The Effect of Vocabulary Exercise Types on L2 Vocabulary Retention

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Cho, Heeyoung. 2002. The effect of vocabulary exercise types on L2 vocabulary retention. SNJ Working Papers in English Linguistics and Language 1, 204-223. This article investigates which type of text-based vocabulary enhancement exercise is most effective for Korean college students' meaning retention of new L2 words. Sixty-four participants divided into three groups according to the three different types of vocabulary exercises with varied levels of mental processing—recognition, interpretation, production—were tested on their retention of 10 target words. The results of the study show that the deeper the vocabulary exercise's mental processing level was, the more effective the exercise was on retention. There was a significant difference between the retention performances of the production type group and the recognition type group, each of which represents the deepest and the shallowest level of mental processing, respectively. The production type was also found to be most helpful for the retention of the words whose parts of speech were other than nouns.

Keywords: vocabulary acquisition, exercises, retention, level of processing

1. INTRODUCTION
1.1. Background and Motivation

Over the past few decades, a considerable number of studies have been conducted on second language (L2) vocabulary acquisition. However, most of the research regarding vocabulary acquisition has focused on the effects of incidental vocabulary learning from reading (Krashen, 1989; Nagy, 1997; Nation, 1990) or specific types of instructional methods such as semantic or keyword mnemonic approaches (Brown & Perry, 1991; Levin, Pressley, & McCormick, 1979; Pressley, Levin, & Delaney, 1982). Only a limited amount of research has looked at an actual classroom vocabulary-le
arning environment for L2 learners (Ellis, Tanaka, & Yamazaki, 1994; Paribakht & Wesche, 1997; Zimmerman, 1997). Although most EFL and ESL learners often acquire new words through their classroom activities or teachers’ instruction, very few attempts have been made at such observation.

A number of recent studies since the 1990s have raised arguments against incidental vocabulary learning (Gass, 1999; Huckin & Coady, 1999; Scherfer, 1993) and the keyword mnemonic technique (Ellis & Beaton, 1993; Wang & Thomas, 1995). This trend led L2 researchers to pay more attention to other vocabulary strategies and instructional techniques (Nation & Newton, 1997; Schmitt, 1997; Sönnen, 1997). Nonetheless, actual classroom vocabulary-learning environment for L2 learners has yet to be fully examined.

In this sense, the present study was motivated to explore one of some questions that remain unanswered in the vocabulary acquisition area. This study investigates the effectiveness of text-based vocabulary exercises among various vocabulary enhancement activities actually carried out in L2 classrooms. Today’s most English textbooks or vocabulary teaching books published both in the ESL and the EFL context contain various vocabulary exercises for helping learners reinforce the retention of the learned words in the books. Given that almost all L2 learners, especially EFL learners, heavily depend on vocabulary teaching books for learning new words, the usefulness of such exercises deserves careful attention.

Nevertheless, little research has been conducted on the effectiveness of the vocabulary enhancement exercises. To my knowledge, only Paribakht and Wesche have been interested in verifying the effectiveness of text-based vocabulary enhancement exercises for vocabulary retention (Paribakht & Wesche, 1996, 1997; Wesche & Paribakht, 2000). They classified vocabulary exercises into several groups and found that doing vocabulary exercises after reading was more effective for vocabulary retention than reading multiple texts including target words. However, they did not try to examine the difference of effect across the several types of exercises. Although a few other studies indicated the effectiveness of vocabulary exercises for vocabulary acquisition or retention (Laufer & Shmuell, 1997; Lewis, 1997), there have been no studies to examine which type of vocabulary enhancement exercises is most
effective for learners' retention of new words. If it is found from the present study which type of vocabulary exercises is most effective for learning new words, the result will contribute to L2 researchers, textbook publishers, teachers, and learners together who are interested in improving vocabulary knowledge. The specific research questions will be presented in the next section.

1.2. Research Questions

The purpose of the present study is to investigate the following two research questions:

1) Which type of vocabulary exercises is most effective for the overall retention of the meaning of new target words?
2) What is the specific effect of each vocabulary exercise type on the retention of the meaning of individual target words?

The hypothesis for the first research question was that the deeper the vocabulary exercise's mental processing level was, the more effective the exercise would be on retention.

