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The Effects of Different Pedagogical Tasks on L2 Vocabulary Learning*

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This study investigated the relative efficacy of three different exercises for learning new vocabulary items. Three different kinds of treatments used for the experiment were input-based exercises (Input Group), written output-based exercises (Written Output Group), and oral interaction-based exercises (Oral Interaction Group). 93 Korean EFL college students participated in the experiment and they were engaged in the treatments and tests over a 5 week period. Pretests and posttests were administered for assessing gain scores in receptive and productive knowledge of target vocabulary. The major findings are: (a) The mean gain scores in receptive knowledge as well as productive knowledge of each group were more positively affected by output-based (written and oral) exercises than input-based exercises; while the differences between groups were partially significant only in productive knowledge. (b) The Oral Interaction Group outperformed the Written Output Group in both receptive and productive knowledge of the target vocabulary. In light of the findings of the study, pedagogical implications were presented to design and select effective classroom activities for vocabulary learning.

[L2 vocabulary/written output/oral interaction/receptive and productive knowledge of words]

I. INTRODUCTION

It is a common sense that vocabulary plays a crucial role in understanding and expressing meaning in a language for any kinds of reading, writing, listening, and speaking. The awareness on the importance of lexical competence has led many researchers to

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conducting empirical studies, and there are substantial amount of research findings on the high correlation between vocabulary knowledge and L2 reading ability, writing ability, and listening and speaking skills (e.g., Haynes & Baker, 1993; Laufer, 1998; Nation & Newton, 1996). Though the important role of vocabulary in various skills of L2 was empirically proved, efficient methods for developing vocabulary knowledge have not yet been clearly elucidated through empirical research.

It has been argued by some studies that the exercises using enhanced input and output rather than simple exposure to large amount of input facilitate learning of target forms or words more efficiently. In recent years, several studies have been conducted to investigate the effective vocabulary learning tasks, mostly in relation to the role of output in acquisition (de la Fuente, 2002; Hulstijin & Laufer, 2001; Kwon, 2007; Miles & Kwon, 2008; Son, 2007). Nevertheless, still many material writers and teachers do not have confidence in designing, selecting and using the kinds of vocabulary exercises or tasks most effective for L2 learners. So, a certain learning task among various vocabulary learning exercises, such as vocabulary learning in the context, rote-memorizing a list of vocabulary items, or just reading or listening a lot of materials was just claimed as being effective by teachers or learners on the basis of individual experiences without any firm empirical ground.

The researcher currently teaching university students English found that the students are having hard time to learn the specialized academic words in their major fields. Even though the students are aware of the usefulness of learning these academic words, it is still very challenging for them to acquire these words because of their difficulty level (in terms of word length and low frequency). This led the researcher to being concerned about the investigation of the ways for effective teaching and learning of these vocabulary items. Therefore, the purpose of this present study is to examine the effects of different pedagogical tasks for learning vocabulary and it aims to serve as additional empirical evidence to the previous literature on this issue regarding learners' acquisition of lexical knowledge.

This study focuses on the types of the enhanced input- and output-based exercises and compares the effectiveness of those exercises in gaining receptive and productive knowledge of vocabulary. The multiple encounter effect on learning and retention of words is generally accepted by researchers and educators, while the effect of output-based tasks which require deeper cognitive processing still needs more empirical investigation. Especially, previous research has not compared the different effects of the different output types such as written output and oral interaction. On this circumstance the hypothesis held in this study is that output-based exercises, especially oral interaction exercises, could yield more positive effect on the enhancement of productive vocabulary knowledge and lead to better retention of the knowledge than input-based exercises. But it was hypothesized that

as for the enhancement of receptive vocabulary knowledge the different tasks will lead to similar effects.

II. LITERATURE REVIEW

1. Receptive and Productive Knowledge of Words

Knowing a word means that a person can retrieve an appropriate word or meaning of a word from his/her mental lexicon for communication. A word comprises semantic, phonological, morphological, syntactic, pragmatic, articulatory and orthographic features, and the activation of all features of a word is not always available for L2 speakers.

Word knowledge is described through the receptive (listening and reading) and productive (speaking and writing) knowledge distinction (Chon, 2007; Nation, 2001). According to Nation (2001), productive knowledge involves receptive knowledge and extends it. It means to know how to pronounce the word, how to write and spell it, how to use it in correct grammatical patterns. He further explains the knowledge of word features as aspects of 'form,' 'meaning,' and 'use.' Knowing the 'form' of a word in production involves knowing correct pronunciation, spelling, and grammatical forms. Knowing the 'meaning' of a word involves the use of a correct word form to express certain meaning, the ability to produce a word or words in different contexts. Knowing the 'use' of a word involves the ability to use the word correctly in a sentence, the ability to produce the words that commonly occur with it, and the ability to decide to use the word to suit the degree of formality of the situation.

