THE ROLE OF MEMORIZATION AND SEMANTIC MAPPING IN THE DEVELOPMENT OF L2 VOCABULARY KNOWLEDGE

İkinci Dil Kelime Bilgisi Gelişiminde Ezberleme Yöntemi ile Anlamsal Haritalandırma Yönteminin Rolü

Kübra ÖRSDEMİR

Abstract

This article tends to investigate the effect of two different cognitive strategies, which are semantic mapping and rote memorization, in vocabulary acquisition. The study was conducted on thirty-six elementary level EFL students which were divided into two groups. A pre-test was conducted in order to identify the level of knowledge of the required vocabulary prior to the research study and it was seen that there was no significant difference between the two groups. While one group was exposed to rote memorization in vocabulary acquisition, the other was exposed to semantic mapping for the same purpose. As for the post-test which was administered after the 3-week treatment, the results showed that even though there was a significant difference from time 1 to time 2 for both groups, there was no significant difference in the effectiveness between both experimental groups. Therefore, it was concluded that, depending on the context of learning, rote memorization can also be effective as 'more involvement required strategies' such as semantic mapping and it is also a time-saving and alternative in L2 vocabulary acquisition despite all the criticism.

Keywords: Cognitive Strategies, Semantic Mapping, Rote Memorization, Involvement

Abstract

Bu makale, iki farklı bilişsel strateji olan anlamsal haritalandırma ile ezberleme yönteminin kelime öğrenimindeki etkisini araştırmaya amaçlanmıştır. Çalışma, 36 adet ‘yabancı dil olarak İngilizce’ öğrenen öğrencileri içeren iki grup üzerinden yürütülmüştür. Çalışma öncesinde öğrencilerin gerekli kelime bilgilerini belirlemek amacıyla bir ön test yapılmıştır. Sonuçlar, iki grup arasında anlamla bir farklı olmadığı belirlenmiştir. Gruplardan bir tanesi kelime ediniminde ezberleyici yönteme maruz kalan diğer grup anlamsal haritalandırma yöntemi edinmiştir. Üç haftalık çalışmalardan sonra yürütülmüş olan art.salaryına paralel çalışanların başlangıc ve bitişi arasında her iki grup kuyaslandığında, kelime öğreniminde anlamla bir fark olduğu gösterilmesine karşın, her iki grup arasında anlamla bir fark olmadığını belirlenmiştir. Bu sebepten dolayı, şartları da dikkate alarak, ezberleyici yöntemi, anlamsal haritalandırma yöntemi gibi daha dahiliyet gerektiren stratejiler kadar etkili olabileceği sonucuna ulaşmıştır.

Anahtar Kelimeler: Bilişsel Stratejiler, Anlamsal Haritalandırma, Ezberleme, Dahiliyet

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The construction and the development of vocabulary knowledge is a primary goal for language learners throughout the language learning process. As a result, learners, language teachers, and researchers are well aware of the importance of its development. In order to enhance and maintain our lexicon, various strategies and approaches have been proposed by researchers. The aim of this research is to compare the effectiveness of two different cognitive strategies in vocabulary acquisition, which are semantic mapping and rote memorization.

1.1. Theoretical Framework

Hulstijn and Laufer (2001) have proposed Involvement Load Hypothesis in vocabulary acquisition which claims that the retention of unfamiliar words is generally conditional upon the degree of involvement in processing these words (the greater the involvement load, the better the retention) and that it is a motivational–cognitive construct of involvement, consisting of three basic components; need, search, and evaluation (p.543). While the ‘need’ component is seen to be affective rather than cognitive (for instance, looking up a word from the dictionary to state the desired utterance), search (attempting to find the meaning of an unknown L2 word) and evaluation (comparing of a specific word with other words, or evaluating whether a word does or does not fit into a specific context by comparing it with other words) are cognitive dimensions. As a result, it can be stated that in this intentional FonFs study, while the first of the two adopted strategies, which is rote memorization, requires less involvement, the other strategy, which is semantic mapping, entails a higher load of involvement.

