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Sentence Translation and Vocabulary Retention in an EFL Reading Class

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The present study investigated the effect of sentence translation as a production task on short-term and long-term retention of foreign vocabulary. 87 EFL university students at a beginning level, enrolled in reading class participated in the study. The study compared the performance of three groups on vocabulary recall: (1) Control group, (2) Translation group, and (3) Copy group. During the treatment sessions, translation group translated L1 sentences into English, while copy group simply copied given English sentences with each target word. Results of the immediate test were collected each week from week 2 to week 5 and analyzed by one-way ANOVA. Results revealed that regarding short-term vocabulary retention, participants in rote-copy condition outperformed those in translation group. Four weeks later a delayed test was administered to measure long-term vocabulary retention. In contrast, the results of two-way repeated measures ANOVA showed that long-term vocabulary retention of translation group was significantly greater than copy group. The findings suggest that although sentence translation is rather challenging to low-level learners, it may facilitate long-term retention of new vocabulary given the more elaborate and deeper processing the task entails.

[sentence translation/short-term vocabulary recall/long-term vocabulary retention]

I. INTRODUCTION

Over the years much research has been done to examine techniques that may facilitate second or foreign language vocabulary learning. Such studies include investigation of exposure to word lists (e.g., Carter, 1987; Folse, 1999; Laufer & Shmueli, 1997), using word glosses (e.g., Jacobs, Dufon, & Cheng, 1994; Webb, 2007; Yoshii, 2006), practicing

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keyword mnemonic method (e.g., Hulstijn, 1997; Pressley, Levin, & McDaniel, 1987; Sagarra & Alba, 2006; Wang, Thomas, & Ouellette, 1992), and forming associations (e.g., Cohen & Aphek, 1981). Learning vocabulary in discourse contexts has also received experimental attention (e.g., Horst, Cobb, & Meara, 1998; Laufer, 2003; Nagy, 1997; Nation & Coady, 1988; Paribakht & Wesche, 1997).

The present study is motivated by practical pedagogical concerns. In an attempt to answer the question 'What sort of a task may be incorporated into a low-level EFL reading class in order to enhance vocabulary learning?,' a sentence translation task was selected to examine how many new words encountered in reading instruction can be learned and retained from the translation task. Generally, passages in reading texts are preceded or followed by a list of words, the key to understanding the passage. After the words on the list are dealt with in a reading class, students are to remember them somehow on their own. It is their job to do something to master the words. In case of beginning level students, they tend to favor rote memorization and repetition when approaching new words even though research into vocabulary learning strategies has shown that deeper and more elaborated processing enhances retention better (Cohen & Aphek, 1981; Hulstijn, 1997; O'Malley & Chamot, 1990). Given the assumption that beginning learners generally lack the awareness and active management of a variety of vocabulary learning strategies that may suit their needs (Ahmed, 1989; Sanaoui, 1995), vocabulary tasks based on suitable strategies need to be provided as a part of instruction in order to assist them in developing vocabulary knowledge and its retention.

To serve the purpose of promoting vocabulary in an EFL reading class, a sentence translation task was chosen for several reasons. First, reading class itself deals with a receptive skill and basically incorporates input-based tasks such as a reading comprehension task with glosses and a reading comprehension plus fill-in-the-blank task. In line with Swain's (1995) output hypothesis, output production may allow learners better chances of retaining vocabulary dealt with in the reading class than input alone does (Benati, 2005; Ellis & He, 1999; Horibe, 2003; Hulstijn & Trompetter, 1998; Joe, 1998; Nobuyosi & Ellis, 1993). Second, on a pedagogic level a sentence-level translation (L1 to L2) task can be a very viable means of producing the L2 for low-level learners. Translating passages or composing new sentences using target words, for example, may induce information overload on the part of beginners, whose attention may be distracted from the target words considering that such tasks require so much cognitive processing. The sentence translation task first presents them with L1 equivalent sentence containing a target word, which helps them understand the meaning of the target word in L1 context and requires the learners to make use of the words they have previously encountered in reading when they produce L2 sentence, pushing them to use previously unknown words at the same time.

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The present study investigates the effect that a sentence translation task may have on short-term and long-term recall for the new vocabulary dealt with in an EFL reading course. Its effect is also compared with that of a sentence-copying task which requires the learners to copy L2 sentences containing each target word. It is hypothesized that due to the deeper and more elaborate processing involved, sentence translation leads to greater retention of new words than rote-copying.

