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A Study on Repeating New Words: Korean Students' Learning and Attitudes

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The purpose of this experimental study is to investigate the effects of repeating vocabulary exercises on learning and retaining the meaning, the form, and the use of L2 words. To achieve this purpose, the data from the 87 participants who performed the assigned vocabulary exercises were collected immediately and two weeks later on their learning and retention of the target words. In addition, their attitudes toward the given vocabulary exercises were examined. The results show that the participants repeating exercises showed significantly better results in the immediate posttest, whereas no significant differences were found in the delayed posttest. Consequently, although the repetition effect influence positively on the learning of the target words, these effects are not maintained if they are not reinforced subsequently after the initial introduction to them. Most of the participants in this study identified the importance of repetition in learning new words and also noted that only one encounter with words was not enough for them to acquire the words fully.

[L2 vocabulary learning/retention/repetition/retrieval/repeating words/ vocabulary exercise/attitude]

I. INTRODUCTION

Learning vocabulary is one of the most difficult tasks in learning a language because vocabulary can be forgotten easily and retained poorly. This forgetting, however, is a natural process of learning vocabulary. Until vocabulary is acquired and fixed in memory, lexical knowledge exists in an unstable state. When a word is not fully acquired, its knowledge will be present at different degrees, which is experienced and recognized when we understood a text or a conversation, but could not produce it.

Furthermore, according to Richards (1976), knowing a word means knowing how often

it occurs, the company it keeps, its appropriateness in different situations, its syntactic behavior, its underlying form and derivations, its word associations, and its semantic features. In addition, Nation (1990) presents multiple kinds of lexical knowledge that a person must master in order to know a word. When people learn foreign language, they need to learn how to use the words, sentences and how to use them in proper context (Kang, Lee, & Park, 2005). These various kinds of lexical knowledge cannot be learned simultaneously from only one encounter with words.

It is widely recognized that repetition is one of the most important elements in acquiring vocabulary. According to Nation (2001), "repetition is essential for vocabulary learning because there is so much to know about each word that one meeting with it is not sufficient to gain this information" (p. 74). Although a single exposure to words can lead to learning, it is certain that a single encounter with them cannot lead to any great depth of lexical knowledge. Lexical knowledge is learned in a gradual manner and at different rates (Schmitt, 2000). When students meet a word through a variety of tasks and in different contexts, they will develop more accurate and various lexical knowledge.

The importance of repeating words is supported at least by two reasons: multiple encounters with words in different contexts help learners develop quality of lexical knowledge and strengthen memory of words (Schmitt, 2000). Thus, the repetition of vocabulary will lead to better results in the quality and quantity of lexical knowledge although the same amount of time is assigned to learners. Therefore, in every lexical learning situation, students must be exposed to the target words repeatedly to be fully acquired.

To confirm the effectiveness of repeating vocabulary exercises, the present study compared the groups repeating the matching and the fill-in-the-blank exercises to those doing the same kinds of exercises only once while given the same amount of time among them. Although most studies of vocabulary acquisition seem to measure the meaning of words on the short-term memory, measuring only one aspect and focusing on the short-term memory of lexical knowledge might provide misleading results and thus could not evaluate full effects of repetition effects. Therefore, the present study also examined three different aspects of words (form, meaning and use) and another delayed posttest were conducted to uncover the repetition effects on retaining L2 words.

These findings will provide information from repeating vocabulary exercises on learning and retaining various aspects of L2 words. Thus, the results of this study could help teachers, researchers, and textbook publishers have some insight in designing vocabulary exercises varying the number of encounters according to the specific aspects of words they want to emphasize.

The purposes of the present study are to certify the effectiveness of repeating vocabulary exercises in learning and retaining three aspects of words (meaning, form, and

use). Thus, the following set of research questions was raised:

1. How does repeating exercises affect learning and retaining the meaning, the form, and the use of L2 words?
2. What are the participants' attitudes toward vocabulary exercises while doing vocabulary exercises?

II. LITERATURE REVIEW

Although it is possible for words to be learned by a single encounter, lexical acquisition typically requires practice and repetition (Baddeley, 1990). Thus, one question that arises is how many exposures to a word are necessary to acquire it. Based on research findings on vocabulary learning, Nation and Wang (1999) indicated that perhaps ten to twenty exposures are needed for learners to acquire a word. Kachroo (1962) found that most words were learned after six or seven repetitions by learners, and similar results can be also found in the study carried out by Crothers and Suppes (1967). However, Tinkham (1993) pointed out that repetition is only one of many factors affecting vocabulary acquisition, and accurate numbers are different depending on learners' ability, learners' motivation, and words' difficulty; thus there is no exact number of repetitions that can lead to the acquisition of vocabulary.

Although it is impossible to decide on an exact number of repetitions, it is certain that repetition is one of the important factors in vocabulary acquisition. According to Nation (1990), numerous studies indicate that a range of 5-16 encounters with a word are needed in order for a student to truly acquire it. Thus, without further reinforcement, it is impossible for words to be fully known and remain available in the long term though one meeting involves well prepared deliberate teaching.

According to Baddeley (1990), repetition as well as retrieval has positive effects on making form-meaning mapping of vocabulary acquisition. We must not confuse retrieval with repetition, which is simply encountering a word more than one time. Nation (2001) defines retrieval as "pulling up" the meaning of the word that learners need to know. Roediger and Guynn (1996) describe retrieval as "accessing stored information," which learners are actually required to do. When learners want to retrieve a piece of information, they must first retrieve it from where it is stored in memory.

