

THE EFFECT OF MNEMONIC METHODS ON IRANIAN EFL LEARNERS' VOCABULARY RETENTION

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ABSTRACT

In spite of many years of research, some questions about acquiring new words in the second language remain unanswered or answers remain controversial. That's because vocabulary knowledge is acquired in different ways. A review of literature gives us a clear picture of different methods and techniques for presenting language skills. This study was an attempt to investigate the effects of "peg word method" and "loci word method", on Iranian pre-intermediate EFL learners' vocabulary retention and also the possible effects of gender on vocabulary learning regarding the employment of these techniques. A sample of 100 students, with the average ages of 15, took part in this study. They were both males and females. They were divided in to two groups. The numbers of males and females were the same for two groups. After conducting the research, the participants' scores were analysed running the analysis of covariance (ANCOVA). The results of the study indicated that both "loci word method" and "peg word method" had positive effects on Iranian EFL learner's vocabulary retention ($p=0.001$). It was also shown that peg word method had a stronger effect on vocabulary retention. Moreover, result showed that gender had no significant effect on Iranian pre-intermediate EFL learners' vocabulary recognition.

Keywords: Mnemonic Methods, Peg Word Method, Loci Word Method, Vocabulary Retention

INTRODUCTION

Literature tells us that vocabulary learning is an essential element in learning any language as it constitutes a fundamental basis of each sentence. In foreign language learning, increasing the vocabulary knowledge, i.e. knowing frequent words along with the familiarity with word parts plays a crucial role in promoting learners' abilities in four skills of reading, writing, listening and speaking. More specifically, foreign language learning includes process of practice, repetition and especially recalling of large number of vocabulary items. In order to communicate well in a foreign language, EFL learners should have large-scale vocabulary knowledge due to the fact that lack of this knowledge causes meaning not to be conveyed and understood well (Chen & Chung, 2008).

Regarding the importance of vocabulary learning and focusing on the students' improvement in foreign language learning, teachers should change and improve the learning environments applying different activities, tools and methods in order to facilitate students' vocabulary learning. They can also present various vocabulary-learning strategies and techniques to improve vocabulary learning knowledge of their students (Linares et al., 2008). Based on this vast range of vocabulary learning methods, techniques and strategies, Chen and Chung (2008)

believe that applying modern learning techniques can enhance effective vocabulary teaching and learning. Thus, this study aims to investigate the effect of the peg word method and loci method of instruction on vocabulary learning of Iranian pre-intermediate EFL learners.

Statement of problem and significant of the study

EFL learners use different methods and techniques for memorizing this amount of vocabulary items. They may use word-list, visual aids, or even spatial techniques for internalizing the vocabulary items. Teachers may also use different methods of teaching vocabulary in their classes, and mostly persist on the traditional method of teaching vocabulary. (McCabe, 2010)

To deal with the vocabulary teaching, teachers should select the most appropriate methods for presenting their teaching materials that suit the students' needs more. One of these methods is mnemonic methods. To do so, it is necessary to know even which mnemonic method is more effective than the others in memorizing vocabulary items.

In recent years, more studies (Linares, et al., 2008) have been done on drawing students' attention to certain words, making students work on vocabulary drills to process new words at various cognitive levels or creating extrinsic motivation. It means that few studies (Amiryousefi & Ketabi, 2011) just focused on the effectiveness of the peg word and loci method on the vocabulary learning of Iranian students. Thus, further study seems essential.

Additionally, conducting the peg word method and the loci method will be beneficial for the teachers, students as well as curriculum designers. Teachers can recognize the effectiveness of each of these methods on vocabulary items and may decide to include them in their teaching to help their students to overcome their barriers of memorizing vocabulary items.

Research questions

The purpose of this study is to answer the following questions:

- Is there any significant difference between the effect of peg word method and loci word method on Iranian pre-intermediate EFL learners' vocabulary recognition?
- Is there any interaction between gender and vocabulary learning of Iranian pre-intermediate EFL learners when employing peg and loci method techniques?

It was hypothesised that:

- There is no significant difference between the effect of peg word method and loci word method on Iranian pre-intermediate EFL learners' vocabulary recognition.
- There is no interaction between gender and vocabulary learning of Iranian pre-intermediate EFL learners when employing peg and loci method techniques.

THEORETICAL BACKGROUND

Mnemonic methods

The word mnemonic, in short, means "aiding the memory" and is derived from the word Mnemosyne which is "the name of the ancient Greek goddess of memory". In general, Mnemonics refers to any methods that help memory to improve. In the other word, "a mnemonic technique is any technique that aids the memory".

