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The Relationship between Morphological Awareness and Receptive Vocabulary Knowledge of Iranian EFL Learners

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ABSTRACT

The present study aimed to investigate the relationship between English morphological awareness and receptive vocabulary knowledge of Iranian university students. The study was conducted on 86 undergraduate students, majoring in English Translation at the University of Zanjan. Nation's (1990) Vocabulary Level Test (VLT) was administrated in order to examine the students' knowledge of words drawn from the 2000, 3000, 5000, and academic vocabularies (120 words in total). Two morphological awareness tasks (morpheme identification task and morphological structure test) were also used to assess the students' morphological awareness. Then the results were correlated in order to explore whether morphological awareness is significantly related to vocabulary size of Iranian university students. The result of analysis for the collected data indicated a significant relationship between the students' performance on vocabulary knowledge and morphological awareness. Thus, a major pedagogical implication of the study is that morphological awareness can be an effective vocabulary learning strategy for Iranian university students in learning English vocabulary.

Keywords: morphological awareness, receptive vocabulary knowledge, morphological structure knowledge, university students.

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BACKGROUND

Language can be viewed as a powerful tool that helps us go beyond the limitations of our own space and time. According to Koosha and Salimian (2011), language can be considered as a key that opens the door and that allows us to go through the minds of others, to share what they have learned, and to feel what they have felt. In fact, language provides us with the ability to effectively communicate and successfully exchange information. Sounds, grammar, and vocabulary can be regarded as three principle components of language. Among these components, knowledge of the words, as the building blocks of language, plays an essential role in language learning. As Wilkins (1972) asserts, "without grammar, very little can be conveyed, without vocabulary nothing can be conveyed" (p.150). According to Anglin, Miller, and Wakefield (1993), word knowledge makes language production as well as language comprehension possible. Thus, it plays an indispensible role in L2 learning.

With respect to the power of lexical knowledge in language learning, researchers in this field have examined the use of vocabulary learning strategies as one effective means to foster the knowledge of L2 vocabularies. Schmitt (1997) classified vocabulary learning strategies into five different groups including Memory Strategies, Social Strategies, Cognitive Strategies, Metacognitive Strategies, and Determination Strategies. Some researchers have suggested that the use of morphological cues for inferring meaning can be beneficial to L2 learners' vocabulary building (Chang, Wagner, Muse, Chow, and Shu, 2005; Morin, 2003; Schiff and Calif, 2007). One operational definition views morphological awareness as "the awareness of and access to the meaning and structure of morphemes in relation to word" (Chang et al., 2005, p. 417). Morphological awareness), the ability to distinguish different meanings across homophones and break down complex words into smaller meanings, on the one hand and synthetic aspect (morphological structure awareness), the ability to make use of linguistic knowledge to drive new meanings and reassemble smaller meanings to make up new words on the other (Chang et al., 2005).

According to Anglin et al. (1993), morphological word types can be classified into five groups including root words (e.g., walk), inflected words (e.g., walking), derived words (e.g., walker), literal compounds (e.g., sidewalk), and lexical idioms (e.g., sleepwalk). Kuo and Anderson (2006) suggested that learners who are provided with morphological knowledge including the knowledge of how words are formed, by combining prefixes, suffixes, and roots have larger vocabulary repertoire and better reading comprehension.

Despite the importance of morphological awareness in vocabulary development, until recently only a few studies (Chang et al., 2005; Morin, 2003; Schiff & Calif, 2007) have focused largely on the influential role of morphological awareness in vocabulary development.

In order to investigate the role of morphological knowledge in vocabulary acquisition of L1 learners, Bertram, Laine, and Virkkala (2000) conducted a study in which they collected data from Finnish elementary school children. They examined the role of affix productivity in developing lexical knowledge of Finnish children. The results indicated that the Finnish elementary school children benefited considerably from applying morphological knowledge to determining word meaning. However, only a few studies, as mentioned above, have examined the role of morphological awareness in L2 vocabulary development. The findings of these studies suggested that different aspects of morphological awareness can be useful for vocabulary building purpose. For example, with regard to the role of morphological awareness in developing vocabulary knowledge of L2 learners, Morin's (2003) study aimed to examine the acquisition of derivational morphology—the use of suffixes that can change the part of speech and cause variations in meaning—by native English-speaking learners of Spanish. The results indicated that morphological knowledge could be utilized as an effective strategy in building vocabulary knowledge.