On the memory for new words, Royer (1973), and McNamara and Healy (1995) conducted their studies, which show that the retrieval of new words led to better results in learning them. Nation (2001) supports that retrieval as a process may have positive effects on learning new words and thus he insisted that instructors should provide and allow chances to retrieve them in speaking and writing with words as well as in listening and

reading texts. Landauer and Bjork (1978) recorded two reasons why retrieval shows better results than simply seeing a word and its meaning at the same time: first, retrieval requires more effort than repetition; second, retrieval is more similar to the usual behavior than simple repetition.

In addition to the importance of retrieval, several researchers (Atkins & Baddeley, 1998; Baddeley, 1990) emphasized the spacing of retrieval. Memory research by Baddeley (1990) discovered that each item is better learned when learners practice it at intervals rather than massed into a single period. Massed retrieval includes spending a continuous period of time while spaced retrieval involves spreading the retrievals across a long period of time, though both types of retrieval spend the same time in total on studying each item. Bahrick (1984) and Bahrick and Phelps (1987) found that spaced patterns of retrieval had positive effects on learning the second language vocabulary, maintaining the superiority of spaced over massed practice.

Similar to the better results of spaced retrieval, some researchers also found that spaced repetition results in better learning than massed repetition (Bloom & Shuell, 1981; Dempster, 1987; Nation, 2001). Based on these findings, Baddeley (1990) insists that the combination of spaced repetition with retrievals is a strategy to be employed easily and applied widely. To explain the spacing effects, Baddeley (1990) hypothesized that spacing repetitions enables learners to have time for making physical changes in the brain required for long-term learning, but massed repetitions do not permit time for these changes in the brain. However, his explanation is still a matter for debate, and more investigation is needed.

It is necessary to investigate the nature of knowing a word before deciding how to test vocabulary. At beginners' level of learning a second language, it may be sufficient to test L2 words by matching them with L1 or L2 synonyms. Many traditional vocabulary tests are designed to find out whether learners can match each word with a synonym, a dictionary-type definition, or an equivalent word in their own language. However, as their L2 proficiency develops, learners need to know more about vocabulary than only its meaning when they are to use it in their own speech and writing. Vocabulary knowledge involves more than simple lexical meanings.

In the 1960s and 1970s, it was highlighted that the nature of vocabulary learning involved a great deal more than just memorizing word meanings, and a series of assumptions about lexical competence was outlined by Richards (1976) who was influenced by developing linguistic theory. Nation (1990) took a step further by incorporating Richards' general framework of lexical knowledge and suggested multiple components of it including spelling, pronunciation, grammatical form, relative frequency, collocations, lexical restrictions, and the distinction between receptive and productive lexical knowledge. According to Nation, the ability to use a word requires extended

knowledge beyond what learners need just to understand it: higher levels of lexical knowledge need ability to receive as well as produce vocabulary.

Another attempt was made to clarify the definition of knowing a word by Henriksen (1999). He recognized three distinct dimensions of vocabulary knowledge: (1) partial-precise knowledge, (2) depth of knowledge, (3) receptive-productive knowledge. Henriksen's analysis provides a better basis for conceptualizing quality of vocabulary knowledge and for sorting out what aspects of the construct are being measured in particular research studies.

Despite these endeavors to define knowing a word, conceptualizing or sorting out lexical knowledge remains complex. Meara (1996a) pointed out that it might be possible in theory to construct measures of lexical knowledge, but it would be very difficult to measure this in practice. Schmitt (1998a, 1998b) also supported the practical difficulties associated with developing suitable measures and with extracting evidence of learners' knowledge. Although Nation (1990) presented a more precise and detailed concept of knowing a word, he noted that it only applied to a small proportion of the total vocabulary knowledge of native speakers.

To describe vocabulary knowledge, a more developmental approach is presented. Some L1 vocabulary researchers have generated scales to express the varying degrees of lexical meaning as shown in Table 1.

TABLE 1

Four Basic Stages of Knowing a Word(Adapted from Nation, 2001)

Stage 1: I never saw it before.
Stage 2: I've heard of it, but I don't know what it means.
Stage 3: I recognize it in context - it has something to do with.
Stage 4: I know it.

Language learners also have varying levels of lexical knowledge like native speakers, and it seems unreasonable to assume that a word will be fully known by language learners after being encountered only once. That is, knowing a word is not an all-or-nothing proposition. Thus, it is more sensible to assume that learners would acquire a degree of partial knowledge of words.

Although there are a few studies on how to assess quality, part, or depth of vocabulary knowledge, Paribakht and Wesche (1993) performed a pioneering study in this area (Read, 2000). They devised an instrument called the VKS to assess the depth of lexical knowledge in their research on incidental vocabulary acquisition. The design of the scale is shown in Table 2.

TABLE 2

The VKS Scale (Paribakht & Wesche, 1997)

1. I don't remember having seen this word before.
2. I have seen this word before, but I don't know what it means.
3. I have seen this word before, and I think it means (provide an English synonym or an L1 translation)
4. I know this word. It means .(provide an English synonym or an L1 translation)
5. I can use this word in a sentence. Write your sentence here: (If you do this section, please also do Section 4.)

To measure some aspects of quality of vocabulary knowledge, the VKS was developed and attained its purpose in Paribakht and Wesche's research as well as several studies quite effectively. However, it also has several limitations by reducing the complicated character of lexical knowledge to a single scale.

