The Effect of Keyword and Word List Methods on Immediate Vocabulary Retention of EFL Learners

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Abstract
The present study was an attempt to compare the effect of keyword and word list methods on immediate retention of English vocabulary in a natural classroom setting. Two intact classes from a junior high school in Astara, Iran were randomly assigned to one of the two learning conditions: keyword and word list. A meaning recall test was administered immediately at the end of the second session of the treatment. Results showed that the keyword method produced better recall compared to the word list method, suggesting a promising educational value for its utility.

Keywords: Retention; Vocabulary; Mnemonics; Word lists

I. Introduction
The issues of learning vocabulary and learning strategies have been under investigation for a long time. The role of learning strategies has been the main subject of many books (e.g., Cohen, 1990; O’Malley & Chamot, 1990; Oxford, 1990). In the literature, many of them have been reported, especially those strategies that learners make use of in the learning of second language vocabulary (Allen, 1983; Cohen & Aphek, 1981).

According to Paivio (1986), being knowledgeable in vocabulary is an integral component of success in the second language classroom. Moreover, vocabulary plays an important role in the success of foreign language learners (Kasper, 1993; Krashen and Terrell (1983). Nonetheless, the “whether, and how best, to teach vocabulary has long been a topic of controversy” (Levin, Levin, Glasman, & Nordwall, 1992, p. 156).

Learning vocabulary has an important role in acquiring a second language, which has been emphasized by Paivio (1986) as part of Dual Theory. “Vocabulary learning is an important goal in itself, far more important and complex than is generally conceded by teachers of foreign languages” (p. 256).

Among all the vocabulary learning strategies, one of the best and most effective strategies in improving both immediate and delayed retention of second language words is the keyword method (Atkinson, 1975).
In recent years, a considerable number of studies have been done on the effects of the keyword method on second/foreign language vocabulary learning. Interestingly, the majority of them have shown that the keyword method is an effective strategy in acquiring second/foreign language vocabulary (e.g., Levin & Pressley, 1985).

II. The Keyword Method

Originally proposed by Atkinson and his colleagues, the keyword method is a mnemonic strategy for teaching vocabulary (Atkinson, 1975; Atkinson & Raugh, 1975; Raugh & Atkinson, 1975). In a number of studies, it was demonstrated that learning Russian and Spanish vocabulary items was facilitated through using the keyword method (Levin, 1981, 1983, 1986).

Two stages are involved in this strategy: first, a connection based on acoustic similarities is made between a new word and a familiar word (keyword) and second, an imaginable link that associates the target word and the keyword together is made.

III. The Word List Method

One of the old-fashioned vocabulary learning strategies is called list learning. It consists of a sheet of paper on which learners write both the L2 word and its meaning. Both teachers and learners can generate the strategy; however, the words are learned out of context and the main emphasis is on repetition and memorization, not meaningful learning.

Some aspects of this strategy are mentioned by Yongqi Gu (2003). First he found answers to the question that how many exposures and repetitions are needed for learning through lists. He ascertained that word pairs in a list can be learned surprisingly within a short time. The next issue concerns the optimal number of vocabulary that can be studied and learned at one time. He declared that learning depends on the level of difficulty of words. In the case of easy words, lists containing 100 or more would be appropriate. Yongqi Gu described the importance of the rote method (list learning method) as follows:

Quantities of initial vocabulary can be learned both efficiently and quickly by methods such as rote learning which are not always considered to be repeatable. It may be dangerous to underestimate such capacity. (p. 7)

IV. Historical Review of Mnemonics

Mnemonics play a central role in learning a second/foreign language and their historical background can be traced to Yates’ (1966) book The Art of Memory. Since the ancient time of Greece and Rome, mnemonics have been used to make learning a foreign word easier by preparing vivid pictures for ideas. For many centuries, there has been a great emphasize on working with images and mnemonics to facilitate language learning. Imagery and mnemonic strategies have received attention for more than 2000 years (Yates, 1966).

