The Effect of Teaching Memory Strategies on Iranian EFL Learner's Vocabulary Retention in Terms of learners' Multiple Intelligences

Adele Abbassi[1], Jaleh Hassaskhah[2]*, Abdorreza Tahriri[3]

[1]MA in TEFL, Department of English Language and Literature, University of Guilan, Iran
[2]Associate professor of TEFL, Department of English Language and Literature, University of Guilan, Iran
[3]Assistant professor of Applied Linguistics, Department of English Language and Literature, University of Guilan, Iran

Corresponding author: Jaleh Hassaskhah, E-mail: Jaleh_hassaskhah@yahoo.com

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ABSTRACT

This study targeted to explore the effect of memory strategy on EFL learners' vocabulary retention with a consideration of learners' multiple intelligences. In this study, the memory strategy consisted of three parts of grouping, acronym and images. The participants of this study were 80 male and female EFL learners of intermediate level who underwent 12 hours of instruction in a language institute. They were chosen through convenience sampling and then they were randomly divided into an experimental group and a control group. The experimental group was directly taught how to implement memory strategies in learning vocabulary. A pre-test post-test control group design was carried out to collect the required data through vocabulary tests, memory strategy and multiple intelligence questionnaires. The results showed that the experimental group's vocabulary retention statistically improved. Moreover, the relationship between MI and vocabulary retention of Iranian EFL learners was reported statistically significant. This positive relationship was particularly reported between existential MI, linguistic MI scores and spatial MI scores and vocabulary scores. The finding provided information on how to teach English vocabulary in EFL classes and also recommended that teachers exploit MI in the teaching processes. It also suggests that educators, learners, policy makers, material producers, and syllabus designers move from traditional-based approaches to more innovative ways of teaching vocabulary.

Key words: Multiple Intelligences, Vocabulary Retention, Memory Strategy, EFL

INTRODUCTION

Vocabulary is of great importance in comprehending a language. According to Nation (2004), words are the basic parts of a language since they are vital for expressing objects, actions, and opinions. Obviously, without words, people will not be able to communicate their intended ideas. Today it is broadly approved that vocabulary learning is one of the prominent factors not only in the acquisition of a native language but also in the learning of a foreign language (Morra & Camba, 2009). However, vocabulary learning and vocabulary retention are yet matters of difficulty to language learners (Zimmerman, 1998). In fact, the challenging and controversial issue in vocabulary learning is not its acquisition but its retention or the ability to access them when talking or writing. The issue gets even more critical for adult English learners.

According to Lockhart, Craik and Jacoby (1976) retention refers to the act of continuing something from a considerable time elapse (e.g. weeks or months). It was the growing concern for discovering effective ways to foster vocabulary retention that the role of vocabulary learning strategies became prominent. Considering the fact that the use of required vocabulary learning strategies (VLS) may enhance vocabulary retention (Nation & Newton, 1997), some researchers in the domain of foreign or second language learning devoted their studies to this area (e.g., Fan, 2003; Gu, 2003; Tseng & Schmitt, 2008; Wu, 2008). Schmitt (1997) emphasized the significant role of vocabulary learning strategies, and described proficient learners as those who employ a wide number of strategies regarding vocabulary learning. According to Schemitt, (1997) VLS refers to the techniques that learners utilize in order to obtain, store, retrieve and use the information. Similarly, Oxford (1990, p. 1) defined VLS as "actions, behaviors, steps, or techniques students use, often unconsciously, to improve their progress in apprehending, internalizing, and using the L2".

To identify various VLS and their usefulness, a number of studies were done and different findings were obtained. For instance, O'Malley, Chamot, Stewner-Manzanares, Kupper, and Russo (1985) reported that repetition which

does not include active manipulation of information was the most commonly used strategy among learners. In line with O'Malley's statement, Schmitt (1997) stated that mechanical strategies including repetition, note taking and memorization, are popular more than strategies which involve deep processing, including imagery and guessing. However, according to Craik and Tulving (1975), it was the depth of processing that led to vocabulary's efficient retention. On the other hand, Nation (2004) considered memory strategies as the most effective in vocabulary teaching and learning.

