The magic of mnemonics for vocabulary learning of a second language

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Abstract: The keyword method is undeniably an effective method for accelerating learning of suitable material. Nor is there any doubt that it improves immediate recall, which can be useful in itself. However, what people want is long-term recall, and it is there that the advantages of the keyword method are most contentious. In this short article we introduce keyword method that is a fun method of learning vocabulary through mnemonics. The method is not new but it is presently unknown in Iran. Keyword method is a kind of memory aid method which makes the retrieval process easier by bridging the meaning of words with related pictures mentally or physically. Here we will consider the advantages and also disadvantages of the method. Some examples from Spanish, and Persian are provided to make keyword method more tangible for students of foreign languages in Iran.

Keywords: Keyword Method, Mnemonics, Memory Aid

1. Introduction

A number of authorities have suggested criteria for evaluating the utility of vocabulary teaching methods. Thelen (1986) suggests that meaningful instruction takes place when the learner's schema can be related to the text (words) to be learned, and when the learner is actively engaged in the process of doing so. Carr and Wixson (1986) advocate two criteria for evaluating vocabulary instruction: helping the student develop both elaborated word knowledge and strategies for learning words independently. Finally, Graves and Prenn (1986) include a cost factor in determining which method of teaching vocabulary is best in a given situation. They discuss three costs: out-of-class teacher preparation time, in-class time, during which the students and teacher work together, and in-and out-of-class, during which student practices.

Taken together, these criteria can provide the teacher with a considerable amount of information about methods of direct vocabulary instruction which should make the selection of appropriate approaches easier.

Wide reading may appear to be the best way for students to acquire the thousands of words they must learn annually, since teaching individual words often seems capricious and inefficient. Direct vocabulary instruction, however, provides the contextualized, elaborated and repeated opportunities for students who need to learn important words and concepts. Effective methods utilize students' prior experience and engage them in the learning process. Among these are semantic mapping, semantic feature analysis, Graves' modification of the Frayer model, the keyword method, and a number of ad hoc teacher-developed approaches. Using several criteria, among which are opportunities for elaboration and the cost in both teacher and students' time, the instructor can evaluate which method may be best for the type of vocabulary to be taught.

In the mid-seventies, Raugh and Atkinson had remarkable results using the keyword method to teach Russian vocabulary to college students. While later studies have not tended to find such dramatic results, nevertheless, a large number of studies have demonstrated an advantage in using the keyword mnemonic to learn vocabulary. Keyword method (or mnemonic)is a direct instruction approach and the keyword method, is a way of improving the learner's

memory for items having an associative component originally introduced to enhance the learning of second languages, the keyword method is a two-step process (Pressley, Levin, Kuiper, Bryant & Michener, 1982). The learner first creates a keyword that sounds like (is a mnemonic for) a salient part of the unknown word, and then links the keyword to the unknown word by means of a visual image or a sentence. For example, a keyword for surplus might be sytup and the link between the keyword and the concept of a sentence such as "it is all right to use a lot of sytup on our pancakes because we have a surplus of it in the cupboard" (Levin, McCormick, Miller, Berry & Pressley, 1982). Studies have demonstrated the superior ability of the keyword method in teaching vocabulary (Levin, Levin, Cotton, Bartholemew, Hasty, Hughes & Townsend1990; Levin, McCormick, Miller, Berry & Pressley 1982; Pressley, Levin, Kuiper, Bryant & Mitchener 1982; stahl & Faribanks 1986). Most point to the associative component of the keyword method as essential to its success, since the student actively utilizes a proxy word to link the to-be-learned word with its definition via visual images or sentences. Pressley and his colleagues (1982) also provide interview data which explore the met a cognitive nature of this association. A recent study of seventh and eighth graders gives additional support for the effectiveness of the keyword method in enabling students to recall and apply their newly learned vocabulary as much as two weeks after instruction (Levin, Levin, Glasman & Nordwall 1992).Some researchers have become huge fans of the strategy. Others have suggested a number of limitations. Let's look at these.

2. Remembering for the Long Term

The keyword method is undeniably an effective method for accelerating learning of suitable material. Nor is there any doubt that it improves immediate recall, which can be useful in itself. However, what people want is long-term recall, and it is there that the advantages of the keyword method are most contentious.

While many studies have found good remembering a week or two after learning using the keyword mnemonic, others have found that remembering is no better one or two weeks later whether people have used the keyword mnemonic or another strategy. Some have found it worse.