The concepts of mnemonics and imagery have played an important role in the research area recently. Levin (1981) emphasized mnemonics and imagery as learning strategies that are more effective when compared to long lists of words. According to Levin and Pressley (1985), the mnemonic device is a set of steps that can develop the learner’s memory. Some alternative mnemonic devices were discovered by Atkinson
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(1975) in learning the definition of foreign/second words. Levin (1983) refers to the “three Rs” as three critical components of effective mnemonic learning. That is, functional stimulus is recorded into a familiar nominal stimulus; then it is related to the to-be-associated response and finally the desired response is retrieved from the functional stimulus. Levin (1986) asserted that there is a direct relation between using mnemonic strategies and facilitating memory for better learning. According to Levin (1986), the rationale behind using these strategies is that by meaningfully integrating new information with schema, processing and retrieving information will be easier. It may be argued that for transporting coded mnemonically information, pictures may be found extremely effective (Levin, 1981). Using pictures for facilitating vocabulary learning goes back to the beginning of the twentieth century (Paivio, 1983). Carroll’s (1963) belief is that by presenting words associated with the qualities, actions, and objects, they are learned and retained better. Thompson (1987) argued that although vocabulary is an integral component of second/foreign language learning, learners are little guided on how to learn and retrieve vocabulary. Thompson (1987) and Wenden (1987) have argued that there have been few attempts to develop learning strategies in second language classrooms. Pressley and Harris (1990) have noted the lack of strategies for improving learning in language classrooms, too. They have argued that although information on applicable strategies is growing, such information is rarely brought into textbooks.

The ability to learn a large number of vocabulary items to achieve fluency is one of the major problems language learners encounter. Lord (1974) postulated that the vocabulary component in learning a language is the most uncontrollable one, whether in one’s first language (L1) or a second language (L2). As mentioned earlier, there are numerous studies in recent years that have noted the effectiveness of using mnemonic techniques for learning a second language. Pressley, Levin, and Miller (1982) demonstrated that working with mnemonics is one of the most effective strategies in vocabulary acquisition. Cohen (1987) has claimed that one of the best strategies for facilitating vocabulary retention is through mnemonics. As a matter of fact, the mnemonic link is one of the best ways of improving learning new words (Cohen, 1990).

Regarding mnemonic strategies, Thompson (1987) concluded that mnemonic aids, particularly the keyword method, help learners to memorize words more effectively. Pressley, Levin, and McDaniel (1987) emphasized that through mnemonic aids such as the keyword method a direct link is made between the word and the associated definition. Accordingly, the keyword method prepares a direct meaningful link between recall and the mnemonic peg.

V. The Keyword Method and Its Effectiveness as a Vocabulary Learning Strategy

A body of studies has been made on the role of cognition that has demonstrated the relevant effect of learning strategies on vocabulary acquisition, its storage, and use. Rubin (1987) has rightly observed that in recent years, learners have been the center of attention in language classrooms and therefore there has been a great interest in teaching learning strategies in order to make the classroom settings more learner-centered. Likewise, Holek (1981) has argued that by teaching learning strategies to learners, teachers can improve learners’ proficiency and assist them to make the learning process easier and more self-directed. O’Malley (1987) has claimed that “within this literature [learning strategies] are experimental studies of a number of specific strategies that are...
adaptable for learning vocabulary in a second language” (p.134). According to the results of a number of studies, it has been demonstrated that the keyword technique is one of those learning strategies that is learner-based and facilitates the process of acquiring a second/foreign language (see Atkinson, 1975). The keyword method is perhaps the best recognized mnemonic strategy originally developed as a facilitating technique in learning the vocabulary of a second language. As mentioned earlier, Levin (1983) has argued that it consists of three stages: recording, relating, and retrieving. Consider, for example, when an Iranian student is trying to learn the English word “parrot”. In the first stage of the process, one records the unfamiliar word “parrot” into a more familiar concrete representation that acoustically is similar to “parrot”. A good recorded keyword is par, which means feather in Persian. Then in the second stage of the process, the learner makes a link between the keyword and the target word via an interactive image such as a par, i.e. feather in a parrot’ beak. When the learner is asked later to recall the definition of parrot, a systematic retrieval path is now at hand: from the target word to the L1 word through an interactive image of a parrot with a par (feather) in its beak. Pressley, Levin, Kuiper, Bryant, and Michener (1982) have argued that the reason the keyword method stands out is that a direct link between the target word and the L1 word is constructed, which enhances the retention of the target word.

There have been studies indicating that the keyword method is a technique that leads to better retention than the rote rehearsal method. However, what we clearly do not know is whether the keyword method is a more effective method compared to the rote rehearsal method in retention of vocabulary in English as a foreign language (EFL) settings or not. Furthermore, as van Hell and Mahn (1997) and Hoghben and Lawson (1994) have contended, the majority of such investigations have been carried out in laboratory rather than natural classroom settings. Therefore, the major interest of the present research is investigation and comparison of two EFL vocabulary learning strategies, i.e. the keyword method versus the rote rehearsal (word list) method on the retention of newly learned vocabulary in a natural classroom setting. Accordingly, the research question that guided the present study is as follows:

Will the keyword method produce more retention compared to the rote rehearsal (word list) method over a short-term period?

