A New Approach to the Possible Relationship between English Morphological and Vocabulary Knowledge: A Case Study

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Abstract— The morphological knowledge is an influential strategy for learning foreign languages. The aim of the current study is looking at the potential relationship between English morphological and vocabulary knowledge of Iranian pre_university students. Seventy Iranian pre_university students ranged between 18-19 years old were considered to perform the current study. Nation's 2000_word level Vocabulary Test (VLT) were used to examine their vocabulary size while their morphological knowledge, including knowledge of inflection, derivation and compounding, were assessed through Morphological Knowledge Test. To realize whether there is a correlation between their morphological knowledge and vocabulary size or not, a statistical analysis were performed. It was observed that there is a strong correlation between overall morphological knowledge and vocabulary knowledge of Iranian pre_university students. Further, the critical effect of various features of morphological knowledge on vocabulary size was highlighted. Moreover, a questionnaire was used to evaluate ideas of students about the tests. Based on the results of the current study, it is suggested that morphological knowledge can be accounted as a powerful vocabulary learning strategy to improve English learning and vocabulary size of Iranian pre_university students.

Index Terms— Morphological Knowledge, Vocabulary Test, Morphological Structure Knowledge, Vocabulary, Nation's Vocabulary Levels Test (VLT), English Language Teaching (ELT), Morphological Knowledge Test, Morphological Structure Test, Knowledge of Derivational Perfixes and Suffixes Test

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1 INTRODUCTION

Word is an essential part of any language [1-11]. It is the first things that learned by anybody with any language [12, 14, 15, 17]. All people are continuously thinking about the importance and power of words since those are extremely persistent [12-19]. Our character, from social to educational points of view, is explained and defined by our vocabulary [20]. It can be said that our vocabulary knowledge is our ability to find available ways for making our future [21, 22]. Hence, the importance and power of words cannot be ignored. Therefore, achieving any language, vernacular or foreign, is critically influenced by vocabulary learning. There is a consensus among vocabulary experts about the key role of lexical skills in communication [23-30]. There are numerous facts which confirm the strong relationship of vocabulary knowledge with all language skills such as listening [31-35], writing [36-44] and reading [45-50]. Due to strong correlation of vocabulary knowledge with reading comprehension (in the 0.85 to 0.95 range), it has been acclaimed by some researchers that these are psychometrically the same [51-61].

It is guaranteed by Nation that "if more than five percent of the running words are unknown, then it is likely that there is no longer meaning-focused learning because so much atten-

tion has to be given to language features" [62-67]. As the number of vocabularies known by students is critically affect their skills in using the language, the key role of developing a sufficient high-frequency vocabulary is highlighted by Nation [68-73]. This is more obvious when student is in the beginning of learning a foreign language with more than 3,000 word families which consider as a crucial threshold, as stated by Nation [74]. The world is divided by the words and hence, knowing more words leads to finding more ways to express the world and think about it [75].

Vocabulary is very important for both students and teachers. Encountering with new vocabularies leads to depression and discouraging of students while facing with familiar vocabulary encouraged students to continue reading. It was shown that FL students relying more on vocabulary meaning than on knowledge of the subject or syntax. Therefore, it can be found that it is necessary for students to know a certain size of vocabulary when encountering a new text [82-89].

Although the learning load that L2 students have to borne is massive, they inevitably encounter with a real time limitation. This is appropriately summarized: "Students typically need to know vocabularies measured in thousands, not hundreds, but receive language instruction measured in months, not years" [90]. It means that students need more vocabulary. It can be clearly seen from the lexical gap revealed by current data since ELLs are of weaker vocabulary knowledge than native speakers and hence, they become disappointed due to their shortcomings [91-95].

Moreover, it is necessary to learn and teach vocabulary in the L2 classroom [94, 95]. Using direct teaching techniques such as teaching vocabulary learning strategies can improve L2 vocabulary knowledge [96, 97]. Teaching students the

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methods of learning vocabulary in a more efficient and effective manner can considerably improve the speed of learning vocabulary of a second or a foreign language [96-98].