According to Higbee (2007), mnemonic methods use all five basic principles of learning and memory which are meaningfulness, organization, association, visualization and attention. All the materials became meaningful as mnemonic methods use rhymes, patterns, and associations. In addition, as all mnemonic devices work in subsequent orders, they cause



materials to be set in a meaningful organization. In this regard, the items to be learned are associated with each other and memorized easily. In the other word, the new materials that want to be learned are associated with the previously learned items. This effective association is made visually through interaction, vividness and bizarreness. In all these steps, the learners should concentrate on the materials in order to associate them with the mental picture.

The peg word method

According to Grin (2005), "peg word mnemonics refer to a set of rhyming words that are used to represent numbers" (p. 100). The peg word mnemonics can be used to help students to memorize key information. "Peg words can be used when numbered or ordered information needs to be remembered such as: One-bun; Two-shoe; Three-tree; Four-door; etc. Peg words are substituted for the number to be remembered and associated with the other information" (Bakken & Simpson, 1985, p. 82).

The process of using the peg word method starts with learning a set of concrete words (pegs) associated with the first 20 or so whole numbers. The same sound words or pegs are such as "1 is a bun, 2 is a shoe, and 3 is a tree." To learn any new list of items, an individual must visualize the referent of the respective new words in explicit interaction with the referent of the peg words in question.

The loci method

Loci is the Latin word for places (Higbee, 2007, p.9). The loci method is a method which uses visual imagery as a facilitation of new words to its meaning. In this method new words are connected to locations and remember successfully. When one hears the words, the locations are mentally imagined (Lindenberger et al., 1992). In the other word, this method use mental link for encoding vocabulary items in a serial order as it is associated words to places (Grin, 2005).

According to Grin (2005), remembering a conversation through applying loci method, one should first make associations between the conversation and the place it takes place. Applying the loci method can help learners to learn new vocabulary items as they use mental links between words and locations. That is to say, in this case a mental link between previous events and locations are made.

Theoretical background of mnemonic method

With the increased attention of theoretical linguistic model to meaning, which was ignored by the transformational-generative model of generative transformational linguistics, the model of generative semantics and case grammar has been proposed. Meanwhile, a shift of focus from the language form to the language functions in discourse has emerged. The effects of cognitive processes involved in learning, such as mnemonics, imagery and making association, have been studied more, which has especial effect on vocabulary learning (Muawia, 2000).

In this years, the mnemonics has been brought back to the limelight. Once more, teachers make less use of translation and repetition in their language teaching, especially in the teaching of vocabulary. They use devices that are more mnemonic. The theoretical strength of memory strategies like the peg word and loci method resides in the memory side of vocabulary acquisition, whereas the theoretical strength of semantic strategies like the word-list method resides in the comprehension side (Muawia, 2000).



Studies on the effectiveness of the peg word method

Richmond, Cummings and Klapp (2008) investigated whether 108 middle school students in eighth-grade science classes could transfer the use of a mnemonic, loci, peg word, keyword and free study to new information that was dissimilar (general transfer) or similar (specific transfer) to the originally studied science vocabulary. In the case of specific transfer, there was a significant difference between the mean scores of different groups. Students in the keyword method group used significantly more transfer than students in the method of loci, peg word, and free study conditions.

Yang and Dai (2012) worked on 32 English majors and 36 non-English majors' students at China University of Petroleum in order to investigate which vocabulary strategies (rote repetition, structural associations, semantic strategies and mnemonic techniques) is used more often and is more favourable to them. The results of the study showed that "students prefer to engage in the vocabulary learning strategies that would be most appealing to them and that would entail less manipulation of the language" (p. 208).

In another study, Saricoban and Basibek (2012) investigated the comparative effects of using the peg word method and context method on the retention of the vocabulary items of 84 students at upper-intermediate level at Selcuk University. The study revealed that learning by association is more effective than context method on immediate and delayed vocabulary recall and recognition.

According to the researchers "using the peg word method is a more effective vocabulary learning technique than context method, especially when it is used with some keyword" (p. 257). This method can be effectively applied to upper-intermediate level students.

Wang and Thomas (2000) investigated the long-term efficiency of utilizing mnemonic strategies such as the peg word method and the loci method on serial recall of adult college students and compared their effects with visual-based strategies of adults. The control group, also, were instructed through traditional methods of vocabulary learning. The participants in the peg word method were given a paper consisting of the peg word rhymes and were instructed through the peg word method. That is, they used the rhymes to memorize the respective words through generating a mental image of the peg word which had clear effect on the new word.