The receptive and productive distinction of word knowledge can be explained in relation to the competence and performance dichotomy. The distinction between competence and performance was made by Chomsky (1965) to discuss the nature of language knowledge. Competence has been understood as the interlocutors' knowledge of the language and performance as the actual use of language. In a similar vein, some researchers such as Laufer (1998) distinguished them as passive and active vocabulary. Receptive and productive processes involve mental processes of the recognition, recall, retrieval, comprehension, and production of lexical items, so the receptive and productive vocabulary knowledge is the abilities to control what is received and understood and what is produced and used (Waring, 1999).

There have been very few definite claims on how the acquisition of the features of a word takes place in L2. However, it is a rather common view that acquisition of lexical fluency develops over time through extensive experience since learners need to be familiarized with the various aspects of linguistic system to learn and retain new words in

their memory (Ellis, 2001). So the nature of information processing when studying vocabulary is definitely linked to the enhancement of either receptive or productive vocabulary knowledge of L2 learners.

2. Output and Acquisition of Vocabulary

Most of the recent studies on acquisition of L2 vocabulary have been conducted within the theoretical framework of the information processing model and output hypothesis. According to the several researchers (e.g., DeKeyser, 2001; Ellis, 2001; Hulstijn, 2001; Hulstijin & Laufer, 2001; Laufer & Hulstijin, 2001; Schmidt, 2001) involved in information processing and cognitive psychology, higher retention of words will be led by more elaborate lexical information (e.g., by paying careful attention to the word's pronunciation, orthography, grammatical category, meaning and semantic relations to other words) than by less elaborate processing of new vocabulary information (e.g., by paying attention to only one or two of these dimensions). Their common view on acquisition is that learned items are retained far more by the nature of the processing activities engaged in by the learner than other factors (Hulstjin, 2001). That is, higher retention of new lexical information is led by more elaborate processing.

Son's (2007) study in relation to the acquisition of vocabulary conducted recently also supports Hulstjin's claim with empirical data. She compared the four different types of treatment effects: filling in blanks, word-meaning matching (one time treatment), writing and repeated word matching exercises (three times treatment). The results indicated that a writing exercise which requires deeper mental processing was superior to other exercises involving shallower mental processing. However, word matching exercises over three weeks had the same effect with the writing exercise on the immediate learning of vocabulary. She concluded that both of the treatments had similar effects but word matching exercises which involved multiple encounters with words led longer retention than the writing exercise.

In a similar vein, the importance of repeated practice was asserted by Baddeley (1997, pp.112-3): Distributed practice with increasing intervals after correct retrievals and short intervals after incorrect retrievals generates much higher retention than does massed practice. Repeated practice is especially crucial to the long-term retention: "Items that are difficult to learn should be overlearned to ensure long-term retention" (Atkins & Baddeley, 1998, p. 549).

The output hypothesis has been the focus of many studies on language acquisition in the past few decades. Studies on output exercises evidenced "the greater learning under the output conditions which triggered deeper and more elaborate processing of the form, which led them to establish a more durable memory trace" (Izumi, 2002, p. 570).

Several experimental studies indicate that output exercises are more effective for the acquisition of vocabulary than other types of exercises. Kwon (2007) conducted an experiment with 63 college students over 8 weeks which explored how the different treatments affect learners' noticing, retrieval and retention of target vocabulary. In this study, she reported the more positive effects of input plus output (writing) treatments than the input only treatments for receptive and productive vocabulary knowledge.

de la Fuente (2002) studied the differential effects of three different conditions—non-negotiated premodified input, negotiation (interactionally modified input) without "pushed output", and negotiation plus pushed output--on L2 learners' vocabulary comprehension and acquisition (receptive and productive knowledge) in NNS/NS pair work. She found that interactionally modified input with pushed output yielded productive acquisition more than interactionally modified input without pushed output. The study provided empirical evidence for the important role of negotiation in facilitating the comprehension and acquisition of L2 vocabulary.

Many researchers examined the different effects of output or input based tasks in learning L2 language forms (e.g., Izumi, 2003; Izumi & Bigelow, 2000; Izumi & Izumi, 2001; Song, 2007). For example, the effects of three different task types, such as output or input-based techniques, on the improvement of receptive and productive grammar knowledge were compared by Song (2007). She reported in this study that two output tasks were found more effective than non-output exercises in enhancing students' productive knowledge on the form; while the three different tasks did not show different impact on the improvement of learners' receptive knowledge. So, she concluded that output technique was more effective in learning of the target form especially of the productive knowledge on the form.