Although the main concern of language teaching has not been the vocabulary, its importance in learning of second language is recently interested, through a developing body of experimental studies and pedagogical material, and it is confirmed that there is a necessitation to introduce a systematic and principled approach to vocabulary. In this regard, it is recommended to teachers that teach their students different vocabulary learning strategies [99, 100]. It was shown that vocabulary of students and reading comprehension of texts containing those vocabularies can be improved by explicitly planned teaching of specific vocabularies and vocabulary - learning strategies [100].

Understanding unfamiliar vocabulary necessitates learning about words not simply acquire new words. Students can be learning the way to comfortably face with unknown vocabularies using independent vocabulary learning strategies. These are the processes of explicitly modeling and teaching of the way of determining the meanings of unknown vocabularies. Moreover, students will be learned independent vocabulary in a better way using directly teaching vocabulary learning strategies [101-110].

There are various vocabulary learning strategies in the literature aimed to teach students the ways of controlling and managing of their lexis. Some strategies, including Memory Strategies, Social Strategies, Cognitive Strategies, Metacognitive Strategies and Determination Strategies, are developed to make developing vocabulary learning more easy [111-121]. It has been reported that use of morphological cues is helpful to deduce meaning for L2 learning [120, 121]. In spite of limited studies about the role of morphological awareness in L2 vocabulary development, it has been found that various features of morphological knowledge can be effectively used to building a more comprehensive vocabulary [115].

Although there are various strategies with the goal of increasing the vocabulary size of students, morphological knowledge can be potentially effective in dealing with the meanings of new words. Today, morphological knowledge is increasingly accepted as an important part of vocabulary knowledge, especially in reading. First of all, morphemes are of semantic, phonological and syntactic characteristics. For instance, –s in the verb *rides* points out that the action doer is only one person who does the action in the present time [116, 117]. At the other hand, this states the role of a given word in the reading context. In the second place, organization of vocabularies takes place in the mental dictionary based on their phonological properties and the framework for storing those is morphological knowledge [118-120]. It has been shown that writing system can be more consciously understand by student due to the action of morphological knowledge [119-121].

It has been found that morphological analysis is widely used by learners to understand the meaning of words [110-115]. A candidate for generative vocabulary instruction is a morphological structure with bases, prefixes and suffixes where used to connect large families of related words. Carlisle and stone [116] also pointed out that morphological analysis

should be learned to students since they are not knowledgeable in linguistics.

Student should have the ability to use morphemic structure of new words in meaning and writing them. Therefore, Oxford taxonomy based morphological knowledge strategy can be used to learn and build vocabulary. The motivation of the current study is its effect.

The morphological knowledge is defined as the "knowledge of and access to the meaning and structure of morphemes in relation to word" [115-121]. In fact, morphological knowledge is morphologically analyzing complex words into their constituent morphemes including prefixes, roots, base words, and suffixes. Words are made of morphemes and morphemes are the minimal meaningful linguistic units that do not have any smaller meaningful linguistic unit [116-121].

Students can be able to differentiate between phonological and spelling irregularities as in *sign* and *signature* using their morphological knowledge. Their ability to disassemble of complex words into meaningful parts induced by morphological knowledge lead to learning morphemes and morphemic boundaries. For example, they would be able to analyze the word *childhoods* in to *child* + -*hood* + -*s*. They also can be able to learn the meanings of affixes and roots (*child*= baby, 2 -*hood*= the state of being, -*s*= to indicate plural nouns) which in turn, leads to their ability to reassemble the meaningful parts to form new meanings (*motherhood*, *fatherhood*, *brotherhood*). *Morphological analysis* is the practice of this dissembling-reassembling method.

English words are morphophonemic as their spellings provide some information related to morphemic meaning and phonological sound, or pronunciation. Over half of the words in English are complex from morphological point of view [110-115]. Such complex words are usually used in written language and are not frequently used in spoken language. Further, by decreasing frequency, their number increases.