It was hypothesized for the second research question that the overall effect would be true of most of the target words, not of only a few extreme cases, and that there would be some differences across the three types of exercises in the retention pattern of individual target words.

2. THEORETICAL BACKGROUND

2.1. Incidental Vocabulary Acquisition

Many teachers nowadays believe that words should be presented in some kind of context and not in isolation. Thus, the common practice is to make students encounter them in a text. The rationales for using such a method are the following. First, it is only natural for people to encounter new words in context. Second, the context illustrates some common usages of the word. Third, context contributes to elaborate processing of a word and provides a cognitive foothold, which in turn reinforces memorization. Fourth,
the number of words to be learned is too large to be covered by instruction specifically aimed at teaching the meaning of individual words. On the basis of these advantages, *incidental* vocabulary learning from extensive reading without the specific intention to learn vocabulary has been believed to be the most desirable way to acquire new vocabulary items (Nagy & Herman, 1987; Stenberg, 1987).

Since the 1990s, however, many L2 researchers have noted the other side of incidental vocabulary learning. Apart from a number of strengths, incidental vocabulary acquisition has turned out to have certain limitations.

To begin with, many unknown words are simply ignored by readers. This is mainly due to the fact that most readers pay more attention to and try to infer the meaning of the words that they regard as important to understand the passage (Hulstijn, 1993a).

Another disadvantage of incidental vocabulary learning is that readers often guess incorrect meaning of the unknown words they encounter while reading. This problem may be related both to learners' insufficient L2 proficiency or attention to unfamiliar words and to the inadequacy of contextual cues embedded in the text.

The third drawback of the method is that guessing from context does not necessarily result in acquisition. Contrary to the belief by proponents of incidental learning, readers often do not undertake further mental processing of a new word once the immediate communicative need has been met by guessing at the meaning of the word (Hulstijn, 1993b qtd. in Ko, 1995; Wesche & Faribakhht, 2000). Another reason behind the low rate of vocabulary retention obtained in many studies on incidental learning is that learners are unlikely to learn the meaning of new words from one or several exposures provided by reading a text. The minimum number of repetitions for new words to be learned through reading is generally claimed to be around twelve (Sarag, Nation, & Melster, 1978).

The last, but not the least flaw of incidental acquisition, is that acquiring vocabulary mainly through guessing is likely to be very slow particularly in the EFL context. This is associated with the basic problem facing most foreign language learners that they do not have many opportunities for exposure to the target language, especially the types of spoken language experiences that native speakers enjoy.
In order to acquire vocabulary one needs to be exposed to target words repeatedly in various discourse contexts. In the EFL context such condition for vocabulary acquisition is hardly met unless intentional instructions intervene.

Such apparently serious shortcomings of incidental vocabulary learning have led many researchers to be convinced that systematic vocabulary instruction coupled with learning through reading is a more successful approach than simply learning through context alone (Coady, 1997; Sö men, 1997).

2.2. Text-Based Vocabulary Enhancement Exercises

With increasing agreement on certain limitations inherent to incidental vocabulary learning, a number of studies have been conducted on the effectiveness of a few additional devices or tasks combined with reading for supporting successful incidental vocabulary acquisition. Such facilitators of incidental learning include marginal glosses, text manipulation, translation or summary task, and text-based vocabulary enhancement exercises.

Compared to the other three ways of enhancing incidental vocabulary learning mentioned above, there are relatively few studies dealing with the effectiveness of text-based vocabulary enhancement exercises. As mentioned earlier, serial studies by Paribakht and Wesche are the only ones concerning the effectiveness of text-based vocabulary exercises. However, the potential of vocabulary exercises in enhancing vocabulary acquisition was considered worthy of being examined further, given that the mixed results of the previous studies employing the three facilitators. The detailed explanation on such studies will not be presented here.

Paribakht and Wesche (1996) collected a compendium of exercise types through an extensive examination of ESL L2 vocabulary teaching textbooks for adults. Then they grouped these exercises into five distinct categories, representing a hypothesized hierarchy of mental processing activity (see Table 1 in the next section).