However, not all of the output exercises demonstrated better effect than other types of exercises. A study which examined the effect of oral output by Izumi and Izumi (2004) reported that non-output group outperformed the output group in the acquisition of a grammatical form. 24 adult L2 learners participated in this study and they were randomly assigned to one of three groups: an output group (a picture description task), a non-output group (a picture sequencing task), and a control group. The post-hoc examination revealed that the output task failed to engage students in the syntactic process.

III. METHOD

1. Hypotheses

The following hypotheses were formulated and guided this study based on my own

experience and the theoretical and empirical research discussed in the previous section:

> Hypothesis 1: the students' receptive knowledge of the target vocabulary items will be increased either by input-based or output-based exercises to the same degree; however, their productive knowledge will be better improved by output-based (written and oral interaction) exercises than any other exercises.
> Hypothesis 2: The students who are engaged in the oral interaction-based exercises will outperform those engaged in the written output-based exercises in gaining productive knowledge of the target vocabulary items.
> Hypothesis 3: The students who do the written output-based and oral interaction-based exercises will outperform the students who do the input-based exercises in both of the short-term and long-term retention of the target vocabulary items.

2. Participants and Group Design

The participants in the study were university EFL learners enrolled in an English course at a university in Korea. The number of the students was118 in total at first, but the data from 25 students who missed any test among the three tests of pretest, posttest, and delayed posttest were discarded, so the data of 93 students were used for the analysis. The English class was a required course for sophomores who were majoring in Social Welfare or Nursing. Social Welfare majors (N = 61) composed 66% and Nursing majors (N = 32) 34% of the participants. They had learnt English for a mean of ten years in an EFL context since their third year at elementary school. They were placed into 4 classes with a random mix of majors, so each class had about 23 students on average. The placement into four classes was conducted on a voluntary enrollment basis without any level test, and the four classes were randomly arranged as four groups: one Control Group (N=20) and three experimental groups of the Input Group (N=27), the Written Output Group (N=23), and the Oral Output Group (N=23). The researcher who conducted the study participated in the instruction of the course as a researcher and instructor. The students in the four different groups had been taught with the same curriculum and textbook by the same instructor in the semester when the study was being carried on.

3. Procedures and Experimental Treatments

The study employed a pretest-posttest-delayed posttest design carried out over a period of twelve weeks; however, the data of the delayed posttest which was administered on the 12th week were discarded and only pretest-posttest results were analyzed. Some of the students studied the target vocabulary items for preparing midterm exam which they took

during the 9th week despite the researcher's advance caution not to study them. As a result, their scores of the delayed posttest lost validity and could not be used for the analysis for this study.

A pretest (Appendix D) was administered in the first week, treatments (3 sessions) in the second, third, and fourth weeks, and a posttest (Appendix E) in the fifth week to all groups. The class activities in the second and fourth weeks were just the same in all the groups; while those in the third week only differed among the groups. The following is an overview of the treatments conducted on each group (See Appendix A to C for detailed treatment):

- Control Group
  - ① Session 1: Explicit teaching by passage reading and translation for 1 hour. (Many words including target words were asterisked with marginal gloss, context-oriented learning)
  - ② Session 2: Word matching exercise for 5 minutes (definition-oriented learning):
- Input Group
  - ① Session 1: Explicit teaching by passage reading and translation for 1 hour. (Many words including target words were asterisked with marginal gloss, context-oriented learning)
  - ② Session 2: Input-based exercise of listening to the passage and silent reading again for about 12 minutes (aural and written input).
  - ③ Session 3: Word matching exercise for 5 minutes (definition-oriented learning).
- Written Output Group
  - ① Session 1: Explicit teaching by passage reading and translation for 1 hour. (Many words including target words were asterisked with marginal gloss, context-oriented learning)
  - ② Session 2: Written output-based exercise of completing sentences for about 12 minutes.
  - ③ Session 3: Word matching exercise for 5 minutes (definition-oriented learning).
- Oral Interaction Group
  - ① Session 1: Explicit teaching by passage reading and translation for 1 hour. (Many words including target words were asterisked with marginal gloss, context-oriented learning)
  - ② Session 2: Oral interaction-based exercise of talking with partners for12 minutes.

③ Session 3: Word matching exercise for 5 minutes (definition-oriented learning).

In the first session (second week) all the students in four groups were taught in the same way with the reading section of a textbook chapter by reading, explanation and translation. Instructional intervention was made differently in the second session (third week) with input-based, written output-based, and oral interaction-based learning tasks. That is, the students learned the target vocabulary in different ways for about 12 minutes. In the third session (fourth week) the students in all groups learned in the same way again with a word-meaning matching exercise.