Long and Rule (2004) investigated the role of morpheme or root word families in teaching vocabulary of ESL learners. The results revealed that the learners could develop their lexical knowledge better by applying morphological analyses rather than through traditional class instruction methods. It seems that the findings of this study would not be readily applied to EFL learners; therefore, it may seem necessary to replicate the study in an EFL learning context for deeper investigation. In order to examine the relationship between morphological awareness and vocabulary knowledge of Indonesian senior high school students, Nurhemida (2007) conducted a study on 98 students (29 males and 69 females) at a public Islamic senior high school in Indonesia. The data were collected using three instruments: (a) Nation's vocabulary levels test (VLT) which tested knowledge of words drawn from the 2000, 3000, and 5000 most frequently occurring word families (90 words in total), (b) two morphological awareness tasks (a morpheme identification task including five items and morphological structure test including 20 items), and (c) a 10-item questionnaire that elicited the participants' perceptions of the tests in general and their English vocabulary learning in particular. The researcher reports that there was a positive relationship between the students' performance on vocabulary level test and the morphological awareness tasks. The VLT results also revealed that the students performed better at the 2000 level than the two higher frequency levels. The participants' feedbacks also suggest that morphological awareness should be regarded as an effective strategy in vocabulary learning.

Al Farsi (2008) explored the relationship between morphological awareness and vocabulary knowledge as well as morphological complexity for Omani EFL university students. The subjects of the study were 54 Omani university students at the Ibri College of Applied Sciences. The researcher used two instruments namely, modified version of the Nation's (2001) Vocabulary Levels Test and Morphological Awareness Test adopted from Chang et al. (2005). The results, however, revealed no relationship between morphological awareness and vocabulary knowledge of the subjects. The results also indicated that the students' overall morphological awareness and vocabulary size were limited.

In the present study, four types of the morphological word including root words, inflected words, derived words, and literal compounds were take into consideration in order to examine the two types of morphological awareness: the morpheme identification awareness (analytic aspect) and morphological structure awareness (synthetic aspect) (Chang et al., 2005). In fact, the focus of the study is on the question whether the knowledge of morpheme identification as well as morphological structure awareness tasks relate to L2 receptive vocabulary knowledge. Chang et al. further argued that it could be absolutely imperative to take these two different aspects of

morphological knowledge into account because both of them would be significant in fostering vocabulary knowledge.

As the literature review above signifies, one faces an emaciated literature on the relationship between morphological awareness and vocabulary knowledge. Faced with this paucity of research in this area, the researcher was motivated to explore any possible relationship between morphological awareness and receptive vocabulary knowledge of Iranian EFL learners. The methodology and design of the study are presented in the following chapter. Hence, the following questions were raised:

- 1. Is there any significant relationship between EFL learners' morphological awareness and receptive vocabulary knowledge?
- 2. Is there any significant difference between male and female EFL learners in terms of their receptive vocabulary knowledge?
- 3. Is there any significant difference between the performance of EFL learners on morpheme identification and morphological awareness tasks?

METHOD

Participants

The study was conducted on 86 Iranian university students of both genders, randomly selected from undergraduate students, majoring in English Translation at the University of Zanjan. The age of the participants ranged from 19 to 27. In order to select a homogeneous group as the participants of the study, the researcher administrated the Nelson Test to determine the language proficiency level of the subjects. Based on the Z-distribution of the test, those subjects whose scores fell within one standard deviation above and below the mean were designated as the intermediate subjects who turned out to be 73 in number. Consequently, the participants of the study consisted of 73 intermediate students of English Translation at the University of Zanjan.

Instrumentation

The Nelson Test

The Nelson Test (400 C), a widely used standardized test, was used to determine the subjects' level of English language proficiency. The 400 level of this test, which is related to proficiency assessment, was selected for this purpose. The test measured the subjects' English language knowledge, focusing on grammar, vocabulary, and pronunciation. It included 50 multiple-choice items, and the subjects were given 45 minutes to answer the test items. The acquired reliability for Nelson Test was calculated at .81, indicating a reasonably dependable measure of reliability.