Paribakht and Wesche (1997) found that the group completing three text-based vocabulary exercises for each target word after reading performed better on the retention test than the group reading two more texts including the target words.
Wesche and Paribakht (2000) examined the nature of the advantages of using text-based vocabulary exercises together with a reading text over reading multiple texts for vocabulary acquisition from introspective data. They claimed that text-based vocabulary exercises can provide cumulative and varied exposures to target words that lead to more predictable and effective retention within a limited instructional period. Their claim is supported by the viewpoint of proponents for task-based instruction that “well-designed tasks can facilitate learner attention and cause incidental noticing of aspects of L2 syntax, vocabulary, and phonology that learners may overlook if exposed in untutored settings” (Robinson, 1995, p. 793).

In addition to Paribakht and Wesche’s studies, the finding of Laufer and Shmueli (1997) also indicates effectiveness of vocabulary enhancement exercises. They asked all of their treatment groups to compete a cloze exercise using the 20 target words as a consolidation task at the end of the practice period. The participants’ retention scores were much higher than those in other similar studies. The researchers explained that this result might well be due to the consolidation exercise and indicated the need to conduct a follow-up study to investigate the exact contribution of such exercise to memorizing new words.

2.3. Depth of Processing Hypothesis

The benchmark employed in the present study to differentiate each vocabulary exercise is the level of mental processing. Depth of mental processing has been considered by many cognitive scientists one of the factors underlying high levels of retention.

*Depth of processing,* or *mental effort hypothesis* was originally proposed by Craik and Lockhart (1972). They suggested that retention is dependent on the level at which information is processed. That is, as one moves from the shallow sensory level of processing to the deeper semantic level, memory traces become more permanent.

Another explanation for this *depth* effect in learning is that decisions that require more *mental effort* underlie high levels of memorability (Jacoby, Craik, & Begg, 1979; Tyler, Hertel, &
McCallum, 1979). This construct has been preferred by several studies attempting to apply this hypothesis to learning vocabulary, and many findings fit into the hypothesis (Hulstijn, 1992; Mondria and Wit-de Boer, 1991; Nation, 1982). Those studies maintained that greater difficulty of tasks requires greater attention to task-related words, thereby leading to greater retention of the words.

Even though depth of processing is a very vague notion, hard to measure exactly, two important studies tried to present independent standards by which different processing tasks can be ordered along with the depth continuum.

One is Stahl (1985), which suggested a scale representing three broad levels of processing required by vocabulary instructional tasks. According to his classification, association is the shallowest processing level, while generation is the deepest and comprehension comes in between. From the method comparison studies he reviewed, he also found that tasks requiring deeper level of processing led to larger effects on vocabulary learning.

The other is Paribakht and Wesche (1996). As mentioned in the previous section, they presented a typology of vocabulary exercises through a classification of the major types of vocabulary instructional exercises found in a survey of ESL textbooks for adults (see Table 1). Table 1 summarizes that vocabulary exercises can be grouped into five categories, representing a hypothesized hierarchy of mental processing activity: selective attention, recognition, manipulation, interpretation, and production. Among the five categories, recognition, interpretation, and production can be considered equivalents of association, comprehension, and generation respectively in Stahl (1985)s' classification. In this study three types of vocabulary exercises were developed such that these three levels of mental processing could be elicited (see Appendix).

What this paper concerns is whether it will actually affect the retention rate of newly learned words to use tasks with varied levels of mental processing while learning the words. Although Paribakht and Wesche (1996, 1997) discussed the classification of vocabulary exercises and the superiority of vocabulary exercises over reading multiple texts, the question regarding the order of effectiveness of vocabulary exercises for acquiring new words according to the level of processing is still unknown. This study aims to investigate this
issue.

