PASAA Journal
Volume 65, January–June 2023, 104–124

Turkish EFL Learners' Receptive Affix Knowledge as a Diagnostic Tool to Predict their Productive Derivative Vocabulary Knowledge

Mustafa Yildiz[a]*

[a] Foreign Languages Department, Samsun University, Samsun, Türkiye

**Corresponding author: myildiz55@yahoo.com*

Article information	
Abstract	The present study sets out to measure Turkish EFL learners' receptive affix knowledge and productive derivative vocabulary knowledge. More specifically, the extent to which Turkish EFL learners recognize written form of affixes, know the meaning of affixes and determine the part of speech of the derivatives produced by means of affixes and how good such learners are at producing derivatives have been investigated. Sasao and Webb's (2017) Word Part Levels Test (WPLT) to diagnose learners' receptive affix knowledge and the Contextualized Derivative Recall Test developed by Iwaizumi and Webb (2021) to measure EFL learners' productive derivative vocabulary knowledge have been used. The findings regarding EFL learners' receptive affix knowledge reveal that EFL learners have problems with affixes with the difficulty levels of medium and hard. The further results devoted to EFL learners' productive derivative knowledge indicate that they manage to produce almost seventy-one percent of the total number of the derivatives tested. Further analysis of correct derivatives produced in terms of their grammatical class shows that nouns and verbs are the least challenging derivatives to produce for EFL learners. Last, the highest number of correctly derived forms are among the derivatives at 3K – 5K word frequency bands.
Keywords	affixation, derivation, prefix, productive derivative vocabulary knowledge, receptive affix knowledge
APA citation:	Yildiz, M. (2023). Turkish EFL learners' receptive affix knowledge as a diagnostic tool to predict their productive derivative vocabulary knowledge. *PASAA*, *65*, 104–124.

E-ISSN: 2287-0024

1. Introduction

Measuring learners' advancement in knowledge has become an indispensable element in the course of teaching. Knowing what students have not learned yet sheds light on reshaping the educational process. The need to count how many words learners know, which has emerged in order to measure students' development in vocabulary knowledge in the language learning process, is also similar to the reason for the existence of measurement and evaluation in education. Among tokens, types, lemmas, and word families which are different ways of grouping the lexical items to count (Nation, 2013), word families, in particular, are also frequently used to measure how many words students know (Nation & Waring, 1997). According to Nation (2013), "a word family consists of a headword, its inflected forms and its closely related derived forms" (p.11). Goulden et al. (1990) assert that Webster's Third New International Dictionary (1961), which was the largest dictionary of the period at that time, contains less than 58,000 word families even unknown to native speakers of English. Goulden et al. (1990) also suggest that an average educated native speaker's vocabulary is 17,000 word families, which are acquired by learning two or three words a day, referring to a very slow rate of vocabulary learning which equals to an average of 1,000 new word families per year.

The definition of word family suggested above by Nation (2013) refers to the importance of derivational knowledge which is also a different aspect of multidimensionality of vocabulary knowledge. Word families get shaped by means of a headword as well as its inflections and derivations. Schmitt and Zimmerman (2002) underline that derivations and inflections cause different levels of learning burdens for students. Grammar knowledge is beneficial to produce the inflected members of a word family by means of inflectional suffixes and allows the learners to replicate the same rules in producing different inflections with different word families. However, the process of generating a new word with a different word class using prefixes and suffixes can be a bit more challenging for learners. Schmitt and Zimmerman (2002) draw attention to the idiosyncratic nature of derivatives. As in generating new words with inflectional suffixes, overgeneralization of a grammatical rule leads to errors. Laufer (1997) counts lack of regularity and deceptive transparency of meaning at the top of the factors that cause difficulties. The rules for generating derivatives cannot be applied alike under all

circumstances; and the meaning that a prefix or suffix adds to a word is not always predictable.

Several studies have been carried out on derivatives to examine different aspects of affixation such as the recognition of the written form and the meaning of prefixes (Sonbul & El-Dakhs, 2021); the percentage of derivatives in various text types and their contribution to the lexical coverage of the text (Laufer & Cobb, 2019); the comparison of native and nonnative speakers of English in terms of their productive derivational knowledge both at contextualized (Iwaizumi & Webb, 2021) and decontextualized level (Iwaizumi & Webb, 2022) and the effects of overall receptive vocabulary knowledge on productive derivational knowledge (Iwaizumi & Webb, 2021); the efforts to develop a diagnostic tool for different aspects of learners' receptive affix knowledge such as the recognition of written form of affixes, the meaning of affixes, and the grammatical class of derivatives formed at the end of affixation process (Sasao & Webb, 2017); the evaluation of non-native English speakers' productive derivational knowledge tested through derivatives randomly selected from the sublists of Academic Word List (Coxhead, 2000) (Schmitt & Zimmerman, 2002); the correlation between L2 English learners' affix knowledge and overall size of vocabulary (Mochizuki & Aizawa, 2000); and, the comparison of L2 English learners according to their educational background (Iwaizumi & Webb, 2021).

