired-samples *t* test is to compare the means from two measurements obtained from the same individual at different times (Aldrich & Cunningham, 2016).

The homogeneity of variances for each independent samples *t*-test was checked through the use of Levene's test. Accordingly, the *t*-tests were evaluated in relation to the outcomes of Levene's test.

An independent-samples *t*-test was conducted to assess equality of variance and equality of means in the EF SET performance between experimental and control groups before the intervention took place. This calculation was important as it demonstrated whether there was any difference in performance on the EF SET between the experimental and control groups prior to the intervention. Consequently, the initial English proficiency levels of both groups were taken into account.

In relation to the first research question, an independent-samples *t*-test was run to assess equality of variance and equality of means in the TMS results between experimental and control groups before the intervention. In the same manner, another independent-samples *t*-test was conducted after the intervention took place. Additionally, to measure the impact of the form-focused morphological instruction on morphological awareness, two paired-samples *t*-tests comparing the participants' progress from pre-test TMS to post-test TMS were performed. Lastly, Cohen's *d*, a measure of effect size, was presented to account for possible gains the group made from the intervention.

In relation to the second research question, an independent-samples *t*-test was run to assess equality of variance and equality of means in the UVLT results between experimental and control groups before the intervention. In the same manner, another independent-samples *t*-test was conducted after the intervention took place. Furthermore, to measure the impact of the form-focused morphological instruction on vocabulary knowledge, two paired-samples *t*-tests comparing the participants' progress from pre-test UVLT to post-test UVLT were performed.

CHAPTER 4: RESULTS

Introduction

The aim of this research was to investigate the effect of form-focused morphological instruction, comprising free base words and derivational suffixes, on derivational MA, and vocabulary knowledge of 11th-grade EFL learners studying at a private high school in Hatay-Türkiye. In order to achieve this, the study sought to provide answers to the following research questions:

1. Does form-focused morphological instruction increase English derivational MA of 11th-grade EFL learners studying at a private high school in Hatay region in Türkiye?
2. Does form-focused morphological instruction improve the vocabulary knowledge of these learners?

This chapter provides the results of the current study. Data analyses—both descriptive and inferential—were performed using the Statistical Package for Social Sciences (SPSS 23). In this study, both independent samples *t*-tests and paired samples *t*-tests, with a significance level (α level) of $< .05$, were utilized to arrive at inferential statistical conclusions.

The chapter first presents the number of participants, which is divided into experimental and control groups for pre- and post-tests. Following the participant information, the chapter proceeds to present the results of data analyses.

All participants in this study were given Test of Morphological Structure (TMS), and Updated Vocabulary Levels Test (UVLT) with their respective pre- and post-tests. There was no attrition. The number of participants taking the pre- and post-tests is presented in Table 6 below.

Table 6

Participant Numbers Divided by Time (Pre-test and Post-test) and Groups (CG and EG)

Group	Pre-test (TMS, UVLT)	Post-test (TMS, UVLT)
CG A	n = 18	n = 18
CG B	n = 13	n = 13
EG	n = 30	n = 30

As can be seen in the Table 6, the study involved two control groups (CG A and CG B), and one experimental group. In the data analyses, the EG scores and combined scores of CG A and CG B were taken into account. Therefore, Control groups A and B will be hereinafter called the Control Group (CG).

Table 7 outlines the research questions and corresponding data sources and methods used for data analysis.

Table 7

Overview of Research Questions and Corresponding Methods of Data Analyses

Research question	Data source	Statistical test
RQ 1: Does form-focused morphological instruction increase English derivational MA of 11th-grade EFL learners studying at a private high school in Hatay region in Türkiye?	TMS pre-test (CG) TMS pre-test (EG) TMS post-test (CG) TMS post-test (EG)	Independent samples <i>t</i> -test Independent samples <i>t</i> -test
	TMS pre-test (CG) TMS post-test (CG)	Paired samples <i>t</i> -test

Table 7 (cont'd)*Overview of Research Questions and Corresponding Methods of Data Analyses*

Research question	Data source	Statistical test
	TMS pre-test (EG)	Paired samples <i>t</i> -test
	TMS post-test (EG)	
RQ 2: Does form-focused morphological instruction improve the vocabulary knowledge of these learners?	UVLT pre-test (CG)	Independent samples <i>t</i> -test
	UVLT pre-test (EG)	
	UVLT post-test (CG)	Independent samples <i>t</i> -test
	UVLT post-test (EG)	
	UVLT pre-test (CG)	Paired samples <i>t</i> -test
	UVLT post-test (CG)	
	UVLT pre-test (EG)	Paired samples <i>t</i> -test
	UVLT post-test (EG)	

Results of the Study

The results of data analyses are presented in the order of the research questions.

Analysis of the First Research Question—The Effect of Form-Focused Morphological Instruction on English Derivational MA of Participants

Table 8 demonstrates descriptive statistics (mean, standard deviation, minimum score and maximum scores) and composite performance

(derivation+decomposition) of each group (CG and EG) on TMS before and after the intervention.

Table 8

Composite Performance of Groups (CG and EG) on TMS

Test	Group	<i>n</i>	<i>M</i>	<i>SD</i>	<i>Min.</i>	<i>Max.</i>
Pre-test	CG	31	14.64	12.71	1.00	48.00
Pre-test	EG	30	16.46	11.52	1.00	54.00
Post-test	CG	31	17.12	13.08	0.00	47.00
Post-test	EG	30	31.20	13.67	10.00	55.00

According to Table 8, pre-test mean scores of CG and EG on TMS were 14.64 ($SD = 12.71$) and 16.46 ($SD = 11.52$), respectively. Furthermore, the mean scores of the post-test TMS were 17.12 ($SD = 13.08$) for CG, and 31.20 ($SD = 13.67$) for EG. Despite the intervention leading to an improvement in TMS mean scores for both CG and EG, the increase in CG was only 2 points, in comparison to a 14 point jump in EG.