First, the VKS cannot measure lexical forms and multiple lexical meanings. Another limitation is that asking learners to compose a sentence with a target word is not necessarily a good way to find out how well or deeply they understand a word because they often produce a semantically neutral sentence for the word without having semantic knowledge. For example, if a learner writes, "She said something profound," we can infer that the learner knows that "profound" is an adjective that can be applied in the sentence to what the woman says, but not much more than that. While the sentences composed by learners are grammatically correct or semantically appropriate, McNeill (1996) warns that they may not be foolproof evidence of word knowledge. Paribakht and Wesche (1993) recognized this problem after their initial trial of the VKS, and they added an instruction to Category 5: "If you do this section, please also do Section 4." This indication in Category 5 makes it possible to have some evidence of learners' understanding of lexical meanings.

Though there is still no agreement on the question of what it means to know a word, in this area, the VKS has turned out to be a workable and sensitive instrument to measure lexical knowledge from activities. Wesche and Paribakht (1996) found that the VKS was sensitive enough to capture instruction-related gains both in pilot research and in subsequent study as evidence of the validity of the VKS for vocabulary achievement tests. However, they have noted careful limits of the VKS by adding, "Its purpose is not to estimate general vocabulary knowledge, but rather to track the early development of specific words in an instructional or experimental situation" (p. 33).

III. METHODOLOGY

1. Participants

A total of 87 students in this study attended an English program called Practical English Communication which was an obligatory course for all freshmen entering University. Foreign instructors taught them for an average of one and a half hours in the class twice a week. Before the main class starts, all of the students in this program take a standardized English proficiency test, TOEIC, as an attempt to assign them to the advanced or intermediate-level class according to their proficiency. With the reported TOEIC scores, four classes having similar mean scores on average were chosen to participate in the experiment and they were confirmed as having no significant differences in English proficiency. The participants were assigned to one of the four groups: 1 matching, 1 fill-in-the-blank, 3 matching, or 3 fill-in-the-blank.

2. Materials

1) Mini-Dictionary

The mini-dictionary was one page with English pronunciation, L1 (Korean) definitions, and English synonyms of the target words, which were modified simply to make students understand easily and arranged alphabetically. Definitions and synonyms of vocabulary are one of the most useful cues to word meanings in a written text (Drum & Konopak, 1987).

2) Vocabulary Exercise

In the present study, there were two types of vocabulary exercises and four groups. Vocabulary Exercise Type 1 corresponds to "recognition" categorized by Paribakht and Wesche (1997), "association" according to Stahl (1985), or "noticing" suggested by Nation (2001). Vocabulary Exercise Type 1 appears in Condition 1, where the group was asked to match ten target words with a list of their definitions. Vocabulary Exercise Type 2, corresponding to "interpretation" categorized by Paribakht and Wesche (1997), "comprehension" according to Stahl (1985), or "retrieving" suggested by Nation (2001), appears in Condition 2, where the group assigned this type of exercises was given ten sentences for each target word and required to choose the number indicating an appropriate word in the box to fill in the blank of the sentence. In Condition 3, the group was asked to repeat the matching vocabulary exercise three times. Condition 4 asked the

group to repeat the fill-in-the-blank vocabulary exercise three times.

To ascertain the repetition effects in time-controlled situations, Conditions 3 and 4 required the participants to do three sheets instead of just one with the same types of exercise, Types 1 and 2 respectively. The number "three" was chosen from the result of a pilot test since equivalent students did approximately the matching or fill-in-the-blank exercises three times for ten minutes. However, this is still not a perfect control for time on tasks because some learners will finish more quickly or slowly than others. The participants were instructed orally on how to do each of the vocabulary exercises assigned to them and the directions were also given in written Korean. No dictionaries or teachers' help were allowed and no feedback was offered.

3. Instruments

1) Pretest

A pretest on the sixty-eight words was administered to the participants in order to choose ten target words that were completely unknown to the participants. They were asked to write the lexical meanings in the pretest if they thought they knew them in their L1 (Korean) or English. From the results of the pretest, ten target words were chosen for the present study.

2) Posttest

The participants were assigned word-form test and VKS to measure the meaning, the form, and the use of the target words because measuring multiple aspects of lexical knowledge could assess the relative efficacy of vocabulary exercises more accurately. When word-form test and VKS were presented, the word-form test (productive test) was assigned earlier than the VKS since Webb (2005) argued that "all productive tests need to be completed before receptive tests to avoid a learning effect" (p. 39).

To measure the delayed effects of different conditions, the delayed posttests were administered two weeks after the immediate posttests. The order of target words between the immediate and delayed posttests was different to minimize a potential test effect. There was no feedback, dictionaries, or teacher help.

Posttest 1: Word Form (Word Form Test)

To measure the form of the target words, a translation test was used. The participants were required to write the spellings of the target words paired with their Korean meanings.

Posttest 2: Word Meaning and Word Use (Vocabulary Knowledge Scale)

The participants were asked to report their knowledge of the target words by the modified VKS, an instrument developed by Paribakht and Wesche (1993). In the original version of VKS, students could make scores from one to five points, representing the five levels of lexical knowledge.