It has been suggested that: although the keyword may be a good retrieval cue initially, over time earlier associations may regain their strength and make it harder to retrieve the keyword image. Any keyword is, by its nature, an easily retrieved, familiar word; therefore, it will already have a host of associations. When you're tested immediately after learning the keyword, this new link will of course be fresh in your mind, and easily retrieved. But as time goes on, and the advantage of recency is lost, what is there to make the new link stronger than the other existing links? Absolutely nothing — unless you strengthen it. How? By repetition.

Note that it is not the keyword itself that fails to be remembered. It is the image. The weakness then, is in the link between keyword and image. The question of the relative forgetting curves of the keyword mnemonic and other learning strategies is chiefly a matter of theoretical interest — We do not think any researcher would deny that repetition is always necessary in vocabulary learning. But the "magic" of the keyword mnemonic, as espoused by some mnemonic enthusiasts, downplays this necessity. For practical purposes, it is merely sufficient to remember that, for long-term learning, you must strengthen this link between keyword and image (or sentence) through repeated retrieval (but probably not nearly as often as the repetition needed to "fix" meaningless information that has no such mnemonic aid).

One final point should be made if the material to be learned is mastered to the same standard, the durability of the memory —that is, how long it is remembered for — will, it appears, be the same, regardless of the method used to learn it.

2.1. Are Some Keyword Mnemonics Easier to Remember Than Others

A number of factors may affect the strength of a keyword mnemonic. One that often suggested is, whether or not the mnemonic is supplied to the student, or thought up by them. Intuitively, we feel that a mnemonic you have thought up yourself will be stronger than one that is given to you.

A study that compared the effectiveness of keywords provided versus keywords that are self-generated, found that participants who were required to make up their own keywords performed much worse than those who were given keywords. This does not provide answer to the question of the relative durability, but it does point to how much more difficult the task of generating keywords is. This has been confirmed in other studies.

The quality of the keyword mnemonic may affect its durability. Mnemonics that emphasize distinctiveness, that increase the vividness and concreteness of the word to be learned, are remembered less well over time than mnemonics that emphasize relational and semantic information. Having bizarre images seems to help remembering immediately after learning (when there is a mix of bizarre and less unusual images), but does not seem to help particularly over the long term.

The advantage of a semantic connection may be seen in the following example, taken from an experimental study. Students in a free control condition were told to use their own methods to remember almost all used a keyword-type technique to learn some items. Unlike those in the keyword group, the keywords chosen by these subjects typically had some semantic connection as well. (The use of somewhat arbitrary keywords is characteristic of the strategy as originally conceived by Atkinson). Thus, for the Spanish word pestana, meaning eyelash, several people used the phrase paste on as a link, reflecting an existing association (pasting on false eyelashes). The keyword supplied to the keyword group, on the other hand, was pest, which has no obvious connection to eyelash. (It is also worth noting that

verbal links were more commonly used by control subjects, rather than mental images.)

It has been suggested that keywords that are semantically as well as acoustically related to the word to be learned might prove more durability (Levin, Levin, Glasman & Nordwall 1992)

3. Controlled Presentation

For experimental reasons, the information to be learned is usually presented at a fixed rate, item by item. There is some suggestion that an un-paced situation, where people are simply presented with all the information to be learned and given a set time to study it, allows better learning, most particularly for the repetition strategy. The performance of rote repetition may have been made poorer by constraining it in this way in some experimental studies. An un-paced study time is of course the more normal situation.

3.1. The Importance of One-To-One Instruction and the Need for Practice

What is clear from the research is that instruction in the technique is vitally important. Most particularly, the superiority of the keyword mnemonic tends to be found only when the students have been treated individually, not when they have been instructed as a group. At least, this is true for adults and adolescents, but not, interestingly, for children. Children can benefit from group instruction in the technique. Why this is, is not clear. However, it would be speculated that it may have something to do with older students having already developed their own strategies and ideas.

It might also be that children are given more directions in the using of the technique. That is, they are given the keywords; the images may be described to them, and even drawn. Clearly this is much simpler than being required to think up your own keywords and create your own links.

It does seem clear that durable keyword images require quite a lot of practice to create. It has been suggested that initially people tend to simply focus on creating distinctive images. It may only be with extensive practice that you become able to reliably create images that effectively integrate the relational qualities of the bits of information.

