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Semantic and Structural Elaboration in L2 Vocabulary Learning and Retention

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Abstract

The present study was an attempt to examine the effect of semantic and structural elaboration on L2 vocabulary learning and retention. The participants were 44 second and third grade female students. They were grouped randomly in two elaboration groups: semantic and structural. Forty five new English words were instructed in three sessions and the participants in each group did a task which was grouping words based on either meaning (semantic) or number of letters (structure). They took an immediate post-test and delayed one in a two-week interval. The results showed that there was no significant difference between the effect of semantic and structural elaboration on EFL learners’ vocabulary learning and retention.

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Keywords: semantic elaboration; structural elaboration; vocabulary learning; vocabulary retention

1. Introduction

Vocabulary learning has long been a neglected aspect of language learning. Recently, however, interest in this area has grown at an enormous rate. The reason for the emphasis on vocabulary according to Allen (1983) is that in many ESL classes, even where teachers have devoted much time to vocabulary teaching, the results have been disappointing. Sometimes after months or even years of English, there may be many words that have never been learned. To highlight the importance of vocabulary knowledge for second language (L2) learners, Schmitt (as cited in Folse, 2006) notes that L2 students need approximately 2,000 words to maintain conversations, 3,000 word

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families to read authentic texts, and as many as 10,000 words to comprehend challenging academic texts.

There are two important ways of vocabulary learning: learning vocabulary from context or incidental learning and direct intentional learning. According to Nation (2001), extensive reading is useful for vocabulary growth and is called incidental learning. On the other hand, vocabulary can be learnt intentionally through some strategies. Among de-contextualized vocabulary memorization strategies, memory strategies involving deep semantic processing of target word have shown to be more effective than memorization techniques involving shallow processing such as oral rote repetition (O'Malley & Chamot, 1990; Oxford, 1990 as cited in Nemati, 2009). Memory strategies consist of two main groups: mnemonic and non-mnemonic elaboration techniques.

According to Nielsen (n. d.), non-mnemonic elaboration techniques, such as semantic mapping and ordering, encourage learners to process target words in terms of their semantic properties. Boers and Lindstromberg (2008a) define semantic elaboration as any mental operation with regard to the meaning of a word or phrase. Semantic elaboration can be prompted by mentally connecting a new item with ones already known, embedding the item in a meaningful scenario, and/or associating the item with a mental image. For example, a situation in which a learner reflects on the extent to which a word (e.g., snail) represents an instance of a given category (e.g., animal, or food). They also define structural elaboration as any mental operation with regard to formal properties of a word or phrase. For example, structural elaboration can be prompted by recognition or noticing features as affixes, peculiarities of spelling, and salient sound patterns (e.g. repetition as in rhyme).

Although students use different strategies in learning a new word, they often cannot remember the word's meaning after some time. One of the possible reasons, according to Pui-shan (1998), is that one might have done enough for immediate comprehension but not enough for retention over time. Retention is “keeping vocabulary in long-term memory and retrieving it for meaningful use in appropriate contexts” (Daloglu, Baturay, & Yildirim, 2009, p. 203).

Research into some deeper strategies, such as forming associations (Cohen & Aphek, 1981) and using the Keyword Method (Hulstijn, 1997) has shown to enhance retention better than rote memorization. In general, shallower activities may be more suitable for beginners, because they contain less material that may only distract a novice, while intermediate or advanced learners can benefit from the context usually included in deeper activities (Cohen & Aphek, 1981). Mnemonic techniques involve the use of both visual and verbal mental imagery to relate a word to be memorized with some previously learned knowledge. Nielsen (n. d.) refers to the Keyword Method as one mnemonic technique that has shown to be superior to any other deliberate vocabulary learning strategy.

2. Statement of the Problem and Purpose of the Study

Language learners are typically conscious of the extent to which limitations in their vocabulary knowledge prevent their ability to communicate effectively in the target language, since lexical items carry the basic information load of the meanings they wish to comprehend and express (Craik & Tulving, 1975; Gass & Selinker, 2008; Rodriguez & Sadoski, 2000). This gives vocabulary learning a salience for learners that may be lacking in the acquisition of other aspects of the language learning. However, language teachers are often unsure about how best to incorporate vocabulary learning into their teaching.

Traditionally, learners had to memorize large lists of vocabulary without using any special technique to retain. According to Allen (1983), sometimes after months or even years of English, there may be many words that have never been learned although teachers have devoted much time to vocabulary teaching.