**TABLE 1**

**Typology of Vocabulary Exercises** *(from Wesche & Paribkht, 2000)*

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Selective Attention</strong></td>
<td>Draws learners attention to target words; ensures that they notice it.</td>
</tr>
<tr>
<td>Examples</td>
<td><em>underlining, bold-fac ing, circling, italicizing</em></td>
</tr>
<tr>
<td><strong>Recognition</strong></td>
<td>Requires association of the written target words with at least one of its meanings.</td>
</tr>
<tr>
<td>Examples</td>
<td><em>matching word with definition or synonym, recognizing meaning of target words from multiple-choice responses</em></td>
</tr>
<tr>
<td><strong>Manipulation</strong></td>
<td>Requires structural analysis of target words to rearrange/organize given elements.</td>
</tr>
<tr>
<td>Examples</td>
<td><em>changing grammatical category of target words; constructing words using stems and affixes</em></td>
</tr>
<tr>
<td><strong>Interpretation</strong></td>
<td>Involves semantic and syntactic analysis, including the relationship of target words with other words in given contexts (e.g., collocations, synonyms, antonyms).</td>
</tr>
<tr>
<td>Examples</td>
<td><em>guessing the meaning of target words in context, multiple-choice close exercises</em></td>
</tr>
<tr>
<td><strong>Production</strong></td>
<td>Requires retrieval and production of target words in appropriate novel contexts.</td>
</tr>
<tr>
<td>Examples</td>
<td><em>open close exercises, answering a question requiring the target word</em></td>
</tr>
</tbody>
</table>

3. **METHOD**

3.1. **Participants**

The participants were 64 undergraduate students in five 'Advanced English' courses in the spring semester of 2002 in a university in Seoul. Nineteen were female and 45 were male, and
they ranged in age from 18 to 28. They ranged from freshmen to seniors, majoring in engineering (31), agriculture (10), business administration (8), law (5), science (3), social science (3), education (3), and medical science (1).

These participants were considered to have high level of English proficiency since the course required students as a precondition for enrollment to have the score above 700 on the TELF$^1$ (564 on the TOEFL, if converted). The reason for selecting the students in this course as participants for the present study was that the selected text was considered too difficult to understand for less proficient learners.

The five classes of participants were divided into three test groups randomly and given one of three text-based vocabulary exercises types.

### 3.2. Procedure

All the three sessions for this study were held during the regular class time and in the regular classrooms with the cooperation of the instructors in charge of the classes in early May 2002.

A week before the reading session, the three groups were given a 20-minute unannounced pretest at the presence of the researcher. For the pretest, the participants were required to report their knowledge on 20 vocabulary items selected from the text, Acid Rain, used in Paribakht and Wesche (1997, 1999) and Wesche and Paribakht (2000), by writing down a definition considered to be appropriate for the given item in Korean or English. According to the test result, 10 target words were selected that more than 90% of the respondents identified as unknown: 1. aloft, 2. bleak, 3. furnace, 4. haze, 5. outdistance, 6. potent, 7. runoff, 8. smelter, 9. vault(v.), and 10. wallop in alphabetical order.

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$^1$ TELF (Test of English Proficiency) is a standardized English proficiency test developed by Seoul National University. The test is now being considered as one of the three major standardized English proficiency tests in Korea: TOEFL, TOEIC, and TELF. Since 2000 the university involved in this study requires all the incoming students to take TELF in order to enhance their English proficiency.
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In the reading session, the participants read the selected text for 15 minutes. Instead of being allowed to consult dictionaries, they were given a glossary both in English and in Korean for 26 words from the text. The participants were not told in advance that they would later be tested on their knowledge of the meanings of words in the text; instead, they were told that they would have to answer comprehension questions after reading. Then each group was asked to answer 6 reading comprehension questions and complete one type of text-based vocabulary enhancement exercises without the aid of the glossary for 20 minutes. Then vocabulary exercises were corrected briefly by the researcher. For the detailed understanding of the three types of vocabulary exercises, see Appendix.

Two days after the reading session, a 15-minute unannounced posttest was carried out at the presence of the researcher. The format was the same that was used for the pretest, except for the number of items. Only the 10 target words were used in the posttest.

4. RESULT AND DISCUSSION

4.1. The Effect of Vocabulary Exercises on Overall Retention

To answer the first research question, the participants' score gains between the pretest and the posttest were calculated by subtracting the pretest score from the posttest score.

In the data scoring process, a correct answer for each vocabulary item received a score of 10. Thus, a maximum score per participant was 100 (10 vocabulary items * 10). No response or an obviously wrong answer was given a score of 0. A score of 5 was assigned if the response reflected some knowledge on the meaning of the word. A score of 8 was given if the response only failed to indicate the correct part of speech of the given word.

The result for each groups' mean score and standard deviation on the pretest, posttest, and score gain between the two tests appear in Table 2.