Sonbul and El-Dakhs (2021) investigated for Saudi EFL learners' receptive prefix knowledge regarding the form and meaning of prefixes. While doing this, they further investigated the factors determining the recognition of prefix knowledge such as vocabulary breadth, the extent of exposure to the ESL context and type of contact with L2. They reported that their participants correctly answer almost 60% of the total of the target items. In addition, the number of correct answers decreased as the difficulty level of the prefixes increased. Students with more extended vocabulary breadth obtained higher scores in the test for the recognition of the form and meaning of prefixes. However, as the difficulty level of prefixes increased, all students had problems regardless of their vocabulary. They also found that the time spent with weekly reading activities contributes significantly to the prefix knowledge of the students.

Laufer and Cobb (2019) investigated the percentage of affixed lexical items in various text types to determine their contribution to the lexical coverage of texts. They found that different text types contain different proportions of affixed words. Among these text types, newspaper articles contain the highest number of affixed words, while graded readers contain the least number of affixed words. More than fifty percent of the derived words are formed with the following three suffixes: -ly, -ion, and -er.

Iwaizumi and Webb (2022) compared L1 speakers and L2 learners in terms of their productive derivational knowledge by means of a decontextualized recall test. They further compared a group of L2 learners with different levels of receptive vocabulary knowledge. They found no significant difference between the participants with the mastery of 3K – 5K receptive vocabulary and L1 speakers regarding their productive derivational knowledge at decontextualized level. However, the participants with less than 3K-5K receptive vocabulary knowledge lagged behind L1 speakers in terms of their productive derivational knowledge. Further results from L2 learners revealed that as receptive vocabulary knowledge increases, decontextualized productive derivational knowledge also increases.

Sasao and Webb (2017) developed Word Parts Levels Test, a derivative affix test, to gauge receptive derivative bound morpheme knowledge. The authors considered the presence of a bound morpheme in more than one word family among Nation's (2004) most frequent 10,000-word families based on BNC data as the criterion for including it in the test. One hundred and eighteen morphemes in the content were tested from various aspects such as form, meaning and use. In the form section, the learners were expected to choose the correct derivational affix available in English from among four options, three of which were distractors orthographically and phonologically very much alike to English. In the meaning section, each item consisted of a target derivational morpheme to be tested which was underlined in two example words to help test-takers recognize the test item easily. In the third section, the target derivational morpheme provided within two example words was tested for the grammatical role of the word which is formed at the end of affixation process. The test items were also classified according to their difficulty levels as beginner, intermediate, and advanced. The morphemes included in The Word Part Levels Test not only measure morpheme knowledge, but also help to learn the most frequent 9,000 – 10,000-word families necessary to become

an independent reader/language user. The classification of test items based on their difficulty level also helps teachers determine the bound morphemes in line with their students' language proficiency level.

Schmitt and Zimmerman (2002) investigated non-native English speakers' productive knowledge of derivatives. Their participants were tested for their ability to produce derivatives for 16 prompt words given in contextualized sentences which are evenly chosen from the 10 frequency-based sublists of the Academic Word List (Coxhead, 2000). Schmitt and Zimmerman (2002) test actually the hypothesis which claims that knowing one of the members of a word family facilitates learning the remaining members of the word family with productive knowledge. Their results indicate that knowing some members of a word family does not necessarily have facilitative effect for the reflection of the knowledge of other members within a word family. Regardless of their language proficiency level, their participants showed partial word family knowledge which is better with verbs and nouns compared to adjectives and adverbs.

Mochizuki and Aizawa (2000) investigated the potential correlation between affix knowledge and vocabulary size of Japanese L2 English learners. They further investigated the acquisition order of affixes tested. The results showed that as learners' vocabulary knowledge increases, their affix knowledge also increases. Namely, the learners who have mastered less frequent vocabulary perform better with their affix knowledge than the ones who have mastered more frequent vocabulary do. With regard to the order of acquisition order of affixes, Mochizuki and Aizawa (2000) have an assumption that the affixes known to more learners are acquired earlier, and the ones known to less learners are acquired later. Therefore, they assume that the prefixes re-, un-, and pre- and the suffixes -ation, -ful, and -ment are acquired earlier because learners produce correct responses with these affixes compared to the rest of prefixes and suffixes.