As a result, students become more and more familiar with morphologically complex words and their meanings, which can be deduced from the meanings of their component parts. Therefore, an easy way to deduce the meanings of morphologically complex words is learning their morphological structure. It can be said that the importance of morphological knowledge becomes more and more by growing students who must be encountered with texts that are more complex. For example, the number of morphologically complex words in textbooks of primary-grade is lower than the intermediate and secondary texts [116-121].

Although it is clearly found that morphological knowledge is of high importance for vocabulary leaning, there are not numerous studies about the correlation of morphological knowledge and vocabulary size in L2 [120, 121], vocabulary learning and morphology or morphological knowledge. The limited previously performed studies in this field have been confirmed the close correlation of morphological knowledge and vocabulary learning. For example, the strong correlation of morphological knowledge with vocabulary and comprehension.

However, it is necessary to empirically study the correlation of morphological knowledge with vocabulary knowledge

before introducing morphological knowledge in the vocabulary learning strategies used in schools. An important point is that Iranian pre_university students recognize lack of vocabulary as the most important problem in English learning, which is practically confirmed through the poor results of students on the vocabulary section of university entrance exam (Konkoor).

Such results confirm that the present English Language Teaching (ELT) program in Iranian high and pre_university schools do not show good results. It may be due to the fact that this program does not use new vocabulary learning strategies such as morphological knowledge, which plays a key role in developing English vocabulary knowledge [119-121]. The reviewing of the current English books, designed by Ministry of Education for teaching English to high school and pre_university students, is shown that there is a lack of attention to morphological knowledge in these textbooks, especially in the books taught in the first and second years of high school level where there is not any word about the importance of morphological strategy for vocabulary learning. Moreover, this problem has not been previously investigated at pre_university level in Iran. Therefore, the aim of the current study is examining this problem with especiall attention to high school and pre_university books.

2 MATERIALS

Three different tests were considered to collect the required data for correlating vocabulary size and morphological knowledge of the Iranian pre_university students:

2.1 Nation's Vocabulary Levels Test (VLT)

Nation's Vocabulary Levels Test (VLT) is a widely used test for measuring vocabulary size based on word frequency in a valid and reliable manner. As this test is easy to take, easy to mark and easy to interpret, it has been widely used to estimate the vocabulary size of non-English speaking students. There are five frequency levels in this test as 2,000_word level, 3,000_word level, 5,000_word level, university word level, and 10,000_word level. The test consists of matching a word with its definition, presented in the form of a synonym or a short phrase in multiple-choice format. As Nation stated, the high frequency words that are necessary for reading basic texts in English are presented in 2,000 level words.

2.2 Morphological Knowledge Test

This is a two parts test; McBride-Chan's Morphological Structure and Knowledge of Derivational Prefixes and Suffixes Test, which both of them are characteristically correlated with vocabulary knowledge.

2.3 Morphological Structure Test

The test will show us the ability of participants to productively combine morphemes. The test consists of 20 scenarios stated in two- to four-sentence stories. Students should describe the objects or concepts presented by every scenario with words.

2.4 Knowledge of Derivational Prefixes and Suffixes Test

The aim of this test, which contains one hundred items, is to check the knowledge of participants about the most frequently used prefixes and suffixes available in English dictionary. It should be noted that the asked questions are in the proficiency level of language of participants and only contain vocabularies that participants had previously known through their textbooks.

In addition to questions of the test, a questionnaire with seven parts was also provided to comprehensively understand the perception of participants about the test and their vocabulary learning strategies.

The population of this study was 70 Iranian pre_university students in the range of 18-19 years old. They were randomly selected among 167 accessible pre_university students. A pilot testing program was performed, initially, to evaluate the performance of the test in meeting the considered goals. Further, a placement test designed by some of the most experienced and knowledgeable English teachers were performed to homogenize sample population from language proficiency point of view. Various types of question including multiple choice items, fill in the blanks items and cloze test consisting the 50 items of the test.

