

Enhancing Vocabulary Retention through Semantic Mapping: A Single-Subject Study

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Abstract

Remembering new words is often not an easy job for learners. That is why teachers try to utilize various techniques to present new words to them. In this paper, semantic mapping is introduced as a vocabulary presentation technique, which is believed to help learners remember words better as they see the connections among them in a map. This claim is verified through running a single-subject study, using two semantic maps. Although the results confirmed that semantic mapping fosters vocabulary retention, no conclusive assertion is made due to the nature of the study given the contradictory results reported in the literature.

Keywords:

Vocabulary presentation, semantic mapping, retention

Introduction

Many learners regard language learning as synonymous with knowing a large number of words by heart. Although it stands to reason that this is not a valid assumption, it should not be forgotten that words constitute a major part of a language (Bogaards, 2001). Morimoto and Loewen (2007) also point to the mastery of approximately 3000 words and cite five other scholars who hold the very same opinion. For example, in an experimental study, Wolter (2002) examined the relationship between language proficiency and word associations and concluded that, the results being statistically significant though not totally convincing, there is still a relationship between these two. Besides, vocabulary is the most sizeable and unmanageable component in the learning of any language (Nation, 1990). With this in mind, there will be the responsibility of helping learners to effectively store and retrieve words in the target language (Sokmen, 1997), and this necessitates the use of effective pedagogical methods in teaching vocabulary. Of course, words convey much more than a simple definition or, more traditionally, an L1 equivalent. As Montrul (2001) maintains, "learning vocabulary in a second language is a complex task that involves much more than learning sound-meaning pairings; it also involves learning how lexical information is morphologically expressed and syntactically constrained" (p. 145). Gone are days when learners would be provided with a list of words and their meanings. Not only do learners need to know the meaning of a word, but they should also know how and when to use it. All this makes vocabulary instruction a demanding task.

The other incisive dilemma, which one might face when reflecting on vocabulary instruction, is whether explicit instruction is worth the effort we put into it or not. This basic concern gets more noticeable when taking into consideration the benefits of implicit vocabulary learning as reported in the literature. Although the dichotomy of incidental versus explicit vocabulary learning has, at least for some time, been a controversial issue, now many believe that first of all, it is not really safe to think dichotomously in this regard, and that explicit learning is efficient enough. This dichotomy is not a totally valid one because incidental learning occurs along side with explicit learning, and most of implicit learning is out of control (Morin & Goebel, 2001). Morin and Goebel (2001, p.10) also believe in the efficiency of *explicit*, or in their own words, "direct" vocabulary learning "if we take into account the quality of word knowledge in addition to the number of words learned," and then they even move on to cite three experimental studies, all of which concluded that incidental learning is not sufficient and that explicit in-

struction of vocabulary is both needed and beneficial. Now having been justified about the significance of vocabulary learning in general for language learners and also the efficiency of explicit vocabulary instruction, we could go on to discuss some vocabulary instruction techniques, and most importantly in this study, *semantic mapping*.

Different techniques have been utilized throughout the history of TESOL to help learners remember words more efficiently. Such techniques can be considered on a general continuum with two extremes of being mechanical versus meaningful. A simple example of the most mechanical type of techniques is the list of words with their L1 equivalents. The learners are exposed to the words of such lists in isolation without any context given and are then supposed to memorize them through repetition. A constant keeping of the word and its meaning in the short term memory is hoped to transfer them to the long term memory. A good example of a meaningful technique, on the other hand, is "inference" or "guessing" techniques where learners are asked to infer, or at other times guess, the meaning of a certain word in a context, using any clues provided before or after that word in the context or even any other strategies (e.g. examining the root, prefixes, or suffixes) which might be helpful to arrive at the meaning of the unknown word (for a detailed discussion of guessing meaning from context, see Kai-vanpanah & Alavi, 2008). However, there are some cases when it is not really feasible to include a context for every single word or when we plan to present the words before the learners go through the text. In such cases, semantic mapping can come to our help. Semantic mapping has both a meaningful and a mechanical aspect: It is meaningful in the sense that words are presented according to the meaning-based relationships among them, and it is mechanical in the sense that the words still need to be practiced out of a context.

Semantic mapping

This paper makes an attempt to show the effectiveness of semantic mapping, as a vocabulary presentation technique in learners' vocabulary retention in the framework of a single-subject study. It is the personal reflection of the authors that vocabulary retention is a much more important issue for learners who get private lessons than those who learn English in public classes for the simple reason that the amount of materials covered in a private lesson is more than that of a public class session, and thus, a larger number of words must be presented to a learner in every session of private tutoring.

Semantic mapping falls under the general category of graphic organizers and is used in different subject areas in order to help learners understand relationships and form concepts about broader topics. The basis of semantic mapping is the relationships among its elements (here, the words). As the relationships among words are established, the learners will remember them more easily. Fan (2000, p. 115), for instance, finds "seven vocabulary learning strategies correlated positively and significantly with active vocabulary test scores," the fifth of which is "I group words that are related to help myself remember them."

