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## **The Effect of Mnemonic Key Word Method on Vocabulary Learning and Long Term Retention**

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### **Abstract**

Most of the studies on the key word method of second/foreign language vocabulary learning have been based on the evidence from laboratory experiments and have primarily involved the use of English key words to learn the vocabularies of other languages. Furthermore, comparatively quite limited number of such studies is done in authentic classroom contexts. The present study inquired into the effect of using mnemonic key word method of vocabulary instruction on the learning and retention of vocabulary over long term in a normal EFL classroom context. Fifty 5<sup>th</sup> grade primary school students were selected and randomly assigned into experimental and control groups. The experimental group received vocabulary instruction using mnemonic key word method and the control group received classic memorization based instruction of the same vocabulary items. The two groups took three posttests a day, two weeks, and a month after the last treatment session. A MANOVA analysis was run on the data and the results indicated that subjects in the key word group outperformed the memorization group at a significant level in both their learning and retention of the newly learnt vocabularies. The results of the study underscore the efficacy of the establishment of mental links and images for the vocabulary learning and retention of novice and beginning level EFL learners. It further implies that mnemonic devices like key word method should be given prompt attention by both EFL material developers and practitioners as a potentially effective strategy for vocabulary teaching, learning and long term retention at the early stages of second or foreign language development.

**Key Words:** Mnemonic Keyword Method, Rote Memorization, Vocabulary, Retention, Vocabulary Learning

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## **Introduction**

Mnemonic techniques involve the use of both visual and verbal mental imagery to relate a word to be memorized with some previously learned knowledge. One mnemonic technique known as Keyword Method, has been shown to be superior to any other deliberate vocabulary learning strategy (see reviews in Cohen, 1987; Meara, 1980; Nation, 2001) and it has been one of the most popular and extensively investigated foreign language vocabulary teaching methods (Pressley, Levin & Delaney, 1982; Rodriguez & Sadoski, 2000).

There are two versions of the Keyword Method, one based on the construction of visual images and the other based on the construction of sentences. Evidence exists that the visual imagery version is superior to the sentence construction version in facilitating recall of words (Pressley, et al., 1982).

## **Review of the Related Literature**

Similar to many other aspects of language pedagogy, not a perfect orthodoxy of results has been found in the literature of the studies that are done on the mnemonic key word method and its differential impact is yet to be explored. A relatively long time ago, Atkinson and Raugh (1975) conducted a research on the effectiveness of the key word method for vocabulary development in Russian as a non-Romance language. The key word method proved to be highly effective, resulting for the most critical test a score of 72 percent correct for the key word group compared to 46 percent correct for the control group. Later, a similar finding was reported by Pressley et al. (1982) who compared the key word method with 5 methods in experiments 1 to 3 within which the recall of vocabulary definition was the critical dependent measure, and found the key word method as producing greater learning than any of the semantic-based or control conditions.

After the revision of 50 studies of the key word method, Pressley and his colleagues concluded that the key word method is superior to the rote learning, contextual and definitional methods. The results of such studies implied that it is worthwhile to add intentional direct vocabulary teaching and learning activities and they enabled the

proponents of the key word method to state that the keyword method helps to facilitate the linking of a word's form with its meaning (Hulstijn, 1997, p. 218) and it has a facilitating role in vocabulary learning. In addition to the mentioned studies and many other researches that were done since Atkinson and Raugh (1975) up to the outset of the new millennium, some more recent studies have also focused on the mnemonic key word method.

In a study on the effectiveness of three methods of learning vocabulary among L2 learners Sagarra and Alba (2006) compared rote memorization, semantic mapping, and the keyword method. The findings showed that the keyword method yielded the best vocabulary retention.

In 2008, in an experimental study, Richmond and Cummings investigated whether students could transfer the use of a mnemonic under both specific and general transfer conditions or not. In this project One-hundred and eight eighth-grade students took part in the study. The findings of the study revealed that students who used the mnemonic keyword method could transfer the use of a mnemonic under specific transfer and general transfer conditions. The research findings revealed that the mnemonic keyword method can be successfully used to study different content that is similar and dissimilar to the originally studied information.