Currently, despite the deep processing and meaningfulness which are considered as the features of efficient vocabulary retention strategies, most language teachers have experienced situations where one strategy that is beneficial for some students in one class is of little use for the rest of the students in the same class. The reason for such a variation in leaning is attributed to the individual differences (Salehi & Sadighi, 2012).

Individual differences can be justified with reference to the theory of multiple intelligences (MI). As this theory suggests, a number of different intelligences exist that work autonomously and uniquely within each individual's thinking process (Gardner, 1983, 2011). Armstrong (2003) claimed that MIT "opens the door to a wide range of teaching strategies" (p. 72). Obviously, learners learn vocabularies differently according to the differential styles and strategies they possess; therefore, teachers are supposed to be aware of the students' skill levels, strengths and challenges, interests and preferences, and needs so that they can employ an efficient method of teaching vocabulary suitable to the differential styles of learners (Alavinia, 2012).

Although a number of researchers such as Ghorbani and Rabiee (2011), Tavakoli and Gerami (2012), Zoghi and Maleki (2015), Zahedi and Abdi (2012) did some studies in the area of vocabulary strategy and vocabulary retention, they did not include the role of context, and the role of individual differences in vocabulary learning. In particular, little has been done to find the relationship between learners' multiple intelligences and vocabulary retention.

Therefore, the problem present in the area of vocabulary retention is still unsolved and there is still a need for further studies to seek the answers to the question of what strategy to use to improve the retention of words and which type of multiple intelligences is influential in vocabulary retention. To this end, this study examined the role of memory strategies in vocabulary retentions across learners' MI.

LITERATURE REVIEW

Memory Strategy and Vocabulary Retention

Although learning is important, retention and recall of learnt items should not be underestimated. Vocabulary retention refers to the ability of recalling or remembering things after a period of time has passed. "In language teaching, retention of what has been taught (e.g. grammar rules and vocabulary) may depend on the quality of teaching, the use of different strategies, the interest of the learners, or the meaningfulness of the materials" (Richards & Schmitt, 2002, p. 457). In

order to learn and retrieve words efficiently, both learners and teacher should utilize VLS because it helps them not only in comprehending a text, but also in memorizing new vocabularies. Moreover, it leads to retrieving learnt items. Although. It is now accepted that using VLS leads to efficient vocabulary learning and retention, the challenge of finding the most appropriate VLS is yet unsolved. It is worth mentioning that some research has been done on the use of vocabulary strategies and vocabulary retention; however, the results are controversial. Some of these studies are reviewed in the following.

Banikowski and Mehring (1999) did a study on strategies to enhance memory. After analyzing the data, they gave superiority to rehearsal strategy as a traditional vocabulary learning strategy which is used by both learners and teachers. According to Banikowski and Mehring (1999) rehearsal strategies are those that ask learners to repeat the information in working memory over and over so that it can be retained.

To explore EFL learners' vocabulary learning instructed by learning strategies teaching, Fallahchai (2012) conducted a study. To this purpose, 558 students who were studying at primary level formed the participants of this study. The participants were divided into 4 groups and were instructed by 4 different approaches of: (1) vocal rehearsal+ phonological awareness training: (2) sub -vocal rehearsal+ phonological awareness training: (3) vocal and sub-vocal rehearsal+ phonological awareness training: (4) no rehearsal+ phonological awareness training. The analysis of data was conducted by One-way ANOVA of pre-test and post-test. The results revealed that word list as a kind of rehearsal strategy could not succeed in enhancing the retention of learners' vocabulary knowledge. The main reason for failing wordlist as a proper VLS was the absence of context. It was suggested that context is an aid for learners to develop and understand unknown words efficiently (Hayati & Shahriari, 2010). This finding actually contradicted the result of the study done by Banikowski and Mehring (1999).

