



Short term and long-term retention rate of English-Persian paired-associates: A comparison between key-word method users and rehearsal method users

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ABSTRACT

The present study was carried out to investigate the effect of key word method on the retention rate of Iranian EFL learners. Thus far, the studies on the efficiency of key-word method, as a strategy of vocabulary learning, have indicated mixed results, and reached no conclusive findings. To carry out the study, 40 students were chosen from among university students registered for English classes in Isfahan University. They were all pretested to make sure that they did not know the target words that were supposed to be taught in order to find out their retention rates. All the learners were divided into two groups: one key-word method group (KWMG) and one rehearsal method group (RMG). The same set of words was taught to both groups. For the first group, we used key-word method and we let the students to choose and use their own key words, which would lead to deeper processing of information, in order to enhance long term retention. For the second group only rehearsing of the new words was used. At the end of experiment, two tests were administered: one immediate test to check out their short term retention and one delayed post test to measure their long-term recall. The results of the study have shown no significant difference in short term retention but with regard to long-term retention, the Key-word method group students outperformed the rehearsal group. In addition, in a semi- structured interview with key word method group students, it was revealed that they show a great interest in the method, and maintained that they would opt for the method when memorizing other words.

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Introduction

Human being's curiosity about all phenomena of the world including himself, caused language to be always under investigation as one of the important aspects of human life. Indeed linguistics has always been considered as an important field of study for all communities of the world.

Native speakers of each language can understand the oral form of their own language quite easily. Also they can express everything they want within the format of their language. Hence we can say that oral forms are cues used to express different concepts. In other words language is a system which establishes a link between concepts and phonemes. Different human societies have different languages so that members of these societies cannot understand other ones without learning their language. In most societies, schools hold the responsibility of teaching foreign languages other than mother tongue. They have always tried to adopt new strategies to make this process easier and easier.

Paired-associates and their function

In a vocabulary learning process each foreign word and its native equivalent can be shaped as paired-associates. In this process students learn a list of discrete associations such as syllables or words, generally shown in the form of A-B. Here A is the cue and B is the response. Paired-associate learning came into consideration in 1940s. First, it seemed that this process is a very simple way of learning but the fact was that it was more complicated than what people thought.

Learning paired-associates is tightly related to discriminate learning. Since the learner might make a mistake in generalizing the stimuli, he or she must be taught the differences between these stimuli. Then we come to response learning. In this step, the examinee must recall the response from the memory, as a separate unit. The next step is to relate the discriminate stimuli to the response units. This step is called association formation. In association formation step mediators can be used. Mediators act like a bridge between nominal stimuli and nominal response. Mediators are information or preformed associations which help the examinee in learning A-B associations. Some mediators can be classified as mnemonic devices.

To store the information in memory, items of learning should be coded. In coding process the stimuli are changed in a way that they can be stored in memory. The most common strategies of coding are: maintenance or primary rehearsal and elaborative rehearsal.

Primary rehearsal mostly emphasizes on simple reviewing of the data but elaborative rehearsal tends to add or contribute something to the given information. In this case new information could be related to the old data and mental imaging can be used. Mental imaging can be considered in learning paired-associates. When the examinee learns a pair of words, he can use mental images as a cue to remember other words whenever one of the words is offered. In the process of paired-associate learning, storage of data is not so much important but the point is how to retrieve the information. In such situations, integration of two forms of mental representation (verbal vs visual) brings about

more probability of remembering through providing various cues. In this regard as mentioned above, a mediator would be of great help. This mediation can be established through key word method. In key-word method there are two steps toward learning paired-associates: First an acoustic link is established between the pronunciation of the foreign word and a native word which is similar to the foreign word phonetically. This native word is called key-word. And second a mental image is established in which the key-word interacts with the native equivalent of the foreign word. The foreign word is related to the key-word through an acoustic link and the key-word is related to the native equivalent through a mental image. For English speakers, the keyword technique for learning foreign vocabulary depends upon linking through a mental image, one English word with another English word that is similar in its sound to the foreign word that is being learned. For example: The French for hedgehog is *herrison*. The learner might be instructed to 'Imagine your hairy son looks like a hedgehog' (Gruneberg & Sykes, 1991).

Both associationism and data processing theories have emphasized on the importance of practicing and reviewing in learning paired-associates. Data processing theories also refer to the role of elaboration in retention of information. Previous studies have shown that key-word method can be one of the strategies to improve memory through elaboration and it is useful in learning foreign words. But here a question arises: Is it useful in long-term retention or not?