II. LITERATURE REVIEW

When the role of output in vocabulary retention is considered within the theoretical framework of output hypothesis (Swain, 1995, 1998), the notion of elaboration is identified as a key concept in explaining how output production enables learners to retain more words. According to O'Malley and Chamot (1990), elaboration is classified as a cognitive strategy which requires conceptual processing and consists of relating new information to prior knowledge and relating different parts of new information to each other. The general consensus from the field of cognitive psychology is that more qualitative and quantitative association with prior knowledge increases the chances that new information will be retained. In addition, it has been suggested that a more extensive and more elaborated analysis of a stimulus is associated with greater retention (Anderson, 1990; Craik & Jocoby, 1979; Lockhart & Craik, 1990). In the L2 vocabulary learning literature, elaboration is referred to as a possible effective learning strategy (see Laufer & Shmueli, 1997; Prince, 1996).

In the view of the output hypothesis, it is claimed that output condition provides an opportunity for deeper or more elaborate processing of new vocabulary and leads to better retention, due to the linguistic complexity involved in producing output. A number of studies on the role of output in L2 vocabulary retention reported that output had a positive effect on the retention of L2 vocabulary, suggesting that production tasks may entail a deeper level of processing of new vocabulary (Ellis & He, 1999; Hulstijn & Laufer, 2001; Hulstijn & Trompetter, 1998; Joe, 1998; Nobuyosi & Ellis, 1993; Son, 2007; Yang, 2008). However, among the studies on L2 vocabulary learning, the effect that sentence translation as an output task might have on L2 vocabulary recall and retention has not been widely addressed. Not a few studies have found the usefulness of exposure to translation equivalents in lists when compared with more contextualized forms of presentation of new L2 vocabulary, thereby suggesting that translation may constitute an effective L2 teaching tool in vocabulary learning (Ballard, 1991; Grellet, 1991; Laufer & Shmueli, 1997; Lavault, 1991; Prince, 1996). Besides, it is claimed that more newly learned words are better recalled using L1 translations than L2 context, particularly for low-level learners (Laufer &

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Shmueli, 1997; Lotto & de Groot, 1998; Ramachandran & Rahim, 2004; Prince, 1996) as was expected from the evidence for considerable L1 influence on beginning learners (e.g., Hall, 2002; Jiang, 2002; Sunderman & Kroll, 2006). Nevertheless, most of the earlier studies missed looking into translation in the form of output.

A couple of previous studies (Bruton, 2007; Bruton & Broca, 1997) were found to have provided empirical support for the positive effect of an output translation task on L2 vocabulary learning. In Bruton (2007), thirteen intermediate EFL students in a pre-university level school in Spain participated in the study where an L1-to-L2 text translation task was used to examine its effect on FL (foreign language) vocabulary retention. They first translated a given Spanish text in two paragraphs to English with bilingual dictionary support, rewrote their initial translation based on their teacher's feedback on vocabulary errors, and translated the same text again without dictionary support in a delayed post-test given a week later. The results showed that 62% of new vocabulary was correctly recalled in the delayed post-test. The previous studies seem to suggest that material encoded bilingually brings about deeper, more elaborated processing together with more extensive analysis, and thereby facilitates its retention. Unlike in Bruton's study (2007), a sentence translation task instead of text translation was employed in the present study, given the intention to explore a viable task targeted at beginner learners. Dictionary referencing and teacher feedback were not included as factors to examine in the present study.

III. RESEARCH QUESTIONS

Earlier studies of translation indicate that translation may eventually constitute an effective teaching and learning tool, especially in classrooms where learners have the same first language background in common. However, little is known about what type of tasks help expedite L2 or foreign vocabulary learning, especially about how output tasks affect recall and retention of newly learned vocabulary. In an attempt to address the issue, the present study aims to investigate whether the sentence translation task may play a beneficial role in foreign vocabulary retention. The subsequent research questions are:

1. Does a sentence translation task have a positive effect on short-term foreign vocabulary recall, compared to a rote-copy task?
2. Does a sentence translation task have a long-term effect on foreign vocabulary retention, compared to a rote-copy task?