1.2. Implicit and Explicit Vocabulary Acquisition

The two approaches in the acquisition of vocabulary are known to be explicit and implicit vocabulary acquisition. While explicit vocabulary acquisition involves conscious awareness and intention in learning new vocabulary, implicit vocabulary acquisition, on the other hand, is learning without conscious attention or awareness (Brown, 2000). Although both types of vocabulary processing approaches are universally accepted, there is also a common belief that implicit or indirect vocabulary expansion is a major method (Paribakht and Wesche, 1999) since it is regarded to be the processing strategy for deeply embedded knowledge which allows automatic processing (Ellis, 2005). In order for implicit processing to take place, a context is needed to grasp the new knowledge unintentionally. But a context cannot always be formed for vocabulary acquisition in order to speed up the process, or basically, in some situations, it can be better for the learner to learn the basic words, which may be needed for a specific purpose, intentionally. Nation (2002) states that language-focused vocabulary instruction, in which learners direct their attention to a specific language item in order to gain knowledge about the language item rather than producing or comprehending a particular message (p. 11), is essential, hence it needs to be planned, monitored and controlled. Similarly, Laufer and Girsai (2008) state that meaning-oriented tasks and comprehensible input are insufficient in language acquisition, especially in relation to higher levels of grammatical competence and vocabulary. They regard form-focused instruction to be essential and state the distinction between focus on form (FonF) and focus on forms (FonFs). While the former emphasizes on drawing the learners attention to a linguistic form during a communicative activity, the latter adopts a more traditional approach in which the discrete points of the language is taught separately.
1.3. Cognitive Strategies in Vocabulary Acquisition

Before discussing cognitive strategies, a brief understanding of our memory will be given since it is vital in vocabulary acquisition. The most critical memory system is known to be the ‘the working memory’, as Baddeley (1992) states it is the central processor with limited capacity which temporary stores and manipulates information and transfers it to the long-term memory. Hence, learning depends on maintaining information in the short-term memory. The longer the maintenance, the greater the degree of transfer to the long-term memory (Baddeley, 1992, p.74). Baddeley also suggests that working-memory has access to various control processes or strategies which can facilitate learning. Rote memorization or meaningful learning can be strategies which can facilitate the learning process in the working memory.

Learning strategies focus on the processing, the storage and the retrieval of input. Cognitive strategies (which is a category of learning strategies) mainly focus on a specific task and involves direct manipulation of the learning material (Brown, 2000). Rote memorization and semantic mapping are two cognitive strategies which have been adopted in this study. In his Subsumption Theory, Ausubel (1963) states that learning occurs when newly learned information is meaningfully processed with existing cognitive concepts. This statement can also be linked with semantic mapping since it is building upon students’ background knowledge or schema with new information by meaningfully relating it to one another (Khoii and Sharififar, 2013). On the other hand, rote memorization which involves repetition and memorization is repeating something from memory rather than learning it in order to understand it (Li, 2004). As Khoii and Sharififar (2013) state, it is a term for fixing information in our memory through sheer repetition (p.202). As a criticism of his Subsumption Theory, Ausubel (1963) states that rote learning is the process of learning new input through isolated and discrete points without constituting any meaningful relationships.

In previous similar research, Khoii and Sharififar (2013) state that in their own context which is memorization oriented, it had been found that concept maps were not proven to be better than memorization in terms of vocabulary acquisition. While contrasting three strategies (rote-memorization, semantic mapping and keyword method) Sagarra and Alba (2006) found that while keyword method was the most effective strategy, semantic mapping was found to be less effective than rote-memorization. On the other hand, Elgort, Candy, Boutorwick, Eyckman and Brysbaert (2016) have found in their study that lexical quality was observed to be much better with the participants that used other accompanying strategies such as word-writing rather than the participants who just derived word meanings from a dictionary. They further state that the former group of participants was observed to be more successful in vocabulary acquisition in terms of form-meaning mapping. Newton (1995) also states in his study that vocabulary acquisition through meaningful negotiation with the need of learning a specific vocabulary and through searching the meaning, which are two aspects of involvement load hypothesis, resulted to be more effective rather than applying tasks which recommended no meaning negotiation.

Taking into account the findings of previous research and together with the context of the present research, the predictions for the study are given in Table 1.
The Role of Memorization and Semantic Mapping in The Development of L2 Vocabulary Knowledge

Table 1. Predictions for the Study

<table>
<thead>
<tr>
<th>Theoretical Approaches</th>
<th>Predictions for the Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language-Focused Vocabulary Instruction (Nation, 2002) and Focus on Forms-FonFs (Laufer and Girsi, 2001)</td>
<td>It is predicted in the study that both language-focused vocabulary instruction strategies (semantic mapping and rote memorization) in which both of them focus on forms, will result significantly effective.</td>
</tr>
<tr>
<td>2. Hulstijn and Laufer (2001): Involvement Hypothesis Load Hypothesis</td>
<td>Even though Involvement Hypothesis suggests that ‘semantic mapping strategy’ entails more involvement hence it is more effective than rote memorization; considering the context of the study and the participants learning background, it is predicted that ‘rote memorization’ will also result significantly from time-1 to time-2.</td>
</tr>
</tbody>
</table>

1.5. Research Questions

Since vocabulary acquisition is a milestone in language teaching, investigating the applicability and the effectiveness of two contrasting strategies was the major motive for this research. As a result, this paper aims to investigate the following research questions;

1. Does different cognitive strategies (semantic mapping and rote memorization) create a significant mean differences in EFL learners vocabulary knowledge?
2. Is there a significant mean difference between the two experimental groups’ post-tests?