VI. Method

Participants

The participants for this study were 44 female students with an average age of 13.5 at Ansari Junior High School in Astara, Iran. There were 2 intact classes which met twice a week, each lasting for 90 minutes. The classes were chosen randomly, each consisting of 22 participants. All the participants were at the elementary level of English language proficiency and had no prior knowledge of the keyword method.

The similar age of the participants, their attendance in the same grade of junior high school with the same teacher suggested that these two groups of students would be of comparable ability. The students regarded rote learning of vocabulary used in their regular classes boring and they showed a great interest in a new way of vocabulary learning. The second researcher tried to make the overall atmosphere of their English classes supportive by emphasizing that their scores would remain highly confidential and
Procedure

As mentioned earlier, two intact classes, each consisting of 22 female students, were selected. The experiment was conducted during regular class hours. A list of 20 English words with corresponding keywords and their Persian equivalents were prepared. The words were selected at random. The words had to be concrete and have a similar-sounding equivalent, i.e. the keyword in Persian. Word pair ordering was English-Persian just like the ordering used in the students’ textbooks.

After consulting with the teacher in charge of both classes, the second researcher was sure that the participants had encountered none of the target words prior to the experiment. The two classes were randomly assigned to the keyword method, i.e. the experimental group (EG) and the word list method, i.e. the control group (CG).

The participants in the control group received the list of words on a sheet of paper which contained the target words and their equivalents in Persian. They were given a total of 20 words (each session 10 words) to study using the rote method for two sessions. At the end of the second session, the participants were handed an examination sheet with all the English words that they had learned in the two experimental sessions and were given 20 minutes to write the definition of each word in Persian.

The participants in the experimental group received the same words as the participants in the control group with the difference that between each English word and the Persian equivalent there was a keyword of a similar sound to the English word. After the explanation of the keyword method, the participants in the treatment group were asked to practice the method, and then they were asked to learn the vocabulary list using the keywords provided. Like the participants in the control group, at the end of the second session the participants in the experimental group were given the same examination sheet with all the English words that they had learned in the two sessions and were given 20 minutes to write the definition of the target words in Persian.

After the collocation of data, the participants’ scores were obtained by adding up the correct answers. Each participant’s total score fluctuated between 0 and 20.

VII. Results

Table 1 displays the mean scores obtained from both groups. The results show that the mean score of the experimental group is significantly higher than the mean score of the control group \( t(42)= 4.97, p=.001 \). This suggests that the experimental group, which received vocabulary instruction through the keyword method, significantly outperformed the control group, which received vocabulary instruction through the word list method. This indicates the superiority of the keyword method to simply memorizing word lists.
Table 1. Mean Scores, Standard Deviations, and \( t \)-value for Both Groups

<table>
<thead>
<tr>
<th>Groups</th>
<th>( n )</th>
<th>( M )</th>
<th>( SD )</th>
<th>( df )</th>
<th>( t )</th>
<th>( sig )</th>
</tr>
</thead>
<tbody>
<tr>
<td>EG</td>
<td>22</td>
<td>16.77</td>
<td>2.06</td>
<td>42</td>
<td>4.97</td>
<td>.001</td>
</tr>
<tr>
<td>CG</td>
<td>22</td>
<td>12.5</td>
<td>3.46</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\( p < .05 \)

VIII. Discussion and conclusion

This study examined the comparative effects of the word list and the keyword methods on immediate retention of English vocabulary under classroom conditions by Iranian junior high school students who had been studying English for a maximum of two years.

In line with previous similar studies (e.g., Levin, 1983, 1986; McDaniel & Pressley, 1987; Pressley, Levin & Delaney, 1982), this study confirms the powerful impact of the keyword method on the learners’ memory in recalling word definitions. On the recall test, the participants in the keyword group outperformed the participants in the control group on the total number of items answered correctly immediately after instruction. Moreover, in line with Levin et al.’s (1984) argument, the present study demonstrated that the keyword method should be one of the options when it comes to retention of definition. The conceptual peg hypothesis of Dual Coding Theory (DCT) (Paivio, 1963, 1971, 1986) can be a good source for interpreting the positive effects of the keyword method. Based on this hypothesis, it is claimed that the imagery value or concreteness of words is the reason for the learners’ success in remembering them. It is also argued that if the words are concrete, they can easily be recalled later on. The keyword method is exactly based on DCT because it involves the use of verbal connections between the new word item and the stimulus word and also the use of imagery. In other words, the acoustic similarities make a link between the new word and its translation equivalent in L1 and finally learners are presented with an interactive image. These arguments are in line with those of Ellis and Beaton (1993) that the keyword method makes it possible for learners to make an association between the foreign word and the keyword through an interactive image. According to Pressley, Levin, Kuiper, Bryant, and Michener (1982), in the keyword method a phonetic link is made between the target item and the keyword and an interactive image makes the meaning connection between them and due to the imagery linkage, learners’ retention of definitions is enhanced. In conclusion, the DCT can provide an adequate interpretation of the cued recall results.

