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The Effect of Using Cross-Word, Textual Guess and Wonder-Word on the Lexical Development of Iranian Students

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ABSTRACT

The present study was an attempt to compare the effect of the cross-word strategy, wonder-word strategy, and textual-guess strategy on Iranian pilot students' immediate and delayed English vocabulary retention. 120 students participated in the study from an Army University. To make sure of their homogeneity, the researchers administrated a PET test. Based on the results, twenty eight students from each class (eighty four in all) were selected as the participants of the study. These three intact classes were then randomly assigned into three experimental groups, each receiving one type of vocabulary learning strategy. Then, 60 words from Longman Dictionary Website were given to the students in order to sort out 40 unknown words to teach. To see the effects of teaching vocabulary through three strategies mentioned above, the necessary instruction was given. The results revealed significant difference in the efficacy of textual-guess strategy compared to the wonder-word strategy in the immediate posttest and significant difference compared to both wonder-word strategy and cross-word strategy in the delayed posttest. Findings of the present study are useful for EFL teachers, learners, language institutes, schools, and universities in that these strategies can enhance language learners' lexical treasure with respect to their effectiveness.

Keywords: *Strategy, Crossword, Textual Guess, Wonder Word, Iranian Learners*

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1. Introduction

For the purpose of more effective instruction, teachers always have to make hard choices among a variety of vocabulary strategies, so the question they want to be answered is which strategy has a more significant effect on second language vocabulary acquisition and long-term recall (Weihua, 2007). Vocabulary learning strategies are one part of language learning strategies which in turn are part of general learning strategies (Nation, 2001). Vocabulary is central to language and of critical importance to the typical language learner (Amer, 2002). It is argued that "If language structure makes up the skeleton of language, then it is vocabulary that provides the vital organs and flesh" (Hammer, 1991, p. 153). Knowing words is the key to understanding and being understood. In fact, the bulk of learning new language consists of learning new words. Although learning grammar is

crucial, grammatical knowledge does not make for great proficiency in a language (Ebrahimian & Nabifar, 2015).

Vocabulary learning has always been a major concern for language learners (Baleghizadeh & Yousefpoori, 2002). One of the two main components of language teaching is vocabulary, the other one grammar. The importance of vocabulary learning can be perceived by looking at the body of research done in this regard (e.g., Nation, 2001; Schmitt, 2000; Singleton, 2008).

In recent years, most linguists have reached a consensus that vocabulary learning strategies should be part of the syllabus and they should be taught in regular order. Vocabulary is the most important part of the language because language is grammaticalized lexis, not lexicalized grammar, that is, without vocabulary, grammar is nonsense (Moudraia, 2001). It is clear that in the



absence of any new vocabulary learning strategies being recommended or introduced in class by either a teacher or a course book, only the well-known strategy of repetition is likely to be used as an aid to remembering the words (i.e. repeating the L2 word form aloud, saying/writing the L1 translation many times, reading the words silently many times, etc.). Most teachers still emphasize English grammatical rules in class and leave word repetition tasks to be handled by the learners themselves.

Since vocabulary plays a vital role in language learning, some applied linguists (e.g., Qian, 1999, Zareva & Nikolova, 2005) argue that vocabulary learning strategies should be taught in language classes. Vocabulary is necessary for communication and in expressing meaning through the productive and receptive skills. Without an extensive knowledge of vocabulary and strategies for learning new words, learners may feel disappointed and lose their confidence. Therefore, it is necessary to familiarize learners with a number of useful strategies to expand their vocabulary learning and to teach them how they can make use of these strategies (Khazaal, 2001).

In response to different styles of learning, the use of games in the classroom can be an effective tool, especially at the college level. Gifted and talented students, who are the most likely to attend college, have been found to prefer games and other alternative teaching methods (Moore & Dettlaff, 2005). For some teachers, implementing alternative methods of teaching may be difficult, as many teachers prefer to use the traditional methods they are comfortable with, but games can be used as a supplement to traditional methods, not as a replacement (Moore & Dettlaff, 2005). Finally, it is important to note that games (e.g., crossword puzzle and wonder word puzzle) can add flexibility to the classroom allowing students to adjust to the way in which they learn best (Moore & Dettlaff, 2005). Games allow students to work in groups or alone, to be competitive or not, to be creative, and to have fun while learning.