The most important underlying reason for the effectiveness of semantic mapping might be due to its cognitive feature. The relationships among the words account for this cognitive feature of semantic mapping. According to Shapiro and Waters (2005), increasing the cognitive effort equals an enhancement in vocabulary retention. This is also supported by Morin and Goebel (2001), who, based on a great deal of research that they cite, believe that semantic mapping engages a very deep level of cognition.

The other considerable reason why semantic mapping serves as a suitable vocabulary presentation technique is that the same relationships we try to demonstrate among unknown L2 words are likely to be already present among the learners' known L1 words. We should, however, be aware of the situations where this is not the case. As Wolter (2006) rightly observes:

"... a complex set of assumptions for assimilating and structuring L2 lexical knowledge is already well in place before they learn their first word in the L2. These assumptions are generated from the sophisticated network that s/he has acquired through knowledge of concepts and his or her L1. This L1 lexical/conceptual structure is useful for building L2 lexical networks, but it will also sometimes provide learners with misinformation about allowable combinations of L2 words. Much of this misinformation will originate from combinations of words that are used to express underlying concepts in the L1. This is very similar to the so-called 'false friends' phenomenon described in the lexical acquisition research literature." (p. 742)

Aside from the benefits of using semantic maps in vocabulary learning, we should not ignore its potential shortcomings and disadvantages. One of the major flaws with semantic mapping is that it might limit learners' own imagination or mental ability to group related words. Everyone has his or her own unique mind with unique procedures and systems of processing data. There might be numerous ways to group a single set of words or to draw many different semantic maps for those words. Presenting only one fixed map to the learners might emasculate their creativity, or the map might consist of some grouping procedures that are inconsistent with how the learners would group the words. The importance of this issue is realized especially when we note that one of the major principles of ELT is learner autonomy and that learners should take the responsibility for their own learning. Moir (2002) also states that still in several aspects of learning, students are required to do what is "imposed by the curriculum" (p. 15). Fortunately, however, there are some ways to overcome this potential pitfall in our case, i.e., working with semantic maps. We could ask each learner to draw a map for a set of words, and at the end, choose the best map by collecting the learners' votes. Or as another way out, we could, after the presentation of our own prepared map, ask learners to offer new words to be added or to change the shape of the map by relating the words in different ways, which they think would work better. Even if we do none of these two suggested techniques and use only a fixed preset map, we can still deem it valid and valuable because it could be argued that since not all learners are capable of making their own maps or have not yet reached the required level of independency, asking them to create their own maps would be an additional burden on their shoulders. For such specific learners, a previously prepared map is the best choice. If we do not provide them with such a map, they will not benefit from the advantages of semantic mapping, as discussed earlier, due to their incompetence to create one themselves. All in all, semantic mapping seems to be a flexible technique, and teachers may use it the way they think it could serve their own contexts. Foil and Alber (2002), for instance, offer four other practical techniques for using semantic mapping in the classroom.

There is also some controversy among scholars regarding semantic mapping, or more generally, regarding the efficiency of presenting semantically related words. While some researchers advocate this method, there are some others who are against it, arguing that the presentation of semantically related words can cause interference among words. These opponents also claim that due to "cross-association and possible overloading in the short term memory," vocabulary retention might be even hindered (Erten and Tekin, 2008, p. 408).

The results of the present study could be significant particularly for private teachers, running a single learner (or very small) classes because the number of words presented to a private learner in such classes is very often considerably higher than to those who attend regular public classes. This is simply because of the fact that private teachers have more time to devote to a single learner than public teachers do for a group of learners.

Methodology

The participant

The researchers focused on a 45-year-old male learner, learning English as a foreign language at the pre-intermediate level. He held an MA in law, and his main purpose of learning English at this age is to get prepared for the TOEFL exam (which serves as a prerequisite for doctorate degree applicants of Iranian universities). He had never taken part in any serious public English classes before, and his experience of studying English was limited to the regular English courses he had passed during school and college. The main textbook the learner studied was *True to Life*. The participant was exposed to English only during the class time (three two-hour sessions per week).

Materials

Two semantic maps consisting of 21 words were used in this study. The first and smaller one was about weather, subcategorized based on atmospheric conditions caused by *water* (monsoon, shower, and drizzle), *ice* (blizzard, hail, and sleet), or *air* alone (heatspell, breeze, and mist). Most of the words included in this map were not taught before to the learner in the textbook; however, the learner had just covered a part in his textbook about weather conditions the session when the related map was

utilized, so no warm-up or background knowledge activation seemed necessary then. The second and bigger one was related to cooking and actions done *before* (pluck, peel, defrost, slice, dice, and grate), *during*, and *after* (preserve, freeze, and reheat) cooking. The *during* part of the map went further in its categorization by having cooking with fire (roast), water (steam), and oil (fry). Again a number of the words in this map were totally new to the learner, but he had been taught about the topic of cooking three sessions prior to the treatment. The teacher (one of the researchers) moved to the second semantic map after asking a few questions to make the learner remember the general concept of cooking he had worked with before in the class. The two semantic maps are attached as the appendix at the end of the paper.