Both exposure to L1 equivalents and active translation process entail associating new information (new L2 forms) to old information (the L1) and can also results in relating of

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new L2 forms to each other as a learner tries to match words or phrases with the most appropriate L2 equivalents during the active translation process. Thus, based on the role of elaboration as a possible effective learning strategy, it is hypothesized that a sentence translation task allows deeper and more elaborated processing and therefore may promote retention. According to Barcroft (2006), language production by a learner is distinguished between outputs with access and without access to meaning. The former refers to 'activating the lexical items and grammatical forms necessary to express particular meanings' (VanPatten, 2003, p. 63), whereas the latter involves language production which does not necessitate this type of activation. The relevant studies (Barcroft, 1998, 2000, 2004, 2006; Folse, 1999) suggest that forced output without access to meaning can detract from vocabulary learning. In this regard, it is hypothesized that a sentence translation task brings about greater retention than a rote-copy task considering that a learner simply repeats sentence writing without intending to convey meaning doing the copy task.

IV. METHODOLOGY

1. Participants

Eighty-seven students from different majors at a university in Seoul, Korea participated in the study. They were enrolled in a beginning-level English reading course at the time of study. All the participants had been studying English for between 8 and 12 years. They were placed into three low-level classes based on their TOEIC scores, which ranged from 245 to 385. The average score was 312. Two classes served as experimental groups and one class as a control group (n = 28). The two experimental groups were assigned a different condition, either sentence translation (n = 30) or copy exercise (n = 29). Participants received supplementary course points for participation.

2. Setting and Procedure

The three reading classes were taught by the same instructor. They met two times (50-minute and 100-minute class periods) a week over one semester (16 weeks). The reading course dealt with reading skills such as skimming, scanning, and recognizing the main idea and grammar and vocabulary to help the students better understand given text. Since the course was supposed to be conducted only in English, the instructor gave English definitions with simple example sentences when explaining new words and expressions in the text.

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Treatment sessions for experimental groups began from the second week. During the second class of week 1, participants received a list of 60 English words, the target vocabulary selected for the study and were asked to indicate the words they were familiar with by writing down their L1 equivalents. Every first class of the week, participants were given new reading text, which was covered with the practice of strategic reading skills and comprehension check-up exercises. At the beginning of each second class, treatment sessions were carried out from week 2 to week 5. Fifteen words drawn from the reading of the week were included in the vocabulary exercise for each treatment condition. The participants in both experimental groups were informed of the Korean translation equivalent for each of the 15 words, based on the research findings in support of exposure to translation equivalents (Laufer & Shmueli, 1997; Lotto & de Groot, 1998; Ramachandran & Rahim, 2004; Prince, 1996). The participants in translation group (TG) were to read 15 L1 (Korean translation) sentences with the target words and translate them into English. The 15 sentences were formed in order to pose few translation difficulties to participants because they were not allowed to use a dictionary during the treatment session. After the task was completed, they were given a sheet of the 15 English model sentences to compare with their translations. The example item of the sentence translation exercise is indicated as follows:

'그 접시는 깨지기 쉬우니 나를 때 조심해라'
fragile: 깨지기 쉬운
Translate the sentence into English: _____

The participants in rote-copy group (CG) were exposed to 15 English sentences containing the target word with its L1 (Korean) equivalent. They were to copy each sentence three times after reading the given sentences. The example item is as follows:

The dish is fragile, so be careful when you carry it.
fragile: 깨지기 쉬운
Write down the sentence three times: _____

Upon completing the task, participants were given a testing sheet, which was composed of 15 English sentences containing each target word underlined (see Appendix). The sentences were presented in a different order from the vocabulary exercise of the treatment task. The test was given immediately after the treatment task to measure short-term retention of the target vocabulary. Participants were asked to recall the L1 equivalents of the underlined target words and write them down. In case of the participants in control group, the test was given at the beginning of second class without any treatment. All the

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participants were informed that the test given every second class would not account for any of their final grade.

Treatment was offered to experimental groups for four weeks from week 2 to week 5. To measure long-term retention of the target vocabulary, a delayed test was taken during the second class of week 9, four weeks after the last treatment sessions. Participants had taken an immediate test of 15 target words each week for four weeks, so the delayed test consisted of 60 words which were covered from week 2 to week 5.