3.2. Some Words Benefit More from the Keyword Mnemonics

It has been suggested that the keyword mnemonic works effectively only on concrete words. For the most part, researchers only use concrete words (which are easily imaginable). The studies which have compared the two are rare. The weight of the evidence is probably against the view that the mnemonic should be restricted to concrete words, but it may well be more difficult to come up with good and concrete images for abstract words. However, verbal mnemonics (a sentence can link the keyword with the definition) do not suffer the same drawback.

In experimental studies, the words are usually vetted to make sure they are not "easy" to learn because of obvious acoustic or graphic similarities with familiar words. The implication of this for real world learning, is that there is no reason to think that such words require a keyword mnemonic.

3.3. How Important is the Image

Most research has focused on using an image to link the keyword with the definition. One study which compared the using of an image with the use of a sentence (in a study of children's learning of Spanish words) found no difference (the sentence mnemonic in fact scored higher, but the difference was not significant).

3.4. Is the Keyword Mnemonic of Greater Benefit to Less - Able Students

Several researchers have suggested that the keyword mnemonic might be of greater benefit to less-able students, that the keyword mnemonic may be a means by which differences in learning ability might be equalized. One study that failed to find any superiority in the keyword mnemonic among college students, pointed to the high vocabulary ability of their students. They suggested that those studies which have found keyword superiority on college students, have shown students who were less verbally able.

What seems likely is that teaching the keyword mnemonic to more able students has less impact than teaching it to less able students, because the more able students already have a variety of effective strategies that they use. It is worth noting that, just because students are instructed to use a particular strategy that does not mean what they will. In one experimental study, for example, when subjects were asked about the strategies they used, 17 out of the 40 control subjects (instructed to use their own methods) used the keyword method for at least some items, while every keyword, subjects used, the keyword method for at least seven items (implying they did not always).In that study, it was found that, for the control subjects, the probability of recalling keyword-elaborated items was .81 vs .45 for other items; while for the keyword group, the probability of recall for keyword-elaborated items was .80 vs .16 for those items for which they did not use a keyword mnemonic

3.5. Comparing the Keyword Mnemonic to other Strategies

As a general rule, experimental studies into the effectiveness of the keyword mnemonic have compared it to, most often, rote repetition, or, less often, "trying your hardest to remember" (i.e., your own methods). It is not overwhelmingly surprising that the keyword mnemonic should be superior to rote repetition, and the study quoted just above reveals why comparisons with "free" controls might show inconsistent (and uninformative) results. Studies which have directly compared the keyword method to other elaborative strategies are more helpful.

A number of studies have compared the keyword strategy against the context method of learning vocabulary (much loved by teachers; students experience the word to be learned

in several different meaningful contexts). Theory suggests that the context method should encourage multiple connections to the target word, and is thus expected to be a highly effective strategy. However, the studies have found that the keyword method produces better learning than the context method.

It has been suggested that students might benefit more from the context method if they had to work out the meaning of the word themselves, from the context. However, a study which explored this possibility, found that participants using the context method performed significantly worse than those using the keyword mnemonic. This was true even when subjects were given a test that would be thought to give an advantage to the context method — namely, subjects being required to produce meaningful sentences with the target words.

The same researchers later pursued the possibility that the context method might, nevertheless, prove superior in long-term recall — benefiting from the multiple connections / retrieval paths to the target word. In an experiment where both keyword and context groups learned the words until they had mastered them, recall was no better for the context group than it was for the keyword group, when tested one week later (on the other hand, it was no worse either).

3.6. Two More Recent Studies Have Confirmed the Superiority of the Keyword Mnemonic over the Context Method

Another study looked at the question of whether a combined keyword – repetition strategy (in which subjects were told to use repetition as well as imagery when linking the keyword to the English translation of the word to be learned) was better than the keyword strategy on its own. They failed to find any benefit to using repetition on top of the imagery.

Given the procedures used, we can see why this might occur. Imagine you are trying to learn that tentative is the English word for نامطمئن -namotma'en- (in Persian). The obvious keyword is tent. Accordingly, you form an image of a tent that is an unsure place for living. However, having constructed this image, you are now told to repeat the salient words "tent-unsure" over and over to yourself. It's not hard to see that many people might completely lose track of the image while they are doing this. Thus the repetition component of the strategy would not be so much augmenting the imagery link, as replacing it. Repetition of the link you are supposed to be augmenting (a tent for living in winter) might be more useful.

3.7. Backward Recall

The value of the keyword mnemonic is of course, in forward recall — that is, in the above example, you learned that tentative meant unsure. When you see the word tent, the keyword mnemonic will help you remember that it means an unsure place. But if you are asked for the English for نامطمئن namotma'en- (in Persian), how helpful will the keyword

mnemonic be then?