Tests were performed when students were selected and approval of teacher were gained. The first test was Nation's 2,000_word level test (VLT). The first part of the Morphological Knowledge Test also were performed in the same day. This is due to time consuming. However, and the second part was performed in next day. Finally, the questionnaire was distributed among the students to collect their opinion about the test.

3 RESULTS AND DISCUSSION

According to the obtained results from pilot testing program, the reliability of the morphological structure test and knowledge of derivational prefixes and suffixes is obtained as 0.71 and 0.77, respectively. To evaluate the degree and direction of correlation between the two tests, the correlation coefficient of morphological knowledge and vocabulary size of participants also was determined.

A strong correlation was observed between the students' morphological knowledge (r=0.68) and their vocabulary size (p < .01) in pilot testing program. The statistical characteristics of databank including mean, median, variance and standard deviation were measured at the first step. The maximum and minimum scores mean and standard deviations obtained from VLT test.

The maximum and minimum scores mean and standard deviations obtained from the Morphological Knowledge Test in addition to its two subsets of Morphological Structure Test.

Then, Pearson Correlation Coefficient was used as the measure of correlation between the VLT total scores and morphological knowledge total scores of the students. In fact, this is the measure of correlation between the vocabulary size and the morphological knowledge of the participants.

Vocabulary size of students is strongly correlated with their morphological knowledge (r=0.52, p < .01).

The results show that there is not a strong relationship between the Morphological Structure scores and VLT total scores as the Pearson Correlation is 0.42 (p < .01), but it is still considerable. This is also the case about the correlation between VLT total score and Knowledge of Derivational Prefixes and Suffixes test (r=0.48, p < .01). Based on these results, it can be concluded that there is a better correlation between VLT total scores and Knowledge of Derivational Prefixes and Suffixes scores (r=0.48) than the Morphological Structure scores (r=0.42).

The correlation between morphological knowledge total scores and Knowledge of Derivational Prefixes and Suffixes scores (0.851, p < .01) is considerably higher than its correlation with the Morphological Structure scores (0.503).

It can be observed that Morphological Knowledge can predicts 30% of variances in VLT scores (R^2 .30) (p < .01).

The aim of the current study was evaluating the effect of morphological knowledge in increasing vocabulary size of Iranian pre_university students. The obtained results confirm the strong correlation between morphological knowledge and vocabulary size of the Iranian pre_university students. Hence, it can be concluded that different features of morphological knowledge is of great importance in vocabulary learning. This conclusion is in good agreement with previous studies.

It is also found that there is a general morphological knowledge in all students as they were given correct answers to several questions of Morphological Knowledge Test whether they are of low or high proficiency. This was previously reported that all students use morphological cues, more or less, to interpret words.

The results of the current study support the essential role of different aspects of morphological knowledge in developing a vocabulary-learning plan. One of the critical features of morphological knowledge is its ability to recognize grammatical changes in words; i.e. knowledge of inflections. Based on the results of the current study, it can be concluded that the Iranian pre_university students are more familiar with this aspect of morphological knowledge than knowledge of derivational prefixes and suffixes. It may be due to paying more attention to inflectional morphology in the current English Language Teaching (ELT) program than derivational knowledge.

The relatively low ability of the Iranian pre_university students to word synthesizing show that they cannot productively used parallel sentence and the morphological structure of the familiar words to synthesize new, compound words. This is in accordance with Bloom's classification of cognitive domain as it implies that word synthesizing needs to more advanced skills than word analysis. This is because the analysis is after synthesizing in morphological knowledge.

This also necessitates the explicit teaching of morphological knowledge and the teaching of morphological units in pre_university courses. The importance of this case can be significantly increased if we consider the general contribution of morphological knowledge in better language skills learning such as reading comprehension, sufficient vocabulary development, vocabulary and comprehension, for understanding the writing system and for accuracy in spelling.