One of the teaching aids that can be used in teaching vocabulary is crossword puzzle. This approach employs several useful student skills including vocabulary, reasoning, and spelling. Crossword puzzles can be used for teaching a specific subject

especially since they can be adapted and tailored in limitless ways.

Another way to help learners for learning vocabulary is wonder word game. The list of words to find usually appears next to the puzzle, though some puzzles may omit it. Words may run vertically or horizontally, backwards or forwards; tougher puzzles may have words running diagonally as well. Many puzzles have a theme to which all the words in the puzzle are related (Ouellet, 2003).

The third vocabulary learning strategy which is the concern of the present study is using context-clue strategy. Text book writers usually know when they must use a word that will be new to their student readers. So, they often include other words or phrases to help with the understanding of the new word. These words or phrases are referred to as context clues. They are built into the sentences around the difficult word (Nassaji, 2003). Guessing from context is considered a sub skill of reading (Nation, 2001). The first way to figure out the meaning of a word is from its context. The context is the other words and sentences that are around the new word. When you figure out the meaning of a word from context, you are making a guess about what the word means. To do this, you use the hints and clues of the other words and sentences. You won't always be right, but many times you will be. You might not be able to guess the exact meaning of a word, but you may be close enough to get the meaning of the sentence it is in. A basic strategy for unlocking the meaning of an unfamiliar word is to search the context of the sentence in which a new word appears for clues. Sometimes this can be easy to do because the author may have provided a *definition* or a *synonym* right there next to or near a term that you can use to unlock its meaning.

There are many strategies for learning vocabulary by game in English. In this study, two new techniques regarding learning vocabulary namely crossword and wonder word puzzles and one semi-traditional but widely accepted technique namely textual guess were chosen to first somehow compare the differences among the games of vocabulary learning and second to see that whether there is any differences between these games and other strategies (e.g., textual guess) in retention of vocabulary overtime or not. Therefore, the current study is a small-scale

comparative study of three instructional strategies, that is, crossword puzzle, wonder word puzzle, and textual guess strategy for Iranian EFL learners.

The present study is aimed at answering the following research questions:

Question 1: Are there any significant differences in learning vocabulary among these three groups (the cross word group, wonder word group, and textual guess group)?

Question 2: Are there any significant differences in learning vocabulary among the three groups in the retention of vocabulary over time?

And accordingly, the following hypotheses are formulated:

Null Hypothesis 1: There are no significant differences in learning vocabulary among the cross word group, wonder words group, and textual guess group.

Null Hypothesis 2: There are no significant differences in learning vocabulary among the cross word group, wonder words group, and textual guess group in the retention of vocabulary over time.

2. Literature Review

Recently, it has been proved that vocabulary expands through direct teaching of vocabulary learning strategies and some scholars such as Fisher (2004) and Spencer and Guillaume (2006) claim that vocabulary learning strategies should be directly and regularly taught in language classes. The current section aims to review the research studies and related literature related to vocabulary learning, particularly vocabulary learning strategies (VLS) and vocabulary learning strategies training (VLST).

It is obvious that vocabulary plays vital role for all four language learning skills. There are various interesting views from many educators concerned with vocabulary learning/acquisition stating how vocabulary is important to language learning in the four skills. Lessard-Clouston (1996, as cited in Luo, 1992) points out that vocabulary in all forms (e.g., words, phrases, idioms, etc.) is not only at the center of all languages usage in the four language learning skills, that is, listening, speaking, reading, and writing, but also it involves culture. Bromley (2000) contends that vocabulary is crucial to comprehension and achievement. Comprehension will not be achieved without progress in vocabulary and it is said that 70-80% of comprehension occurs

through vocabulary. The close relationship between vocabulary and comprehension has been repeatedly stressed by the researchers.