In the current study, the original version of VKS was changed into three levels of lexical knowledge. Category 2 in the original version of VKS was eliminated in the modified VKS. If students said that they had seen the word before, they could receive two points without regarding to whether they truly knew it. Similarly, the second modification involved the elimination of category 3 in which students received three points for saying that they had seen the word and thought they knew its meaning. The self-reporting scales both in Category 2 and Category 3 have some problems because they could only measure students' self-reported perception of information, not actual performance. According to Laufer (1997), L2 learners frequently overestimate their lexical knowledge; Category 2 (seeing the word before) and Category 3 (thinking that they know a word) may not measure actual vocabulary knowledge but a degree of individual certainty. Thus, the VKS was modified from a five-scale to a three-scale category by eliminating Categories 2 and 3, and the modified VKS in the current study is presented in Table 3. Categories 1 and 2 in the modified VKS provides the meaning scores of target words and Categories 1, 2, and 3 indicate the use scores of them in the present study.

TABLE 3
The Modified Version of VKS

Categories	Scores
1. I don't know what this word means.	0
2. I know this word. It means .	1
(provide an English synonym or an L1 translation)	
3. I can use this word in a sentence. Write your sentence here:.	2
(If you do section 2, be sure to do section 3 also.)	3

4. Target Words

Since the primary research questions of this study examine the main effects of vocabulary exercises on the target words, it is an important principle that all of the participants have no knowledge of them. In addition, the number of target words is chosen depending on the nature of the specific research questions addressed. The issue of the present study is how various vocabulary exercises affect the learning and retention of a

specific set of pre-determined L2 vocabulary and this "treatment" type of study generally has a smaller number of target words.

Thus, ten target words were chosen in this study according to the following criteria: (1) the participants would not have any knowledge of the target words; (2) words having L1 equivalents were chosen; (3) phrasal verbs or idioms were not included; (4) the meanings of words which could be inferred on the basis of words, stems, and affixes were eliminated; (5) synonymous word pairs whose meanings could be inferred from each other were not selected.

5. Procedure

The present study consisted of a pretest, a learning session, immediate posttests, and delayed posttests, which were carried out for a month. The participants were assigned to any of the four conditions and required to pass through the following procedures.

One week before the experiment, all of the participants were asked to complete the pretest in a regular English class for twenty minutes. From the results of the pretest, ten words were selected for the target words, of which they did not demonstrate any knowledge. In the learning session, native English-speaking instructors provided English pronunciation and synonyms of the target words on the first page in the mini-dictionary for five minutes, and then they were asked to complete each type of the vocabulary exercises on the following pages for ten minutes.

While the participants were performing the vocabulary exercises, some of the confused target words could be seen and confirmed through the mini-dictionary if the students chose, but it was forbidden to separate the mini-dictionary on the first page from the vocabulary exercises on the next page. The vocabulary exercises had to be performed without looking at the words simultaneously to make the participants retrieve the target words since this retrieval process would strengthen the effects of the vocabulary exercises more than the simple repetition of words. Instructions on how to complete each of the vocabulary exercises were written at the top of the first page in their L1 (Korean). The participants were told that they would be tested after the learning session but they did not know the nature of the tests.

After the learning session, all of the participants performed a word-form test, VKS, and questionnaires in the order named. As soon as each of the posttests was completed, the test papers were collected separately. The participants were not told that delayed posttests would be administered later on to avoid encouraging relearning, which might lead to treatment confusion. Two weeks later, they took unexpected delayed posttests.

6. Data Scoring

To investigate the relative efficacy of the vocabulary exercises more accurately, the present study separately picked up and analyzed the scores of word meanings from the VKS, requiring the meaning of words and the ability to make sentences with words appropriately and accurately. For data scoring of lexical forms and meanings, one point was given for completely produced words and one half point for partially produced words; hence the possible range for each participant's score was from 0.0 to 10.0. The same scoring scale was applied both in the immediate and delayed data scoring.

The present study employed the VKS, which is sensitive to the quality of lexical knowledge gain from a short exposure to the target words because learners often learn new words in bits and pieces. In the immediate and delayed modified VKS, the scores of the answered words ranged from 0 to 3 points, and the maximum score for the modified VKS was 30 points.

7. Data Analysis

For data analysis, the Statistical Packages for the Social Sciences (SPSS) Windows Version was used. Before starting the experiment, a one-way ANOVA was performed on participants' TOEIC scores to identify any preexisting difference in overall EFL proficiency among the four groups.

In order to answer the research question, a one-way ANOVA was conducted for the immediate meaning scores of target words but ANCOVA was carried out for the delayed meaning scores to control the influence of immediate results. The independent variable was each group and the dependent variable was the scores of each test.

IV. RESULTS AND DISCUSSION

1. Analysis of Scores for Repetition Groups

The following Table 4 shows the means, standard deviations, and numbers of the participants for the immediate meaning, form, and VKS scores. As the mean scores between Conditions 1 and 3 appeared to be different in the meaning, form, and VKS scores respectively, an independent-samples *t* test was conducted in order to test for a statistically significant difference between them.

TABLE 4
Means and Standard Deviations on Immediate Scores for Conditions 1 and 3

Condition	Test	*n*	*M*	*SD*
1 (1 matching)	Meaning	25	5.34	2.732
	Form		3.64	1.585
	VKS		13.92	3.161
3 (3 matching)	Meaning	21	8.50	1.878
	Form		7.10	2.194
	VKS		23.88	5.541

Table 5 indicates that the two groups differ significantly with an alpha .01 level in the meaning ([$t(44) = 4.55$, $p = .00$]), the form ([$t(44) = 4.93$, $p = .00$]), and the VKS scores ([$t(44) = 4.94$, $p = .00$]). As expected, the immediate mean scores of Condition 3 were significantly better than those of Condition 1 in three tests though the same amount of time was assigned to both groups.