Contrary to rote rehearsing strategy for learning vocabulary, Sardroud (2013) did a study to investigate the effect of deep strategies such as contextual guessing, keyword, semantic mapping, and metacognitive strategy on vocabulary retention. To this end, 32 intermediate level learners were divided into two groups of experimental and control. After the treatment sessions, the data received out of the vocabulary post-test were analyzed and it was found that the experimental group achieved higher vocabulary retention than the control group. Therefore, the deep strategies of contextual guessing, keyword, semantic mapping, and metacognitive were found to be effective in vocabulary retention.

Moreover, regarding the effect of VLSs on learning vocabulary, Tavakoli and Gerami (2012) did a study to compare two strategies of pictorial and keyword on Vocabulary Learning and retention. The participants consisted of 60 adult female students at elementary levels. Homogeneity test and two post-tests of immediate and delayed were the including instruments. Immediate post-test was distributed right after each treatment sessions to find learners' short-term memory recall and delayed post-test was used after an

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interval of two weeks in order to explore learners' long term memory retention of vocabularies. By conducting one-way ANOVA it was concluded that keywords method had statistically significant effect on the vocabulary learning and long-term retention.

Another study was done by Sarcoban and Basibek (2012). The study sought to investigate the role of mnemonic strategy and Context method on vocabulary retention. The participants were 84 students at the level of upper intermediate. The pretest, and two post-tests (immediate recall test/ delayed retention test) were the applied instruments. After analyzing the data, it was found that the group instructed by mnemonic strategy was more successful than the group instructed by context technique in both immediate and delayed post-test. In addition, Nemati (2009) investigated the effect of two memory strategies on the short and long-term vocabulary retention. The results of the analyzed data revealed that teaching vocabularies by the use of synonyms and short contexts is able to significantly enhance the retention of learners' vocabulary in terms of short and long period. Moreover, she discussed that teaching strategies and particularly making students aware about the strategy types can enhance the learning of the new vocabulary. In other words, it would make the learners able to retrieve new information. Some other researchers also supported the idea of using memory strategy for vocabulary learning are Zoghi and Maleki (2015), Ghorbani and Riabi (2011) who gave superiority to keyword method and others such as Borza and Gorjian (2015), Zahedi and Abdi (2012) who supported the significant role of semantic mapping. All of the mentioned studies tried to prove the effects of VLS on the vocabulary learning; however, the question of what strategy is the most influential yet remains an issue that requires more research be done.

Multiple Intelligence and Vocabulary Retention

According to Gardner (1983, p. 51) the theory of MI does not refer to just one general human intelligence. In fact, it addresses a group of multiple intelligences, including verbal, musical, logical, visual, kinesthetic, intrapersonal or interpersonal intelligence and naturalist and existential intelligences. Armstrong (2003) suggested that MIT "opens the door to a wide range of teaching strategies" (p. 72). He suggested that in order to learn better, the theory of MI let educators develop new teaching strategies appropriate to the educational setting (Armstrong, 2003).

Unfortunately, no research has been done on the impact of MI on vocabulary retention. However, regarding the relationship between multiple intelligence and language proficiency, a number of studies have been done that I mentioned some of them in the following.

In 2001, another scholar named Carlisle did a study at the preschool level. In her study, Carlisle made use of the MI theory to calculate curricular balance. After analyzing the data, she concluded that applying MI theory in preschool can greatly enhance early childhood education. Later, Razmjoo (2008) did a study to find the strength of the relationship between language proficiency in English and the

9 types of intelligences. To this end, 278 male and female Iranians PhD candidates were asked to complete two questionnaires including a 100-item language proficiency test and a 90-item multiple intelligences questionnaire. The data was analyzed both descriptively (central tendency measures including Mean and Standard Deviation) and inferentially (correlation, regression analysis and independent t-test). The results showed no significant relationship between language proficiency and the combination of intelligences in general and the types of intelligences in particular. Moreover, none of the intelligence types was found out as the predictor for language proficiency.