Iwaizumi and Webb (2021) investigated the extent to which L1 speakers and L2 learners differ in producing derivatives. They also compared L2 learners according to their educational background such as ESL graduate and EFL undergraduate learners. The participants were also tested for their knowledge of productive derivatives at different frequency bands. Thirty target words were randomly chosen among items, which were both non-polysemous and contain

more than three derivative members as part of a word family, between 1K and 5K word frequency bands. These target words were provided in the test as headwords with contextualized sentences containing gaps requiring participants to write one of the suitable derivatives of the headwords. Shortly after taking the productive derivative test, the participants were also assessed with updated Vocabulary Levels Test (VLT) (Webb et al., 2017) for the size of their vocabulary knowledge. The results indicated that although L2 speakers are highly similar with their vocabulary knowledge of highly frequent words (1K-2K), they show divergence in vocabulary knowledge of less frequent words (3K-4K-5K). In addition, L1 speakers' production of derivatives, although they did not fill in all the blanks in the test with correct derivatives, significantly differs from both ESL graduate and EFL undergraduate L2 learners. Similarly, graduate ESL learners perform better than undergraduate EFL learners in the production of derivatives.

The studies mentioned above deal with receptive affix knowledge and productive derivational vocabulary knowledge; however, they deal with these two issues separately. Unlike these studies, the present study deals with receptive affix knowledge and productive derivational knowledge together. First of all, a diagnostic receptive affix test (Sasao & Webb, 2017) will be applied for the receptive affix knowledge of the students, and then the productive derivational vocabulary knowledge of the same students will be measured. The following research questions will lead the current research:

1. To what extent do Turkish EFL learners recognize written form of affixes, know the meaning of affixes, and determine the part of speech of the derivatives produced by means of these affixes?
2. How good is the productive derivational vocabulary knowledge of Turkish EFL learners?
3. To what extent do EFL learners produce the headwords and their derivatives at different word frequency bands?
4. What are the grammatical classes of the most produced derivatives?

2. Methodology

The relationship between the number of vocabulary known and productive derivational knowledge has been frequently explored (Iwaizumi & Webb, 2021; 2022; Mochizuki & Aizawa, 2000). It can be inferred that as vocabulary knowledge increases, learners' productive derivative knowledge also increases. However, as

Iwaizumi and Webb (2021, 2022) point out, there might be many variables such as frequency, receptive affix knowledge and difficulty levels of affixes which would affect productive derivational knowledge. Comparing native English speakers and EFL and ESL learners' productive derivative knowledge at different education levels, Iwaizumi and Webb (2021) underline the inadequacy of studies on the relationship between receptive derivational affix knowledge and productive derivative knowledge. The present study explores how good EFL learners are at recognizing receptive derivational affixes and at producing derivative vocabulary.

2.1 Participants

A total of 45 EFL learners with C1 English proficiency level participated in the study. They are undergraduate level university students from the department of foreign languages education at a state university in Türkiye and studying English as a foreign language (EFL). The participants are prospective English teachers, who have either successfully completed B2 English proficiency level preparatory education or who have passed the same level English proficiency exam and are entitled to professional teaching knowledge at the undergraduate level.

2.2 Instruments

In order to measure learners' receptive affix knowledge and productive derivative knowledge, two different measurement tools were used. First, to be able to diagnose learners' affix knowledge, Sasao and Webb's (2017) Word Part Levels Test (WPLT) were used. A total of 118 affixes which appear in more than one word family in Nation's (2004) most frequent 10,000 word families were included in the WPLT and divided into 3 different categories according to their level of difficulty.

The WPLT helps diagnose different aspects of receptive affix knowledge. In the Form section, the WPLT measures learners' knowledge of affix forms. In each question, learners encounter with 4 prefixes and suffixes, three of which are fabricated but orthographically and phonologically alike to English, and one of which is correct.

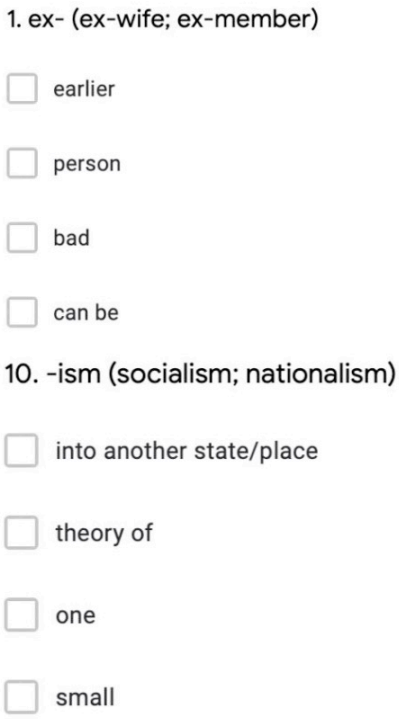
Figure 1

Samples of the Form Section of the WPLT (Sasao & Webb, 2017)

In the Meaning Section, learners are expected to determine the meaning that the target prefixes or suffixes, which are provided with two sample derivatives in each question, add to the derived forms.

Figure 2

Samples of the Meaning Section of the WPLT (Sasao & Webb, 2017)



In the Use section, learners are expected to determine the part of speech of the derivatives that emerge as a result of the use of prefixes or suffixes.