Some researchers confirm the advantages of this method in long-term learning but some believe that rehearsal method is more effective. According to Atkinson and Raugh (1975) (Raugh & Atkinson, 1975), the keyword method has been shown repeatedly to have beneficial effects for foreign vocabulary learning (e.g. Beaton, Gruneberg, Hyde, Shufflebottom, & Sykes, 2005; Gruneberg 1992). Gruneberg (1987/ 2002) has published books and computer software that applies the keyword method to the vocabularies of many languages. The effectiveness of the keyword method derives from well-established, widely recognised cognitive mechanisms. Memory for paired associates benefits from interacting images (Bower, 1970; Morris & Stevens, 1974): With the keyword method, one aspect of the image denotes the meaning of the foreign word (a hedgehog) and the other, interacting, aspect is a cue to the novel sound of the foreign word (a hairy son). When either aspect—the meaning or the sound of the foreign word—is given, it acts as cue to recall the image which, in turn, cues recall of the other aspect.

The beneficial effects of generation (Jacoby, 1978; Slamecka & Graf, 1978; Wittrock, 1974) play a role as well: Although the linking idea is presented, the learner must generate the image, which makes it more memorable than information that was provided (i.e. the words); because the image provides a link between the sound and the meaning, the novel sound is more likely to be recognised and recalled. Another benefit derives from the comprehensibility of the images: Without meaning, memory is poor (Bransford & Johnson, 1973; Bartlett, 1932), and novel foreign words are, by definition, not understood by the learner. The keyword ideas and sounds, are understandable and therefore, more memorable than the foreign words.

Despite demonstrations of its effectiveness, there are questions about the usefulness of the keyword method. The long-term effectiveness of the strategy has been questioned:

Wang and associates (Wang & Thomas, 1999; Wang, Thomas, & Ouellete, 1992) presented evidence that the benefits of the keyword method were temporary. However, this conclusion has been disputed by others (Beaton et al., 2005; Gruneberg, 1998) and benefits from the keyword method have been demonstrated 10 years after the study (Beaton, Gruneberg, & Ellis, 1995). Meanwhile Ellis and Beaton (1993a) reported that the keyword method of learning enhanced memory of foreign vocabulary items when receptive learning was measured. However, for productive learning, rote repetition was superior to the keyword method.

The effectiveness of the keyword method also appears to depend upon the quality of the keyword images (Beaton et al., 2005; Ellis & Beaton, 1993), so the strategy may not be as useful for people who are not adept at forming images. Also, the demonstrations of the effectiveness of the keyword method have usually involved receptive learning in which native language equivalents are learned to foreign words. The evidence for benefits in productive learning, in which foreign language words are learned to the native words, is less convincing (Ellis & Beaton; Pressley & Levin, 1981; Pressley, Levin, Hall, Miller, & Berry, 1980). Beaton et al. (2005) reported that both receptive and productive learning were facilitated by the keyword mnemonic, but only when good images were formed by the learner. Another potential limitation of the keyword mnemonic is the need to devise a suitable keyword to link the English and the foreign word. Most studies of the keyword method provide participants with suggestions for keyword images, and courses with suggestions for many words in the vocabularies are available (Gruneberg, 1987/2002). However, someone wishing to apply the mnemonic to other words beyond these sets must devise their own conversions between the languages. This can, in itself, be interesting and perhaps beneficial to learning the translations, but it is also demanding of effort, creativity and time. Therefore in this study we only let the students to choose their own keywords, to memorize them more efficiently and increase the retention length. Letting students to handle the key word construction could improve students' creativity, and help them to be able to manage their future usage of method. This gave the study a further significant.

A very important point is that most students are not familiar with effective methods of learning so that they always try to memorize the materials by repeating them over and over. Cox (1994) conducted a research on the effects of visual elaboration on cognitive processes of adult learners. Results showed that visual elaboration strategies lead to better processing of data and as a result better retention will occur. To evaluate the effects of strange and non-familiar mental images on learners, a set of paired associates were offered to 45 students and the students were tested within 0,3,5 days. Results showed that items accompanied with strange mental images can lead to better retention rates. (Iaccino-1996)

Ellis and baton (1993) considered the psycholinguistic factors which facilitate vocabulary learning. 47 students took part in their research. They asked the students to learn a set of German words using rehearsal method, key-word method or optional methods. Results showed that vocabulary learning becomes easier whenever the words were similar to native language words phonologically. Moreover, if a word could be memorized with a mental image, it could stick in mind better than other words.

Table 2 Long term data analysis Independent Samples Statistics

Group Statistics					
	groups	N	Mean	Std. Deviation	Std. Error Mean
posttest	1	20	54.2500	10.91534	2.44075
	2	20	29.7500	7.34041	1.64136

Table 4

From these analyses the following inferences were made :

1 .In short term there is no significant difference between the two groups ($p < 0.05$, $df = 19$, $t = 1.91$).