Another study was done by Pour-Mohammadi, Abidin, Jafre, Ahmad, and Bin (2012) to investigate the Relationship between Students' Strengths in Multiple Intelligences and their Achievement in Learning English Language. The study was done in an urban secondary school in Perak, Malaysia. After analyzing the data, it was concluded that if multiple intelligences are neither considered, nor employed practically in a learning environment, there may be a low correlation between multiple intelligences and English language achievement.

Since the results are not consistent and few studies have shed light on this topic, there is a need for more researches in this field.

Postulating that VLS and vocabulary retention function in line with the individuals' MI, the researchers investigated the impact of memory strategies on students' vocabulary retention by a consideration of learners' MI. Therefore, the following research questions and the relevant null hypothesis were examined in this study:

Research Questions

RQ1: Does direct teaching of memory strategies have any effects on the intermediate EFL learners' vocabulary retention?

RQ2: Is there any relationship between multiple intelligence and vocabulary retention of the intermediate EFL learners?

Research Hypotheses

The following null hypothesis will be tested in this study:

H01: Direct teaching of memory strategies does not have any effects on the intermediate EFL learners' vocabulary retention?

H0 2: There is not any relationship between multiple intelligence and vocabulary retention of the intermediate EFL learners.

METHOD

This study was based on a pre-test post-test control group design, therefore, it was experimental. In this study, only quantitative approach was used in order to collect the data required. To this end, the first author utilized tests and close-ended questionnaires that provided the quantitative data. The members of the experimental group were taught

three vocabulary learning strategies and the scores indicating learners' MI were taken into consideration in order to find its relationship with vocabulary scores. The learners in the control group received routine treatment. Vocabulary strategy was considered as independent variable in the experimental group, the participants' vocabulary scores were considered as the dependent variable and the multiple intelligence was the moderator variable. Moderator variable is a type of independent variable that may not be the main focus of the study, but may modify the relationship between the independent variable and the dependent variable.

Participants

In order to provide the required data, 93 male and female students between 19 and 34 years old accepted to participate in the study. They expressed their consent through a consent form. The participants were either high school or undergraduate students of different fields of study who were taking English courses at intermediate level at an English institute in Rasht, Iran. Finally, 80 participants were selected out of a pool of 93 based on the results on Oxford placement test (OPT). The participants were divided into four classes of equal numbers, each with 20 students. Two classes were assigned to the control groups and two classes were assigned to the experimental groups. All participants had already passed 12 courses in the same institute, apart from that, none had any other experience of studying English.

Instruments

Two questionnaires and a vocabulary test (pre-test and post-test) were utilized in order to collect data from the participating students.

Multiple Intelligences Survey

The MI questionnaire was distributed to the students in order to determine the intelligence profile of the participant. According to Armstrong (1994) the MI Inventory is a form that was designed to find out how much individuals are strong in each of the 9 types of intelligences. In this study, McKenzie's (1999) MI inventory was used. This questionnaire is an applicable and useful tool to measure the MI profile of students. Moreover, researchers have claimed the overall internal consistency in the range of 0.85 and 0.90 for the questionnaire (Al-Balhan, 2006; Razmjoo, 2008). It consists of 90 statements related to each of the nine intelligences proposed by Gardner (1999). Each student was asked to complete the questionnaire by making yes/no next to each statement. If the statement completely described them, they would mark the yes option. However, if the statement did not describe them, their answer should be no.

Vocabulary Learning Strategies Questionnaire

In order to gain information whether students know or use the memory strategies, Schmitt's VLSQ (Vocabulary Learning Strategies Questionnaire) adapted from Bennett (2006)

was administered. This questionnaire that was obtained by Kafipour and Naveh (2011) has 41 likert-scales items with the reliability coefficient of 0.73. It is worth mentioning that only 6 items were used for this study which were suitable enough to find out whether learners knew memory strategies or not. A five-point Likert scales was provided in the questionnaire. The available answers were: never (1), seldom (2), sometimes (3), often (4) and always (5). It is worth mentioning that the questions were translated into Persian so that the comprehensibility of the items would be certain. The assigned time for completing the questionnaire was 10-15 minutes.