3. Analyses

The dependent variable was the scores of the immediate and delayed tests (the number of target words recalled). In order to examine long-term retention of target words, the test scores of four immediate tests collected from week 2 to week 5 were summed in total—the total of the perfect scores of four tests is 60—and included in data analysis in comparison with delayed test scores. A one-way ANOVA was performed with 'group' as a factor to investigate short-term recall of target vocabulary. A two-way repeated measures ANOVA was done with 'group' and 'time' (time lapse between immediate and delayed tests) as factors in order to examine long-term effect of each treatment. The alpha level was first set at .05 experiment-wise and then divided by two (the number of ANOVAs conducted) to adjust for the family-wise error rate. Hence, the significance level was set at $\alpha < .025$ for individual statistical decisions.

V. RESULTS AND DISCUSSION

1. Sentence Translation and Short-Term Vocabulary Recall

Before starting treatment sessions, all the participants received the list of 60 target words and were asked to mark any words that they are familiar with by supplying the L1 equivalents during week 1. One or two participants from each group indicated that they already knew several words, but most of the L1 equivalents (word definitions in Korean) they provided were not correct. The means and standard deviations for the immediate test by the three groups (Control, TG, CG) are shown in Table 1. The descriptive statistics indicate that all participants produced short-term increases in vocabulary recall relative to the pre-test performance on the list of 60 words. It is not very surprising that even control group recalled 30% of sixty target words in the immediate test considering that the test was conducted after the target words had been dealt with in reading class.

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TABLE 1

Descriptive Statistics of the Immediate Test for Group Types

Group	Vocabulary recall (60 total possible)	
	Mean	SD
Control (n = 28)	18.00 (30%)	3.38
Translation (n = 30)	38.23 (64%)	6.11
Copy (n = 29)	50.34 (84%)	6.84

The results of one-way ANOVA revealed that there was a significant group effect (see Table 2), which means their performance on the immediate test statistically differed from each other. According to post hoc tests (Tukey HSD and Scheffe), there was a significant difference between control group and each experimental group (TG and CG). Besides, a significant difference was found between TG and CG. Hence, short-term vocabulary retention by both experimental groups was greater than control group. Results also indicated that contrary to the hypothesis of superior performance in sentence translation condition, the participants in rote-copy condition outperformed those in translation group.

TABLE 2

Summary of One-Way ANOVA

	SS	df	Ms	F	Sig
Between Groups	14932.978	2	7466.489	232.126	.000
Within Groups	2701.918	84	32.166		
Total	17634.897	86			

$p < .025$

This is, with regard to short-term vocabulary recall, the rote-copy task was actually more effective than the sentence translation task. Then why did sentence translation fail to lead to greater recall? It is likely that information overload may have occurred to the participants. Although given sentences were relatively simple in structure, the depth of concentration and cognitive processing required in sentence translation may have overwhelmed the beginning learners. As the participants rendered translation equivalents of all the words consisting of the L1 sentence, their attention was distracted from the target word and its meaning. Rote copying, in contrast, seems to have allowed the beginning learners to concentrate attention on the target word while they were mechanically copying its sentence. According to Thomas and Dieter (1987), there are two reasons for the favorable effect of copying new words: (1) 'The act of copying clearly draws attention to

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the structure of the word;' and (2) 'the act of copying may result in a separate motor trace in memory that also assists in retrieval' (p. 252).

2. Sentence Translation and Long-Term Vocabulary Retention

In order to answer the second research question about long-term effect of a sentence translation task, the gain scores of immediate and delayed tests were analyzed using two-way repeated measures ANOVA. The descriptive statistics presented in Table 3 show that after four weeks of the last treatment sessions, the extent of vocabulary retention declined in all three groups. The comparison of the standard deviations of the three groups suggests that performance of control and copy groups on the delayed test was somewhat more homogeneous than that of translation group, as indicated by the smaller standard deviations for the two groups.

TABLE 3

Descriptive Statistics of the Delayed Test for Group Types

Group	Vocabulary recall (60 total possible)		
	Mean	SD	Mean Difference
Control (n = 28)	7.25 (12%)	2.67	-10.75
Translation (n = 30)	24.03 (40%)	6.47	-9.20
Copy (n = 29)	17.93 (29%)	3.44	-32.41

Given the smallest mean difference from the immediate test (see Table 3), it appears that sentence translation led to better long-term retention than rote copying. The results of ANOVA, as presented in Table 4 show that interaction effect as well as main effects was statistically significant. Hence, it indicates that the participants' performance significantly differed across two tests (immediate and delayed tests) depending on the group they belong to. The post hoc tests (Tukey HSD and Scheffe) revealed that there was a significant difference between control group and each experimental group (TG and CG). Moreover, between translation and copy groups, a significant difference was found.