The public instinctively understand that vocabulary plays a key role in authentic communication. They thus need to have lexical repertoire to understand written texts, articles, magazines, and so on. They also need to have sufficient words to handling written messages, listening texts, and conversation. Learning vocabulary is a complex process not only involves learning sounds but also expressing information by morphemes considering syntactic restrictions (Montrul, 2001). Besides, they have dictionaries with them, not grammatical references. Furthermore, they often emphasize that their major problem is insufficient of vocabulary. In fact, there is inevitably a great amount of vocabulary or lexical items to be encountered and learned by L2 learners who need to learn a second language. Zimmerman (1997) states:

Since vocabulary is central to language and of critical importance to the typical language learner, it is unlikely that learners will fail to notice the fact. Presumably, the more successfully they learn vocabulary, the less hindrance they encounter in achieving their target languages in four skills. (p. 5)

Learning vocabulary is one of the most important unnoticed field in the literature and there is a need for more research in this area. Several authors such as Folse (2004), Hunt and Beglar, (2005) and Walters (2004) claim that there was very little research being conducted in the field of ESL vocabulary in the past. However, the trend has changed in the last ten years. There has been an explosion of research on second language vocabulary such as student needs, teaching techniques, learner strategies, and incidental learning since the 1990s (Folse, 2004).

3. Methodology

3.1 Research Design

The design of the study was quasi-experimental. This study was an empirical study used to assess the effect of three vocabulary learning strategies on Iranian pilot students and the researcher controlled the assignment to the treatment conditions. It attempted to compare the three kinds of vocabulary learning strategies on participants' vocabulary learning and retention. Therefore, the independent variables of the current study were three vocabulary learning strategies namely



cross-word, *textual guess* and *wonder-word* and the dependent variables were vocabulary learning and retention. The learners in all three groups were taught the same vocabularies by three different strategies. The same marking scheme, that is, one score for each correct response, was used to mark the tests in all three groups. All learners were taught by the same researcher in their respective classrooms. The only difference was in the methodology of vocabulary instruction.

3.2 Participants and Data Collection Procedures

One hundred twenty EFL first year undergraduate students in pre-intermediate level from an army university; e.g., Khatam-ul-Anbia University, participated in the study. All of them were men with an average age of 18-20 years old; their first language was Persian. Prior to the experiment, the researcher administered a standard proficiency test; i.e., Preliminary English Test (PET), to determine the homogeneity of the groups. The researcher set ± 2 SD above and below the mean score as the criterion for selecting his sample. That is, the average scores of students on the PET were used for homogenizing the selected participants. Based on this criterion, thirty three students in each class; i.e., totally 99 students, were selected as the participants of the study. These three intact classes were then randomly assigned into three experimental groups, each receiving one type of vocabulary learning strategy.

After teaching forty unknown vocabulary items from Longman Dictionary Website out of sixty ones through three different strategies, that is, cross word, wonder word, and textual guess strategies, the researcher used the following tests to collect the data:

A sample PET (version 2009) was used as an instrument to select 84 participants from 120 pre-intermediate learners. For the sake of practicality, only the reading and writing parts of the PET were administered. The test had two sections including the reading part with 15 questions and the writing part with five questions of fill-in-the-blanks and two compositions. The researcher gave necessary instructions prior to the examination. The participants had to answer these tests in 50 minutes.

60 vocabulary items all from Longman Dictionary Website for intermediate level

were given to the students in order to sort out unknown words to teach them. This was considered as the pretest. Two criteria were applied in choosing the target words for explicit vocabulary instruction. First, since the participants were students at the pre-intermediate level, the researcher selected words at the intermediate level. Second, since these vocabularies were not selected from students' text books, it was supposed that most of their meanings were unknown to the students. Therefore, a pretest containing a list of 60 isolated words without any context from the students' English text books was administered prior to the study. The students were presented with the word list and asked to tick unfamiliar words whose meaning they could not determine. The scoring method was one point for one unknown word. Based on the pretest results, 40 unknown words out of 46 unknown ones which were new to the students were randomly selected as the vocabulary to be taught in the present study. It is worth mentioning that all of the words were presented in a list and, the researcher asked students to write down their meaning in provided blank spaces if they know their meaning in Persian.

A test of vocabulary achievement including 20 multiple-choice items (randomly arranged by the researcher) from Longman Dictionary Website was used as an immediate posttest for determining whether teaching words through these three strategies (cross word, wonder word, and textual guess strategies) had any significant effect on the overall vocabulary achievement of the students. To check the retention of the learned vocabulary over time, a delayed posttest was held. It is worth mentioning that the delayed test was the same as the immediate test. The test had 20 multiple-choice items based on the vocabulary chosen at the pretest stage and taught to the three groups during the treatment. The reliability of the current test was mentioned to be .91.