The groups' mean scores on TMS before and after the intervention were also compared by means of independent two-tailed samples *t*-tests. Table 9 below displays the statistical results of the independent samples *t*-test, which was carried out to determine if there was a significant mean difference between the two groups regarding their awareness of derivational morphology.

Table 9

Independent Samples t-test Results for Pre-test TMS Scores (CG and EG)

Score	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>
CG Pre-test	14.64	12.71	-0.58	59	.560

Table 9 (cont'd)*Independent Samples t-test Results for Pre-test TMS Scores (CG and EG)*

Score	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>
EG Pre-test	16.46	11.52			

As can be seen in Table 9, the mean difference ($M = -1.82$) between the groups in terms of their pre-test TMS scores was found to be non-significant, $t(59) = -.58$, $p = .560$, two-tailed. In other words, before the intervention was introduced, there was no statistically significant difference between CG ($M = 14.64$, $SD = 12.71$) and EG ($M = 16.46$, $SD = 11.52$) in terms of their awareness of derivational morphology.

Another independent two-tailed samples *t*-test (Table 10) was conducted to compare each group's (CG and EG) post-test TMS scores.

Table 10*Independent Samples t-test Results for Post-test TMS Scores (CG and EG)*

Score	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>
CG Post-test	17.12	13.08	-4.10	59	< .001
EG Post-test	31.20	13.67			

As table 10 indicates, the mean difference ($M = -14.07$) between the groups in terms of their post-test TMS scores was found to be significant, $t(59) = -4.10$, $p < .001$, two-tailed. The results revealed that EG demonstrated a significantly better performance on derivational morphological awareness ($M = 31.20$, $SD = 13.67$) compared to CG ($M = 17.12$, $SD = 13.08$) after the intervention. The negative *t*-value is an indication of the difference in performance.

As can be seen in Table 8, both CG and EG showed an increase in their awareness of derivational morphology from pre-test to post-test. Thus, two separate paired samples two-tailed *t*-tests were conducted to find out the significance of the changes observed in groups' derivational morphological awareness.

Table 11 illustrates paired samples correlations between pre- and post-test TMS scores.

Table 11

Paired Samples Correlations for Pre- and Post-test TMS Scores

Score	<i>n</i>	<i>r</i>	<i>p</i>
CG (Pre-test-Post-test)	31	.95	< .001
EG (Pre-test-Post-test)	30	.77	< .001

As it can be observed in Table 11, a strong and positive correlation value ($r = .95$) between pre- and post-test CG TMS scores indicates a high degree of consistency between these two sets of scores. In other words, strong consistency exists in the TMS scores for CG before and after the intervention (CG's progress on TMS is limited). However, a weaker correlation value ($r = .77$) between pre- and post-test EG TMS scores indicates comparatively less consistency, meaning EG's gain in derivational morphological awareness is greater than that of CG.

First, a paired samples two-tailed *t*-test was conducted to investigate the statistical significance of the increase in CG's derivational morphological awareness. Table 12 presents the paired samples two-tailed *t*-test results for CG pre- and post-test TMS scores.

Table 12*Paired Samples t-test Results for CG Pre- and Post-test TMS Scores*

Score	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>
CG Pre-test	14.64	12.71	-3.70	30	.001
CG Post-test	17.12	13.08			

As Table 12 indicates, the paired samples two-tailed *t*-test results for CG pre- and post-test TMS scores were statistically significant, $t(30) = -3.70$, $p = .001$. In other words, the mean increase (-2.48) between the pre- and post-test CG TMS scores was statistically significant.

Another paired samples two-tailed *t*-test was run to investigate the statistical significance of the increase in EG's derivational morphological awareness. The results of the paired samples two-tailed *t*-test that was performed using EG pre- and post-test TMS scores can be seen in Table 13 below.

Table 13*Paired Samples t-test Results for EG Pre- and Post-test TMS Scores*

Score	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>
EG Pre-test	16.46	11.52	-9.26	29	< .001
EG Post-test	31.20	13.67			

Table 13 shows that the mean difference between EG pre-test and EG post-test scores (-14.73) was statistically significant, $t(29) = -9.26$, $p < .001$. While both groups demonstrated statistically significant progress in their awareness of derivational morphology from pre-test to post-test, EG achieved greater gains ($p < .001$) (Table 13) compared to that of CG ($p = .001$) (Table 12). This can also be

deduced from Table 8, with EG's mean gain of 14.73 as compared to CG's mean gain of 2.48.

Additionally, to calculate the magnitude of the difference for within-subjects, Cohen's d effect size (Cohen, 1988) was calculated. Effect size indicates the extent to which a phenomenon exists (Cohen et al. 2007). Navarro and Foxcroft (2019) state that Cohen's d effect size for a paired sample t-test can be calculated by dividing the mean difference by estimate of the standard deviation of the differences.

Cohen's d values are interpreted according to the following scale: about 0.2 is small effect; about 0.5 is moderate effect; about 0.8 is large effect (Navarro & Foxcroft, 2019). While the effect size for CG was medium ($d = 0.66$), the effect size for EG was very large ($d = 1.69$). Consequently, the EG significantly outperformed the CG in terms of gains in derivational morphological awareness.

Analysis of the Second Research Question—The Effect of Form-Focused Morphological Instruction on the Vocabulary Knowledge of Participants

Table 14 below demonstrates descriptive statistics (mean, standard deviation, minimum score and maximum scores) and performance of each group (CG and EG) on UVLT, organized by pre-test and post-test time frames.