Figure 3

Samples of the Use Section of the WPLT (Sasao & Webb, 2017)

WPLT has 3 different difficulty levels as beginner with the least difficult 40 affixes, intermediate with 39 affixes of medium difficulty, and advanced with the most difficult 39 affixes, each difficulty level of which includes each of 3 different sections aforementioned. Sasao and Webb (2017) report that Cronbach's alpha values for the reliability estimates of the WPLT for each of the form, meaning and use sections are .91, .94, and .92, respectively, indicating the items in the WPLT shows a high degree of internal consistency. Also, by calculating Rasch item difficulty for each of the affixes in the three different sections of the WPLT, the average item difficulty estimates are obtained.

In order to measure learners' productive derivational knowledge, a contextualized derivative recall test developed by Iwaizumi and Webb (2021) has been used. Each question in the 30-question test contains a headword and

accompanying 3, 4 or 5 sentences with blanks which learners are expected to fill in according to the given part of speech of the expected derivatives.

Figure 4

Samples of the Contextualized Derivative Form Recall Test (Iwaizumi & Webb, 2021)

There is a ..... between them. (differ) (noun)

We think ..... (differ) (adverb)

This ..... from that one. (differ) (verb)

This is ..... from that one. (differ) (adjective)

Headwords, which are among the first most frequent 5,000 word families in the BNC/COCA lists (Nation, 2012), with more than at least three derived forms are included in the test. Twenty out of 30 headwords are among the most frequent 1,000 – 2,000 word families while 10 out of 30 headwords are among the most frequent 3,000 – 5,000 word families. Cronbach's alpha coefficient of the Contextualized Form Recall Test is reported as .97, showing a high internal consistency reliability of the test (Iwaizumi & Webb, 2021).

2.3 Procedure

The participants were administered Sasao and Webb's (2017) Word Part Levels Test (WPLT) to gauge their receptive affix knowledge. While analyzing the results attained from the WPLT, as suggested by Sasao and Webb (2017), "for practical use of the WPLT, the scores may be interpreted based on the percentage of correctly answered items for each section, rather than having a single total score" (p. 26). Thus, we will be able to predict which section of the affixes (form, meaning, or use) participants have a problem with. Upon completion of the WPLT, the participants took the Contextualized Derivative Recall Test, which contains 118 blanks to be filled in, developed by Iwaizumi and Webb (2021) to measure their productive derivational knowledge (It is stated that 119 derivatives were tested in the study, but as of June 1, 2022, when the data of the current study was collected, the full version of the Contextualized Form Recall Test provided in the online appendix (Iwaizumi & Webb, 2021) was designed to test 118 derived forms). Participants are given a point for each of the blanks they fill in with the correct

derivative forms, meaning that a participant who fills in each of the blanks with an acceptable derivative form can obtain a total score of 118.

3. Results

The current study investigates EFL learners' receptive affix knowledge and also their productive derivative knowledge by means of a contextualized form recall test. The distribution of derivatives produced across grammatical classes of words and at different word frequency bands are further investigated.

1st Research Question: To what extent do EFL learners recognize written form of affixes, know the meaning of affixes and determine the part of speech of the derivatives produced by means of these affixes?

Table 1 demonstrates more specifically the responses to the Word Part Levels Test, which has 3 difficulty levels and consists of 3 different sections.

Table 1

Overall Results of Word Parts Levels Test (Sasao & Webb, 2017)

	Form			Meaning			Use		
	Prefix	**Suffix**	**Total**	**Prefix**	**Suffix**	**Total**	**Prefix**	**Suffix**	**Total**
Easy	920/990	594/810	1514/1800	932/990	524/540	1456/1530	-	529/585	529/585
	92.92%	73.33%	84.11%	97.14%	97.03%	95.16%		90.42%	90.42%
Middle	417/495	787/1170	1204/1665	316/405	489/540	805/945	70/90	619/855	689/945
	84.24%	67.26%	72.31%	78.02%	90.55%	85.18%	77.77%	72.39%	72.91%
Hard	247/360	705/1350	959/1710	282/360	324/450	606/810	43/90	658/900	701/990
	68.61%	52.22%	55.67%	78.33%	71.99%	74.81%	47.77%	73.11%	70.80%

The overall results show that the number of correct answers in the test decreases as the difficulty level increases, meaning that as the difficulty levels of prefixes and suffixes escalate, the success of the participants in recognizing these affixes and knowing their meanings and parts of speech decreases.