A study that looked at this question found that the keyword mnemonic was no worse for backward recall than the other strategies they employed. On the other hand, it was no better, either — and this despite being superior for forward recall (remembering the English when given the Spanish). The failure of the method was not due to any difficulty in recalling the keyword itself. But the problem is, of course, that generating the (unfamiliar) English word from the keyword is much harder than remembering the (familiar) Farsi word.

3.8. Using the Keyword Mnemonic to Remember Gender

One other aspect of vocabulary learning for many languages is that of gender. The keyword mnemonic has successfully been used to remember the gender of nouns, by incorporating a gender tag in the image. This may be as simple as including a man or a woman (or some particular object, when the language also contains a neutral gender), or you could use some other code — for example, if learning German, you could use the image of a deer for the masculine gender.

3.9. Why Should the Keyword Mnemonic be an Effective Strategy

Let's think about the basic principles of how memory works. The strength of memory codes, and thus the ease with which they can be found, is a function largely of repetition. Quite simply, the more often you experience something the easier it will be for you to remember it. This is why the most basic memory strategy — the simplest and the first learned — is rote repetition. Repetition is how we hold items in working memory, that is, "in mind". When we are told a phone number and have to remember it long enough to either dial it or write it down, most of us repeat it frantically.

Spaced repetition — repetition at intervals of time — is how we cement most of our memory codes in our long-term memory store. If you make no deliberate attempt to learn a phone number, yet use it often, you will inevitably come to know it (how many repetitions that will take are a matter of individual variability).

But most of us come to realize that repetition is not, on its own the most effective strategy, and when we deliberately wish to learn something, we generally incorporate other, more elaborative, strategies.

Why do we do that? If memory codes are strengthened by repetition, why isn't it enough to simply repeat? Well, it is. Repetition IS enough. But it is boring. That is point one.

Point two is that making memory codes more easily found (which is after all the point of the exercise) is not solely achieved by making the memory codes stronger. Also it is important to make lots of connections because memory codes are held in a network. We find a particular one by following a trail of linked codes. Clearly, the more trails lead to the code you are looking for; the more likely you are to find it.

Elaborative   strategies   —   mnemonic   strategies,

organizational strategies — work on this aspect. They are designed to increase the number of links (connections) a memory code has.

So, both types of elaborative strategies have the same goal — to increase the number of connections. But mnemonic links are weaker in the sense that they are arbitrary. Their value comes in those circumstances when either you lack the knowledge to make meaningful connections, or there is in fact no meaningful connection to be made (this is why mnemonics are so popular for vocabulary learning, and for the learning of lists and other ordered information).

3.10. Where does that Leave Us

- Memory codes are made stronger by repetition
- Repetition is enough on its own to make a strong memory code
- Achieving enough repetitions, however, is a lengthy and often boring process
- Memory codes are also made easier to find by increasing the number of links they have to other memory codes
- Elaborative strategies work on this principle of making connections with existing codes
- Some elaborative strategies make meaningful connections between memory codes — these are stronger
- Mnemonic strategies make connections that are not meaningful
- Mnemonic strategies are most useful in situations where there are no meaningful connections to be made, or you lack the knowledge to make meaningful connections

Mnemonic strategies have therefore had particular success in the learning of other languages. However, if you can make a meaningful connection, that will be more effective. For example, in Spanish the word surgir means to appear, spout, arise. If you connect this to the word surge, from the Latin surgere, means to rise, then you have a meaningful connection, and if you will not, it is clear that you will have much trouble when you come across the word. However, if your English vocabulary does not include the word surge, you might make instead a mnemonic connection, such as surgir sounds like sugar, so you make a mental image involving spouting sugar. Now, imagine each of these situations. Imagine you do not come across the word again for a month. When you do, which of these connections is more likely to bring forth the correct meaning?

But of course, it is not always possible to make meaningful connections. The thing to remember however is that you have not overcome the need for repetition. These strategies are adjuncts. The basic principle must always be remembered: Memory codes are made stronger by repetition. Links are made stronger by repetition. If you do not practice the mnemonic, it won't be remembered. The same is true for any connection, but meaningful connections are inherently stronger, so they do not need as many repetitions.