TABLE 5
Independent Samples Test on Immediate Scores for Conditions 1 and 3

Condition	Test	*t*	*df*	*p*
Conditions 1 vs. 3	Meaning	4.55	44	.000
	Form	4.93		.000
	VKS	4.94		.000

Table 6 indicates the means, standard deviations, and numbers of the participants for the delayed meaning, form, and VKS scores. As the mean scores between Conditions 1 and 3 were likely to be different in the meaning, form, and VKS scores respectively, ANCOVA was conducted in order to test for a statistically significant difference between them when the immediate scores were controlled.

TABLE 6
Means and Standard Deviations on Delayed Scores for Conditions 1 and 3

Condition	Test	*n*	*M*	*SD*
1 (1 matching)	Meaning	25	2.50	1.189
	Form		0.91	.434
	VKS		6.60	2.456
3 (3 matching)	Meaning	21	5.71	3.440
	Form		2.74	1.700

	VKS	14.94	4.050

As indicated in Table 7, the results of the analysis showed that there were no statistically significant differences between Conditions 1 and 3 in the delayed meaning, the form, and the VKS scores. Although the mean scores between Conditions 1 and 3 reported that Condition 3 repeating exercises led to better results in retaining the target words, it would be unlikely to have been great enough to gain significant differences.

TABLE 7

ANCOVA Summary on Delayed Scores for Conditions 1 and 3

Source	Test	*df*	*F*	*p*
ims		1	12.046	.001
Condition	Meaning	1	1.979	166
ifs		1	5.595	.022
Condition	Form	1	1.499	.227
ivks		1	13.304	.001
Condition	VKS	1	1.050	.311.
Error		43		
Total		46		

Notes: ims = immediate meaning scores, ifs = immediate form scores, ivks = immediate VKS scores

Table 8 shows the results of Conditions 2 and 4. As the mean scores between Conditions 2 and 4 appeared to be different in the meaning, form, and VKS scores respectively, an independent-samples *t* test was conducted in order to test for a statistically significant difference between them.

TABLE 8

Means and Standard Deviations on Immediate Scores for Conditions 2 and 4

Condition		*n*	*M*	*SD*
2 (1 fill-in-the-blank)	Meaning	22	5.84	2.577
	Form		4.84	2.068
	VKS		14.10	4.440
4 (3 fill-in-the-blank)	Meaning	19	8.79	1.863
	Form		7.55	2.302
	VKS		24.12	5.352

As shown in Table 9, Conditions 2 and 4 were significantly different with an alpha .01 level in the meaning ([$t(39) = 4.81$, $p = .00$]), the form ([$t(39) = 3.67$, $p = .00$]), and the VKS scores ([$t(39) = 4.92$, $p = .00$]). Like the immediate results of Conditions 1 and 3, the immediate results of Condition 4 were significantly better than those of Condition 2 in learning three aspects (meaning, form, and use) of target words.

TABLE 9
Independent Samples Test on Immediate Scores for Conditions 2 and 4

Condition	Test	*t*	*df*	*p*
Conditions 2 vs. 4	Meaning	4.81	39	.000
	Form	3.67		.001
	VKS	4.92		.000

Table 10 shows the delayed mean scores of the meaning, form, and VKS in Conditions 2 and 4. As the mean scores between Conditions 2 and 4 appeared to be different from each other, ANCOVA was conducted in order to test for a statistically significant difference between them when the immediate scores were controlled.

TABLE 10
Means and Standard Deviations on Delayed Scores for Conditions 2 and 4

Condition	Test	*n*	*M*	*SD*
2 (1 fill-in-the-blank)	Meaning	22	3.75	2.096
	Form		.20	.382
	VKS		9.10	3.003
4 (3 fill-in-the-blank)	Meaning	19	6.30	2.556
	Form		4.46	2.302
	VKS		17.42	5.334

As shown in Table 11, the results of the analysis showed that there were no statistically significant differences between the meaning and VKS scores. However, a significant difference occurred between the mean scores of the form with an alpha .01 level. Although the delayed mean scores reported that Condition 4 repeating exercises gained better scores in the meaning and VKS, it did not seem to have been great enough to gain significant differences except the form scores.

TABLE 11
ANCOVA Summary on Delayed Scores for Conditions 2 and 4

Source	Test	*df*	*F*	*p*
ims		1	28.169	.000
Condition	Meaning	1	.062	.804
ifs		1	8.050	.007
Condition	Form	1	12.510	.001**
ivks		1	19.656	.000
Condition	VKS	1	.374	.544.
Error		38		
Total		41		

Notes: ims = immediate meaning scores, ifs = immediate form scores, ivks = immediate VKS scores

2. Participants' Attitudes

After the immediate posttests were performed, all of the participants were given open-ended questionnaires in order to draw a more complete picture of the effects of the vocabulary exercises in the study. In addition, including the questionnaires made it possible to find whether any additional variables played a role while the participants were carrying out the vocabulary exercises and how they had studied vocabulary normally.

Three questions were used for the present study. Two of them were concerned with the vocabulary exercise itself, such as the difficulty and usefulness of each exercise, and the other question was about the normal way of learning vocabulary. The participants were asked to describe their feelings or opinions while they were conducting the vocabulary exercises. No attempt was made to analyze quantitatively the data from the questionnaires.