Procedures

The whole study consisted of the final 30 minutes of two separate sessions for presenting the new words and the beginning 25 minutes of two other sessions for testing. In the first session of the study, the learner was presented with 21 new words without directing his attention to the possible relationships among them. These words were taken from two general topics of weather conditions and cooking procedures. At the beginning of the very next session, a test on the previously presented words was run. The next session was dedicated to the presentation of other 21 new words through two semantic maps (detailed information on which is provided in the “materials” section above), and the next session included a test on those words. It is worth mentioning that the interval between the presentation session and exam session in both phases were the same, and also the same procedures were used to define or illustrate the meaning of the new words. These procedures namely included 1) explaining the meaning of the unknown word in English (usually in the form of a dictionary definition), 2) bringing various examples and illustrating the word in different sentences, 3) using gestures, facial expressions, drawings, and sometimes realia, if possible, and 4) providing the L1 equivalent as the last resort in cases the learner seemed still unclear about the meaning.

As for the assessment part, in the next session, the learner was asked to write as many words as he remembered with their meanings on a piece of paper. The time allocated for the test was 25 minutes (a little more than 1 minute for each word to be remembered and defined). Spelling errors were not generally evaluated, except in the cases where they would make it difficult to infer what word was meant by him or where a totally different word was made up due to the spelling error. The definitions were scored in a similar, not strict manner; the learner would get the full mark for his definitions as far as he could show an understanding of the word. He was allowed to use formal dictionary definitions, examples, L1 equivalents, and even drawings. At the end of the second test, the learner was asked to express his opinion toward the maps he had worked with.

Results and Discussion

After scoring the tests, the following results were obtained. The learner’s score on the test related to the session without semantic mapping was 27 out of 42 and his score on the other test (of the session with semantic mapping) was 35 out of 42.

	Test 1 (without semantic mapping)	Test 2 (with semantic mapping)
No. of the Remembered Words and Definitions	27	35
No. of the Missed Words or Definitions	15	7
Score (in Percentage)	64	83

Aside from the quantitative results provided above, there is a qualitative type of evidence collected by the author for the effectiveness of semantic mapping in this study. The learner, after being asked about the effectiveness of this technique, showed a tendency toward semantic mapping. “I had the picture of the maps in my mind when I wanted to remember the words. It helped me remember better,” he said. He also pointed to the attractiveness of the maps and expressed positive ideas about its being fun to do in comparison with the other technique.

The results of this study indicate that the use of semantic mapping improved the learner's ability to remember the words and their definitions better. This is in line with many other similar studies reported in the literature, such as Morin and Goebel (2001), which confirms the effectiveness of semantic mapping as a strategy that helps beginner and intermediate learners recall words better.

On the other hand, the results of the current study are inconsistent with some other studies, such as Erten and Tekin (2008), in which learners scored higher on a test of a set of semantically unrelated words in comparison to a test of a set of semantically related words. Such an inconsistency might lie basically in the very nature of the words taught and tested in the two studies. Simultaneous learning of some words might not interfere with the learning of some other words of the same semantic set, or simply put, they might not cause, in Erten and Tekin's words, "interference" or "cross-association," while other words might strongly do. The other reason, as suspected by the authors, accounting for the mentioned inconsistency might be the length of the set of semantically related words presented at a time to the learners. Examining semantic relations might work better when the number of the words and the relations formed among them are very limited and small. When the number of the words in a single semantic set (or map) increases, and therefore, the number of the relations among them goes up, the likelihood of interference increases dramatically. This hypothesis seems plausible at least when comparing the number of the words taken from a single semantic set in this study (9 words in one and 12 words in another map) versus that of Erten and Tekin (20 words in each of the two sets).

Apart from the two potential reasons (nature of the words and the length of the word sets) suggested above to solve the apparent inconsistency found between the results of the two studies, it should not be forgotten that although both studies focus on the effectiveness of teaching semantically related words, the procedures utilized in each to present a set of such words are different from each other. In fact, the current study benefits from the specific technique of semantic mapping, which is absent in the other study. This alone might be the very point that could account for the observed inconsistency. In addition to presenting a set of semantically related words, a semantic map clarifies the relations as well, and this is lacking in Erten and Tekin's study or another study done by Papathanasiou (2009), the results of which indicates that, at least for beginner learners, presenting unrelated sets of words is more effective than teaching related words together.

Conclusion

This study was, nevertheless, a single-subject study, and its generalizability is in question, and thus, its results should be used with caution. Furthermore, other similar, though not identical, studies are reported in the literature which have yielded quite contradictory results. This necessitates doing further research on at least three other relevant topics, as discussed earlier in the section of Results and Discussion. When presenting semantically related sets of words, do 1. the nature of the words, 2. the length of each set of words, and 3. the specific technique used (e.g. semantic mapping) make a significant difference?

The controversy over the superiority of presenting semantically related words over semantically unrelated words still seems to remain unresolved. The present study opens up a new dimension of this controversy by introducing semantic mapping as an effective technique to present semantically related sets of words to the learners. The study revealed that semantic mapping can serve as a supportive technique in this case and help teachers use sets of related words with higher confidence. By doing more similar studies or replication of the same study, more externally valid and generalizable results will hopefully be gained.

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