Table 14

Performance of Groups (CG and EG) on UVLT

Test	Group	n	M	SD	$Min.$	$Max.$
Pre-test	CG	31	50.25	35.96	3.00	125.00
Pre-test	EG	30	55.36	35.60	10.00	147.00
Post-test	CG	31	47.67	36.34	5.00	122.00
Post-test	EG	30	54.30	32.37	13.00	149.00

According to Table 14, pre-test mean scores of CG and EG on UVLT were 50.25 ($SD = 35.96$) and 55.36 ($SD = 35.60$), respectively. Furthermore, the mean scores of the post-test UVLT were 47.67 ($SD = 36.34$) for CG, and 54.30 ($SD = 32.37$) for EG. Neither CG nor EG had any improvement in their vocabulary knowledge level after the intervention; instead, the groups' performance slightly decreased. CG and EG mean scores decreased by 2.58 and 1.06, respectively.

An independent samples two-tailed t -test (Table 15) was also run to investigate whether there was any significant mean difference between the vocabulary knowledge level of CG and EG prior to the intervention.

Table 15

Independent Samples t -test Results for Pre-test UVLT Scores (CG and EG)

Score	M	SD	t	df	p
CG Pre-test	50.25	35.96	-0.55	59	.579
EG Pre-test	55.36	35.60			

As shown in Table 15, the independent samples t -test indicated no statistically significant difference between the two groups in terms of their pre-test UVLT scores ($t(59) = -.55, p = .579$). In other words, there was no statistically significant difference in both groups' vocabulary knowledge before the intervention took place.

Another independent samples two-tailed t -test (Table 16) was performed so as to find out whether there was a significant mean difference between CG and EG UVLT scores after the intervention.

Table 16*Independent Samples t-test Results for Post-test UVLT Scores (CG and EG)*

Score	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>
CG Post-test	47.67	36.34	-0.75	59	.456
EG Post-test	54.30	32.37			

Based on the statistical outcomes of the independent samples *t*-test (Table 16), it was found that there was no significant mean difference between the two groups in terms of their UVLT scores after the intervention ($t(59) = -.75, p = .456$). To put it differently, both EG and CG did not show a statistically significant difference in vocabulary knowledge after the intervention.

To further analyse the groups' performance, two separate paired samples two-tailed *t*-tests were run to find out whether the mean difference between pre- and post-test UVLT scores of CG, and the mean difference between pre- and post-test UVLT scores of EG were significant.

Table 17 displays paired samples correlations between pre- and post-test UVLT scores.

Table 17*Paired Samples Correlations for Pre- and Post-test UVLT Scores*

Score	<i>n</i>	<i>r</i>	<i>p</i>
CG (Pretest -Posttest)	31	.95	< .001
EG (Pretest -Posttest)	30	.93	< .001

For both CG and EG, strong correlation values were observed, $r = .95$ and $r = .93$, respectively (Table 17). This refers to a high degree of consistency in scores for

CG and EG before and after the intervention. In other words, vocabulary knowledge of both groups remained largely unchanged from pre-test to post-test UVLT.

Table 18 displays the results of the two-tailed paired samples *t*-test for CG pre- and post-test scores on UVLT.

Table 18

Paired Samples t-test Results for CG Pre- and Post-test UVLT Scores

Score	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>
CG Pre-test	50.25	35.96	1.26	30	.215
CG Post-test	47.67	36.34			

The two-tailed paired samples *t*-test (Table 18) for CG pre- and post-test UVLT scores was found to be not significant, $t(30) = 1.26$, $p = .215$. No significant change was detected in CG's vocabulary knowledge at α level (.05).

The two-tailed paired samples *t*-test results for EG pre- and post-test UVLT scores are presented in Table 19 below.

Table 19

Paired Samples t-test Results for EG Pre- and Post-test UVLT Scores

Score	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>
EG Pre-test	55.36	35.60	0.46	29	.648
EG Post-test	54.30	32.37			

The two-tailed paired samples *t*-test (Table 19) for EG pre- and post-test UVLT scores was found to be not significant, $t(29) = .46$, $p = .648$. The EG group did not demonstrate any significant change in vocabulary knowledge from pre-test to post-test.

Based on the results of paired samples *t*-tests shown in Table 18 and Table 19, it was concluded that both groups failed to achieve a statistically significant improvement in their vocabulary knowledge from pre-test to post-test.

As there was no significant improvement in vocabulary knowledge from pre-test to post-test for both CG and EG, the calculation of Cohen's *d* values was deemed irrelevant.

Table 20 below provides an overview of the research questions, related methods of data analysis, and the significance of the results.

Table 20

Overview of Research Questions, Related Methods of Data Analysis, and Significance of Results

Research question	Data source	Statistical test	Significance
RQ 1: Does form-focused morphological instruction increase English derivational MA of 11th-grade EFL learners studying at a private high school in Hatay	TMS pre-test (CG) TMS pre-test (EG) TMS post-test (CG) TMS post-test (EG)	Independent samples <i>t</i> -test Independent samples <i>t</i> -test	$p = .560$ $p < .001$
	TMS pre-test (CG) TMS post-test (CG)	Paired samples <i>t</i> -test	$p = .001$
	TMS pre-test (EG) TMS post-test (EG)	Paired samples <i>t</i> -test	$p < .001$

Table 20 (cont'd)

*Overview of Research Questions, Related Methods of Data Analysis, and
Significance of Results*

Research question	Data source	Statistical test	Significance
RQ 2: Does form-focused morphological instruction improve the vocabulary knowledge of these learners?	UVLT pre-test (CG)	Independent samples <i>t</i> -test	$p = .579$
	UVLT pre-test (EG)		
	UVLT post-test (CG)	Independent samples <i>t</i> -test	$p = .456$
	UVLT post-test (EG)		
	UVLT pre-test (CG)	Paired samples <i>t</i> -test	$p = .215$
	UVLT post-test (CG)		
	UVLT pre-test (EG)	Paired samples <i>t</i> -test	$p = .648$
	UVLT post-test (EG)		

CHAPTER 5: DISCUSSION

Introduction

This chapter starts with presenting an overview of the current study. Following the overview, the chapter provides a discussion of the major findings of the study with reference to the relevant literature. Then, implications for practice and further research are discussed. Lastly, the chapter concludes with limitations of the study.