Instruments to Test Learners' Vocabulary Retention

Constructing materials need evaluation and the evaluation material must have construct validity. To this purpose, 39 items of the Vocabulary Level Test (Nation, 1983) was used to test retention of the vocabulary recalled by the students in the study. In this test, Learners were not free to articulate their own definitions of the words they had retained. All of the definitions were given to individual informants. Furthermore, the item analysis was conducted before the administration of the main test with a parallel group of 10 students in order to examine the difficulty level of the items and to make necessary changes. The results showed that item facility ranged between 0.36 and 0.75 ($.36<IF<.75$) which meets the standards acceptable in testing.

Procedures

First of all, the objective of the study was introduced and briefly explained to intermediate classes at an English institute in Rasht, Iran. Those students who were interested in taking part in the study were selected through convenience sampling and then they were randomly assigned to the experimental and control groups. The study was done during five weeks, including 9 sessions (9 hours) of instruction, teaching and testing. The classes were held two days a week, one hour after their routine classes. At first, the Oxford Placement Test was distributed among the participants with the aim of finding their general English language proficiency. As aforementioned, a vocabulary test was handed out as pretest. It is worth mentioning that that the same test was given to the participants on two separate occasions in order for the researchers to assess the test retest reliability. Then, the scores on the two occasions were correlated and a coefficient of 0.8 was achieved. It indicated that the test enjoyed good reliability. The vocabulary test consisted of 39 items. Then, 18 words which were unknown to all learners were selected as the teaching points. Teaching procedures in the control group was teacher-based and no direct teaching of memory vocabulary learning strategies were exercised. It involved different routine modes of vocabulary presentation such as follows: a) Presentation of the words in isolation. b) Giving pronunciation of the words orally. c) Writing those words on the board. d) Giving a short explanation about their parts of speech. e) Elaboration of the meaning of each word through introducing synonyms (and antonyms if needed). f) Using

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minimal contexts, that is, some meaningful sentence. In the experimental group, the first author directly taught the three memory strategies including grouping, acronym and images in the class. The experimentation started with a general definition of memory strategy and continued with an elaboration and exemplification of each strategy all in the form of a handout to be used by participants in experimental groups. A practice section was also incorporated for each strategy so as to guarantee the participants' understanding of the strategy. Memory strategy consists of three subcategories: grouping, acronym, and imagery. Grouping was the first subcategory of memory strategy that was introduced to learners by familiarizing them with this term and then putting 6 related words (three of which are animals, and the other three are about feelings) in a box asking students to put them in the columns provided regarding their relations. The first one was done as an example to help them follow the rest. Then, the significance of acronym was explained to learners, telling them to make use of acronym to boost their word retention. Six words were selected and learners were asked to write appropriate acronym using the first letters of the words. Finally, explanation and elaboration was provided on the use of imagery; afterwards, they were exposed to 6 pictures for which they had to find an appropriate word among the words supplied. In addition, a VLS questionnaire based on some memory strategies was given to students in order to find out if students knew or used such strategies with which this study was concerned. In fact, this clarification was done with the purpose of giving strategy awareness.

At the last session of the classes, a vocabulary test as a post-test and the Multiple Intelligences Survey were conducted. The post-test was taken three weeks after treatment sessions with the aim of assessing the long-term retention of vocabulary. The vocabularies in the post-test were the same as the vocabularies in the pre-test.