4. Conclusion

It would be also noted that the experimental research invariably involves very limited numbers of words to be learned. While this is entirely understandable, it does raise the question of the extent to which these findings are applicable to real world learning situations. If you are learning a new language, you are going to have to learn at least 2000 new words. Does the keyword mnemonic hold up in those circumstances? The keyword mnemonic has been used in real world situations (intensive language courses), but these are not experimental situations, and we must be wary of the conclusions we draw from them. The keyword strategy does take time and effort to implement, and may well have disadvantages if used to excess. Some words lend themselves to other techniques. At least for more experienced students (who will have a number of effective strategies, and are capable of applying them appropriately)what we concluded from our study is that the keyword strategy is best used selectively, for particularly difficult items.

References

[1] Atkinson, R.C., Raugh, M.R.(1975). "An application of the mnemonic keyword method to the acquisition of Russian vocabulary". *Journal of Experimental Psychology: Human Learning and Memory*.

[2] Atkinson, R.C. (1975). "Mnemotechnics in second- language learning". *American Psychologist*. 30. pp. 821-828.

[3] Biber, D. (1990). "A typology of English texts". *Linguistics*.

[4] Desrochers, A., Gélinas, Wieland, L.D.(1989). "An application of the mnemonic keyword method to the acquisition of German nouns and their grammatical gender". *Journal of Educational Psychology*. 81pp. 25-32.

[5] Ellis, R. (1990). "Instructed Second Language Acquisition". London: Blackwell. Engels, L.K. (1968). The fallacy of word counts. *IRAL*. 6. pp. 213-231.

[6] Gruneberg, M.M. (1998). "A commentary on criticism of the keyword method of learning foreign languages". *Applied Cognitive Psychology* . 12.pp. 529-532.

[7] Hall, J.W., Owens, W.L. and Wilson, K.P.(1987). "Presentation rates and keywords in vocabulary learning". *Bulletin of the Psychonomic Society*. 25.pp. 179-81.

[8] Hall, J.W., Wilson, K.P. and Patterson, R.J. (1981). "Mnemotechnics: Some limitations of the mnemonic keyword method for the study of foreign language vocabulary". *Journal of Educational Psychology*. 73. pp. 345-57.

[9] Jones, M.S., Levin, M.E., Levin, J.R., and B.D. Beitzel,(2000). "Can vocabulary-learning strategies and pair-learning formats be profitably combined?"*Journal of Educational Psychology*. 92. pp. 256-62.

[10] McDaniel, M.A., and Pressley, M. (1984). "Putting the keyword method in context". *Journal of Educational Psychology*. 76. pp. 598-609.

[11] McDaniel, M.A., Pressley, M., and Dunay, P.K. (1987). "Long-term retention of vocabulary after keyword and context learning". *Journal of Educational Psychology*. 79. pp. 87-9.

[12] Pressley, M., and Levin, J.R.(1985). "Keywords and vocabulary acquisition: Some words of caution about Johnson, Adams, and Bruning (1985)". *ECTJ*. 33.pp. 277-84.

[13] Pressley, M., Levin, J.R. and Miller, G.E. (1981). "The keyword method and children's learning of foreign vocabulary with abstract meanings". *Canadian Journal of Psychology*. 34.pp. 283-87.

[14] Pressley, M., Levin, J.R. Digdon,N. Bryant, S.L. andK. Ray,(1983). "Does method of item presentation affect keyword method effectiveness?"*Journal of Educational Psychology*.75.pp. 686-91.

[15] Pressley, M., Levin, J.R.Hall, J.W. Miller, G.E. andJ.K. Berry(1980). "The keyword method and foreign word acquisition". *Journal of Experimental Psychology: Human Learning and Memory*. 6.pp. 163-73.

[16] Raugh, M.R., andAtkinson, R.C.(1975). "A mnemonic method for learning a second-language vocabulary". *Journal of Educational Psychology*. 67.pp. 1-16.

[17] Shing, Y.S. andHeyworth, R.M. (1992). "Teaching English Vocabulary to Cantonese-speaking Students with the Keyword Method". *Education Journal*. 20.pp.113-129.

[18] Sajjadi, M., (2010). "Using keyword method as a mnemonic device to teach vocabulary".*Iranian ELT journal*.

[19] Wang, A.Y. and Thomas, M.H. (1995). "Effect of keywords on long-term retention: help or hindrance?"*Journal of Educational Psychology*. 87.pp. 468-75.

[20] Wang, A.Y. (1989). "Do Mnemonic Devices Lessen Forgetting?"*Paper presented at the Annual Meeting of the American Psychological Association*. (97th, New Orleans. LA. August.