First, for the question, "Was it difficult or easy for you to conduct the activity," many of the participants in Conditions 4 reported that they felt that it was difficult to perform and complete the vocabulary exercises on time. Condition 4 asked them to read the sentences and then fill in the blanks with one of the target words in the box. The following were the participants' reports on these exercises.

[Excerpt from Condition 4]

▪Though I came to learn how the new words were used in sentences, it was difficult for me to finish this activity on time.

▪Being given insufficient time to do the tasks frustrated me.

Regarding Condition 4, some pointed out that they did not have enough time to fill thirty blanks of the sentences with the target words in ten minutes. Insufficient time was regarded as one of the difficult factors in performing the activity in Condition 4, which would make it more laborious.

For the question, "What was the advantage or disadvantage of the activity," some of the participants in Condition 1, where they were asked to match the target words with the appropriate definitions, indicated that the matching exercises were more helpful and interesting than studying new words with usual vocabulary books. Carrying out the matching exercises required them to retrieve and associate the word forms and meanings naturally without seeing the word forms and meanings in the mini-dictionary. Other participants in Condition 4 noted that doing the matching vocabulary exercises three times helped them memorize new words better than doing them once. Despite these good points, numerous participants both in Condition 1 and 3 recorded the hardship of memorizing word forms.

[Excerpt from Condition 1]

▪The vocabulary exercise was beneficial for me to remember new words more easily than just using wordbooks.

[Excerpt from Condition 3]

▪Repeating the new words three times made me memorize the word meanings.

▪Doing these exercise helped me remember word meanings, but it was not easy to memorize word forms.

Some of the participants in Condition 2, where they were asked to read the sentences and fill the blanks with the appropriate words from the box, commented that they had useful chances to learn the usage of the words. Others mentioned that studying with sentences helped them memorize words naturally, even though they did not make every effort to do it. In terms of interest, some of them indicated that filling the blanks with words was less boring than just reading and writing them to memorize.

[Excerpt from Condition 2]

▪I thought that reading the passage was useful for me. While reading the sentences, I could learn some words naturally.

▪By reading the sentences, I felt that l learned the usage of the words.

▪I came to learn how the new words were used in sentences.

▪It was interesting for me to learn new words compared to my typical way of learning them.

Some advantages similar to those in Conditions 2 were commented on in Condition 4, where the participants were asked to do the same vocabulary exercise type as in Condition 2 but three times. Several encounters with each word in three different sentences made it more familiar and salient than one encounter, and learning from contexts helped them learn the accurate usage of words. In addition, some of the participants commented that studying new words with the vocabulary exercises was more enjoyable than tiresome repetition of them.

[Excerpt from Condition 4]

▪Three retrievals through different sentences made me learn new words despite the short exposure to them.

▪As I saw the same word in three different contexts, I could learn how these words were used more clearly.

▪I thought that three chances to repeat new words were beneficial to me.

▪I preferred doing these exercises to repeating words by rote to memorize them.

However, the excerpts below also imply the disadvantage of filling in the blanks in sentences. Though these exercises were beneficial for learning the meaning of words, most

of the participants thought it very hard to learn the formal knowledge of words even in Condition 4 requiring three repetitions of words.

[Excerpt from Condition 4]

▪While I was doing the test, it was easy to think of the word meanings but hard to write the spellings of the words.

Finally, the participants were asked about their opinions and normal ways of learning new words. The complete question was "Is learning new words important to you? If so, how do you study them?" Most of them responded that learning new words was very important, but that they had been studying them in very different ways. Lots of them commented that they inferred the meanings of new words from contexts while reading and learned them incidentally. Some reported that they memorized new words with wordbooks by pronouncing them and writing L1 translations or English equivalents repeatedly, and others looked up unknown words in the dictionary whenever they found them in passages. Although most of them admitted the importance of studying new words, some did not make efforts to study them.

[Excerpt from Condition 1]

▪I usually read aloud and write words to memorize them.

▪While I am reading passages, I try to guess the unknown words.

▪I like to study with vocabulary books.

▪I use a dictionary often to find new words while I am reading a story written in English.

▪Vocabulary is very important, but I do not try to study it.

▪I know that studying words is important, but I do not have time to study them.

In summary, numerous participants in Conditions 4 commented that multiple encounters with the target words were very effective for learning them, whereas they complained of insufficient time to complete the activity. Additionally, some of the participants in Conditions 2 and 4 favored learning the target words from sentences, since they could naturally attend to the multiple aspects of lexical knowledge, such as word forms, meanings, grammatical or discourse functions, and the relationships with other words. Finally, most of the participants in all conditions reported that it was more difficult to learn the form of the words than to learn the meaning of them.

3. Discussion

When a word is repeated and practiced, learners subconsciously evaluate it and decide how difficult, which leads them to change their interpretation until they reach the range of

meanings that a native speaker has (Beheydt, 1987). Most of education researchers, instructors, and material developers believe that multiple exposures to each word will lead to better recall than a single exposure to it. Therefore, to create more confidence in the repetition effects, the present study compared Condition 1 with Condition 3 and Condition 2 with Condition 4 in three components of target words (meaning, form, and use) when the study time was controlled between them.

As expected, there were significant differences between Conditions 1 and 3 and between Conditions 2 and 4 in learning the meaning, form, and use of target words. While the same amount of time was devoted to them, Conditions 3 and 4, requiring multiple exposures to the target words, produced significantly better results in learning target words than Conditions 1 and 2 respectively. Similarly, Folse (1999) found that multiple encounters with each word resulted in better recall than a single deep processing of it, emphasizing the importance of repetition of words.