In the pretest, Vocabulary Exercise Type B group outperformed the other two groups. However, the result of one-way ANOVA on the pretest indicated that there was no significant difference across the three groups at the .05 level (F(2,61)= .282, p= .755).
In the posttest, Vocabulary Exercise Type C group had the highest mean score. This group also produced the greatest gain between the two tests. Vocabulary Exercise Type B group was superior to Vocabulary Exercise Type A group both in the posttest and in the score gain.

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>Pretest M</th>
<th>Pretest SD</th>
<th>Posttest M</th>
<th>Posttest SD</th>
<th>Gain M</th>
<th>Gain SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exercise A</td>
<td>21</td>
<td>2.29</td>
<td>5.98</td>
<td>50.81</td>
<td>21.31</td>
<td>48.52A</td>
<td>21.33</td>
</tr>
<tr>
<td>Exercise B</td>
<td>22</td>
<td>3.55</td>
<td>6.93</td>
<td>60.36</td>
<td>19.08</td>
<td>56.81A/B</td>
<td>18.27</td>
</tr>
<tr>
<td>Exercise C</td>
<td>21</td>
<td>2.38</td>
<td>5.39</td>
<td>66.95</td>
<td>20.93</td>
<td>64.57B</td>
<td>19.72</td>
</tr>
<tr>
<td>Total</td>
<td>64</td>
<td>2.75</td>
<td>6.07</td>
<td>59.39</td>
<td>21.18</td>
<td>56.64</td>
<td>20.54</td>
</tr>
</tbody>
</table>

Note: The means marked by different letters in Gain column show a significant difference across vocabulary exercise types.

The last row in Table 2 indicates the mean of the three groups’ mean scores in the pretest, posttest, and gain calculation. The result indicates that the participants of the present study learned 56.64% of the target words overall.

In order to determine whether the mean score gains of the three groups were significantly different from one another, one-way ANOVA was performed. The different letters preceded by the means in Gain column in Table 2 also represent significant difference across vocabulary exercise types. The result of one-way ANOVA is presented in Table 3.

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between</td>
<td>2</td>
<td>2705.081</td>
<td>1352.540</td>
<td>3.454</td>
<td>.038*</td>
</tr>
<tr>
<td>Within</td>
<td>61</td>
<td>23887.654</td>
<td>391.601</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>63</td>
<td>26592.734</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* p<.05
As indicated in Table 3, the result of the analysis showed that the three groups differed significantly in their mean score gains at the .05 level. Thus, it was proven that there was a significant difference across the three vocabulary exercise types in enhancing vocabulary retention. In order to check exactly where the significant difference lay, the Post-hoc Tukey test was performed. According to the Tukey test, the significant difference occurred between Vocabulary Exercise Type A group and Vocabulary Exercise Type C group (p< .05). The difference between the mean score gains of Vocabulary Exercise Type A and Vocabulary Exercise Type B group (p< .361) and that of Vocabulary Exercise Type B and Vocabulary Exercise Type C group (p< .409) were not statistically significant.

From Table 2, 3, and the Tukey test, we can see that the three text-based vocabulary enhancement exercises had different effects on Korean EFL learners' retention of the meaning of new words. As expected, the most efficient type of exercises turned out to be Vocabulary Exercise Type C, which requires the greatest mental effort. Vocabulary Exercise Type B proved to be superior to Vocabulary Exercise Type A, which requires the least mental effort, in enhancing vocabulary learning. In conclusion, the hypothesis for the first research question was borne out. However, no significant difference was found between Vocabulary Exercise Type A and Vocabulary Exercise Type B group and between Vocabulary Exercise Type C and Vocabulary Exercise Type B group.

4.2. The Effect of Each Vocabulary Exercise Type on the Retention of Individual Target Words

To answer the second research question, the mean retention performance on each word by each group was compared. To average the retention rate in each group, the sum of each groups' score gain for each word was divided by the number of the participants in each group. The result is presented in Table 4.

As the result of one-way ANOVA on the three groups' mean score gain for each word, significant differences across three groups were found in two items (item no. 1 & 2). The different letters preceded by the means in the two columns represent significant difference across groups. The Tukey test showed that the significant
difference lay between Vocabulary Exercise Type A group and Vocabulary Exercise Type C group and between Vocabulary Exercise Type B group and Vocabulary Exercise Type C group for item no. 1. For item no. 2, the significant difference occurred between Vocabulary Exercise Type A group and Vocabulary Exercise Type B group and between Vocabulary Exercise Type A group and Vocabulary Exercise Type C group.