The form section of the WPLT was designed to measure how well the participants recognize the written form of the prefixes and suffixes in English. It seems that the participants can easily distinguish 84.11% of easy affixes. More specifically, while the participants easily recognize 92.92% of the prefixes in English that were categorized as easy, this rate drops to 73.33% for suffixes at the same difficulty level. In the same form section, the answers given to the questions about how well the participants recognize the affixes at intermediate difficulty level

show that the participants easily noticed 72.31% of the prefixes and suffixes at this difficulty level. To be more specific, the participants correctly recognize 84.24% of the prefixes and 67.26% of the suffixes they encounter on the WPLT. The rate of successfully noticing the affixes categorized as difficult by the participants is 55.67%. Participants correctly recognize 68.61% of the prefixes that are categorized as difficult, while this rate drops to 52.22% for suffixes with the same difficulty level. It can be inferred that the participants are much better at recognizing the prefixes that form the morphological structure of the derivatives they encounter, rather than recognizing the suffixes. The recognition rates of prefixes are obviously higher than those of suffixes at each difficulty level. In addition, as the difficulty level of the affixes increases, the recognition levels of both prefixes and suffixes decrease. The decrease in recognition rates of prefixes and suffixes categorized as easy and difficult is approximately 25% and 21%, respectively.

The meaning section of the WPLT was designed to measure how well the participants know the meaning of the prefixes and suffixes in English. The participants correctly know the meaning of 95.16 % of the affixes labeled as easy. To be more specific, the participants correctly know the meaning of 94.14% of the prefixes and 97.03% of the suffixes they encounter on the WPLT. Furthermore, 85.18% of the affixes with medium difficulty level are known correctly by the participants. More specifically, while the participants know the meaning of 78.02% of the prefixes with medium difficulty level, this rate escalates to 90.55% for the suffixes at the same difficulty level. In addition, the rate of correctly knowing the affixes categorized as difficult by the participants is 74.81%. While the participants correctly know the meaning of 78.33% of the prefixes in English that were categorized as difficult, this rate drops to 71.99% for suffixes at the same difficulty level. Additionally, the rate of successfully recognizing the affixes, as already mentioned above, was 84.11% in the easy form test. However, this rate rises to 95.16% which indicates the percentage the participants know the meaning of affixes in the easy meaning test. In a similar vein, the participants correctly recognize 72.31% of the affixes at intermediate difficulty level. Yet, they know the meaning of 85.18% of these affixes at the same intermediate difficulty level. Similarly, the participants successfully recognize 55,67% of the affixes categorized as difficult, however, they know the meaning of 74.81% of these affixes with the same difficulty. It can be inferred that although the participants cannot recognize

the prefixes or suffixes in the morphological structure of the derived words, they know the meanings that these affixes add to the new derivatives. On the other hand, although the scores of the participants decrease as the difficulty level of the test increases even in the meaning section, the decrease in the scores is not as obvious as in the form section of the WPLT. Lastly, in contrast to the form section, where the participants' performance in recognizing prefixes is higher than recognizing suffixes, in the meaning section, except for the hard test, the percentage of suffixes known to the participants in the other two tests was higher than that of the prefixes.

The use section of the WPLT aims to determine how well the participants know the parts of speech of the derivatives created by means of the use of affixes. Participants correctly know the grammatical roles of 90.42% of the words derived by using suffixes in the easy part of the test. This rate drops dramatically to 72.91% in the intermediate difficulty of the test. To be more specific, the participants know the parts of speech of 77.77% of derivatives created by using prefixes and 72.39% of the words derived with the addition of suffixes. In addition, 70.80% of the affixes with hard difficulty level are known correctly by the participants. More specifically, while the participants correctly know the grammatical roles of 47.77% of the derivatives formed by means of prefixes in English that were categorized as difficult, this rate escalates to 73.11% for derivatives created through suffixes at the same difficulty level. As the difficulty level of the test increases, although the overall rate of knowing the parts of speech of the derivatives decreases, there is a slight increase in contrast to the expectation of a decrease in the parts of speech of the words derived by using suffixes in the test categorized as difficult, the potential reasons of which will be discussed in discussion section.

2nd Research Question: How good is the productive derivational vocabulary knowledge of Turkish EFL learners?

Descriptive statistics for contextualized derivative form recall test shown in Table 2 indicate that the participants correctly produced 83.4 of the total number of 118 derived words on average.

Table 2

Descriptive Statistics for the Contextualized Derivative Form Recall Test (Iwaizumi & Webb, 2021)

	N	Mean	SD	Min	Max
Participants	45	83.4	15.127	43	113

In other words, the participants managed to produce 70.67% of the derivatives in the recall test. The number of correct answers of the participants disperses between 43 and 113.

3rd Research Question: To what extent do Turkish EFL learners produce the headwords and their derivatives at different word frequency bands?

Table 3 shows in which word frequency bands the tested headwords are and how well they are answered correctly. For each of the headwords, the ratio of the number of words produced by 45 participants to the total number of words they can potentially produce is given.