After two weeks, the delayed mean scores of Conditions 3 and 4 were higher than those of Conditions 1 and 2 respectively, though no significant differences were found between them. A few studies of retention show that most forgetting takes place soon after initial learning and then the rate of forgetting becomes slower (Anderson & Jordan, 1928; Griffin, 1992; Pimsleur, 1967; Seibert, 1930). It tells us useful information about no significant differences between multiple encounters and one encounter in retaining the target words, unlike the immediate results. Although the participants in Conditions 3 and 4 repeated the words three times after the target words were introduced, there was no more reinforcement after performing these exercises. Thus, much forgetting of new words might occur right after they are learned.

In addition, Nation (2001) stated that regardless of the total study time spent on learning new words, if it is spread across a few days or months, this spaced repetition leads to better learning than massed repetition. Numerous studies also support the superiority of spaced over massed practice (Atkins & Baddeley, 1998; Baddeley, 1990; Bahrick, 1984; Bahrick & Phelps, 1987; Bloom & Shuell, 1981; Dempster, 1987).

Consequently, although the massed repetition in Conditions 3 and 4 led to significantly better results in learning various aspects of target words, it would be hard for the participants to remember them two weeks later. For new words to be retained longer and strengthened in learners' memory, they should be widely spaced and encountered very soon after they are first studied. Although the present study failed to fully support the repetition effects in learning and retaining the target words, it is certain that repeating words with retrievals is a more facilitative factor than one exposure to them in learning lexical knowledge when the same amount of time is spent on learning them.

The data from the open-ended questionnaires showed that the participants in the study responded to the same vocabulary exercise very differently depending on their personal

characteristics, such as their L2 knowledge, background knowledge, and problem-solving skills. For example, many of the participants favored the fill-in-the-blank vocabulary exercises, which provided them a chance to understand the contexts where the words were used. However, some also pointed out difficulties of these exercises in understanding the contexts due to the difficult words and grammar; those in Condition 4 mentioned the lack of time in completing the fill-in-the-blank exercises three times in ten minutes.

The present study did not provide any quantitative data to support the general tendencies, but numerous participants noted that learning new words with vocabulary exercises was more interesting than learning them with normal word books. In addition, most of them indicated that studying new words with one or several written vocabulary exercises could not make them fully acquire new words, especially the words forms. They admitted that learning a new word involves more than one exposure, as learners elaborate different components of lexical knowledge and practice this knowledge by using it. In a similar vein, most of the participants in Conditions 3 and 4 commented on the advantage of repeating the words, which helped them to overcome their initial frustration or inability to understand certain target words in the earlier exercise.

Finally, in response to the "how" component of this question "Is learning new words important for you? If so, how do you study this?", the participants gave a variety of answers: underlining or marking the unknown words, finding the dictionary definition, and trying to infer meanings of new words from the context. Especially, many of them noted that they had used inferring strategies to learn new words, which was one of the important resources to increase vocabulary examined in the present study.

V. CONCLUSION

The acquisition of vocabulary is a more demanding work to language learners as well as native speakers than that of the grammar of a language. Although the grammar of a language consists of a limited set of rules, vocabulary continues to be acquired while a person is using a language. Furthermore, numerous EFL learners with a relatively limited amount of target language exposure have been disappointed with their poor retention of vocabulary, which makes it more difficult for them to learn vocabulary. Although a single encounter of new words may lead to learning, the acquisition of them needs to review and practice (Son, 2008).

As seen above, knowing a word means multiple kinds of lexical knowledge (Nation, 1990; Richards, 1976) and tends to be regarded as the cumulative process of learning. Even the richest programs of vocabulary instruction require seven or more encounters with a word to produce "ownership" of the word (McKeown, Beck, Omanson and Pople, 1985).

In a word, without further reinforcement, it is impossible for words to be fully known and remain available in the long term though one meeting involves well prepared deliberate teaching. Thus, teachers or textbook designers need to provide initial encoding of new words, and then help L2 learners experience the spaced encounters of words soon after they are first studied.

L2 learners need to develop a large vocabulary, at least the most frequent 2,000 words in English (Sökmen, 2004), so instructional programs have to ensure that they know these words. In addition to these frequent words, they acquire infrequent words left to incidental learning through extensive reading. It is also generally agreed that both explicit and incidental learning are necessary and complimentary for second or foreign language learners (Schmitt, 2000). Although the probability of learning individual words through a single encounter from context is relatively low, the cumulative effects of learning from context can account for substantial growth. Milton and Meara (1995) estimated that students of advanced proficiency can learn words at a rate close to 2,500 per year in a second-language environment.

Many of the participants in the study also commented that they usually learn new vocabulary from reading. One of the implications taken from open-ended questionnaires is that vocabulary teaching means more than just introducing new words; it also includes teaching how to learn the unknown words from contexts to help learners have autonomy in learning vocabulary. It is worthwhile for both teachers and learners to spend time working on guessing strategies because of the importance of guessing from context (Hulstijn, 2001).

Finally, it is suggested that teachers and textbook publishers always remember the importance of learners' motivation, interest, and L2 proficiency while learning and teaching vocabulary. Hulstijn (1992) reported that motivation to learn vocabulary achieved superiority over the influence of many other factors in a number of vocabulary studies. Motivation affects intention to learn, attention to performance, and, consequently, ability to remember the items (Baddeley, 1990). If L2 learners feel very bored or show strongly negative attitudes toward certain vocabulary exercise at the initial stage of learning, this type of vocabulary exercise should not be presented in introducing new words or not replicated very often.