Overview of the Study

The purpose of this study was to explore the impact of form-focused morphological instruction including free base words and derivational suffixes on derivational MA of 11th-grade EFL high school students in Hatay-Türkiye. Additionally, the study investigated the effect of form-focused morphological instruction on vocabulary knowledge of these learners. To this end, the study was designed to answer the following research questions:

1. Does form-focused morphological instruction increase English derivational MA of 11th-grade EFL learners studying at a private high school in Hatay region in Türkiye?
2. Does form-focused morphological instruction improve the vocabulary knowledge of these learners?

The present research was conducted using a quasi-experimental pretest-posttest non-equivalent control group research design. The study includes only quantitative data. In order to obtain the data, an English proficiency test (EF SET), a morphological awareness test (TMS), and a vocabulary levels test (UVLT) were administered to all participants in the study. First, EF SET was given to both control

and experimental group students to learn more about their level of English proficiency at the start of the study. Then, TMS and UVLT (Form A) were administered as pre-tests to all participants. Once the 6-week form-focused morphological instruction was completed, participants were reassessed using TMS and UVLT (Form B) as post-tests. The data collected were analysed using independent and paired samples *t*-tests. Furthermore, Cohen's *d* was reported to indicate the effect size of the intervention.

Discussion of Major Findings

The results for each research question will be presented and discussed in the subsequent two sections, with reference to relevant literature.

The Effect of Form-Focused Morphological Instruction on English Derivational MA of Participants

The first research question investigated the impact of form-focused morphological instruction on English derivational MA of participants. Data analyses revealed that there was no statistically significant difference between the groups (CG and EG) in terms of their awareness of derivational morphology before the intervention began. Post-intervention results showed that EG students significantly outperformed CG students in terms of their derivational MA. While both groups (CG and EG) improved their awareness of derivational morphology from pre-test to post-test, EG achieved greater gains. Moreover, as indicated by Cohen's *d* effect size, EG made much greater progress in derivational MA compared to CG as a result of the intervention. These findings align with a number of previous research studies showing positive effects of morphological instruction on MA (Akbulut, 2017, 2019; Alsaedi, 2017; Amirjalili et al., 2018; Amirjalili & Jabbari, 2018; Apel & Diehm, 2014; Badawi, 2019; Nguyen, 2021; Tacir, 2016; Yücel-Koç, 2015).

Regarding the effectiveness of morphological instruction, meta-analyses provide the overall picture of the current state of research. For example, a meta-analysis of morphological interventions conducted by Goodwin and Ahn (2013) indicates a mean effect value of $d = .44$ for morphological knowledge. Similarly, another scoping review of morphological instruction studies by Ke and Zhang (2021) found small to large effect sizes for MA. As a result, the outcomes of the current research align with previous research on the positive impact of morphological instruction on MA (Akbulut, 2017, 2019; Alsaeedi, 2017; Amirjalili et al., 2018; Amirjalili & Jabbari, 2018; Apel & Diehm, 2014; Ardanouy, 2023; Badawi, 2019; Nguyen, 2021; Tacir, 2016; Yücel-Koç, 2015; Zoski & Erickson, 2017).

Morphological instruction aims to promote morphological awareness of learners (Badawi, 2019; Goodwin & Ahn, 2010). MA provides an understanding of the building blocks of words, and how words are made up of meaningful parts (Kieffer & Lesaux, 2008). However, the English language does not have a direct mapping between graphemes and phonemes (Bowers & Bowers, 2018; Hayes-Harb & Barrios, 2021; Share, 2008; To et al., 2016), leading to variations between written and spoken forms. Thus, the transparency of a word's phonological and orthographic properties can greatly affect learners' awareness of its morphemic structure (Carlisle & Stone, 2005; Deacon et al., 2017). Past research in the relevant literature investigated the role of phonological and orthographic transformations in MA (Apel & Henbest, 2020; Carlisle, 1987, 1988; Kieffer & Lesaux, 2008; Leong, 2000; Tighe, 2012, 2015; To et al., 2016). This current intervention study also included both phonological and orthographic transformations in its instructional set. Therefore, this might have been a contributing factor in promoting derivational MA of the EG students in this study.

Tyler and Nagy (1989) identified three aspects of derivational MA, namely relational, syntactic, and distributional. Through the process of morphological analysis, students can gain a better understanding of the relational, syntactic, and distributional features of derivational morphology. Previous research studies indicate that exposing learners to morphological instruction leads to an increase in their awareness of relational, syntactic, and distributional aspects of derivational morphology (Amirjalili & Jabbari, 2018; Amirjalili et al., 2018; Ardanouy et al., 2023). Similarly, the form-focused morphological instruction within the scope of the present research placed a special emphasis on relational and syntactic aspects of derivational morphology. This approach to teaching might have facilitated participants' understanding of words' internal structures and various relations among constituent morphemes, thereby leading to an increase in derivational MA.