Table 3

Correct Responses at Different Word Frequency Bands

	1K Headwords	Correct Response/Total	2K Headwords	Correct Response/Total	3K-5K Headwords	Correct Response/Total
1	art	143/180	tradition	127/135	formal	155/180
		79.44%		94.07%		86.11%
2	depend	106/225	theater	73/135	differ	161/180
		47.11%		54.07%		89.44%
3	arrange	115/180	identity	88/180	publish	115/180
		63.88%		53.33%		63.88%
4	girl	105/180	alter	96/180	persuade	121/180
		58.33%		53.33%		67.22%
5	forget	112/135	measure	122/180	communicate	155/180
		82.96%		67.77%		86.11%
6	protect	161/180	indicate	110/135	obsess	161/180
		89.44%		81.48%		89.44%
7	child	134/180	active	131/180	sincere	129/180
		74.44%		72.77%		71.66%
8	history	150/180	intense	83/180	interrogate	134/180
		83.33%		46.11%		74.44%
9	health	127/180	vary	119/180	anatomy	121/180
		70.55%		66.11%		67.22%
10	possible	148/225	polite	144/180	plausible	107/180
		65.77%		79.99%		59.44%
Total		1301/1845		1093/1665		1359/1800
Percentage		70.51%		65.64%		75.49%

It is easily seen that the participants correctly produce 70.51% of expected members of word families which are among the most frequent 1,000 words in English. As the frequency of use of the headwords decreases, it is observed that the percentages of producing expected derivative forms for the tested word families also decrease. The percentage of producing the members of headwords, which are among the most common 2,000 words in English, drops to 65.64%. However, contrary to the expectation, the participants' frequency of producing the correct members of word families increases when the word frequency band decreases further. The participants correctly provide 75.49% of the potential members of the headwords which are among the most frequent 3K and 5K word families.

4th Research Question: What are the grammatical classes of the most produced derivatives?

Table 4 summarizes the distribution of the parts of speech of the correct responses produced for the headwords dispersed among varying word frequency bands.

Table 4

Distribution of Correct Responses Across Parts of Speech

	1K Headwords	2K Headwords	3K-5K Headwords	Total
Noun	529/720	414/540	448/585	1391/1845
	73.47%	76.66%	46.58%	75.39%
Adjective	439/630	359/720	374/585	1172/1935
	69.68%	49.86%	63.93%	60.56%
Verb	176/225	180/225	292/315	648/765
	78.22%	79.99%	92.69%	84.70%
Adverb	157/270	140/180	245/315	542/765
	58.14%	77.77%	77.77%	70.84%

The parts of speech of the most produced derivatives for the headwords of different word frequency bands are verbs and nouns while the parts of speech of the least produced members of word families are adjectives and adverbs. More specifically, the members of the headwords that the participants produced most

accurately in the recall test were verbs and nouns. 84.70% of the word family members, which are verbs belonging to the headwords tested, were produced correctly by the participants. Verbs are followed by nouns with a 75.39% correct production rate.

4. Discussion

The present study aims to measure Turkish EFL learners' receptive affix knowledge and productive derivational knowledge. The findings of the participants' receptive affix knowledge show that as the difficulty level of the affixes increases, the success level of the participants in the test decreases. In their guidance on how to interpret the findings of the research instrument used to measure the EFL learners' receptive affix knowledge, Sasao and Webb (2017) state that the interpretations based on the percentages of the items answered correctly in each part of the three-section WPLT will make it possible to determine which aspect(s) (form, meaning, use) of the affixes students potentially have problems with. Sasao and Webb (2017), exemplifying the situation with the example of a participant who answered 90% of the possible answers correctly in the form and meaning sections, but correctly answered 60% of the answers in the use section, underline that the functional aspects of the affixes need to be developed in such a case. In the light of this suggestion toward the interpretation of the findings of the WPLT from the designers of the test, when the findings of the current study on receptive affix knowledge are interpreted, the participants do not have any problems with beginner level affixes while recognizing affixes (form), inferring their meanings (meaning) and syntactic features (use). However, participants' performance on different aspects of affixes changes with the increasing difficulty level of the affixes. Although they do not seem to have obvious problems with the meanings of affixes with medium level of difficulty, it is observed that the participants have difficulties in recognizing affixes (form) and determining their grammatical functions (use) at this difficulty level. The findings of the affixes with hard level of difficulty show that the problems in the previous difficulty level have dramatically become more evident, and the participants now also have difficulties in estimating the meanings of the affixes. Sonbul and Dakhs (2021), who tested the forms and meanings of the prefixes in the WPLT, also obtained similar results. They found that as the difficulty levels of the prefixes increased, the success of the participants decreased. While 71% of the easy prefixes are correctly recognized in the form section of the WPLT, this rate drops to 39% with the difficult prefixes.

Sonbul and Dakhs (2021) also found that while the meaning of 73% of the easy prefixes are known correctly by the participants, this rate is around 29% for the difficult ones.