In a more recent study, Sarcoban and Basibek (2012) compared mnemonic technique and context method for teaching vocabulary at upper-intermediate level. To this end, 84 students at upper-intermediate level from Selcuk University took part in the study. The researchers selected twenty target vocabulary items that were taught with mnemonic technique to the experimental group while the control group received the instruction through the context method. The findings revealed that mnemonic technique was more effective than the context method in both immediate and delayed recall and recognition tests of the vocabulary. In a similar study Anjomafrouz and Tajalli (2012) investigated the effects of using mnemonic associations on vocabulary recall of Iranian EFL learners over time. The results of the study showed that mnemonic method significantly affected the vocabulary recall of adult students in both receptive and productive modes.

Contrary to the studies that have reported the positive effects of the mnemonic key word method on different aspects of vocabulary development, some studies have shown that the keyword method can be successfully applied with only a minority of vocabulary items, such as with words referring to objects that can be perceived visually (Hulstijn 1997, p.219), and hence does not deserve the attested status. Hence, the critics question the usefulness of this technique that has been shown to enhance retention of concrete words, which can be perceived visually, but not as an effective method for the instruction of abstract words (Hulstijn, 1997).

Moreover, the keyword method's effective utilization has been reported to be largely dependent on the proficiency level of L2 learners, allowing associations to be made with L2 vocabulary with which they are already familiar. Cohen and Aphek (1980) found that if students were initially more proficient, they were better able to use associations in recall tasks. Mc. Daniel and Pressley (1984), in a study in which the key word method was compared to learning new vocabulary when the meaning of the new vocabulary items had to be inferred from a meaningful context found that combining the key word method with the context method improved recall over that of context alone. Few years later, Cohen (1987) in his review of the literature on the use of mnemonics in foreign language learning discussed the issues of contention regarding retrieving foreign words or their meanings. He pointed out the difficulties involved in activating the link between the target word and the native word meaning. Furthermore, several researchers highlighted the negative effect of the key word method on the pronunciation and spelling of the foreign words.

#### *Purpose of the study*

Based on a rather comprehensive review of the related literature, it appeared to the researchers that many of the studies that investigated vocabulary learning via the key word method have chosen mostly concrete nouns that are easy to find key words for, and there has been no attempt to deliberately select words from different parts of speech that are phonologically or semantically responsive to the key word method.

Moreover the studies have mostly focused on intermediate and upper intermediate language learners and the earlier stages and levels of language proficiency have been comparatively neglected. Against this backdrop the present study planned to target vocabulary items from a variety of speech parts including noun, verb, and adjectives that include both concrete and abstract words and it is tried to investigate on the efficacy of the mnemonic key word method for the true beginner language learners' vocabulary instruction. For this purpose the following research questions and null hypotheses were thus put forth:

#### *Research Questions*

1. Does the application of the mnemonic key word method versus rote memorization have a significantly different effect on the vocabulary learning of Iranian true beginner EFL learners?
2. Does the application of the mnemonic key word method versus rote memorization have a significantly different effect on the long time vocabulary retention of Iranian true beginner EFL learners?

#### *Research hypotheses*

H<sub>1</sub>: There is no significant difference between the mnemonic key word method and rote memorization technique in their effects on the Iranian true beginner EFL learners' vocabulary learning.

H<sub>2</sub>: There is no significant difference between the mnemonic key word method and rote memorization technique in their effects on the Iranian true beginner EFL learners' vocabulary retention.

### **Method**

#### *Participants*

This study was conducted with 50 (24 males and 26 females) primary school students who were studying at 5<sup>th</sup> grade in Javanrood, a

city in Kermanshah province of Iran. The age range of the participants was from 10 to 12. They were all native speakers of Kurdish, none had studied and learnt English before, and none of them had any previous exposure to English. The subjects were randomly assigned into experimental and control groups.