In this present intervention research, morphological instruction was delivered through the lens of form-focused instruction (FFI). A research synthesis (Kang et al., 2019) that examined 54 empirical studies on FFI reports a significant effect size of $g = .85$ for morphology. Therefore, the findings of the current research provide further support for the effectiveness of FFI on morphological awareness.

Based on their research findings, Bataineh et al. 2017 state that the effectiveness of FFI is enhanced when it is implemented through a combination of techniques, allowing learners to engage in a diverse set of cognitive processes. Furthermore, several research studies have revealed the effectiveness of utilizing a blend of FFI techniques on the acquisition of grammatical knowledge (Abadikhah & Shahriyarpour, 2012; Bataineh et al., 2017; Lylod, 2022; Spada et al., 2014). The FFI employed in this current study included a mix of explicit and implicit form-focused activities (explicit instruction, input flooding, and explicit and implicit corrective

feedback) designed to promote greater noticing and MA. Additionally, the tasks in the study created enough space for student-to-student and teacher-to-student interactions, resulting in both positive and negative evidence. Engaging in interaction can lead learners to notice the gap between their current knowledge (interlanguage) and the features of the target language (Gass, 2009). The results of this study, which indicate improved MA, offer some evidence in support of Long's Interaction Hypothesis (1996). Furthermore, it can be tentatively inferred from this study that the presence of both explicit and implicit knowledge may have mutually influenced each other, consequently contributing to the enhancement of participants' MA. As such, the findings of this study indirectly serve to reinforce the conclusions drawn by Kim and Godfroid (2023).

It should also be noted that once acquired MA persists. This is especially attested by MA measures containing trained words, and untrained words with trained morphemes. For example, Ardanouy et al. (2023) report that the intensive and explicit derivational morphology instruction had a significant impact on MA for both trained words, and words made up of trained affixes with untrained roots. The same researchers found that the significant effect of the derivational morphology instruction on MA was still present four months after the conclusion of the intervention. This current research partly supports the findings of Ardanouy et al. (2023) in that the MA measure (TMS) used in the study included only trained items, and the immediate learning effects were evident.

The Effect of Form-Focused Morphological Instruction on the Vocabulary Knowledge of Participants

The second research question investigated the possible transfer effect of form-focused morphological instruction on vocabulary knowledge. Based on the data

analyses conducted in this study, there was no significant difference in the vocabulary knowledge levels of the two groups (CG and EG) prior to the intervention. Furthermore, the intervention did not lead to any significant change in EG's vocabulary knowledge. CG's vocabulary knowledge by the end of the study did not show any significant change either. Moreover, the findings indicated that vocabulary knowledge of both groups slightly declined after the intervention. These findings contradict the conclusions of numerous past research studies (Crosson & Moore, 2017; Good et al., 2015; Mc-Bride-Chang et al., 2005; Nguyen, 2021; Ramirez et al., 2014; Spencer et al., 2015; Yücel-Koç, 2015). However, the findings of the current study are consistent with some related previous research conducted by Al Farsi (2008), Alsalamah (2011), and Ferguson (2006).

Some factors might provide an explanation for the conflicting findings referenced above. A meta-analysis of morphological interventions conducted by Goodwin and Ahn (2013) report a moderate effect size for vocabulary ($d = .34$). In the same way, another meta-analysis by Bowers et al. (2010) found an effect size of $d = .35$. However, the effect of morphological instruction on vocabulary was reduced to $d = .20$ when control groups were given an alternative form of treatment (Bowers et al., 2010). As noted by Gellert et al. (2021), the reported mean effect sizes for vocabulary vary considerably across research on morphological awareness. This might partly be explained by the school level of research participants. Goodwin and Ahn (2013) state that school level had an influence on observed effect sizes for literacy outcomes, with the largest effects found among preschool students. Therefore, the school level of the learners who participated in the current study (high school students) might have been partly responsible for the lack of effect size for the vocabulary measure.

According to Ke and Zhang (2021), the purpose of morphological instruction is to help learners recognize the internal structure of words, thereby facilitating the understanding of unfamiliar words through the use of familiar word parts (transfer effect). In this regard, Gellert et al. (2021) state that there is a dearth of research on transfer effects, and even those that are reported are difficult to compare. Furthermore, some meta-analyses (e.g., Goodwin & Ahn, 2013; Bowers et al, 2010) have not specifically addressed the issue of transfer effects and have not differentiated “between proximal and more distal effects on vocabulary...” (Gellert et al., 2021, p. 597). Gellert et al. (2021) suggest that when evaluating the effects of morphological interventions, it is important to consider a range of outcomes from proximal to distal effects. While more proximal effects are associated with directly taught items, more distal effects are associated with untrained items (Gellert et al., 2021). As such, there are a number of studies providing evidence for proximal effects of morphological instruction on vocabulary (e.g., the effect on vocabulary words with taught morphemes) (Baumann et al., 2002, 2003; Bowers & Kirby, 2010; Davidson & O’Connor, 2019). However, as noted by Gellert et al. (2021), in contrast to researcher-developed measures, standardised measures do not usually yield large transfer effects as they contain a high volume of untrained items (e.g., untrained morphemes). Although some previous morphological intervention research studies (Akbulut, 2017; Alsaaedi, 2017) utilised standardised vocabulary tests and found significant effects on vocabulary, these studies seem not to have provided enough explanation of their teaching content and appear not to have specifically distinguished between proximal and distal vocabulary outcomes.