### TABLE 4

<table>
<thead>
<tr>
<th>Group</th>
<th>1*</th>
<th>2*</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>5.86A</td>
<td>2.38A</td>
<td>3.10</td>
<td>7.86</td>
<td>5.14</td>
<td>4.62</td>
<td>6.38</td>
<td>5.71</td>
<td>3.10</td>
<td>3.90</td>
</tr>
<tr>
<td>B</td>
<td>6.36A</td>
<td>5.90B</td>
<td>5.23</td>
<td>6.73</td>
<td>4.77</td>
<td>5.45</td>
<td>6.86</td>
<td>5.23</td>
<td>4.00</td>
<td>6.27</td>
</tr>
<tr>
<td>C</td>
<td>9.43B</td>
<td>7.05B</td>
<td>5.00</td>
<td>6.19</td>
<td>6.82</td>
<td>6.43</td>
<td>6.71</td>
<td>6.43</td>
<td>5.62</td>
<td>5.05</td>
</tr>
<tr>
<td>Total</td>
<td>7.22</td>
<td>5.26</td>
<td>4.44</td>
<td>6.93</td>
<td>5.58</td>
<td>5.50</td>
<td>6.65</td>
<td>5.79</td>
<td>4.24</td>
<td>5.07</td>
</tr>
</tbody>
</table>

**Note:** *p<.05
See the Procedure section or below for the numbering of the word items. The means marked by different letters show a significant difference across exercise types.

The outcome regarding the order of effect is also presented in Figure 1 to show the difference across groups graphically.

### FIGURE 1

Comparison of Retention Performance on Each Word by Group
Figure 1 shows that Vocabulary Exercise Type C group outscored the other groups for six items (no. 1_aloft, 2_bleak, 5_outdistance, 6_potent, 8_smelter, & 9_vault), including the two cases where the significant differences occurred. Besides, whether necessarily or incidentally, the result includes all the cases where the part of speech of target words is other than noun. It is assumed that such effect might have correlated with the degree of independence of the given words.

In other words, nouns are the most independent part of speech in terms of both semantic and grammatical function. Nouns have the most explicit extensional relation between concept and referent compared to words of the other part of speeches. Besides, they often have a completed concept, that is to say, fully saturated meaning per se, without the need to have complements. The five nouns among the target words used in his study are also the examples of such nouns. In the case of such nouns, the task of matching the label with the appropriate concept seems sufficient for acquisition to occur.

On the other hand, verbs such as outdistance (no. 5), and vault (no. 9), adjectives such as bleak (no. 2), and potent (no. 6), and adverbs such as aloft (no. 1) are relatively dependent in terms of both semantic and grammatical function. They are rarely used alone in a sentence; instead, they almost always have to be fully saturated in terms of both meaning and grammaticality. They should be learned with some relevant information on the characteristics of the words with which they occur in a sentence; e.g., collocational restrictions.

In this respect, the type of exercises requiring learners to notice the relationship of the target word with other words consisting of the given sentence might be especially more effective with words of more dependant part of speech. Such words seem to be relatively difficult to learn only through recognizing the formal feature and matching with the given definition. This may be supported by the result that Vocabulary Exercise Type A group produced conspicuous lower score gain in the case of bleak, potent, and vault. To prove these assumptions, more refined future studies need to be conducted which select more various words in terms of part of speeches and examine whether different effects of vocabulary exercises are found
with words of different part of speeches. For four items (no. 1, 2, 6, & 9), the depth of processing level produced the expected results, with a descending ordering of Vocabulary Exercise Type C, Vocabulary Exercise Type B, and Vocabulary Exercise Type A group. Thus, the hypothesis was borne out that the order of effect on overall retention would be true of most of the target words and that there would be some differences across the three types of exercises in the retention pattern of individual target words.

5. CONCLUSION

So far, the present study examined the effect of text-based vocabulary enhancement exercise types on the retention of newly learned L2 words’ meaning. It was found from this study that the type of exercises requiring deeper mental processing produces greater effect on vocabulary learning. Although no other significant differences were found except the one between the two exercises types requiring the deepest and the shallowest level of mental processing, each groups’ mean score gain between the pretest and postest indicated that deeper processing leads to better learning.