On the other hand, the findings for productive derivative knowledge show that the participants correctly answered 70.67% of the expected derivatives. It can be inferred that EFL learners, who do not have any problems with any aspects of the affixes that are categorized as easy and with the meanings of the affixes with medium level of difficulty in Sasao and Webb's WPLT (2017), can show a success of productive derivational knowledge around 70% in Iwaizumi and Webb's (2021) Contextualized Derivative Form Recall Test. It might be suggested that eliminating the EFL learners' weaknesses in recognizing moderately difficult affixes (form) and in knowing the grammatical functions (use) of these affixes may lead to a potential increase in their productive derivative vocabulary knowledge. It can be expected that the productive derivative knowledge of the participants who did not have any problems with the difficult level affixes in the WPLT (Sasao & Webb, 2017) would increase dramatically. In the Contextualized Derivative Form Recall Test (Iwaizumi & Webb, 2021), which contains 30 headwords, 20 of which were chosen among the most frequent 2K words in the BNC/COCA lists (Nation, 2012), and 10 of which were selected among the first 3K – 5K words in the same lists (Nation, 2012). In the light of the findings of the present study, it is impossible to infer that the participants produce the less frequent headwords and their less frequent derivatives less. Namely, contrary to the expectation, as the word frequency band of the headwords and their derivatives decreases, the probability of the participants producing these headwords and their derivatives increases. The production rates of the headwords and their derivatives in the first 3K – 5K words in the BNC/COCA lists (Nation, 2012) are higher than the production rates of the headwords and their derivatives selected from the first 2K words in the same list (Nation, 2012). Similar results have been found in Iwaizumi and Webb (2022) investigating the extent to which different groups of participants produce derivatives at different frequency bands. As in the findings of the present research, the number of derivatives successfully produced by the L1 English speakers among the first 3K-5K frequency bands is higher than those produced among the first 1K and 2K frequency bands. This is also valid for graduate ESL and undergraduate EFL learners in Iwaizumi and Webb (2021). The number of derivatives produced by these ESL and EFL learners among the first 1K frequency band is higher than the

number of derived forms they produced among the second 1K frequency band. However, the percentage of derivatives produced at the 3K-5K frequency bands is higher than those correctly responded at the 2K band, although the frequency bands of the derived forms have decreased. Iwaizumi and Webb (2022), who measured the productive derivational knowledge of L1 speakers and L2 learners using a decontextualized recall test, obtained similar results between L1 speakers and L2 learners with the mastery of 3K-5K receptive vocabulary in terms of their productive derivative knowledge. However, L1 speakers as well as L2 learners with the mastery of 3K-5K receptive vocabulary produce derivatives significantly better than L2 learners with the mastery of below-1,000 band, of 1,000 band, and of 2,000 band.

The further results of the present study show that the most accurately produced word family members along with the headwords in the recall test are verbs and nouns. The percentages of adjective and adverb word family members produced for the headwords are relatively lower. Underlining that some word classes are better known by language users, Schmitt and Zimmerman (2002) found similar results with the current study. In their productive derivative test, 67% of the derivatives were verbs, which makes the verbs the best-known derivative class. Verbs are followed by nouns with a 63% correct production rate. Schmitt and Zimmerman (2002) argue that the reason why verbs are the most derived word family members is that verbs are generally stems of the words and that the participants do not have to use any prefixes or suffixes to produce the appropriate verbs. Schmitt and Zimmerman's (2002) argument for the reason of why verbs and nouns are the best-known parts of speech would be valid for the results of the present study. In the Contextualized Derivative Form Recall Test utilized in the current study, 14 out of 30 headwords are verbs which do not require the participants to make addition of either prefixes or suffixes to produce the correct derivatives. Additionally, 9 out of the remaining 16 headwords are nouns that the participants do not have to make any changes in their morphological structures. Although Iwaizumi and Webb (2021) claim that "identifying parts of speech of the prompt words and correctly filling out the blanks required participants to demonstrate their knowledge about the items" (p. 10), in the situation in which a participant who does not know what the correct derived form is, gets at least 23 points when s/he fills in all the blanks with a headword which is either noun or verb, and this wrongly leads us to conclude that verbs and nouns are the best-

known grammatical classes. Also, only 7 out of 30 headwords are adjectives; however, contrary to the headwords which are verbs and nouns, these adjectives require the participants to make morphological changes in the structure of the headword. For example, the headword 'plausible' helps test two adjectives which are 'plausible' and 'implausible'. Although one of them (plausible) is known by chance due to the fact that the headword is the expected derivative itself, the language user needs to make an effort to know the other adjective (implausible) correctly. Only 2 adjective headwords (formal and active) do not require any change in their morphological structures, which could, by chance, let the participants earn two points in favor of adjectives on the whole test. However, this is not fair when compared to 23 nouns and verbs in similar conditions. The results of Iwaizumi and Webb (2022), in which L1 speakers and different proficiency groups of L2 learners' productive derivational knowledge was tested by means of decontextualized form recall test, are also similar to the findings in the current study. Both L1 speakers and L2 learners with the mastery of different level of receptive vocabulary knowledge produce much more verbs and nouns as derivatives for the headwords compared to adjectives and adverbs.