There have been many studies on the effectiveness of semantic elaboration in L2 vocabulary acquisition. Some researchers have found no effect for semantic elaboration in lexical acquisition (Pressley et al., 1982). Others have found negative effects (Barcroft, 2002) and some others have concluded positive effects (Barzgar, 2009; Coomber, Ramstad, & Sheets, 1986; Kondo, 2007).
Numerous studies have demonstrated that semantic elaboration as a part of mnemonic devices can facilitate memory for new words (Beaton, Gruenberg, & Ellis, 1995; Sagarra & Alba, 2006; Sobhi Givi, 1996). Few studies, however, have examined the effectiveness of structural elaboration in lexical learning (e.g. Boers & Lindstromberg, 2008b). So the effect of structural elaboration in L2 vocabulary learning is not known for sure. Also a study on the comparison of semantic and structural elaboration in L2 vocabulary learning and retention can be informative for both teachers and learners.

Based on the abovementioned issues, the purpose of the present study was to investigate whether there is any statistically significant difference between semantic and structural elaboration in second language vocabulary learning and retention.

Regarding the purpose of the study, the objectives of the present research were stated in two questions:
RQ1: Is there a significant difference between the effect of semantic elaboration and structural elaboration on EFL learners’ vocabulary learning?
RQ2: Is there a significant difference between the effect of semantic elaboration and structural elaboration on EFL learners’ vocabulary retention?

3. Method

3.1. Participants

The participants in this study were 44 second and third grade female students from a junior high school in Kadkan, a town in Khorasan Razavi, Iran. The age range of the participants was 13 to 14. During the previous years of school, they all had been in the same learning situation at the same school with the same teacher so they all were in almost the same language proficiency level. On the other hand, they all lived in a small town which had no language institute, and they had started learning English from the first year in the junior high school, so they were all low-intermediate students.

3.2. Instrumentation

The first instrument was a researcher made language background questionnaire in which the students were asked about their previous language knowledge. The next instrument was a piloted 25-item reading and writing KET test at the starter level for homogenizing the participants. The third instrument was a vocabulary pre-test in which the students were asked to match any of the 45 words (which were going to be instructed during the treatment section of the study) with their corresponding pictures to make sure whether they had prior knowledge of them or not. The last instrument was a set of vocabulary post-tests administered to test the amount of vocabulary learning and retention. Each post-test consisted of 15 matching vocabulary items. The post-tests were administered once immediately after the instruction and again after a two-week interval.

3.3. Procedure

The participants completed a questionnaire about their English background knowledge. A piloted KET was administered to 70 students, and the final number of 44 students was selected to participate in the study. These participants were randomly divided into two experimental groups of semantic and structural elaboration. Then the participants in each group took the pre-test.

3.3.1 Treatment for the structural elaboration group

In the first session, the participants were asked to look at 15 new English words and their corresponding pictures presented on the screen by a projector in front of the classroom. The new words were concrete ones chosen from the
participants’ higher course books. Some of these words were related to kitchen or other rooms in the house; some others were among different tools in the house and some were not related to any specific group. The number of three-letter, four-letter, five-letter, six and more-letter words in each group of 15 words was equal. The participants were given a sheet and they did the structural task in which they were asked to classify and write the words in their proper columns according to the letter number in four groups of: three-letter, four-letter, five-letter, and six/more-letter words (Barcroft, 2002). Then the participants took a post-test. They were asked to match 15 words they had already worked on with their corresponding pictures. After two weeks, they took the same test as a delayed post-test. The second and third sessions were held in the same way as the first one but with different 15 new words.

3.3.2 Treatment for semantic evaluation group

The plan for semantic group was exactly the same as the one for structural group just with a difference in the task which was semantic not structural. The participants were given a sheet and were asked to classify and write the words in their proper columns according to their meaning (Sökmen, 1997) in four groups of: words related to kitchen, words related to other rooms of the house except kitchen, words related to tools, and words related to none of these three groups. At the end of the task, the students took the immediate and delayed post-tests.

3.4 Design

The design of this study was true experimental since the researcher randomly chose and assigned the participants to experimental groups. Semantic elaboration and structural elaboration were the independent variables and vocabulary learning and retention were the dependent variables of the research study. The gender and age of the participants were the control variables since all participants were female and between the age range of 13 to 14. The language proficiency of the participants was another control variable of the research study.

4. Results

4.1. Testing the first null hypothesis

The participants in the two groups were instructed a total number of 45 vocabulary items during the three treatment sessions and were tested with three different immediate post-tests for each experimental group. The data showed that the skewness ratio for the two groups (.424/.491 for the semantic group and .021/.491 for the structural group) both fell within the range of -1.96 and 1.96 ensuring the researcher of the normality of the distributions of scores.

In order to investigate the first null hypothesis of the study, an independent samples t-test was conducted as the assumption of normality of the distributions of scores was satisfied. Table 1 details the results.