Thus, L2 learners may enjoy more benefit from vocabulary enhancement exercises, if they were given as many opportunities as possible to do the type of exercises demanding more mental effort. Furthermore, if the part of speech of the words to be learned is other than noun, learners may benefit from doing exercises such as sentence completion, which requires them to take notice of the relationship of the missing word with other parts in the given sentence.

Of course, it needs to be reminded that students’ motivation to learn vocabulary overrides the influence of many other factors involving vocabulary acquisition in a number of vocabulary studies (Hulstijn, 1992). In this sense, teachers always should keep in mind the importance of putting effort to inspire interest and motivation in their students while teaching vocabulary.

Besides, acknowledging certain limitations of the present study, the researcher would like to provide several suggestions for the further studies in this area.
The first one is associated with the type of Vocabulary Exercise Type B, which is categorized as interpretation in Paribakht and Wesche (1996)’s typology. Although this study succeeded in verifying that there is a significant difference between Vocabulary Exercise Type A and Vocabulary Exercise Type C in enhancing vocabulary retention, Vocabulary Exercise Type B was not found to be significantly different from the other exercises. For the result, it may be argued that exercise type for Vocabulary Exercise Type B might have been selected inappropriately. Hence, subsequent studies should take care in selecting the appropriate exercise type for interpretation, or processing of comprehension in Stahl (1985)’s classification.

The second suggestion for subsequent studies is to separate the language effect from the task effect. Since in the present study L1 definitions were presented in Vocabulary Exercise Type A and L2 definitions in Vocabulary Exercise Type B, the two effects might have been interacted. If further studies examine the separate effect of both languages through the same task, the result will be much more reliable.

The third one is related to the term between the treatment and the posttest. Although the majority of incidental vocabulary learning studies had given the delayed test a week later, the arrangement of the time schedule for the experiment with the instructors did not allow the term of a week in the present study. It would have been ideal if this study had given another delayed posttest a week or so later. Thus, further studies will be able to produce more meaningful results if they administer delayed posttests more than once.

Finally, it is necessary to carry out future studies with target words of systematically varied part of speeches to obtain more detailed information on different effects of various vocabulary exercises on the retention of different types of words.

REFERENCES


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**APPENDIX**

**Text based Vocabulary Enhancement Exercises**

**Vocabulary Exercise Type A**

*Match the words in the left column with the appropriate definitions in the right column. (Text 1) 하사 결과에 따라서 달성범위 재배치 단어들은 다음과 같은 학습자들의 논문의 결과와 연결시켜 주.*

1. haze  
2. potent  
3. wallop  
4. smelter  
5. vault  
6. aloft  
7. runoff  
8. bleak

- 공중 높이
- 케린소
- 도약하다
- 왜리 달리다
- 구리 공장
- ( ) 빌어간
- 구타, 떠내리
- 용량포
- 아지랑이
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9. outdistance  ( ) 
10. furnace  방 위를 흘리는 빗물

Vocabulary Exercise Type B

Read the following definitions and fill in blanks with one of appropriate bold-faced words in the Text.

1. smoke, dust in the air that is difficult to see through
2. having a powerful effect on your body or mind
3. a hard hit, especially with your hand
4. an establishment for melting ores in order to separate the metallic constituents

5. to move quickly from a lower level to a higher one
6. high up in the air
7. rain that falls off the land into rivers, oceans etc.
8. not hopeful or encouraging; depressing
9. to run faster than others especially in a race
10. an enclosed space for heating metal or glass to a very high temperature

Vocabulary Exercise Type C

Read the following sentences and fill in blanks with appropriate bold-faced words in the Text.

1. A thick _______ of smoke hung in the air prevented drivers from seeing ahead.
2. The drug is very _______, but causes unpleasant side effects.
3. With one brutal ________, Jimmy knocked down him.
4. Those rocks had to be sent a near _______ in order to separate metal they contain.
5. On Sunday Michigan ________(e)d from No. 4 to the nations top team.
6. Four of nine balloons were still _______ in the sky without going down.
7. The plain is well watered by the _______ from the Alps.
8. Many foreigners predicted a _______ future of Korea when it suffered from the foreign exchange crisis in 1998.
9. Tom easily ________(e)d the other competitors in a marathon race.
10. It’s like a _______ in here, very hot—can we open a window?