### *Materials*

Twenty-five English words as the target vocabulary items were identified by the researchers. The English target words were of approximately the same or similar pronunciation to the Kurdish key words (e.g. *blow* / p d / Kurdish key word: / pa l). A group of experienced (native Kurdish) EFL teachers judged the appropriateness of the English words and the Kurdish equivalents for teaching to fifth graders.

The researchers constructed two booklets, one booklet for each teaching condition. The booklet for the keyword method condition (experimental group) in thirteen pages provided interactive pictures of the twenty five Kurdish keywords and the Persian equivalents of the English words. The English word, the Kurdish keyword, and the Persian meaning of the English word were printed at the bottom of each page below the picture (Appendix). The booklet for the memorization condition (control group) provided only the English words and their Persian equivalents at the center of each page.

A multiple choice test of 25 items was developed by the researchers in Persian the participants didn't know English alphabets and was given to the subjects in three different times. Since the test was a researcher made one, it was necessary to check for its validity and reliability before administration. For this purpose, in addition to the researchers, an expert in the field of testing was asked to judge the test's use and interpretation validity for the intended purpose of the study. The test reliability was estimated through Cronbach's alpha coefficient and it was found to be highly reliable ( $\alpha = .80$ ).

### *Procedure*

Two presentation types were adopted for the instruction of the chosen vocabulary items in this study: In presentation type 1, the

English words and their Persian equivalents were presented for control group and the similarity and the link between the English words and the Kurdish key words were not highlighted and attended to and they were simply asked and to memorize the new words. Presentation type 2 included the English words, their Persian equivalents and the Kurdish key words that were peculiar for experimental group. The participants in the experimental group were helped to make a mental link between the Kurdish key words and the new English words. In order to make it easier for the experimental group's participants to make the mental image and highlight the relation between the new English word and the Kurdish key word, 25 picture illustrations were prepared each one of which consisted of two merged photos or drawings of both English word, and the Kurdish key word. The chosen words had the same or very similar pronunciation in the two languages, i.e., English and Kurdish. The target words were taught to the participants of the two groups in two 60- minute sessions, using the two presentation types. After the treatment, the two groups were tested three times: A day after the second treatment session the first test was given to both groups, two weeks later, the same test was given for the second time and finally 30 days after the treatment the same test was given for the third time; however, the order of the test items was altered to avoid the effect of serial learning and minimize the practice effect. There was no pretest as all the subjects were true beginner English learners with absolutely no prior English learning experience.

#### *Data analysis*

In order to analyze the collected data and answer the research questions, multivariate analysis of variance (MANOVA) was conducted as the dependent variable of the study was measured at three stages.

#### **Results**

Tables 1 present the descriptive statistics of the two groups in their three tests.

Table 1  
*Descriptive Statistics of Groups in Three Tests*

	Grp	Mean	Std. Deviation	N
test1	Con	24.40	.63	25
	Exp	24.66	.48	25
	Total	24.53	.57	50
test2	Con	18.00	1.73	25
	Exp	24.06	1.03	25
	Total	21.03	3.38	50
test3	Con	11.80	1.14	25
	Exp	20.13	1.35	25
	Total	15.96	4.41	50

As shown in table1, both groups performances in the first test were better than those in second and third tests. These findings roughly suggest that the mnemonic keyword method had been of more beneficial effects than the traditional rote memorization method on the learning and retention of the vocabularies; however, in order to test the hypotheses statistically, and determine if the differences among means were significant or not, multivariate Analysis of the Variances was run on the data. The results showed that the differences among means were statistically significant (Table 2).