The results of the study indicated that the participants of the peg word method and the loci method functioned similarly. Although prolonged forgetting occurred, the peg word method and the loci method groups performed as well as adult learners who generated their own visual-based strategies. In addition, the peg word method and the loci method learners outperformed those who used rehearsal technique.

Studies on the instruction of Loci method

In a study, Roediger (1980) examined the effectiveness of imagery method, link method, peg word method, loci method and rehearsal method on 150 Purdue undergraduate students on memorizing 80 vocabulary items. The results of instant and delayed recall test showed that the students in loci and peg word method groups had better performances than those in the link, rehearsal and imagery method. The failure of the students in the link, rehearsal and imagery method was due to the fact that if students forget one list, they could not recall other items and caused disorder. However, it should not be ignored that the students in the link method group recalled words in their correct order much better than rehearsal and imagery conditions.



Consistence with previous researches, Grin (2005) investigated a research in order to understand the principals of loci method. To do so, he asked his friend to memorize 10 vocabulary items along with the location of each. In this phase, as no association was mentioned by the researcher, the participant, after one hour, called Grin and asked him once more about the location of the items. The next day, Grin gave her another task and asked her to visualize the items into the places to assure that she was able to associate the places with the items or not. In this time, she did not call Grin and could memorize all the items without any effort. According to Grin (2005), this shows the effectiveness of loci method.

Regarding the afore-mentioned researches, several studies have been separately done on the effects of the mnemonic devices. However, few studies have been done on the comparative effect of peg word method and loci method instruction on the vocabulary learning of intermediate students. Thus, the present study aimed to fill this gap in the literature.

METHODOLOGY

Participants

Initially, 120 male and female students were selected by convenience sampling technique. The average age of the participants was 15. They were asked to participate into Nelson Proficiency Test. The average score of Nelson Proficiency Test indicates the acceptable score of pre-intermediate level should be between 11 to 17. Therefore, 7 students who got upper than 17 and 13 students who got lower than 11 were removed from this study. The 100 students were assigned into two groups each contains 50 students. The distribution of the participants is summarized in Table 3.1.

Instrumentation

The instruments used in this study were questionnaire and tests. The following is the brief description of each.

- *Questionnaire*

The questionnaire was standardized one, adopted from Oxford's Strategy Inventory for Language Learning (SILL, ESL/EFL version 7.0) and used to gather preliminary data, i.e. demographical data, from the participants, composed of seven questions. These demographical data was participants' age, gender, educational and language background. In fact, this questionnaire enabled the researcher to have a greater understanding of which background their students have.

- *Nelson Proficiency Test*

Nelson Proficiency Test was a standard test composed of 20 items in multiple-choice format. It was used to elicit information about the current vocabulary knowledge of the participants. Based on the scores of the students in this test, the students were divided into two homogenized groups.

- *Post-test*

The post-test was a researcher-made multiple-choice vocabulary test which composed of 30 items. It was administered in both groups in order to investigate the effect of both treatments on the vocabulary knowledge of the participants at the end of the study the time considered for this test was thirty minutes. The reliability of the post-test, estimated by KR-21 formula, was



0.76. Based on Bachman (1990), the reliability of a test is acceptable if it is $0 < r < 1$. Therefore, this test is reliable.

Teaching Material

The teaching materials were eight vocabulary lists, each containing twenty vocabulary items, selected from pre-intermediate book (written by Parviz Birjandy, Mehdi Noroozi, 2007, Tehran: Textbook Publishing Company of Iran) and taught in each session. The selected words were a set of concrete words.

Procedure

Initially, two classes, each containing 50 female and male students, were selected by convenience sampling technique as the context of this study. The participants answered a standard questionnaire including seven questions. It was used to elicit demographical details including age, gender, educational and language background from the participants.

After gathering preliminary information about the participants, a standardized Nelson Proficiency Test was used as the pre-test in order to elicit the information about the current vocabulary knowledge of the participants and determined their proficiency levels.

After that, the participants were divided into two different groups, each containing equal female and male students and received different treatments for the equal time of eight weeks. That is, one of the participants group received peg word method instruction and in group two the participants received loci method instruction. The members of the peg word and loci method instructions received clear description of this mnemonic method.

To make it more clearly, in each session of the peg word method, the researcher divided 20 words into two sets. The first set included 1-10 new words and the second set also involved 1-10 vocabulary items. The students were required to learn each set of words through making associations between the new word and its respective peg word and then to create mental images of the new word.