There are some limitations in the study, however. Though an open-ended questionnaire was assigned to the participants in the current study, it would be worthwhile to prepare objective questionnaires indicating learners' attitudes or interests as numerical values to gain objective validity on the affective aspects of different types of vocabulary exercises. In addition, different parts of speech (e.g., conjunctions, prepositions, idioms, or abstract nouns) need to be investigated for the possible different effects of repeating vocabulary exercises.

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APPEDIX A

Vocabulary Pretest

학과: 이름: 학번:

다음 주어진 단어들의 뜻을 쓰시오.
(확실하지 않더라도 아는 것 같은 단어들의 경우 반드시 뜻을 쓰시오)

bolster:
bruise:
burst:
fib:
forge:
fret:
linger:
loathe:
plummet:
ponder:
squander:
startle:
swipe:
toil:
trigger:
curt:
mirth:
furtive:
fervid:
ribald:
verve:
lush:
laud:
rash:
smug:
snub:
fuss:
crux:
dour:
fervor:
jovial:
maven:
rustic:
testy:
caprice:
lithe:
pith:
tatty:

taut:
sterile:
daft:
gibe:
bland:
dearth:
chary:
drab:
placid:
palmy:
stasis:
avid:
lucid:
pliant:
guile:
sedate:
bigot:
fiasco:
rage:
vagary:
whim:
bale:
pundit:
rancor:
volition:
numb:
brat:
enmity:
puny:
dread:

APPENDIX B

Assessment Materials (Posttest) & Questionnaires

Word Form Test

학번 이름

주어진 다음 단어들의 철자를 쓰시오

1. 잔잔한, 조용한
2. 몹시 싫어하다
3. 폭락하다, 급락하다
4. 낭비하다
5. 초라한, 낡은
6. 열정, 열의
7. 매우 주의깊은, 아까워하는
8. 적의, 증오
9. 박식한 사람, 전문가
10. 속타게 하다, 걱정하게 하다

The Modified Vocabulary Knowledge Scale

학번 이름

아래 보기와 같이 1 부터 10 까지의 단어를 가지고 각 항목이 요구하는 지시사항대로 답을 적으시오.

보기:

Cat (1) I don't know what this word means.
(2) I know this word. It means 고양이
(provide an English synonym or a translation)
(3) I can use this word in a sentence:
I like cats, but I don't like dogs.
(If you do the section 2, be sure to do section 3)

1. Plummet
(1) I don't know what this word means.
(2) I know this word. It means
(provide an English synonym or a translation)
(3) I can use this word in a sentence:
(If you do the section 2, be sure to do section 3)

2. Squander
(1) I don't know what this word means.
(2) I know this word. It means
(provide an English synonym or a translation)
(3) I can use this word in a sentence:
(If you do the section 2, be sure to do section 3)

3. Pundit
(1) I don't know what this word means.
(2) I know this word. It means
(provide an English synonym or a translation)
(3) I can use this word in a sentence:
(If you do the section 2, be sure to do section 3)

4. Tatty
(1) I don't know what this word means.

(2) I know this word. It means
(provide an English synonym or a translation)
(3) I can use this word in a sentence:
(If you do the section 2, be sure to do section 3)

5. Loathe
(1) I don't know what this word means.
(2) I know this word. It means
(provide an English synonym or a translation)
(3) I can use this word in a sentence:
(If you do the section 2, be sure to do section 3)

6. Chary
(1) I don't know what this word means.
(2) I know this word. It means
(provide an English synonym or a translation)
(3) I can use this word in a sentence:
(If you do the section 2, be sure to do section 3)

7. Fret
(1) I don't know what this word means.
(2) I know this word. It means
(provide an English synonym or a translation)
(3) I can use this word in a sentence:
(If you do the section 2, be sure to do section 3)

8. Fervor
(1) I don't know what this word means.
(2) I know this word. It means
(provide an English synonym or a translation)
(3) I can use this word in a sentence:
(If you do the section 2, be sure to do section 3)

9. Enmity
(1) I don't know what this word means.
(2) I know this word. It means
(provide an English synonym or a translation)

(3) I can use this word in a sentence:
(If you do the section 2, be sure to do section 3)

10. Placid
(1) I don't know what this word means.
(2) I know this word. It means
(provide an English synonym or a translation)
(3) I can use this word in a sentence:
(If you do the section 2, be sure to do section 3)

Open-ended Questionnaires

1. 여러분들이 했던 Vocabulary Exercise 의 난이도가 (쉬운지 어려운지) 여러분에게 어떻다고 생각합니까?

2. 여러분들이 했던 Vocabulary Exercise 가 새로운 단어를 학습할 때 도움이 되었다고 생각합니까?

(1) 만약 도움이 되었다면, 구체적으로 어떻게 도움이 되었는지 쓰시오

(2) 만약 도움이 되지 않았다면, 구체적으로 어떻게 도움이 되지 않았는지 쓰시오

3. 외국어 학습 시에 새로운 단어를 학습하는 것이 중요하다고 생각합니까?

(1) 만약 중요하다면, 새로운 단어를 어떻게 학습하고 있는지 쓰시오

(2) 만약 중요하지 않다면, 그 이유는 무엇이라고 생각합니까?

* 수고하셨습니다.

Examples in: English

Applicable Languages: English
Applicable Levels: College/University

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