Data Analysis

The findings of the study were analyzed both descriptively and inferentially. SPSS program (Version 20) was used to analyze the data which is obtained from instruments. In order to discover the homogeneity of the two groups, descriptive statistical analysis was done on the collected data and a one-way ANOVA was run. To respond the first question which dealt with the effect of memory strategy on EFL learners' vocabulary retention, an inferential statistics namely Independent T-tests was done. Pearson correlation coefficient, a Standard Multiple Regression analysis, ANOVA and Standardized Beta Coefficients were used to give answer to the second question that deal with the relationship between multiple intelligence and vocabulary retention of EFL learners. It calculated whether there were any statistically significant relationship between MI types and vocabulary retention.

RESULT

Before answering the research questions, the normality of the variables' distributions including the total multiple intelligences, each nine intelligence types, and the vocabulary test were checked through running skewness analysis. Skewness and Kurtosis values were within the range of +1.96. This indicated that the assumption of normality was not violated and that the data met the assumptions of parametric statistical techniques. The scores of pre-test were entered into the SPSS. It is worth mentioning that the total scores of both the pre-test and the post-test were 39. The descriptive statistics including mean and standard deviation were calculated for the experimental and control groups regarding their pre-test scores (Table 1).

As a result, the mean of the scores were 11.68 and 11.80 for the control group and experimental group, respectively. It showed that before applying the treatment, the experimental and control groups were quite similar to each other regarding the knowledge of vocabularies. However, to assure that these groups were similar, an Independent T-test was run (Table 1).

The result revealed that the Significance value was 0.68 which was above 0.05 (0.68> 0.05). Thus, there was no significant difference between these groups before applying the treatment (Table 1).

Regarding the scores of the students in the post-test, descriptive statistics were calculated in order to compare a specific variable among two unmatched groups. It is also worth mentioning that the scores of the post-test were out of thirty-nine.

As shown in Table 2, the mean of the scores were totally different; they were 15.95 and 25.38 for the control group

Table 1. Descriptive statistics and independent sample test for pre-test

Groups				95% CI of the difference		t	df	p
Control		Experimental		Lower	Upper			
M	SD	M	SD					
11.68	1.716	11.80	2.198	−1.003	0.735	−284	78	0.778

Table 2. Descriptive statistics and independent sample test for post-test

Groups				95% CI of the difference		t	df	p
Control		Experimental		Lower	Upper			
M	SD	M	SD					
15.95	2.438	25.38	3.740	−11.150	−8.300	−13.626	66.476	0.000

and experimental group, respectively. It showed that the after applying the treatment, the experimental and control groups became totally different regarding the knowledge of vocabularies.

The Independent T-test (Table 2) was also run to show whether there was a statistically significant difference among groups or not.

According to the result (Table 2), the significance value was 0.02, which showed a statistically significant difference in the post-test scores of the groups. Therefore, it can be concluded that the experimental group has made greater changes in their post-test scores.

In order to investigate which of the three types of tests, including image, grouping and acronym, have obtained

higher scores, the mean scores of each of them were compared.

The mean scores were quite different; they were 7.38, 10.45 and 8.18 for the sections of image, grouping and acronym respectively. The result of the Independent Sample Test (Table 2) showed that after applying the treatment, the three groups became quite different in replying different sections of the test. Grouping had the most influence. Acronyms and images ranked in second and third respectively.

Regarding the second question, Pearson Correlation Coefficient was computed to explore the possible relationship between the multiple intelligence scores of the participants and their performance on the vocabulary test. Table 3 displayed the results of the correlation analyses.

As depicted in Table 3, the participants' multiple intelligence scores in both the control and the experimental groups had positive correlations with vocabulary scores. However, the correlation was statistically significant simply for the relationship between existential MI scores and vocabulary scores ($p =.00<.01$, $r =.908$), linguistic MI scores and vocabulary scores ($p =.00 <.01$, $r =.803$), and spatial MI scores and vocabulary scores ($p =.00 < 0.01$, $r =.883$) in experimental group. In order to see which intelligence type best predicts the performance of learners on vocabulary test, a multiple regression analysis was run. Existential, linguistic, and spatial Intelligence scores were the predictor variables and vocabulary scores were the predicted variable.