Vocabulary Level Test

The Nation's (1990) Vocabulary Levels Test (VLT) was administered to determine participants' receptive vocabulary knowledge. This test was chosen because it has been commonly used by other studies and because it is easy to administer, score, and interpret. This paper-and-pencil test consisted of five frequency levels: the 2,000-word level, the 3,000-word level, the 5,000-word level, the academic word level, and the 10,000-word level.

According to Nation (1990), the 2000 and the 3000-word levels contain the high frequency words that all learners need to know in order to function efficiently in English; the 5000-word level is a boundary level between the high and low frequency word levels (Nation, 1983). Words at the Academic level include specialized vocabulary needed for academic studies, and finally the 10,000-word level covers the low frequency words in the language (This level was not employed in this study because it was beyond the participants' lexical knowledge level). In fact, the frequency and the coverage of the words drop down, as the level of the words goes up. In this version of VLT, there are 10 clusters at each level and each cluster consists of six words and three definitions. So, the test contained 150 items. The test takers are supposed to match the definitions on the right in each cluster with the corresponding words on the left. It took the subjects 45 minutes to answer the test. Schmitt et al. (2001) reported reliability coefficients ranging from .92 to .96 for different sections of the test. However, to further ensure the reliability of the test, after the data collection, the researcher calculated the Cronbach alpha reliability for the Vocabulary Level Test. The acquired reliability index turned out to be .92 which indicates a quite acceptable reliability index.

Morphological Awareness Test

The Morphological Awareness Test which was adopted from Chang et al. (2005) was applied to measure the students' ability to reflect and manipulate morphemic units in English. This test is of interest to the researchers as it encompasses both the analytic as well as synthetic aspects of word formation rules. Some items of the test were taken from Chang et al.'s morphological awareness test battery, and the other ones were created by other researchers. This test consisted of two parts: A morpheme identification awareness test and a morphological structure awareness test, which are discussed below.

Morpheme identification test

The morpheme identification test consisting of 14 items was administered to determine participants' ability to analyze and break down complex words into smaller meanings. The items of the test were diverged from the items used in the original Chang et al.'s (2005) morpheme identification test in order to make it more appropriate for university students. The original morpheme identification test consisted of 13 test items. For each item, there were two orally-labeled pictures that were presented simultaneously. The participants were then provided with a word or phrase containing the target morpheme, and were asked to choose the correct picture that corresponded to the meaning of that morpheme.

In the current study, the original test modified by Al Farsi (2008) was administered to the subjects to measure their analytic ability. As it was mentioned above, the modified version of the test consisted of 14 complex words out of context. The words were used out of context in order to control the possible effect of context in guessing the meanings of words (Al Farsi, 2008). The items included 3 inflectional affixes, 13 derivational affixes, and 17 stems in total. The participants were asked to break down these complex words into smaller meanings. No time limit was set for the test.

Morphological structure test

The morphological structure test which was adopted by Al Farsi (2008) from the Chang et al.'s (2005) test battery was used to measure the subjects' ability to synthesize morpheme to create new meanings. This morphological structure requires students to combine morphemes in a quite productive manner. The test consisted of 15 items. Some of the items were created by Al Farsi. The items included 9 inflectional affixes, 3 derivational affixes and 23 stems. The participants were provided with a frame sentence containing the usage of the target morpheme, and were asked to complete another sentence. In other words, the test task requires test takers to use the frame sentence for completing the next sentence. The students were asked to answer the tests on their own pace. The Cronbach alpha reliability indices were calculated for the Morphological Awareness Tests used in this study. As displayed in Table 1, the tools turned out to have high reliability indices (see list of tables). The validity of the instruments was also confirmed by three competent experts in the field who had extensive experience in test construction.