TABLE 4

Summary of Two-Way Repeated Measures ANOVA

Source	SS	df	MS	F	Sig
Time	13242.330	1	13242.330	1300.176	.000
Group	14193.660	2	7096.830	166.218	.000
Time x Group	4896.159	2	2448.079	240.361	.000
Total	32332.149	5			

$p < .025$

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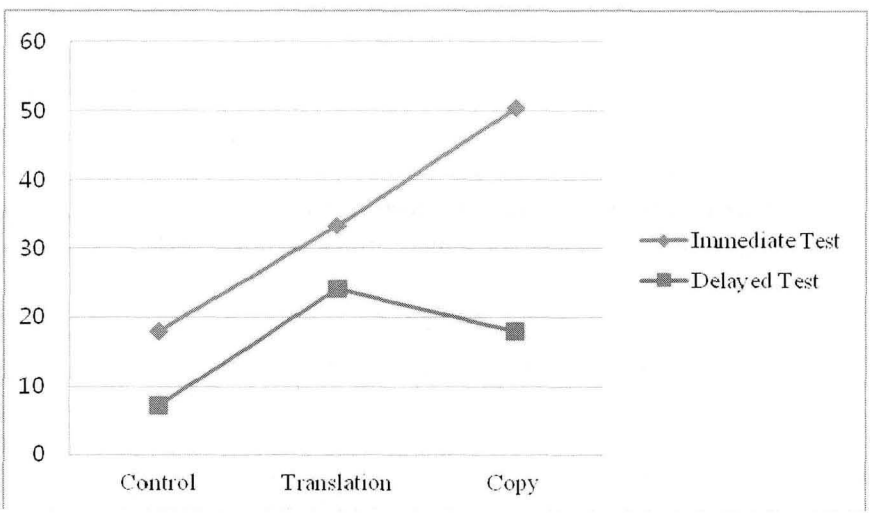
Contrary to the beneficial role of the rote copying task concerning short-term recall, its advantage was drastically reduced over four weeks compared to control and translation groups as shown in Figure 1. Of all the groups, the participants in TG retained the largest number of target words until week 9, which indicates that the sentence translation task was more effective regarding long-term vocabulary retention.

According to the research on the role of memory in vocabulary acquisition, the degree of mental effort a learning process involves seems to affect vocabulary retention. L1 study by McDaniel, Einstein, Dunay and Cobb (1986) suggests that in certain conditions when information is more difficult to encode or requires greater effort, that information becomes more memorable. Other L2 studies also pinpoint that learning difficulty ultimately benefits performance by leading to better long-term retention (Griffin & Harley, 1996; Schneider, Healy, & Bourne, 2002). Considering that sentence translation entails more extensive analysis in that learners must actively recreate the L1 message in another language, the relatively high processing load involved in sentence translation may contribute to greater long-term retention. Ironically, the translation task demanding more elaborate and deeper processing caused information overload on the part of the low-level learners, and thus resulted in lower recall of vocabulary on the immediate test than the copy task. In terms of long-term retention, nevertheless, such deeper and more elaborate processing seems to be support for the translation task.

FIGURE 1

Performance of Three Groups on Immediate and Delayed Tests



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VI. CONCLUSION

The present study investigated short-term and long-term effect of a sentence translation task on vocabulary retention as it was implemented as a follow-up exercise for the purpose of promoting learning of the vocabulary covered in reading class, as compared to a rote-copy task. Unlike the prediction made, sentence translation requiring more elaborate level of processing did not have the edge over rote copying concerning short-term vocabulary recall. Given that short-term vocabulary recall of copy group was much greater than that of translation group, information overload on the part of the beginning learners seems to have hindered optimal cognitive advantages from taking place. A question may arise as to whether a translation task plays more beneficial role for short-term vocabulary recall when implemented on higher-level learners. It would be necessary for future research to examine high-intermediate or advanced learners to attest if sentence translation may indeed have a fostering effect on short-term vocabulary retention.