It is interesting to note that in 54% of the cases, poor performance in creation of the compound words is accompanied by poor performance on both VLT and Morphological Knowledge Tests. This is in good accordance with the previous results, which state the least proficient English learners have the least understanding of compound word structure.

It is found in the current study that some certain morphological rules are more understand and used by the Iranian pre_university students than other rules. Such a case has been previously reported. This confirms by the observation that about 78% of the students were correctly answered to *item 15* and *item 18*, which designed to examine the ability of students in using the morphological rules for regular past tense (in the nonsense words such as *stot* and *fleamp*). It can be concluded that the Iranian pre_university are very good at using –*ed* suffix. However, it is not agreed with the previously published results about the problematic use of *ed* ending in the English L1 learners.

It should be noted that the reason of inability of those students who had mistake in answering inflectional morphemes questions (items 15 to 20) seems to be a lack of explicit morphological knowledge rather than just a semantic problem. This is in good agreement with the results reported about the difficulty in using the inflectional suffixes –*s, -ed, -ing, -er,* and –*est* for less proficient English Language Learners and students with poor knowledge of inflection. However, due to early development of inflectional morphology, its limitation and its neutrality about the grammatical category of a word (e.g., from a verb to a noun), researcher had been predicted that students display a good knowledge of inflection but it was not happened. Therefore, it can be concluded that these students need to more morphological teaching on inflectional suffixes.

However, the familiarity of most of students with the common prefixes and suffixes used in the English dictionary was low as the performance of them was poor on the second part of the Morphological Knowledge Test. This confirms inability of the Iranian pre_university students in using knowledge of derivational prefixes and suffixes. It is in accordance with expectations as derivational morphology is much more challenging than inflectional morpholog. Hence, it is very important to teach and learn common affixes in Iranian pre_university classes. Moreover, knowing about the applying of the meaning of the affix to a root or base of a word is essential for these students to become familiar with the structure of words.

However, some certain affixes such as the derivational suffix –*y* and the prefix *un-* are correctly used by students. It may be due to numerous uses of these affixes in the textbooks of pre_university and high schools.

It is interesting to note that the Iranian pre_university students do not know the important role of morphological knowledge strategy in increasing vocabulary size, according to the results obtained from questionnaires. It is shown that although the critical role of morphological knowledge in increasing vocabulary knowledge is confirmed, morphological knowledge is not interestingly followed in Iranian pre_university classes.

It may be the reason why English learning programs in Ira-

nian high and pre_university schools are not successful. Hence, researcher believes that something should be done to solve this problem. It is suggested that material developers try to allocate some specific parts of English books at the high school and pre_university level to teaching morphological knowledge strategy so that students will be able to learn as many words as possible. Moreover, information of teachers about the significance of this strategy in comfortably learning English language should be increased and they should spend some time of the class to teach it.

4 CONCLUSION

The aim of the current study is determining the possible relationship between vocabulary knowledge and morphological knowledge of Iranian pre_university students. In this regard, two tests were performed as Nation's Vocabulary 2000_word Level Test and Morphological Knowledge Test, which the later consists of two subsets of Morphological Structure Test and Knowledge of Derivational Prefixes and Suffixes Test. Based on the obtained results from the Morphological Knowledge Test and vocabulary level test, it can be concluded that there is a strong, linear and positive correlation between these two factors.

Moreover, the results of the current study were confirmed that knowledge of inflections is more among the students than knowledge of derivations. Finally, it is recommended that the Iranian pre_university teachers have paid more attention to morphological knowledge, especially derivational morphology, to increase the vocabulary size of the students. It also suggests to English textbooks pre_university materials developers that allocate some specific parts to teach morphological knowledge strategy so that help to the students in learning as many words as possible. Meanwhile, the results of the current study can be persuaded English teachers to pay more attention to direct instruction of morphological knowledge, as it is a very useful tool for developing vocabulary size of their students. The results of the current study can be used to improve morphological knowledge, and hence, vocabulary learning and vocabulary size of Iranian pre_university students.

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