Procedure

Different steps were followed to accomplish this research. First, before administrating the main tests to the students, the researcher distributed the Nelson proficiency test among 86 University students in order to control the students' language proficiency and hence to make the sample homogeneous. After selecting the 73 appropriate participants through the procedure mentioned above, the researcher administered the main tests. The tests consisted of two parts. First, Vocabulary Level Test was distributed among the participants to determine respondents' receptive vocabulary knowledge. Next, two morphological awareness tasks (a morpheme identification test and morphological structure test) were administered to assess the students' ability to reflect and manipulate morphemic units in English. Then the participants were divided into two groups of males and females to compare their mean scores on the vocabulary level test. Finally, the Morphological Awareness Test was divided into sub-tests of morpheme identification versus morphological structure tests in order to investigate the morphological performances of all the participants according to their analytic and synthetic abilities. The tests were administered over two days to minimize fatigue. The first day of testing consisted of the Nelson Test, The second day of testing included the VLT and the Morphological Awareness Test with its two parts of analysis and synthesis. The participants received instruction for each part only on the day the particular test was administered and they were allowed to complete the tests on their own pace on the second test day. Data analysis results

In order to analyze the data gathered, the researcher conducted some correlation and t-test analyses. The Pearson correlation coefficient was computed to explore the relationship between participants' receptive vocabulary knowledge and their morphological awareness. The independent-samples t-tests were conducted to find any possible significant difference between the mean scores of males and females on the vocabulary level test. Finally, the paired-samples t-test was also used to find any possible significant difference of the participants on the morphological performance of the participants on the morpheme identification and morphological structure tests.

RESULTS

Results for relationship between Iranian EFL learners' morphological awareness and receptive vocabulary knowledge.

The Pearson correlation coefficient was carried out to explore the relationship between students' morphological awareness (as measured by the morphological awareness test) and their knowledge of vocabulary (as measured by the vocabulary level test). The correlation index turned out to be significantly meaningful (r = .601, p < .05). This means that there is a moderate positive correlation between the two variables. The descriptive statistics and the results of the analyses are given in table 2 and table 3 (see list of tables).

Results for the effect of gender on the learners' vocabulary knowledge tests.

The independent-samples t-test analysis was conducted to compare the mean scores of the males and females on the vocabulary level test. The results of the analysis indicated no significant mean difference [t (71) = .408, p<.05]. The descriptive statistics and the results of the analysis are given in Table 4 (see list of tables).

Results for the performance of EFL Learners on morpheme identification and morphological structure awareness tasks.

The paired samples t-test was used to compare the mean scores of the students on the morphological awareness test in the morpheme identification and morphological structure tasks. The results revealed a significant difference between the morphological performance of the subjects in the morpheme identification and morphological structure tasks with higher mean score for the morpheme identification task [t (72) = 3.069, *p*<.05]. The descriptive statistics and the results of the analysis are given in the table 5 (see list of tables).

DISCUSSION

As the findings of this study suggest, the learners' morphological awareness has significant relationship with their knowledge of vocabulary. Accordingly, the first null hypothesis that there is no significant relationship between the EFL learners' morphological awareness and their receptive vocabulary knowledge was rejected. This finding is in agreement with other studies (Chang et al., 2005; Nurhemida, 2007) that were indicative of a close connection between language learners' morphological awareness and their level of success in specific aspects of vocabulary learning. Moreover, it also supports Carlisle's (2000) and Ku and Anderson's (2003) claim that morphological knowledge is closely correlated with vocabulary and comprehension. On the other hand, it is in contrast with Al Farsi's (2008) claim that there is no relationship between morphological awareness and vocabulary size. He also reported that morphological awareness was unable to discriminate between the students' performance on simple vs. complex words.

The results reflected no significant difference between the performance of males and females on the vocabulary level test. Thus, the second null hypothesis claiming no significant difference between the performance of males and females on the vocabulary level test was supported. Owing to the generative nature of research, this cannot be viewed as an accomplished fact and further research is needed to explore the performance of language learners according to their gender.