The current intervention study produced similar results to some other recent interventions. A research study by Gellert et al. (2021) specifically opted to utilise a

standardised vocabulary test in order to evaluate the distal effects of the intervention on vocabulary knowledge. Gellert et al. (2021) report a Cohen's d (distal) effect size value of 0.04–0.06 (non-significant) for vocabulary knowledge, as measured by the Peabody Picture Vocabulary Test–Revised (Dunn & Dunn, 1981; Nielsen, 2008). Another intervention research study including morphological training (Torkildsen et al., 2022) found persistent and significant proximal effects for word comprehension and definitions 6 months after the conclusion of the morphological training. However, the same researchers found no significant distal effects on general vocabulary measured via a standardised vocabulary test (neither immediately after the intervention, $d = .08$, nor 6 months later, $d = .04$). Similarly, the current intervention research employed a standardised receptive vocabulary knowledge test (UVLT) to measure the possible transfer effect of morphological instruction on vocabulary. UVLT does not specifically target multimorphemic words. Thus, the type of measuring instrument used in this study may explain the absence of a significant transfer effect. Last but not least, learning vocabulary is a process that takes a considerable amount of time (Nagy, 2005). Accordingly, a 14 class-hour course on form-focused morphology may not yield sufficient and observable effects on vocabulary.

Implications for Practice

The findings of previous studies suggest that EFL learners lack sufficient comprehension of derived forms compared to inflected forms (McLean, 2018; Ward & Chuenjundaeng, 2009). Moreover, in contrast to inflectional morphology, the acquisition of derivational morphology in English poses more difficulties for EFL learners (Schmitt & Meara, 1997). The current study's results indicate that learners

may enhance their derivational MA through form-focused morphological instruction, which is in line with some past research (Kang et al., 2019).

Learners trained in derivational morphology might better understand relational and syntactic aspects involved. Learners who are familiar with relational and syntactic aspects of derivational morphology may have a deeper understanding of morphosyntactic rules and the connections between base words and derived forms. Additionally, MA, an aspect of metalinguistic awareness, might allow learners have a better engagement with vocabulary words via paying attention to and manipulating word structures. MA has the potential to enhance vocabulary depth and facilitate stronger connections with related words (Hayashi & Murphy, 2011). Furthermore, parallel to some past research findings (Amirjalili et al., 2018; Amirjalili & Jabbari, 2018; Ardanouy, 2023), the present research has shown that training learners in orthographically and/or phonologically opaque words could lead to increased derivational MA.

Equipped with morphological decoding and morphological analysis skills, EFL learners might better define morpheme boundaries and thus can read and pronounce vocabulary words correctly. Furthermore, with the help of form-focused instruction and error correction, learners could facilitate their learning of derivational linguistics forms by comparing their interlanguage and the positive/negative evidence they get.

To further stimulate learners' curiosity about derivational morphology, an app-based training program using teaching/learning methods similar to the current intervention could be developed and implemented on a group of learners.

As noted by Henbest et al. (2019), classroom instruction typically does not include morphological awareness instruction. Similarly, the national curricula for

English as a foreign language for 2nd-8th and 9th-12th grades in Türkiye place a strong emphasis on the communicative aspects of the language, but give less weight to structural forms (Ministry of National Education of Türkiye, 2018a, 2018b). Accordingly, Ministry of National Education of Türkiye (2018a) states that “the structural features of English are handled implicitly as learners/users develop communicative skills, rather than addressed as a separate issue” (p. 9). Similarly, Ministry of National Education of Türkiye (2018b) states that the curriculum provides “limited focus on language structures” (p. 13), and “in all grades, communicative, experiential, and task-based language activities are promoted” (p. 14). In light of this study’s findings, curriculum developers in Türkiye might consider bringing a more form-focused morphological angle to the relevant curricula in order to improve EFL learners’ derivational MA.

Implications for Further Research

Based on the findings of the current study, some suggestions for future research can be offered.

The construct of MA is a subject of ongoing investigation, with numerous SLA experts exploring its dimensions and its relationship to vocabulary knowledge and other literacy skills (Kristensen et al., 2023; Spencer et al., 2015; Tighe & Schatschneider, 2015; Wang & Zhang, 2023). To this end, following three broad task types were utilised by past research: judgement tasks (e.g., Berninger et al., 2010; Carlisle & Nomanbhoy, 1993; Derwing, 1976; Ku & Anderson, 2003; Mahony et al., 2000; Nagy et al., 2006), production tasks (e.g., Carlisle, 1987, 1995, 2000; Carlisle & Nomanbhoy, 1993; Casalis & Cole, 2009; McCutchen et al., 2008), and analogy tasks (e.g., Bryant et al., 1997; Kirby et al., 2012; Roman et al., 2009; Tsesmeli & Seymour, 2006).

The MA test used in this study (TMS) included contextual cues as each question in the test was presented in a sentence frame. Tasks that contain contextual cues may prompt learners to use their decoding skills and vocabulary knowledge in order to deduce or infer the morphologically complex word (Tighe & Schatschneider, 2015). On the other hand, learners must particularly rely on their understanding of morphological rules when encountering pseudowords, as these words do not hold any inherent meaning (Tighe & Schatschneider, 2015). As such, a more comprehensive future research study might include all three task types (judgement, production, and analogy) to better capture the MA construct with its underlying dimensions. Moreover, a MA test measuring “inflected versus derived, real word versus pseudowords, and contextual cues versus no contextual cues” might provide more information about the construct and its relation to vocabulary knowledge (Tighe & Schatschneider, 2015, p. 293).

The form-focused morphological instruction delivered within the scope of this intervention study focused on free base words and derivational suffixes. However, by addressing derivational prefixes and suffixes, as well as free and bound bases, a morphological awareness training program has the potential to offer a more holistic approach to understanding the concept of derivational MA. An inquiry-based, problem solving approach coupled with some etymological information might further facilitate deep learning, and thus might lead to improved MA as well as vocabulary knowledge. Furthermore, a MA measure comprising trained as well as untrained items might better capture the construct MA with its full dimensions. Lastly, a delayed post-test might provide additional insights into long term effects of morphological instruction on derivational MA.