For choosing and homogenizing 99 participants for the experiment, the PET test was given to 120 pre-intermediate Iranian Pilot Students. Their average scores in this test were used for homogenizing them. The whole procedure of the current study was as following:

This study focused on the three methods of explicit vocabulary instruction,

including cross word puzzle, wonder word puzzle, and textual guess. Initially, for better coordination, the researcher consulted with the teacher of each class concerning their grouping. The instruction for all groups was conducted in four sessions during four weeks. All three experimental groups were presented with 10 words in each 30 minute session, that is, 40 words in total by the same researcher. The meanings of the words which were taught in session one were revised at the beginning of session two as a review; the same procedure was applied in sessions three and four.

The students were divided into three experimental groups who received various treatments: in the *cross-word group*, the researcher asked students to work in pairs and wrote the right words in the given grids according to their definitions (from Longman Dictionary).

The researcher told them to read the definitions carefully and then try to find the clues and write in the proper position into grids (e.g. 2 down, 3 across). He changed the members of each group after while different students often knew different words. Then he asked the students which words they did not know in the definitions and explained what the words meant and then saw if they could finish the crossword puzzle (Crossman, 1983). Finally, he went through the answers on the board. In the *wonder-word group*, the researcher asked students to work in pairs and find the right words in the given grids according to their definitions (the same definitions as in the crossword puzzle). He told them to read the definitions carefully, and then try to find the clues in the wonder word puzzle. Then, he changed the members of each group after a while and asked the students which words they didn't know and explained what the words meant and then saw if they could find the words in the puzzle (Vockell, 2010). Finally, he checked their puzzles one by one to ensure that all students finished the puzzle correctly. In the *textual guess group*, the researcher explained finding the correct meaning of the given word according to its preceding and succeeding words in the sentence. In the context-clue group, the researcher presented each target word in one meaningful sentence where some clues were available such as semantic or syntactic cues. The students were called on to infer the meaning of unknown words

based on the information embedded in the context (Walters, 2004). For example:

Britain is well known for its unpredictable weather. Climate is frequently changing every day.

The effects of the three types of the treatment on EFL vocabulary acquisition were assessed via an immediate posttest right after the last instruction where the number of target words was reduced to 20. The vocabulary (N= 40) was divided into four vocabulary groups: the first 10 words taught in session one, the second 10 words taught in session two; the third 10 words taught in session three, and the last 10 words taught in session four. By selecting five words randomly from each vocabulary group, the researcher (using tests from Longman Dictionary Website) designed both the immediate and delayed posttests containing a 20-item multiple-choice. The students were asked to choose the appropriate synonym for 20 target words within 30 minutes. The scores were calculated by summing up the correct answers. Here, it should be notified that the reliability of these tests was estimated to be .91.

As Hulstijn (2003) argued a delayed posttest can be invalid for evaluating the effects of instruction without recycling during the delay, each group took the same posttest just four weeks after this experiment to establish the short-term retention of the treatment effects. The delayed posttest followed the same scoring system used in the immediate posttest, that is, one score for every correct response. The delayed posttest was also restricted to 30 minutes.

4. Result

The first test in the current study that the researcher administered for homogenizing the participants was PET test. The result shows that the mean and standard deviation are 10.40(\approx 10.5) and 2.96(\approx 3) respectively (Table 1).

Table 1: Mean and Standard Deviation of the PET Test

N	Valid	120
	Missing	0
Mean		*10.4016
Median		10.0000
Mode		09.50*
Std. Deviation		*2.96844
Minimum		5.00
Maximum		17.00
Sum		1248.5



Based on the criterion set at the beginning of the study, the scores between ± 3 the mean score (10.50) were selected as treatment groups, e.g., the scores between 7.50 and 13.50. The total number came to be 99 participants. Then, they were randomly assigned into three different groups (cross word, wonder word, and textual guess). Each contained 33 students for treatment. The others were excluded from the study and did not receive any treatment. It is worth to mention here that the PET examination for all 120 participants was held on the same day.

After homogenizing stage, the researcher delivered students 60 words (intermediate level) from Longman Dictionary Website as a pretest to select the known words. The result showed that 46 words were unknown to them. These 46 words were ones whose meanings the students did not know. The researcher randomly left out six ones to have 40 vocabulary items to be taught through three strategies under study by the same researcher. The first research question posed for this study was:

1. Are there any significant differences among the cross word group, wonder word group, and textual guess group in learning vocabulary?