In each session of loci method, the researcher divided 20 new words into two 10-word sets. Then, students created a set of clear mental locations for new words. They were required to write those places beside the two sets of words that were arranged from the items 1-10 twice. They were asked to visualize the respective word to its applicable location. The teacher used various examples using abstract and concrete words to help students.

Then in the 9th session, a researcher-made multiple-choice vocabulary test was applied as the post-test in order to determine the effect of both treatments on the vocabulary knowledge of the participants.

RESULTS AND DISCUSSION

To test the first hypothesis "There is no significant difference between the effect of peg word method and loci word method on Iranian pre-intermediate EFL learners' vocabulary recognition", the researchers consider the pre-test as covariate which affects the groups' scores on the post-test, so the appropriate statistical procedure is analysis of covariate or ANCOVA, which is used to adjust or remove the effect of covariate. The results are presented below.

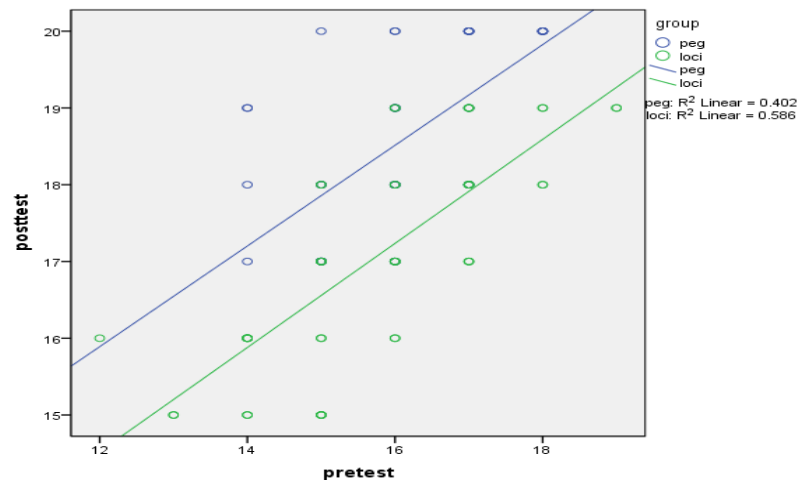


Figure 1. the homogeneity of the slope of regression lines as produced by scattered dots.

Since the lines run parallel, their slope is homogeneous for all groups concerning both pre-test and post-test implying that one of the requirements of ANCOVA was fulfilled.

Table 1: The homogeneity of the slope of regression lines as produced by Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	133.569 ^a	3	44.523	53.974	.000
Intercept	33.591	1	33.591	40.721	.000
group	.431	1	.431	.523	.471
pre-test	73.758	1	73.758	89.414	.000
group * pre-test	.020	1	.020	.025	.876
Error	79.191	96	.825		
Total	3198.000	100			
Corrected Total	212.760	99			

a. R Squared = .628 (Adjusted R Squared = .616)

Table 1 shows that the slope of regression lines was homogeneous for all groups [$F_{(1, 96)} = 0.025, p = 0.876, p > 0.05$]. This Table and Figure 1 support each other.

When all the requirements of ANCOVA (the normal distribution of the data, the linear relationship between the scores of groups in the pre-test and post-test, the homogeneity of the slope of regression lines for all groups, and the equality of variances across groups) were fulfilled, the researcher run ANCOVA the results of which are reported as follows:

Table 2: The Results of ANCOVA as Produced by Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	133.549 ^a	2	66.774	81.770	.000	.628
Intercept	36.440	1	36.440	44.624	.000	.315
pretest	81.709	1	81.709	100.059	.000	.508
group	40.585	1	40.585	49.699	.000	.339
Error	79.211	97	.817			
Total	3198.000	100				
Corrected Total	212.760	99				

a. R Squared = .628 (Adjusted R Squared = .620)