In this study before beginning the instruction, the participants were asked to report what methods they employ for learning vocabulary. None of them reported using acquisition techniques that approximated the standard keyword method. In fact, approximately 85% of the reported strategies appeared not to involve any significant elaboration technique. Only 15% of the reported strategic activities involved an elaboration technique. Obviously, there were some experienced foreign language learners in these classes who had access to a variety of strategies while learning new words. However, as Fuentes (1976) has argued although a variety of strategies exist, it does not mean that all of them are equally effective. The participants in both groups were exposed
to a similar range of strategies prior to the treatment. Yet when the learners in the experimental group were taught how to work with the elaborative techniques such as the keyword method, they indicated a noticeable outperformance compared to the uninstructed control group. Regarding the control group, although they used a variety of strategies, very few of the participants reported that they had used elaborative techniques in the process of the experiment. According to the participants’ report in the control group, most of them had used some form of repetition and only a few reported using complex elaboration techniques. Given the results of this study after a short period of training, it was shown that there was a significant difference between the two groups on the immediate recall test. The immediate performance of the participants using the keyword method was significantly better than that of those using the word list method. In making this point, it is not the researchers’ intention to underestimate the role of repetition as a procedure for vocabulary learning and its immediate retention. Undoubtedly, repetition is one of the most common strategies employed by students for vocabulary learning and it has been demonstrated to have strong effects (Ellis & Beaton, 1993; Wang, Thomas & Quellette 1993). But here the main emphasis is on the elaborative techniques such as the keyword method which has substantial potential for vocabulary growth in language classrooms.

A body of research studies has been done in natural foreign language classrooms by high school students (e.g., Fuentes, 1976; Hogben & Lawson, 1994), elementary school students (e.g., Avila & Sadoski, 1996), and college students (Brown & Perry, 1991; Moore & Surber, 1992). In most of these studies, the keyword method has been compared with a no-strategy control group (e.g., Avila & Sadoski, 1996) or rote rehearsal group (Fuentes, 1976; Willerman & Melvin, 1979). As for the findings of the present study, it should be mentioned that they are consistent with those of Brown and Perry (1991) and Wang, Thomas, Inzana, and Primicerio (1993).

The results of the present study can be construed in terms of depth-of-information-processing (Craick & Lockhart, 1972; Craik & Tulving, 1975). Based on the depth-of-information-processing theory, the more information is processed at deeper levels, the more retention is gained. As one reaches deeper levels, memory traces become more stable. Now regarding depth-of-information-theory, it can be explained that because in the keyword technique students make use of the combination of picture and an acoustically familiar word in their L1, more information is processed in deeper levels compared to the word list method in which students are merely provided with a list of new words and their definitions. There are some situational constraints on the effectiveness of the keyword method (Pressley, 1991). In some cases, students learning through the keyword method are not exposed to either a keyword or an imagery-link-learning phase. Thus, in these cases learning the acoustic and imagery links is not guaranteed because a third link in which the L2 and the L1 words are associated to each other is made after the two previous links. According to Atkinson (1975), most probably, this direct link is responsible for supporting this method. As practice of the keyword method becomes more explicit, its effectiveness increases.

One of the constraints figured out in the present study was related to the participants. All of them had studied English for at least one year. In other words, they had some prior experience in learning a foreign language. As Fuentes (1976) observed, “It may be assumed that individuals who continue on to the second year of foreign
language study bring with them successful methods and techniques of learning vocabulary that are difficult, if not impossible, to suspend for a given period of time” (p.75).

Thus, it is convincing that at least a few of the participants in the keyword condition had not truly followed through directions for the keyword instruction. In the same way, some students in the list learning method may have used other strategies except repetition, such as imagery.

The findings of the present study have some important practical implications. First, it can be argued that teachers can make use of the keyword method with EFL secondary school students in a natural classroom setting. Besides, the results suggest that students trained through the keyword technique recalled more definitions than those in the list learning method. Therefore, incorporating this method into the students’ regular language learning schedule is highly recommended. This, however, does not mean that all foreign language vocabulary should be learned using the keyword procedure because it is difficult to apply this method to all vocabulary, particularly abstract words. In such cases, students must use other strategies, including repetition.

All in all, the general recommendation is that teachers should benefit from a variety of methods while teaching vocabulary to their students, one of which is the keyword method.

References