Table 2  
*Multivariate Tests*

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Intercept	Pillai's Trace	1.0	20091.71	3.00	26.00	.00	1.00
	Wilks' Lambda	.00	20091.71	3.00	26.00	.00	1.00
Grp	Pillai's Trace	.93	130.56	3.00	26.00	.00	.93
	Wilks' Lambda	.06	130.56	3.00	26.00	.00	.93

As it is evident below in table 3, the result of the first test of groups did not differ significantly from each other ( $F=1.67$ ,  $P>.05$ ). This point suggests that the mnemonic Key word method of

vocabulary teaching and learning was not evidently superior to rote memorization technique in its effect on the true beginner EFL learners' vocabulary learning. However, there was a statistically significant difference in the scores of the second test ( $F=135.75$ ,  $p<.05$ ) and third test ( $F=330.43$ ,  $p<.05$ ).

Table 3  
*Tests of Between-Subjects Effects*

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Intercept	test1	18056.53	1	18056.53	56595.10	.00	1.00
	test2	13272.03	1	13272.03	6527.23	.00	.99
	test3	7648.03	1	7648.03	4852.22	.00	.99
Grp	test1	.53	1	.53	1.67	.20	.05
	test2	276.03	1	276.03	135.75	.00	.82
	test3	520.83	1	520.83	330.43	.00	.92

Considering the eta squared values for the statistical differences of the two groups' results in the second test ( $\eta^2 = .82$ ) and the third test ( $\eta^2 = .92$ ), it is proved that the mnemonic key word method has been superior in its effect on the participants' long term vocabulary learning and retention.

## Discussion

The interrelationship between vocabulary learning and the second or foreign language learning process is undeniable and the positive impact of rich vocabulary knowledge on the linguistic comprehension and production of the second or foreign language learners is unquestionable. The literature of second language development studies abounds with an increasing number of researches that have put the vocabulary teaching and learning in the spotlight and tried to introduce innovative and efficient techniques for the lexical development of second language learners. Mnemonic key word method of vocabulary instruction, despite its promising perspective at the outset of introduction, has not received the deserving attention in practice and hence has not flourished although many studies have underscored its merits as an effective educational technique. In an attempt to revive the attention and investigate the effects of mnemonic keyword method on vocabulary learning and especially long term retention of the learnt

vocabulary items, the present study compared this method with vocabulary instruction based on the classic memorization practices in their effects on true beginner EFL learners' vocabulary learning in a classroom context. The results of the study indicated that using key word method can help students learn vocabulary more effectively and retrieve the learnt vocabulary items much more efficiently than other methods like rote memorization. As the results revealed, the participants in the key word method significantly outperformed the rote memorization group's participants in both of the two delayed tests. This finding implies that mnemonic key word method specifically promotes vocabulary retention of the elementary level EFL learners. However, a point that needs to be mentioned about the vocabulary retention of the groups is that both groups had descending rate of vocabulary retention as longer period of time lapsed but the forgetting rate of the key word method group was much slower than the control group. As the results revealed, the fast rate of forgetting of the participants of the control group was replaced with a minimal rate of this process in the key word method group.

A closer investigation of the type of the vocabulary items which were more successfully recalled revealed that the words with concrete referents were more successfully recalled in both groups than the words with more abstract referents though the probability of such recalling was much stronger in the key word method group especially in the case of those vocabulary items which the instructor had been able to establish a more stronger mnemonic relation. This point partially confirms Hulstijn (1997) when he states that the key word method can be effective for concrete words only, however, the comparative superiority of the key word method group in the retention of more abstract words disqualifies Hulstijn's (1997) position to assume an unquestionable validity. A reason for such phenomenon might be in the pushed interactions that take place as a result of the mnemonic technique between auditory and visual cues to increase meaningful learning and to promote strong associations between target word and its meaning as Raugh and Atkinson (1975) hold earlier, however, the researchers of the present study believe that another reason might be of an affective nature as they could clearly observe the zeal and interest in the eyes of the young English learners of the

mnemonic key word group who were taught using some key words from their own vernacular language while the participants of the control group did not show the same interest even for single time.