As a result (Table 4), the value of multiple R amounted to ($R=.921$) and R square came to ($R^2=.847$). This meant that the model explained 84.7% of the variance in vocabulary scores.

The results of ANOVA were statistically significant ($F (3, 36) = 66.664$, $p = 0.00$). This implied that the model could significantly predict the participants' vocabulary scores.

The Standardized Beta Coefficients was also done to show the extent to which each predictor variable contributed to the prediction of the predicted variable (Table 5).

In Table 5, the comparison of β values disclosed that existential Intelligence scores had the largest β coefficient ($β =.580$, $t = 3.286$, $p =.002$). This indicated that this variable made the strongest statistically significant unique con-

Table 3. Pearson correlation coefficient between multiple intelligence types and vocabulary scores

Group	Intelligence	Correlation coefficient	p
Control	Naturalistic	0.146	0.368
	Musical	0.185	0.254
	Logical-mathematical	0.251	0.118
	Existential	0.305	0.056
	Interpersonal	0.254	0.114
	Bodily-kinesthetic	0.227	0.115
	Linguistic	0.205	0.205
	Intrapersonal	0.163	0.316
	Spatial	0.311	0.051
Experimental	Naturalistic	0.081	0.621
	Musical	0.143	0.378
	Logical-mathematical	0.294	0.066
	Existential	0.908**	0.000
	Interpersonal	0.025	0.881
	Bodily-kinesthetic	0.046	0.777
	Linguistic	0.803**	0.000
	Intrapersonal	0.054	0.741
	Spatial	0.883**	0.000

Table 4. Model summary – multiple R, adjusted R, and R square

Group	Model	R	R square	Adjusted R square	Standard error of the estimate
Experimental	1	0.921	0.847	0.835	1.51264

Table 5. Regression output: coefficients

	Unstandardized coefficients		Standardized coefficients Beta	t	Sig.	Correlations		
	B	Standard error				Zero-order	Partial	Part
(Constant)	16.344	0.757		21.579	0.000			
Existential intelligence	0.092	0.028	0.580	3.286	0.002	0.908	0.480	0.214
Linguistic intelligence	0.034	0.022	0.175	1.542	0.132	0.803	0.249	0.100
Spatial	0.035	0.031	0.204	1.125	0.268	0.883	0.184	0.073

a. Dependent variable: vocabulary scores

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tribution to explaining vocabulary scores. Therefore, it could be concluded that existential Intelligence scores could more strongly predict the vocabulary retention scores of the participants. Moreover, spatial Intelligence Scores and linguistic intelligence scores were ranked as the second and third predictor of vocabulary scores, respectively. The inspection of the Sig. values showed that simply one predictor variable could make statistically significant unique contribution to the equation as its Sig. value was less than 0.05. So, the second null hypothesis was also rejected implying that there was a statistically significant relationship between multiple intelligence and vocabulary retention of Iranian EFL learners.

The memory strategy questionnaire which was utilized in the study was analyzed by using a percentage point, and it was found that less than 10 percents of the students in both groups used memory strategies in learning English. Therefore, they were quite unfamiliar to this strategy.

DISCUSSION

The present study was done with the aim of investigating the effect of memory strategy on vocabulary retention with a consideration of learners' MI. As a whole, the results reported of a statistically significant difference between the control and experimental groups. The experimental group performed better than the control group in vocabulary retention improvement. Therefore, the results restated the long-term influence of teaching through memory strategies. Furthermore, it showed the positive effect of giving strategy awareness to the students because students rarely use these strategies. In other words, only 4% of the brain is active during traditional language teaching (Danesi, 2003). In short, the first null hypothesis could be rejected according to the received results. Teaching vocabulary through memory strategies can be justified in a number of ways. Far and most, it was acceptable based on the hypothesis of depth of processing. According to this theory, it is the nature of the cognitive processes that determines long-lasting information. Cognitive processes let information be well-remembered. While in the short-term, it is possible for the information to be processed at any level, in the long-term, the information needs to be processed at the deep, meaningful way in order to be remembered (Craik & Tulving, 1975). This was a determining concept because it clarified the fact that the long-term recall cannot be enhanced only by simple repetition, however, it is the deep-processed elaboration which result in long-term recall. Therefore, deeper memory strategies like, semantic processing would be luckier to boost learning than shallower processes like rote repetition (Schmitt & Schmitt, 1995).