The results of this study also indicated that the learners' morphological awareness differed in morpheme identification and morphological structure tasks. Accordingly, the third null-hypothesis claiming no significant difference between the performances of the participants in morpheme identification and morphological structure tasks in terms of their morphological awareness was rejected. This is in line with Carlisle's (1995) and Chang et al's (2005) who found that morphological awareness had different aspects and that each of these aspects was essential in fostering vocabulary learning. As mentioned earlier, one imperative aspect of morphological knowledge includes the

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ability to indicate morpheme identification knowledge (analytic aspect). The findings of this study showed that Iranian university students were more familiar with analytic aspect of morphological awareness in comparison to the synthetic aspect of morphological knowledge. The relatively poor performance of the Iranian university students in the creation of compound words (synthesis ability) implies that it would be more difficult to apply morphological structure of the words to producing new words. This is compatible with Bloom's classification of cognitive domain. According to his classification, synthesis requires more advanced skills than analysis does. In other words, the synthetic aspect of morphological knowledge can be considered as prerequisite to analytic aspects (Arnoff & Fudeman, 2005; Chang et al., 2005). Hence, morphological awareness requires learner's processing of the different morphological tasks, attending to and applying variety of synthetic and analytic cues.

Table1. Reliability indices for the morphological awareness tests Instruments Number of Items Cronbach's Alpha Total Morpheme Identification 38 .759 Test Morphological 73 .843 Awareness Test Morphological Structure 35 .885 Test

Table 2. Descriptive statistics for the morphological awareness test and the vocabulary level test

Instruments	Ν	Mean	SD
Vocabulary Level Test	73	85.945	17.590
Morphological Awareness Test	73	50.383	9.328

Table 3. Pearson correlation between the receptive vocabulary knowledge and morphological awareness

Instrume	nt	Vocabulary Level Test	Morphological Awareness Test
Vocabulary Level	Pearson	1	.601**
Test	Correlation		
	Sig. (2-tailed)		.000
	Ν	73	73
Morphological Awareness Test	Pearson Correlation	.601**	1
	Sig. (2-tailed)	.000	
	Ν	73	73

Table 4. Descriptive Statistics and Independent-Samples T-test Results for the Vocabulary Level Test Based on Gender

Groups	N	Mean	SD	Т	Df	Sig
Male	19	87.368	18.358			
				.408	71	.685
Female	54	85.444	17.462			
Female	54	85.444	17.462			

Table 5. Descriptive Statistics and Paired-Samples T-test Results for the Morphological Awareness Test Based on Analytic and Synthetic Aspects

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Variables	Ν	Mean	SD	Т	Df	Sig
Morpheme Identification Task	73	26.561	4.304	2.000	70	002
				3.069	12	.003
Morphological Structure Task	73	23.821	7.352			

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CONCLUSION

The study attempted to examine the relationship between Iranian EFL learners' morphological awareness and receptive vocabulary knowledge. With respect to this relationship, a high moderate and positive correlation was obtained. In fact, this close connection revealed that the more morphological awareness the learners posses; the more easily they foster their vocabulary knowledge. The results of the present study may also offer pedagogical implications. The findings on vocabulary learning strategies provide English teachers with an effective plan to help their students reach the vocabulary threshold as soon as possible by recommending them to apply substantially different types of vocabulary learning strategies and morphological cues to inferring the meaning of the words. The results also provide textbooks developer at the university level with remarkably accurate information relating to the general background of the learners' vocabulary knowledge and morphological awareness. Based on students' vocabulary knowledge and morphological awareness, textbooks developers would be encouraged to allocate more morphological activities to foster students' lexical knowledge. EFL teachers should also consider analytic and synthetic aspects of morphological awareness as two important components of EFL syllabus to improve students' morphological knowledge as well as lexical knowledge. Moreover, the increasing awareness of the students' average vocabulary and morphological knowledge enables language teachers and test developers not only to make modifications on their approaches to both language teaching and testing but also to make them adapt their teaching and testing styles to students' specific needs. As regards these modification as well as adaptation, the more appropriate English tests that can truly assess students' morphological knowledge can be developed. Finally, with respect to the teachers' role in shaping learners' strategic ability, the major pedagogical implication of the study is that morphological awareness can be an effective vocabulary learning strategy for Iranian university students in learning English vocabulary. However, it seems that it would be virtually essential to replicate this study with male and female students at different levels of education in different contexts to recognize how well results can be generalized to other students in Iran.

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