The finding that the key word method led to a stronger retention of vocabulary items than the classic memorization practices corroborates previous researchers' position on the effectiveness of this method of vocabulary development (McDaniel & Pressley, 1984; Raugh & Atkinson, 1975; Rodriguez & Sadoski, 2000). As few examples, the obtained results stand in harmony with the findings of Pressley et.al (1982), who showed that those learners who used key word method were more successful in learning and retaining the vocabularies than those who only memorized the vocabularies. Similarly, the findings are consistent with those of Tabatabaei and Hossainzadeh Hejazi (2011), whose experimental group learners received keyword method instruction and obtained higher scores on the immediate and delayed recall than did the learners in the control groups. Likewise Sagarra and Alba (2006), Richmond, Cummings, and Klapp (2008), Anjomafrouz and Tajalli (2012), and Sarcoban and Basibek (2012) among others demonstrated that mnemonic keyword method results in more efficient vocabulary learning and long-term retention than the other methods.

A word of caution, however, about the mnemonic key word method is the point that the strength of this technique for vocabulary instruction lies in the strength of the association or the link that is established between the target vocabulary item and the chosen mnemonic device since as the present study revealed the least successfully retained vocabulary items in the key word group in both of the delayed tests were the vocabulary items with a looser bond or link. This point minimally contradicts Avila and Sadoski (1996), Kasper (1993), and Brown and Perry (1991) as they hold that the key word method is easily adaptable to foreign/second language classroom context in that the adoption or even the adaptation of this method in the classroom context may not be easily done as there might be difficulties involved in activating the link between the target word and the native word. This contradiction lends a partial support to Cohen's (1987) position as he had come to the same conclusion.

## Conclusion and Implications

This study compared mnemonic keyword method of vocabulary instruction with the classic memorization method of vocabulary development in an EFL context. Memorization method provides multiple repetitions of the target words, and is therefore expected to be a highly effective strategy especially for the young English learners. However, keyword method can be effectively used in both upper and lower proficiency levels (Avila & Sadoski, 1996). Most of the studies have used mnemonic key word method for vocabulary development of intermediate or upper level English learners, but this study employed the key word method for vocabulary development of low level English learners.

The results indicated that the mnemonic key word method is an efficient vocabulary instruction technique as it leads to longer term retention of the vocabulary items of elementary and true beginner language learners in the EFL classroom context. As mentioned earlier the definitions of words that have concrete referents were more successfully recalled than the more abstract words. It implies that the mnemonic key word method can be quite useful for the early stages of language development when the young language learners are exposed to quite concrete vocabulary items and the abstract words are postponed to later stages. However, even for the abstract words the mnemonic key word method proved to be much stronger technique than the classic memorization practices. Based on the obtained results of the previous studies as well the present one, the EFL/ESL material developers are recommended to apply the mnemonic devices like visual imagery and key word method technique in the textbooks designed especially for lower levels of second or foreign language learning. Moreover early level language teachers and practitioners can best exploit the benefits of this technique in their educational settings for the maximal involvement of the elementary level language learners in the vocabulary learning tasks and activities.

This study provides insight into the effectiveness of the keyword method, but it suffers from certain limitations. Firstly, the sample size was bound to 50 and hence it is considered to be of a relatively small sample size. Second, the number of vocabulary items was restricted to

25 and further future studies are recommended to include a larger number of both learners and vocabulary items. Further studies are also recommended to study the impacts of the mnemonic key word method of vocabulary instruction on the pronunciation and spelling of the target words as the researcher in the present study came across with instances of problematic pronunciation and spelling in the Key Word method groups' participants.

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## Appendix

Examples of words as presented to the experimental (Mnemonic keyword method) group.



**Cross:** upright post with a transverse piece upon which people were once put to death

In Kurdish: /Kraas/: shirt ( ), Persian equivalent: /Salib/( )



**Hang:** suspend

Hang ( ) in Kurdish: honey bee)/ ( ) Persian equivalent: /Dar zadan/ ( )



**Lar:** House

Lar ( ) in Kurdish; /Laar (**slant**)/ ( ) Persian equivalent: /khaneh/ ( )