2. In long term retention rate group A is superior to group B ($p < 0.05$, $df = 19$, $t = 2.17$). The null hypothesis is rejected. And KWMG outperformed RMG

Discussion

The results showed that in long-term learning using key-word method is significantly advantageous. William James (1890) described a powerful memory as ‘ in mental term, the more other facts a fact is associated with in the mind, the better possession of it in our memory retains. E each of its associates becomes a hook to which it hangs, a means to fish it up by when sunk beneath the surface. Together they form a network of attachments by which it is woven into the entire issue of our thought. The *secret of a good memory* is thus the secret of forming diverse and multiple associations with every fact we care to retain’. According to data processing theories, forgetting occurs due to missing learning cues. Using a key-words or mental images can facilitate the application of clues during retention process. Key-word method is based on elaboration of items and it causes better retention. Key-words and mental images could improve the performance of memory because in these methods a stimuli is stored with two codes and remembering the data which is stored with two codes is much easier than one code items.

Conclusion

The students’ need to learn new vocabulary as a crucial constituent of the target language is indisputable. Competing methods had been put forth to address this pressing need as felt by the students. However, psycholinguists have not yet unanimously arrived at one-fit-all technique to submit the new words to the memory.

This paper was an attempt to compare two much-touted techniques of acquiring new vocabulary. It cannot be negated that the more hooks there are in the cognitive structure of the students, the more lasting the retention of the newly-learned vocabulary will be. A comparison was, therefore, made between the Rehearsal method (smacking of the bad old days of the Audiolingual method) and the Key word method.

The results of the study revealed the supremacy of the Key word method over the Rehearsal method in long-term retention but not in short-term retention. In this study the students were taking part in thinking about and choosing their own key words to memorize the new words, which could lead to deeper processing of information. According to Ellis (2003) in the psychological literature, learning is more significant if it involves greater depth of processing. Thus the new information can be better stored and retrieved, and leading to better acquisition of new vocabularies. Also in a semi structured interview running at the end of experiment, the students have shown a great interest in using key word method. As our main concern in teaching a foreign language is maximizing the long-term retention of the newly-learned words, it may be helpful to take key word method into account.

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Appendixes

Form A for key word method group

Pronunciation Meaning key-word Sentences

کانگورو با استرالیا سازگاری دارد. کانگورو سازگاری
congruity Kangaroo has congruity with Australia. کانگرونیتهی
شهردار از وضع ریل انتقاد کرد. ریل انتقاد کردن

Mayor has railed the rail system
طینت طینت فاسد کردن تینت
taint او فاسد شده بود

His nature was tainted
لاشه در آنجا فراوان بود لاشه فراوان
lush lush لاش

Carcasses were lush there.
او در میامی مصدوم شد میامی مصدوم شدن
maim maim میم

He was maimed in Miami.
ناگهان گرگ به سالی یورش برد سالی یورش بردن
sally sally سلی

Wolf Suddenly sallied forth toward Sally.

ریزش کوه خانه را منهدم کرد ریزش منهدم کردن
raze ریز

Mountain falls razed the house to the ground.
پونه ها هنوز ضعیف بودند پونه ضعیف
puny پیونی

The mint was still puny.
با جسارت به میان شکاف رفت شکاف
rift ریفت

With courage he went toward the rift
بدنبال دارد پیسی گوارشی پپتیک
peptic پیسی مشکل گوارشی

Pepsi will cause peptic problems
مرد غیبگو سیر غذا خورد سیر
seer سیر

The seer ate the food completely
ژست مسخره ای داشت ژست مسخره
jest جست

What a jest gesture
نینی چندان هم کودن نبود نینا کودن
ninny نینی

The baby was not so ninny
آبی داخل پارچ خشکیده بود پارچ خشکیدن
parch پارچ

The water in the pitcher was parched by sun.
وحید پسر بی مزه ای بود وحید وید
vapid وید

Vahid was a vapid boy
صابر همیشه در حال زاری بود صابر زاری
sob ساب

Saber was sobbing all the time.
دانه های سفت را غربال کرد سفت غربال
sift سبفت

You must sift out the tough seeds
برای راند بعدی رجز می خواند راند رجز خواندن
rant رنت

He was ranting for the next round.
بین دوراهی مرگیاری مانده بود بین مرگیار
bane he was hesitating between

a bane junction of his life.
روی افسوس خوردن هم نداشت رو خوردن
rue رو

He could not even rue afterward.
واژه انگلیسی معنی فارسی تلفظ
کانگرونیتهی کانگرونیتهی

congruity انتقاد کردن
rail ریل
rail تینت فاسد کردن

aint فراوان
lush lush لاش
lush مصدوم شدن

maim یورش بردن
sally سلی
sally میم

منهدم کردن
raze ریز
raze منهدم کردن

ضعیف
puny پیونی
puny پیونی

رِيفت	شکاف	وِپيد	بي مزه
rift		vapid	
بِپْتِيك	گوارشي	ساب	زارِي
peptic		sob	
سِير	غِييگُو	سِيْفَت	غربال کردن
seer		sift	
جست	مسخره	رنت	رجز خواندن
jest		rant	
نِنِي	کودن	بين	مرگبار
ninny		bane	
پارچ	خَشکِيْدِن	رو	افسوس خوردن
parch			