What draws our attention is the long-term effect of the translation task on vocabulary retention. The results of the delayed test revealed that sentence translation led to significantly greater long-term retention of the target words than rote copying. Therefore, based on the findings it should be noted that although sentence translation is rather challenging to low-level learners, it may facilitate long-term retention of new vocabulary once the learners manage to deal with the task. In this respect, a sentence translation task can be a viable practice for even low-level learners especially when a classroom practitioner is considering providing students with more production tasks to help enhance vocabulary retention. Al-Kufaishi (2004) emphasizes a number of advantages to the use of translation as a tool in language classrooms depicting it as 'a meaningful task-based exercise, a problem-solving exercise that helps develop the learners' data processing capabilities [and as] a means for highlighting inter-lingual structural differences (p. 58).' In addition, Ladmiral (1984) points out other benefits associated with the use of a translation task. The task gains another support in classrooms in the sense that a comparison of linguistic systems in context, which is, juxtaposed by means of translation, gives impetus to a metalinguistic awareness of those systems. In a similar view, Chuquet and Paillard (1987) also suggest that a heightened awareness of differences between the L1 and the L2 in the areas of word formation and syntactic structures can contribute in a creative way to L2 acquisition.

A number of studies confirm that worthwhile vocabulary learning does occur from reading, but the pick-up rate is relatively low (Hill & Laufer, 2003; Horst, 2005; Horst, Cobb, & Meara, 1998; Waring & Takaki, 2003), as evidenced by the present study. The participants in control group recalled 30% of the new words after reading instruction, and they retained only about 12% of the words covered in class four weeks later. According to

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Nation (1990), it is more important to consolidate previously studied words than teach new words. What he refers to as 'recycling' is necessary because if it is neglected, many partially learned words will be forgotten, wasting all the effort already put into learning them (p. 49). Reading class can be the right place for developing and enriching partially known vocabulary from the passages covered in class. Memory research notes that most forgetting occurs soon after the learning session and then eventually slows down (Baddeley, 1990). Hence, after going over reading text it is particularly important and necessary to offer some tasks to reinforce the vocabulary dealt with in the text. Laufer (2005) provides the reasons to believe that vocabulary tasks should be incorporated into reading class as follows:

- Learners who understand the overall message of a passage often do not pay attention to the precise meanings of individual words.
- Guessing from context is often unreliable, especially if the learner does not know 98% of the words in the discourse.
- Words which are easily understood or guessed from context may not generate enough engagement to be learned and remembered.
- New words which learners have met in text need to be met again relatively quickly to avoid their being forgotten.

Findings of the present study were congruent with those of previous research in the way that greater vocabulary retention comes from higher involvement of learners. That is, maximizing engagement is a key principle in developing vocabulary tasks. For instance, Hulstijn and Laufer (2001) found that learners writing compositions recalled a set of target words better than those who just recognized the words in a reading comprehension task. Webb (2005) also reported that learners receiving an L1 translation for a target word and then using it in making up a sentence performed better in vocabulary recall than those who read three example sentences with L1 translation. In light of the findings, the present study suggests that materials writers and classroom practitioners need to take the kind of vocabulary task or activity that requires more elaborate or deeper level of processing into account when developing vocabulary tasks.

Several limitations constrain the extent to which the findings of the study can be generalized. First, rather restricted size of participants does not allow generalizations to other students in a variety of contexts. Besides, since the viability and effect of sentence translation was tested targeted at low-level learners in EFL reading class, the findings do not provide wide implications for other level learners. Second, there should have been a pilot study to test and adjust the difficulty level of sentences included in both the sentence translation task and the test in order to provide suitable materials for the participants' L2

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proficiency. The results of the immediate test might have differently turned out in terms of the effect of sentence translation on short-term vocabulary recall.

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APPENDIX

Sample Immediate Test

Read each sentence and provide exact Korean meanings of the underlined part.

eg) The dish is fragile, so be careful when you carry it.
깨지기 쉬운

1. Su-Jin made a quick adjustment to American lifestyle.

2. People don't like traffic congestion in Seoul.

3. Some Americans compulsively jog every morning.

4. Jin is discreet in her behavior.

5. Some teenage girls suffer from the eating disorder.

6. My mom is going to enroll in a special Yoga class.

7. Su-Jin experienced American culture firsthand.

8. My dad leads a hectic life.

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9. People huddled around the radio waiting for the news.

10. The university has an excellent faculty.

11. She has a laid-back attitude to life.

12. The cars on the highway were moving at warp speed.

13. Tim was tucking into a huge meal.

14. Young girls tend to pick at their food.

15. To say I'm disappointed is an understatement.

Examples in: English
Applicable languages: English
Applicable levels: College/Higher

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