Future research could investigate the effectiveness of FFI on MA, and vocabulary knowledge using different combinations of techniques such as textual enhancement, dictogloss, input processing, and explicit instruction. In this quasi-experimental study, the EG receiving form-focused morphological instruction was compared against CG receiving regular English instruction. A future research study could further investigate the effect of form-focused morphological instruction on a group of learners in comparison to another group of learners receiving an alternative form of treatment (e.g., phonological treatment). Furthermore, a mixed method future research study involving qualitative as well as quantitative data might provide a more comprehensive picture of the morphological instructional effects. In an effort to better understand the impact of instructional process on the learning experience of participants, interviews may be utilised.

In this study, participants were selected with the use of convenience sampling by ensuring that the start levels of EG and CG were not significantly different from each other. An experimental future research study could employ random sampling to avoid any possible sampling error and therefore to attain a better representation of the population. Furthermore, extending the duration of the intervention could be another consideration for future research. Implementing form-focused morphological instruction over a more extended period may result in better effect sizes for MA, and vocabulary knowledge. Additionally, this study could be replicated on other school levels and school settings.

Limitations

This study is subject to several limitations. Therefore, it is important to approach the findings of this study with caution.

First, in this study, convenience sampling, a non-probability sampling, was used to select participants. While convenience sampling is the most preferred sampling method in educational research, it can also lead to sampling bias (Gay et al., 2012). Individuals selected through convenience sampling may not adequately represent the population of the research (Creswel, 2015).

Second, the current study attempted to form homogeneous groups in terms of their English language proficiency. However, although noted by some researchers, the influence of prior L2 linguistic knowledge on the relationship between MA and word meaning inference was not taken into account in this study (Koda & Miller, 2018).

Third, as the study utilised the same derivational MA test (TMS) as pre- and post-test, this might have resulted in ‘testing effect’. In simpler terms, seeing the test items in the pre-test might have facilitated participants’ recall of the items in the post-test. Thus, this may have compromised the validity of the test.

Fourth, in this study, the morphological intervention included a total of 96 derived words, 56 of which were from the TMS. Therefore, measuring transfer effects was not possible.

Fifth, the intervention within the scope of this study lasted 6 weeks (12 class hours of instruction, and 2 review sessions). Therefore, the length of the intervention may not have been long enough to observe its effects on vocabulary. Additionally, no delayed post-test was utilised, and thus the study could not provide an answer for long-term effects of form-focused morphological instruction on derivational MA and vocabulary knowledge.

Sixth, the study included only 11 grade EFL high-school learners. Therefore, drawing broader conclusions for other populations may not be feasible.

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Appendix A

Parental Consent Form

Sayın Veli;

Çocuğunuzun katılacağı bu çalışma, “**Bağımsız sözcük kökleri ve yapım son ekleri içeren morfolojik (biçimbilimsel) öğretimin yabancı dil olarak İngilizce öğrenen ve Hatay-Türkiye’de özel bir lisede 11. Sınıf kademesinde okuyan öğrencilerin türetme morfolojisi farkındalıkları ve sözcük bilgileri üzerine etkisi**” adıyla, Ekim-Kasım 2022 tarihleri arasında gerçekleştirilecek bir yüksek lisans tezi kapsamındaki araştırma uygulamasıdır.

Bu tez çalışmasının amacı, serbest sözcük kökleri ve yapım son eklerini içeren morfolojik öğretimin yabancı dil olarak İngilizce öğrenen lise 11. sınıf öğrencilerinin türetme morfolojisi farkındalıkları ve sözcük bilgileri üzerindeki etkisini araştırmaktır.

Araştırma uygulaması İngilizce morfolojik eğitim yanında morfolojik farkındalık ve sözcük bilgisi testlerini içermektedir. Bu tez çalışması, verilecek morfolojik eğitim sonunda öğrencilerin İngilizce morfolojik farkındalık ve sözcük bilgilerinde gelişme olacağı varsayımı ile hazırlanmıştır.

Araştırma T.C. Milli Eğitim Bakanlığı’nın ve okul yönetiminin de izni ile gerçekleştirilmektedir. Araştırma uygulamasına katılım tamamıyla gönüllülük esasına dayalı olmaktadır. Araştırma çocuğunuz için herhangi bir istenmeyen etki ya da risk taşımamaktadır. Çocuğunuzun katılımı **tamamen sizin isteğinize bağlıdır**, reddedebilir ya da herhangi bir aşamasında ayrılabilirsiniz. Araştırmaya katılmama veya araştırmadan ayrılma durumunda öğrencilerin akademik başarıları, okul ve öğretmenleriyle olan ilişkileri etkilemeyecektir. Çalışmada öğrencilerden kimlik belirleyici hiçbir bilgi istenmemektedir. Cevaplar tamamıyla gizli tutulacak ve sadece araştırmacılar tarafından değerlendirilecektir.

Onay vermeden önce sormak istediğiniz herhangi bir konu varsa sormaktan çekinmeyiniz. Saygılarımla,

Araştırmacının Adı ve Soyadı : Can ÇAĞAN
Araştırmacının bağlı bulunduğu üniversite : İhsan Doğramacı Bilkent Üniversitesi
İletişim bilgileri :

*Velisi bulunduğum sınıfı numaralı öğrencisi
.....’ın yukarıda açıklanan araştırmaya katılmasına **izin**
veriyorum. (Lütfen formu imzaladıktan sonra çocuğunuzla okula geri gönderiniz*).*

...../...../.....