Memory strategy proved to be helpful in this study like the numerous studies in which EFL educators and theoreticians supported using memory strategies in EFL classes (Nation, 2004; Oxford, 1990; Sagarra & Alba, 2006).

This was also in line with what Nemati (2009) found. According to Nemati, teaching instruction should target at enhancing retention without increasing study time since students forget much of what they learn. Utilizing memory strategies is a proper means by which students can benefit

from learning because memory strategy can lead to keeping information for a long-term period.

The result revealed that the participants' multiple intelligence scores in both the control and the experimental groups had positive correlations with vocabulary scores. However, the correlation was statistically significant simply for the relationship between existential MI scores and vocabulary scores ($p = .00 < .01$, $r = .908$), linguistic MI scores and vocabulary scores ($p = .00 < .01$, $r = .803$), and spatial MI scores and vocabulary scores ($p = .00 < 0.01$, $r = .883$) in experimental group. Based on the results, the second hypothesis could be rejected implying that there is a statistically significant correlation between multiple intelligence and vocabulary retention of Iranian EFL learners.

On the other hand, the present study confirmed the results of the study conducted by Pour- Mohammadi et al. (2012) in that a positive relationship was reported between MI and language achievement. However, in that study, interpersonal intelligence was reported to predict the strongest positive influence on language achievement. And the naturalistic intelligence predicted the strongest negative influence on achievement.

Furthermore, the result was in line with another study done by Ahmadian & hosseini, (2012) which to find any possible relationship between MI scores of Iranian English learners and their writing proficiency. They also found linguistic intelligence as the best predictor of writing proficiency among all eight intelligences.

In short, this study reported on the positive effect of teaching the direct memory strategies on learners' performance on vocabulary retention tests. Moreover, the result of relationship between learners' MI and vocabulary retention was reported significant; therefore, it suggested English teachers to consider the role of MI in classes and also to modify class activities in order to help students improve retention.

The main limiting factor in this study was attributed to its sampling technique which was not random. The researchers employed convenience sampling which by nature may endanger the external validity of the study and hence constraints its generalizability. Another limiting factor of this study was time and the number of students. The study was carried out for 10 sessions and two hours for each week with a small number of participants due to the time constraints and the availability of the participants, it is suggested that similar experiments in a longer period of time with a large number of subjects should be replicated so that the results can be more generalizable. Another suggestion might be to carry out a similar study using other skills such as grammar so that the efficacy of the memory strategy can be compared in different skills.

CONCLUSIONS

The present study focused on the implementation of memory strategies in EFL classes and reported on the learners' performance on vocabulary retention tests. It also considered the relationship between students' MI and the vocabulary retention. The findings of the present study help us obtain knowledge on the appropriate application of memory strat-

egies in EFL classes. Moreover, they help us uncover the importance and necessity of considering students' MI in the EFL classes. Analysis of statistical results revealed that the experimental and control groups were different regarding the mean scores in the post test. Consequently, it can be said that there is a meaningful difference between teaching based on traditional strategies and teaching based on memory strategies in students' vocabulary retention.

Implications

The findings of this study can provide both theoretical and practical implications. Far and most, it provided information on how to teach English vocabulary in EFL classes and also recommended that teachers employ MI in the teaching processes. It also suggests that educators, learners, policy makers, material producers, and syllabus designers consider and employ memory strategies for teaching vocabulary. Moreover, the findings can be generalized to teaching in EFL classes where the goal of instruction is developing learners' vocabulary size and in particular vocabulary long-term retention.

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