The test of homogeneity of variances was conducted as a prerequisite for ANOVAs to see the homogeneity of variances in immediate posttest (Table 4.2). It shows that the homogeneity of variances is not significantly different (sig. = .089, $p > 0.05$).

Table 2: Test of Homogeneity of Variances in Immediate Posttest

Levene	df	df	Sig.
2.49	2	8	*.08

After the last session of the instruction, the immediate posttest was given to the students in all three groups. The participants' scores were obtained from the given test and analyzed. The mean of each group was calculated and compared to show the probable differences. In order to ensure the significance of the results, ANOVA test was administered. As Table 4.3 shows, in immediate posttest, the mean scores of the textual-guess group (TG), the cross-word group (CW), and the wonder-word group (WW) are 14.82, 13.60, and 13.03 respectively.

Table 3: Descriptive Statistics of the Mean and Standard Deviation of the Groups in Immediate Posttest

N	Mean	Std. Deviation	Std. Error	95% Confidence Mean	Interval for	Minimum	Maximum	
								Lower Bound
TG	28	14.8214	2.31026	.43660	13.9256	15.7173	9.00	18.00
CW	28	13.6071	2.43948	.46102	12.6612	14.5531	9.00	18.00
WW	28	13.0357	2.47959	.60089	11.8028	14.2686	8.00	18.00
Total	84	13.8214	2.74262	.29924	13.2262	14.4166	8.00	18.00

As Table 3 shows there should be a significant difference between the three groups. Also, the standard deviation in immediate posttest is above two in all three groups. This means that the scores in immediate posttest in all three groups were scattered.

An ANOVA was employed to ascertain that the difference in immediate posttest scores among these three groups was significant (Table 4). The results revealed that there was statistically significant difference (sig. = .043, $p < 0.05$) among the immediate posttest scores of the three groups.

Table 4: ANOVA for Determining Differences between Groups in Immediate Posttest

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	46.571	2	23.286	3.265	*.043
Within Groups	577.750	81	7.133		
Total	624.321	83			

As the difference was significant, a Post Hoc test was conducted to show the differences among these three groups. Post Hoc test revealed that the difference between textual-guess group and wonder-word group was significant (sig. = .014), whereas no significant differences were found between cross-word group and the other two groups (Table 5).

Table 5: Post Hoc Test for Three Strategies among Three Groups in Immediate Posttest

(I) posttest1	(J) posttest1	Sig.	Mean Difference (I-J)	95% Confidence Interval	Lower Bound	Upper Bound
TG	CW	1.21429	.71378	.093	-.2059	2.6345
	WW	1.78571*	.71378	*.014	-.3655	3.2059
CW	TG	1.21429	.71378	.093	-2.6345	.2059
	WW	.57143	.71378	.426	-.8488	1.9916
WW	TG	1.78571*	.71378	*.014	-3.2059	.3655
	CW	.57143	.71378	.426	-1.9916	.8488

*. The mean difference is significant at the 0.05 level.

The differences in mean scores of the groups in immediate posttest are shown in Figure 1.

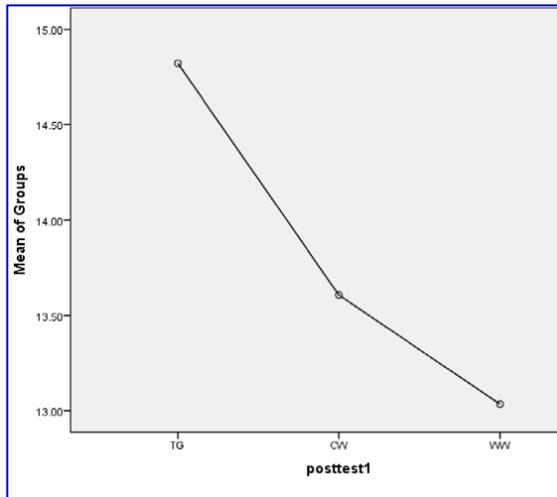


Figure 1: Means Plots of the three groups in immediate posttest

As it was done for the immediate posttest, to check the homogeneity of variances in the delayed posttest, the test of homogeneity of variances was conducted (Table 6). It shows that the homogeneity of variances is not significantly different (sig. = .133, $p > 0.05$).