The differentiated tasks for the experimental groups in the second session are as follows: The students in Input Group carried out both aural and written input-based tasks. They listened to the textbook passage recorded by a native English teacher and then were asked to read the passage again silently. The students in Written Output Group were provided a task sheet to complete the sentences which involve the target vocabulary in the business of social welfare they had learned in their previous class for the written output exercise. The students in Oral Interaction Group were asked to talk in English with their partner about the business of social welfare they had learned in their previous class. They were cautioned not just to read the textbook when interacting with partners but they were allowed to refer to the textbook when it was needed.

4. Target Vocabulary

The target vocabulary items were selected from the first chapter of the English textbook the students were using. The tokens of the words appeared in the text of the first chapter are 690, the different types are 285, and different word families are 199. Among the 285 different types of the words, 195 are within the range of basic 2000 words category (General Service List adapted by Baumann & Culligan, 1995). Among them twenty target words were chosen which students should encounter frequently for their major study. Three out of 20 belong to the basic 2000 words category and 17 are from the off-list or academic and technical word list. The following words are the target vocabulary used for this experiment:

Target vocabulary (20 items): abuse, addicted, cognitive, counsel, disability, disaster, discrimination, disorders, elderly, employment* emotional, enhance, financial, fulfill*, juvenile, oppression, rehabilitate, socialization, violence*, vocational (Asterisked words belong to the basic 2000 words category on the General Service List.)

5. Pretest and Posttest

The pretest and posttest consisted of two different sets respectively (see Appendix D and E for the test items). The first set was designed to test the students' receptive knowledge of the target words, and the second set was developed to assess their productive knowledge of the target words. The receptive and productive word tests asked same items, but the order of the test items differed in each test set to avoid the between-test influence as far as possible. Each test set consisted of 20 items and each item answered correctly was scored 2.5 points. So the highest possible score could be 50 points in each set. When the students did not write exactly correct translation but still wrote understandable translation with a minor incorrect spelling, they were given partial points (2 points instead of 2.5 points).

The students had to write Korean translation of the English words given in a sentence for the receptive knowledge test, while they had to write English translation of the Korean words for the productive knowledge test. This type of test was designed to overcome the shortcoming of the Vocabulary Knowledge Scale (VKS) developed by Wesche and Paribakht (1996) for vocabulary assessment of ESL learners. In the VKS an English word is given and then asks the test-takers if they can use the words in sentence to assess their productive knowledge. However, in this way the VKS is presumed to assess the test-takers' ability of using the given word not the real productive knowledge. It is because genuine productive knowledge of a word should involve knowing not only how to use it but also how to pronounce, write and spell it.

The tests were administered in a paper-and pencil format in the classroom. After the Receptive Knowledge Test was finished and the test sheets were collected, the Productive Knowledge Test sheets were distributed to prevent the students from referring to the other type of the test sheet. The posttest which is same with the pretest was conducted on the 5^{th} week and the delayed post test was on the 12^{th} week.

To ensure reliability and consistency during the scoring procedure, the identity of the tests (pretest or posttest) as well as the group (four different groups) was concealed.

6. Data Analysis

Twenty items in a receptive knowledge test set and another 20 items in a productive knowledge test set were scored separately and then each receptive-productive pair was examined by group. For data analysis, the Statistical Packages for the Social Sciences (SPSS) 15 was used. The mean gain scores of each group were compared by means of paired t-tests and ANOVA. The analysis of covariance tests were conducted to examine if there were any significant treatment effects in receptive and productive vocabulary knowledge of the students.

IV. RESULTS

1. Pretest for Receptive and Productive Knowledge

The pretest was administered to all the participants in the first week of the semester before they were exposed to the target words through the reading text. The purpose of the pretest was to assess the students' receptive and productive knowledge of the target words before the treatment, and the result of the test is summarized in Table 1. The 93 students' mean score of receptive and productive knowledge tests was 15.74 and 11.63 out of 50 respectively.

TABLE 1
Pretest Result on Receptive and Productive Knowledge

Group	Receptive Knowledge Test (50 points possible)		Productive Knowledge Test (50 points possible)		N
	Means	SD	Means	SD	
Control	14.58	12.08	11.63	10.81	20
Input	18.37	10.76	14.00	10.37	27
Written Output	15.57	9.58	9.15	8.16	23
Oral Interaction	13.85	9.07	11.35	8.11	23
Total	15.74	10.38	11.63	9.45	93

One-way ANOVA results of the pretest on receptive and productive knowledge showed that four groups had similar knowledge base either in receptive or productive knowledge of the target vocabulary as the differences among their average scores were not statistically significant as shown in Table 2. This means that the four groups are homogeneous in their level of receptive and productive vocabulary knowledge at the start.