Table 1. Independent samples t-test results of the vocabulary immediate post-tests scores of both experimental groups

<table>
<thead>
<tr>
<th>Levene’s Test for Equality of Variances</th>
<th>Independent sample t-test for Equality of Means</th>
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</thead>
<tbody>
<tr>
<td>F</td>
<td>Sig.</td>
</tr>
<tr>
<td>Equal Variance Assumed</td>
<td>3.29</td>
</tr>
</tbody>
</table>
As displayed in table 1, according to Levene’s test for equality of variances with the F value of 3.29 and the p value of .103 being larger than .05, the variances between the two groups were not significantly different and thus, the assumption of equality of variances was assumed. Therefore, the results of the t-test with the assumption of homogeneity of the variances are reported here. The results (t = -1.468, df = 42, p = .150 > .05) indicated that there was not any significant difference between the two experimental groups’ mean scores on the vocabulary immediate post-test. Therefore, the first null hypothesis of the study which stated that: “there is no significant difference between the effect of semantic elaboration and structural elaboration on EFL learners’ vocabulary learning” could not be rejected.

4.2. Testing the second null hypothesis

The results of the total scores of the two groups on the delayed post-tests showed that the skewness ratio for the two groups (.434/.491 for the semantic group and .137/.491 for the structural group) both fell within the range of -1.96 and 1.96 ensuring the researcher of the normality of the distributions of scores.

In order to investigate the second null hypothesis of the study, an independent samples t-test was conducted as the assumption of normality of the distributions of scores was satisfied. Table 2 details the results.

| Equal Variance | -1.468 | 32.143 | .152 | -2.95455 | 2.01238 | -7.0529 | 1.14383 |
| Equal Variance | -1.468 | 32.143 | .152 | -2.95455 | 2.01238 | -7.0529 | 1.14383 |

As displayed in table 2, according to Levene’s test for equality of variances with the F value of 4.206 and the p value of .147 being larger than .05, the variances between the two groups were not significantly different and thus, the assumption of equality of variances was assumed. Therefore, the results of the t-test with the assumption of homogeneity of the variances are reported here. The results (t = 1.271, df = 42, p = .211 > .05) indicated that there was not any significant difference between the two experimental groups’ mean scores on the vocabulary delayed post-test. Therefore, the second null hypothesis of the study which stated that “there is no significant difference between the effect of semantic elaboration and structural elaboration on EFL learners’ vocabulary retention” could not be rejected.

5. Conclusions

The data showed that there was no significant difference between scores of post-tests (both immediate and delayed) in semantic and structural groups, so the two null hypotheses of the study could not be rejected. Although many studies have focused on the effectiveness of semantic elaboration in vocabulary learning (Coomber, Ramstad, & Sheets, 1986; Barzgar, 2009; Beaton, Gruenberg, & Ellis, 1995; Kondo, 2007; Sagarra & Alba, 2006; Sobhi Givi, ...
few have compared semantic and structural elaboration (Barcroft, 2002; Kamelifar, 2002).

The finding of this study is consistent with previous research. Barcroft (2002) came to the conclusion that learners using no elaboration (neither semantic nor structural) had a higher recall than those using semantic or structural. Barcroft also concluded that increased semantic processing can inhibit one’s ability to encode the formal properties of new words. This result is consistent with the finding of present study that in almost all post-tests structural group got higher scores than semantic one although the difference was not statistically significant. The learners in this study were low-intermediate, so the findings can be compared with Barcroft (2004) which concluded that sentence writing can inhibit word form learning during the initial stages of L2 lexical acquisition. Kamelifar (2002) found that teaching etymology has no significant effect on the vocabulary recall by Iranian high school students. This is consistent with the findings of the present study showing that structural elaboration does not have a significant effect in vocabulary learning and retention.

The limitations of the present study can be addressed in further studies. The participants were low-intermediate female students of guidance school. This study can be repeated with other participants in different age range and at different levels of proficiency.

Many researchers have studied the effectiveness of semantic elaboration on vocabulary learning and they have reached conflicting conclusions. Barzgar (2009) found that semantic elaboration strategy has a positive effect on the retention of vocabulary among EFL Iranian university students. In the effectiveness of semantic elaboration, Kondo (2007) argued that semantic elaboration has positive effects on L2 vocabulary learning and that it can have a long-term effect on retention of L2 vocabulary. On the other hand, Barcroft (2004) stated that sentence writing (which is a semantic technique) can inhibit word form learning during the initial stages of L2 lexical acquisition. Therefore, further research in the effectiveness of semantic elaboration, in different levels of language proficiency, is necessary for more accurate conclusions.

The effect of other structural elaboration techniques (Barcroft, 2002) and semantic elaboration techniques (Sökmen, 1997) on new L2 vocabulary learning and retention can be investigated in future studies. Moreover, further studies may come to different conclusions in different time intervals. The effect of semantic and structural elaboration on the amounts of participants’ retention of new words can be investigated in time intervals more than two weeks.

References