Table 6: Test of Homogeneity of Variances in Delayed Posttest

Levene	df1	df2	Sig.
2.0	2	81	.133 ^a

After four weeks, the same test used in the immediate posttest was given to the students in all three groups as a delayed posttest to see whether there is any significant difference between groups in the retention of the learned vocabulary overtime. The participants' scores were obtained from the given test and analyzed. The mean of each group was calculated and compared to show the probable differences. In order to ensure the significance of the results, ANOVA test was administered, too. As Table 4.7 shows, in delayed posttest, the mean scores of the textual-guess group (TG), the cross-word group (CW), and the wonder-word group (WW) are 15.14, 13.00, and 12.03 respectively.

Table 7: Descriptive Statistics of the Mean and Standard Deviation of the Groups in Delayed Posttest

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean Lower Bound	95% Confidence Interval for Mean Upper Bound	Minimum	Maximum
TG	28	15.1429	1.60357	.30305	14.5211	15.7647	12.00	18.00
CW	28	13.0000	1.96261	.37090	12.2390	13.7610	10.00	17.00
WW	28	12.0357	2.25228	.42564	11.1624	12.9091	8.00	16.00
Total	84	13.3929	2.33371	.25463	12.8864	13.8993	8.00	18.00

Similarly, as it was done for immediate posttest, to calculate differences between groups, an ANOVA test was conducted for delayed posttest (Table 8).

Table 8: ANOVA for Determining Differences between Groups in Delayed Posttest

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	141.643	2	70.821	18.482	*.000
Within Groups	310.393	81	3.832		
Total	452.036	83			

According to Table 8, there is statistically significant difference (sig. = .000, $p < 0.05$) between the three groups in vocabulary retention overtime. Therefore, the second hypothesis is also confirmed.

A Post Hoc test was conducted to see the difference between the three groups (Table 9):

Table 9: Post Hoc Test for Three Strategies among Three Groups in Delayed Posttest

(I) posttest1	(J) posttest1	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
TG	CW	2.14286*	.52318	*.002	1.1019	3.1838
	WW	3.10714*	.52318	*.000	2.0662	4.1481
CW	TG	-2.14286*	.52318	*.002	-3.1838	-1.1019
	WW	.96429	.52318	.069	-.0767	2.0052
WW	TG	-3.10714*	.52318	*.000	-4.1481	-2.0662
	CW	-.96429	.52318	.069	-2.0052	.0767

*. The mean difference is significant at the 0.05 level.

It shows that the difference between textual-guess group and cross-word group (sig. = .002) and also between textual-guess group and wonder-word group is significant (sig. = .000), whereas the difference between cross-word group and wonder-word group is not statistically significant (sig. = .069). The differences in mean scores of the groups in delayed posttest are also shown below in figure 2.

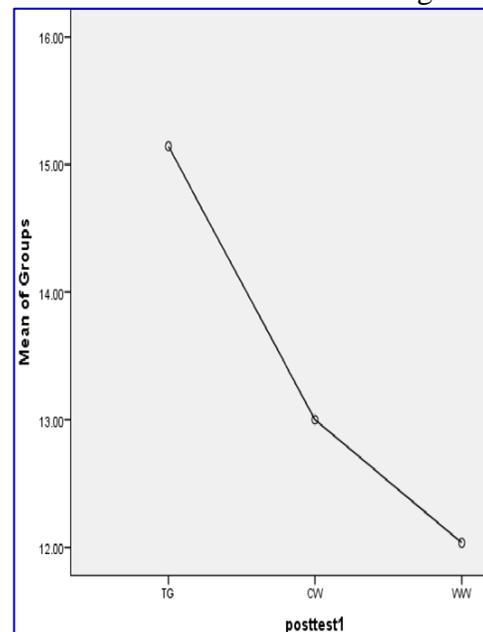




Figure 2: Means Plots of the Three Groups in Delayed Posttest

Given that the ANOVA showed that there is a treatment effect, a simple examining of the means will indicate which treatment had more effect. With reference to Table 4.10, the textual-guess method yielded higher immediate posttest scores ($M = 14.82$, $SD = 2.31$) than the cross-word method ($M = 13.60$, $SD = 2.43$) and the wonder-word method ($M = 13.03$, $SD = 2.47$). In addition, all three groups achieved lower scores for the delayed posttest in contrast to the immediate posttest. However, the total mean of the groups in the delayed posttest is lower than the total mean in the immediate posttest (Table 10).