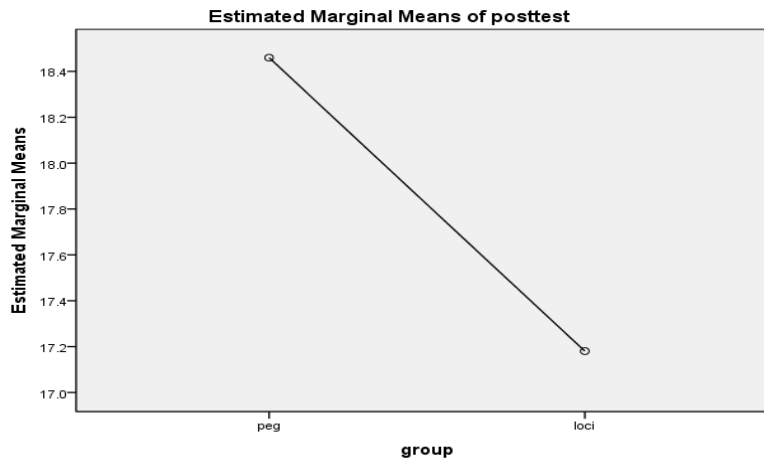
Table 2 shows that the main effect of the treatment (group) was significant [$F(1, 97) = 49.699, p = 0.000, p < 0.005$]. So, we can argue that when the effect of pre-test, which is perceived as covariate, is controlled, the difference between the effects of two methods of vocabulary teaching (peg and loci method) on Iranian EFL learners' vocabulary recognition, is statistically significant. Therefore, the third hypothesis is strongly rejected.

Now the question "which independent variable was more effective?" arises. Since the estimated marginal mean score (18.460) of the group who had received peg word method was higher than that (17.180) of the group who had received loci method, peg word method, as an independent variable, was more effective than loci method, as another independent variable.

Table 3: Groups' Estimated Marginal Means on the Post-test

Dependent Variable: post-test				
group	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
peg	18.460 ^a	.128	18.205	18.714
loci	17.180 ^a	.128	16.926	17.435
a. Covariates appearing in the model are evaluated at the				

Table 3 shows that the estimated marginal mean score of the peg group was 18.460 and that of the loci group was 17.180. These estimated marginal means are also supported by figure 2.



Covariates appearing in the model are evaluated at the following values: pretest = 15.92

Figure 2: Estimated marginal means of the groups on the post-test as produced by profile plot

Table 4: The Results of ANCOVA As Produced by Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	55.240 ^a	3	18.413	11.222	.000
Intercept	3027.600	1	3027.600	1845.160	.000
group	11.664	1	11.664	7.109	.009
gender	1.960	1	1.960	1.195	.277
group * gender	1.440	1	1.440	.878	.351
Error	157.520	96	1.641		
Total	31968.000	100			
Corrected Total	212.760	99			

As it is evident in Table 4, the effect of the interaction of group and gender was not significant [$F_{(1,96)} = 0.878$, $p = 0.351$, $p > 0.05$] on the dependent variable (i.e., learners' vocabulary learning). Therefore, the forth hypothesis of the study " **There is no interaction between gender and vocabulary learning of Iranian pre-intermediate EFL learners when employing peg and loci method techniques** "was accepted.

DISCUSSION

For the first research question the results of this study showed that the mean score of the group who had received peg word method ($\bar{x}=18.460$) was higher than that of the group who had received loci method ($\bar{x}=17.180$), which means that peg word method was more effective than loci method. Regarding this question, the finding of this study are, to some extent, differ from the existing literature. As it was mentioned in "chapter 2" the results of some study Richmond et al. (2008), Wang and Thomas (2000) showed that peg word method and loci word method had the same effects on EFL learner's vocabulary retention.

For the last second the results showed that " **the effect of gender on vocabulary learning of Iranian pre-intermediate EFL learners when employing peg and loci method techniques, was not statistically significant.** It is may be due to the fact that studies on the effect of gender on language learning always show controversial result

As a concluding remark, it can be stated that the mnemonic devices used in this study, the peg word method and loci word method, were shown to be effective in L2 vocabulary retention. Although any generalizations based on the results should be made cautiously and before any interpretation, the limitations imposed on the study must be taken into account

Pedagogical Implications

In terms of immediate pedagogical implications, this study indicated some points to share with stakeholders in the field of language teaching and learning. The first group is language teacher in general and English teacher in particular. It is important for teachers to recognize early the appropriate pedagogical approaches to suit the different needs of different learners. Especially in the post method era in which the "method" is history, and ideologies like critical pedagogy calls for taking into consideration different realities of the classroom. Therefore, it is, as Kumaravadivelu (2003) puts it, imperative for teachers to link the words of the classroom to the world of the students.

The next group which can benefit from this study are curriculum developers. Based on these finding they can develop the lessons in which techniques for learning vocabulary like *peg word* method and *loci word* method are taken into account. Language learners could be another group who can benefit from the findings of this study. Familiarity with useful method of vocabulary learning like peg word and loci word techniques, can help them to overcome the tough problem of learning new words, and get rid of one of the most difficult issues in learning a language.

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