İsim-Soyisim İmza:

Veli Adı-Soyadı :
Telefon Numarası :

Appendix B

Lesson Plan

Target Audience and Context: 11th grade EFL students studying at a private high school in the province of Hatay in Türkiye

Class length: 40 minutes

Teaching Materials/ Aids: Whiteboard and markers; pictures; a reading text and comprehension questions handout; split text handout; homework handout; Sketchengine online Concordance

(<https://app.sketchengine.eu/#concordance?corpname=preloaded%2Fbawe2>)

Selected base words and suffixes of the lesson:

- wash, dry, public, protect, swim, run, twelve, space
- -er, -ity, tion, -th, -ous

Lesson Aims:

By the end of the lesson, students will have been presented morphological concepts (i.e., morpheme, derivational suffix, and base word) through

- activating prior knowledge of form, meaning, and use of suffixed derived words
- introducing morphological concepts (i.e., morpheme, derivational suffix, and base word)
- introducing meanings of base words and derivational suffixes, and meanings created by combining them
- introducing changes in phonology and/or orthography, as well as meanings and word class of derived words.

By the end of the lesson, students will have practised

- parsing selected derived words into morphemes
- articulating derived forms through drilling
- identifying selected derived words in a reading text
- answering text comprehension questions
- assessing their answers to comprehension questions

Stage	Stage Aim	Procedure	Timing	Main interaction pattern
Presentation	○ To activate learners' prior knowledge (schema) of the form, meaning, and use of suffixed derived words.	Listening to an audio recording seeded with suffixed derived words.	16 min.	Ss
		Providing the text of the listening, and having students read the text.		Ss
		Checking students' prior knowledge of 'form', 'meaning' and 'use' of derived words		T – Ss & Ss–T
	○ To raise learners' awareness of morphological concepts by introducing morpheme, derivational suffix, and base word.	Introducing to morphological concepts (morpheme, derivational suffix, and base word). Using concept checking questions.		T – Ss
	○ To raise learners' awareness of the meanings of base words and derivational suffixes, and the meanings created by combining them	Presenting base words (e.g., protect) and their meanings; Providing definitions of base words and showing related pictures.		T – Ss

		Introducing derivational suffixes (e.g., -tion) and the meanings they add to base words.		T – Ss
		Adding derivational suffixes to base words (e.g., protect + tion = protection)		T – Ss
	○ To raise learners' awareness of changes in phonology and/or orthography, as well as meanings and word class of derived words.	Explaining phonetic and orthographic changes resulting from the attachment of a suffix, and drilling the word.		T – Ss
		Giving the meaning of each derived word		T – Ss
		Explaining word class of each derived word, referring to the suffixes they take (e.g., words ending in -tion/sion are mostly nouns).		T – Ss
Practice	○ To give learners controlled practice in parsing the selected derived words into	Breaking words down into their component parts – base word and suffix (public – ity).	13 minutes	S – S (pair work)

	morphemes ○ To give learners controlled practice in articulating derived forms. ○ To give learners controlled practice in identifying the selected derived words in a reading text. ○ To give learners controlled practice in answering text comprehension questions. ○ To give learners controlled practice in assessing their answers to comprehension questions.	Drilling derived forms. Reading a text containing words ending in learned suffixes and identifying them by underlining. Students' oral responses to comprehension questions. Self-assessment with the help of an answer key.		T – Ss & Ss–T S – S (pair work) T – Ss & Ss–T S (individual)
Production	○ To give learners freer practice in using the selected derived words in a communicative context.	Doing an information gap activity. Sequencing and reconstructing a split text containing the derived words of the lesson through information	8 minutes	Ss – Ss (group work)

		exchange and discussion. Asking students to justify their selected text sequence to the class. Instructor provides error correction.		Ss – Ss & T T – Ss
Assigning homework		Explaining and showing how to do a corpus query of the frequencies of the words using written and spoken English corpora.	3 minutes	

Appendix C

The Permission from the Ministry of National Education of Türkiye



T.C.
HATAY VALİLİĞİ
İl Millî Eğitim Müdürlüğü

Sayı : E-32889839-605.01-63426645
Konu : Can ÇAĞAN'ın
Araştırma İzin Onayı

11.11.2022

DEFNE KAYMAKAMLIĞINA
(İlçe Millî Eğitim Müdürlüğü)

İhsan Doğramacı Bilkent Üniversitesi Eğitim Bilimleri Enstitüsü Yabancı Dil Olarak İngilizce Öğretimi yüksek lisans öğrencisi Can ÇAĞAN'ın "Morfolojik Öğretimin İngilizceyi Yabancı Dil Olarak Öğrenen Lise Öğrencilerinin Türetme Morfolojisi Farkındalıkları ve Sözcük Bilgileri Üzerine Etkisi" başlıklı tez çalışması uygulama izin talebi ile ilgili alınan 09/11/2022 tarihli ve 63174304 sayılı valilik onayı Ek'te gönderilmiştir.

Bilgilerini ve gereğini rica ederim.

Seyit Ali BÜYÜK
Vali a.
İl Millî Eğitim Müdürü

Ek:

- 1- Valilik Onayı (1 sayfa)
- 2- Onaylı Veri Toplama Araçları (31 sayfa)

Her türlü görüş, şikâyet ve itirazlar için aşağıdaki adreslere ulaşılabilir.
Adres : Uzun Paşa Mahallesi Şehit İsmail Yılmaz Sokak Hatay İl Milli Eğitim Müdürlüğü Sırsı No: 2/1 31010 Antakya/Hatay
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