Table 10: Means and Standard Deviations of Immediate and Delayed Posttest Scores in all Three Groups

Group	Immediate posttest	Delayed posttest
Textual-guess	M = 14.82 SD = 2.31	M = 15.14 SD = 1.60
Cross-word	M = 13.60 SD = 2.43	M = 13.00 SD = 1.96
Wonder-word	M = 13.03 SD = 2.47	M = 12.03 SD = 2.25
Total	M = 13.87 SD = 2.40	M = 11.27 SD = 2.06

5. Discussion & Conclusion

Currently vocabulary learning strategy (VLS) appears to be an important area of English language teaching (ELT) research. Many educators in the field of ELT and others from related fields emphasize the importance of teaching VLS to help learners learn effectively and to make use of the strategy training for their autonomous learning in the future. With regard to training learners in the use of more than one vocabulary learning strategy, Sökmen(1997) agreed with Nation's opinion about successful learners in that those students who are most successful use several vocabulary learning strategies. The current study was designed to check the effectiveness of three vocabulary learning strategies. The analysis of the data showed that learning vocabulary strategies has some effects on Iranian EFL learners among three groups in both immediate and delayed posttests. The treatment effect for the textual-guess analysis instruction was, in general, stronger than the effects for cross word and wonder word instructions on the immediate and delayed vocabulary acquisition. The superiority of the textual-guess method could have been for many reasons. The students who received cross-

word method instruction had some difficulties in finding out the word meanings of the target vocabulary. Due to the problems the students might encounter in the cross-word instruction, they were more likely to depend on the teacher for guidance rather than to actively participate in the process of vocabulary learning. The research reviewed in this study showed that there is little value in learning vocabulary using wonder words. However, this learning may be useful if it is used as part of a broader programme involving other kinds of direct learning.

Although the current study yielded fruitful results for the implementation of these three vocabulary learning strategies, two limitations should still be noted. Firstly, the sample was limited to army students; we might not be able to generalize the findings to other groups of EFL learners. Future studies can probe the effects on different groups: for example, elementary school, junior high school, or other college students. Secondly, the total time frame of this experiment was restricted to four weeks. Future studies could prolong the experiment, possibly producing different effects of spaced practice on retention.

Clearly there has been very little research on the VLST in the real classroom environment. In order to confirm the findings of this study, future research in this area is needed to investigate the effect of VLST on learners' retention of L2 lexical items, lexical chunks (e.g., phrases, collocation, and the like) in relation to L2 learners' individual differences, especially cultural background.

Moreover, five suggestions for future research are made here mostly based on the limitations of this study. Future studies may: (a) compare the effects of each of these three strategies versus other VLSs (like semantic mapping, paraphrasing, flashcards, note-taking, or word list strategy) on EFL students' vocabulary retention; (b) follow the present methodology, but further discuss the types of words (e.g., action verbs, nouns, adjectives, adverbs, five-letter words, multi-letter words) that are retained better by learning from other strategies, and the reasons for such a result; (c) include the gender issue, that is, examining performance differences between male and female learners using these strategies, or discussing male and female

learners' preferences for learning from just one of these strategies; (d) combine some strategies for better results. Sökmen (1997) adds that the idea of a mixed approach (i.e., several learning strategies combined together) was also supported by McKeown and Beck (1988) and Stoller and Grabe (1993). The idea of combining various vocabulary learning strategies together or the mixed approach presumably is appealing to learners in that it breaks up the class routine while building a variety of associational links. It also has a greater chance of harmonizing with the various verbal and non-verbal learning styles which different students may have" (Sökmen, 1997); and (e) finally it will be worth examining whether training in VLS would help poor or less efficient students to become more efficient and successful in L2vocabulary learning, or whether it would improve their L2 vocabulary retention.

To sum up, as the results of the current study proved and the other previous researches attested, the textual-guess strategy is one of the most helpful strategies in learning vocabulary items. However, cross word and wonder word strategies also had positive effects on learning vocabulary items. The researcher believes that if students could be taught with explicit instruction on cross word and wonder word puzzles using contextual analysis, they would be able to guess the words' meaning retain them overtime.

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