2. METHOD

2.1. Research Design

A quantitative methodology was adopted in this research through implementing an experimental research design to focus on the effectiveness of two different vocabulary learning strategies which are semantic mapping and rote memorization. Cohen et al. (2013) state that experimental studies aim to search for meaningful relationships and aim to discover their consequences for action. Within correlation of experimental study’s aims, measures and interventions are taken to see the final results of the study (Creswell, 2013). Hence, two different experimental groups are formed to see the effectiveness of these two different cognitive strategies. While one experimental group was exposed to rote memorization in teaching vocabulary, the other experimental group was exposed to semantic mapping.

2.2. Participants

Thirty-six elementary level students of Osmaniye Korkut Ata University, whose age is between 17-21, participated in this study. The participants took English courses at the English Preparatory Program. The preparatory program is based on voluntariness in which the students, who are newly accepted to the university, fill out a form at the beginning of the year in which they state whether or not they would like to take English courses before moving on to their courses at their own departments. There were four classes in total in day-time education. The two classes with eighteen students each were chosen accordingly with the homogenizing proficiency test results conducted before starting the research. While rote memorization in vocabulary acquisition was applied to one experimental class, semantic mapping was employed in the other. It should also be stated that the research was conducted during the ‘Reading and Writing’ courses of the two experimental classes, which is 6 hours a week. The classes are held twice a week (3 hours for each class).
2.3. Materials and Procedure

This study was conducted through a three-week time-span. Three instruments were used. The first instrument was the homogenizing proficiency test. This test comprised of grammar (45 points), vocabulary and reading (30 points), writing (10 points) and listening (15 points) sections. According to the test results, the two experimental groups were chosen with the most similar mean scores. The second instrument was a multiple-choice vocabulary pre-test comprised of forty questions in order to identify the students’ vocabulary knowledge prior to the treatments. The questions contained the words aimed to be taught throughout the treatment. During the vocabulary teaching process, the reading texts were chosen from ‘Reader at Work I’ which is a publication of Middle East Technical University Department of Basic English. Six different texts were used throughout the research and in total 60 words were aimed to be taught to both groups of participants. For each text, approximately eight to ten words were chosen. Since the researcher was also a lecturer of the two experimental groups, she had a grasp of their level, hence, she chose the words-to-be-taught accordingly. The researcher spared the final lesson hour for the vocabulary teaching process through reading texts and comprehension exercises towards the end of each session held a day.

In the first experimental group the term ‘semantic-mapping was explained before conducting the process of teaching. Later the students were divided into groups of three or four and they were asked to read the text silently. They were free to look up any unknown words from a dictionary. After finishing reading the text a central theme was written on the board and the students brainstormed in groups to find related words in order to make it more meaningful. The related comprehension activities were given as homework for the students to do at home. They were not required to memorize the unknown words. As for the second experimental group, the students were given a text at the final hour of each session. They were asked to read the text and do the comprehension activities. The answers were revisited with the researcher after the students completed the activities. At the end of the lesson the students were given a word list to memorize at home. The words were revisited in each group at the beginning of each week through question-answer tasks such as asking for opinions about a specific subject or asking for a description etc.

As for the final instrument, at the end of the treatment a multiple-choice post-test of vocabulary was conducted. The test contained 30 questions each of which was based on the words taught throughout the treatment. It should also be stated that the students were aware that a test was going to be conducted based on the words they were taught but they were not informed about the exact date.

3. RESULTS

Before presenting the results of the statistical tests, the fact of how well the data met the requisite of the assumptions is discussed briefly. According to the Kolomogorov-Smirnov test, apart from the post-test of the semantic mapping exposure group (p<.01), the data was observed to be normally distributed for the pre-tests for both experimental groups and also the post-test of the rote-memorization exposure group (p>.05).

Table 2. The results of the Proficiency Test

<table>
<thead>
<tr>
<th>Classes</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Experimental Group</td>
<td>62.8</td>
<td>10.3</td>
</tr>
<tr>
<td>2nd Experimental Group</td>
<td>60.2</td>
<td>13.2</td>
</tr>
<tr>
<td>Class X</td>
<td>67.5</td>
<td>14.9</td>
</tr>
<tr>
<td>Class Y</td>
<td>51.7</td>
<td>12.9</td>
</tr>
</tbody>
</table>
Initially, a proficiency test was conducted to all four classes before the treatment. According to the result the two classes with the most similar mean scores were chosen for the study. While the first experimental group to which semantic mapping strategy was employed, had a mean score of '62.8' (SD=10.3), the second experimental group had a mean score of '60' (SD=13.2). The results can be seen in Table 2.