5. Conclusion

The aim of the present research was to determine EFL learners' both receptive affix knowledge and productive derivative knowledge. Although the participants do not have problems with the affixes categorized as easy, they have difficulties in recognizing the written forms and understanding the meaning of the intermediate and difficult level affixes. While most of the derivatives produced by the EFL learners fall within the 3K-5K word frequency bands, these derived forms produced are mostly verbs and nouns.

Taken together, these findings might suggest that provided that the receptive affix knowledge of the EFL learners makes progress, their productive derivative knowledge has the potential to progress as well.

The findings of the present study have several pedagogical implications for future practice. Defining learners' receptive affix knowledge at the beginning of language teaching process can help practitioners and English teachers determine more clear targets toward productive derivative vocabulary knowledge for EFL learners. To increase the productive derivative vocabulary of EFL learners to more

than 70%, it may be an inference for curriculum developers to focus on teaching intermediate and difficult level affixes more explicitly. Most of the derived forms produced by the EFL learners were in the 3K – 5K word frequency range. Trying to increase EFL learners' overall receptive vocabulary knowledge can also increase their productive derivative vocabulary.

At last, most of the derived forms produced are nouns and verbs, leading to infer that special attention should be paid to teaching adjective and adverb forms while teaching a word family.

6. About the Author

Mustafa YILDIZ holds a PhD from the department of English Language Teaching of Anadolu University. He is currently working as an English instructor at Samsun University, Türkiye. His research interests include vocabulary acquisition/teaching. ORCID ID: https://orcid.org/0000-0002-7971-5847

7. References

Coxhead, A. (2000). A new academic word list. *TESOL Quarterly, 34*(2), 213–238.

Goulden, R., Nation, P., & Read, J. (1990). How large can a receptive vocabulary be? *Applied Linguistics, 11*(4), 341–363.

Iwaizumi, E., & Webb, S. (2021). To what extent does productive derivational knowledge of adult L1 speakers and L2 learners at two educational levels differ? *TESOL Journal, 12*(4), 1–22. https://doi.org/10.1002/tesj.640

Iwaizumi, E., & Webb, S. (2022). Measuring L1 and L2 productive derivational knowledge: How many derivatives can L1 and L2 learners with differing vocabulary levels produce? *TESOL Quarterly*, *56*(1), 100–129. https://doi.org/10.1002/tesq.3035

Laufer, B. (1997). What's in a word that makes it hard or easy? Some intralexical factors that affect the learning of words. In N. Schmitt & M. McCarthy (Eds.), *Vocabulary: Description, acquisition and pedagogy* (pp. 140–155). Cambridge University Press.

Laufer, B., & Cobb, T. (2019). How much knowledge of derived words is needed for reading? *Applied Linguistics*, *41*(6), 971–998. https://doi.org/10.1093/applin/amz051

Mochizuki, M., & Aizawa, K. (2000). An affix acquisition order for EFL learners: An exploratory study. *System*, *28*(2), 291–304.

Nation, I. S. P. (2004). A study of the most frequent word families in the British National Corpus. In P. Bogaards, & B. Laufer (Eds.), *Vocabulary in a second language: Selection, acquisition, and testing* (pp. 3–13). John Benjamins.

Nation, I. S. P. (2012). *The BNC/COCA headword lists*. Victoria University of Wellington. https://www.wgtn.ac.nz/lals/resources/paul-nations-resources/vocabulary-lists

Nation, I. S. P. (2013). The goals of vocabulary learning. *In learning vocabulary in another language* (2nd ed., pp. 9–43). Cambridge University Press. https://doi:10.1017/CBO9781139858656.003

Nation, P., & Waring, R. (1997). Vocabulary size, text coverage and word lists. In D. N. Schmitt, & M. McCarthy (Eds.), *Vocabulary: Description, acquisition and pedagogy* (pp. 6–19). Cambridge University Press.

Sasao, Y., & Webb, S. (2017). The word part levels test. *Language Teaching Research, 21*(1), 12–30. https://doi.org/10.1177/1362168815586083

Schmitt, N., & Zimmerman, C. B. (2002). Derivative word forms: What do learners know? *TESOL Quarterly, 36*(2), 145–171. https://doi.org/10.2307/3588328

Sonbul, S., & El-Dakhs, D. A. S. (2021). L2 knowledge of English prefixes: The effect of vocabulary breadth and exposure. *Language Teaching Research. 0*(0). https://doi.org/10.1177/13621688211045040

Webb, S., Sasao, Y., & Ballance, O. (2017). The updated Vocabulary Levels Test: Developing and validating two new forms of the VLT. *International Journal of Applied Linguistics*, *168*(1), 33–69. https://doi.org/10.1075/itl.168.1.02web

Webster's Third New International Dictionary (1961). Merriam-Webster Inc.