<table>
<thead>
<tr>
<th>Cognitive Strategy Type</th>
<th>Mean</th>
<th>SD</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rote</td>
<td>4.06</td>
<td>1.9</td>
<td>.44</td>
</tr>
<tr>
<td>Semantic Mapping</td>
<td>5.33</td>
<td>2.95</td>
<td>.69</td>
</tr>
<tr>
<td>Post-test</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rote</td>
<td>15.28</td>
<td>4.9</td>
<td>1.15</td>
</tr>
<tr>
<td>Semantic Mapping</td>
<td>16.5</td>
<td>4.75</td>
<td>1.12</td>
</tr>
</tbody>
</table>

According to the pre-test results while the first experimental group with semantic-mapping exposure had a mean score of '5.33' (SD=2.95), the rote-memorization exposure group had a mean score of '4.04' (SD=1.9). On the other hand, the post-test results indicate that while semantic-mapping exposure group had a mean score of '16.5' (SD=4.75), the rote-memorization exposure group had a mean score of '15.28' (SD=4.9).

4. DISCUSSION AND CONCLUSION

Even though much of the literature in vocabulary acquisition criticize the assumption that vocabulary can be learnt out of context, the results of the present study for the second research question show that there was no significant difference between the results of the semantic mapping group and the results of the rote memorization group. As
a result, the findings can support the claim of Laufer and Girsai (2008) whom state that meaning-oriented tasks and comprehensible input is insufficient in language acquisition, especially in relation to higher levels of grammatical competence and vocabulary. Hence, the result of this study may cause question marks for other findings in different research which support strategies similar to concept maps in which involvement is much higher (Brown & Perry, 1991 and Sagarra & Alba, 2006 and Elgort & Candry & Boutorwick & Eyckman & Bysbaert, 2016 etc.). The Involvement Load Hypothesis suggested by Laufer and Girsai (2008) which state the fact that the retention of unfamiliar words is generally conditional upon the degree of involvement in processing these words (the greater the involvement load, the better the retention) has also shown to have no significant difference with the second experimental group which had less involvement in vocabulary acquisition. In other words, even though the first experimental group, which semantic mapping strategy was adopted, had a higher level of involvement depending on the three level of components of the hypothesis (need, search and evaluation), it was found that they had no significant difference with the second experimental group which was exposed to rote memorization. The results of the study may also be a criticism to Ausubel’s (1963) Supsumption Theory in which he states that rote learning is the process of learning new input through isolated and discrete points without constituting any meaningful relationships and also that learning occurs when newly learnt information is meaningfully processed with existing cognitive concepts in which semantic mapping can be an option.

The results of course depend on the context of where the study was conducted. There may be a couple of reasons for why the results showed no significant difference between the two experimental groups. The first may be that, similar to Khoii and Sharififar’ (2013) research context, the participants in the present research already came from an educational system which generally supports memorization in all learning contexts. As a result, the students were already accustomed to rote memorization and also had a significant idea about how to use this strategy. Another reason may be the students’ level of motivation during the treatment. Even though they all signed informed consent forms before starting the study, the students might have had less motivation to contribute in the semantic mapping exposure group even though the researcher tried to encourage them. This may be due to the reason that implementing semantic mapping strategy into the course was seen as an extra learning activity and since it was adopted towards the end of each session the students might have lost their attention. The students’ level of awareness to learn the language and to study the language outside the classroom environment has also been observed to be less adequate since the researcher is also a lecturer at the university, so she had a grasp of the students’ awareness and attitudes towards language learning.

The results can be of interest to teachers especially in similar learning contexts in which out of class language use is rather limited and also in which rote memorization is already a commonly accepted strategy. Both the Supsumtion Theory (Ausubel, 1963) and the Involvement Load Hypothesis (Hulstijn and Laufer, 2001) suggested that strategies such as “semantic mapping” can result to be more effective in terms of L2 vocabulary acquisition. However, the present study suggests that both types of cognitive strategies have caused a significant difference between pre-tests and post-test, so both types of strategies can be an option. But of course it has to be stated that semantic mapping entails more effort on behalf of both teachers and students; so creating sufficient time and motivation is essential while conducting this strategy. On the other hand, rote memorization in terms of vocabulary acquisition can also be a beneficial alternative since there was no significant difference between the two groups’ post-test scores.
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REFERENCE