TABLE 2
Between-Subjects Effects in Pretests of Four Groups

Test	SS	Df	F	Sig.
Receptive	297.003	3	.916	.436
Productive	294.698	3	1.103	.352

2. Progress in Vocabulary Knowledge

1) Receptive Knowledge of Vocabulary

In the posttest of receptive vocabulary knowledge, it was found that all the groups demonstrated significant enhancement: The score difference between pretest and posttest in each group was significant according to the results of the paired t-tests of each group even in Control Group (p=.000) as shown in Table 3. The Oral Interaction Group had the highest

gain of 24.56 (+177%) from 13.85 to 38.41 compared to other groups.

TABLE 3
Comparison between Pretest and Posttest of Receptive Knowledge

Group	Pretest*	Posttest*	Gain Scores	SD	Sig.
Control (n=20)	14.58	34.95	+20.37 (+140%)	7.78	.000
Input (n=27)	18.37	38.78	+20.39 (+111%)	7.64	.000
Written Output (n=23)	15.57	36.33	+20.76 (+133%)	9.93	.000
Oral Interaction (n=23)	13.85	38.41	+24.56 (+177%)	7.65	.000
Total (Average)	15.59	37.12	+21.53 (+138%)		

*50 points possible in each test

Big gain scores in all groups were achieved after the learning sessions, and it seems that the repeated learning sessions for enhancing students' vocabulary knowledge given over three weeks helped the students to have been exposed to the target words repeatedly and led to their high achievement. It is interesting that the control group also achieved high gain scores. The affective factors such as the class cohesiveness seemed to have operated positively in this group.

The Input Group showed the least progress in receptive knowledge of the target vocabulary. They just listened to the passage and carried out a task of quiet reading of the passage, but the test results showed that this kind of comprehension exercise was less effective than output exercises. However, the analysis of covariance (ANCOVA) results indicated that differences of the gain scores were not statistically significant between groups as in Table 4 (p=.342).

TABLE 4
ANCOVA Results for the Receptive Knowledge Posttests*

Source	Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	5111.817	4	1277.954	21.076	.000
Intercept	18692.564	1	18692.564	308.274	.000
Receptive Pretest	4892.257	1	4892.257	80.682	.000
Group	295.408	3	68.469	1.129	.342

*Dependent Variable: Posttest, Covariate: Pretest, Fixed factor: group

The difference of gain scores was far bigger between Control and Oral Output Group than between any other groups even though it did not indicate the statistical significance in the LSD post hoc comparisons of the gain scores as shown in Table 5.

TABLE 5
LSD Comparisons of the Gain Scores on Receptive Test between Groups

Group	Mean Difference	Std. Error	Sig.
Control vs. Input	-.0509	2.45	.983
Control vs. Written Output	-.3859	2.54	.879
Control vs. Oral Interaction	-4.1902	2.54	.102

2) Productive Knowledge of Vocabulary

The gain scores in the posttest of productive knowledge were much lower than those in the receptive knowledge, but the score difference between pretest and posttest in each group was still significant according to the result of a paired t-test of each group as shown in Table 6.

TABLE 6
Comparison between Pretest and Posttest of Productive Knowledge

Group	Pretest*	Posttest*	Gain Scores	SD	Sig.
Control (n=20)	11.63	14.23	+2.60 (+22%)	5.53	.049
Input (n=27)	14.00	20.33	+6.33 (+45%)	6.41	.000
Written Output (n=23)	9.15	16.06	+6.91 (+76%)	6.89	.000
Oral Interaction (n=23)	11.35	20.26	+8.91 (+79%)	5.42	.000
Total (Average)	11.53	17.72	+6.19 (+54%)		

*50 points possible in each test

The results of the posttests to investigate the progress on productive vocabulary knowledge demonstrated that Oral Interaction Group had the highest gain of 8.91 (+79%) from 11.35 to 20.26. Written Output Group and Input group followed them with gain scores of 6.91 (+76%) and 6.33 points (+45%) respectively, which are higher than the gain scores of 2.6 points (+22%) of Control Group. The result of the analysis of covariance (ANCOVA) indicated a significant treatment effect in productive vocabulary knowledge of the students as shown in Table 7 (p=.011).

TABLE 7
ANCOVA Results for the Productive Knowledge Posttests*

Source	Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	6842.168	4	1710.542	46.544	.000
Intercept	2043.110	1	2043.110	55.594	.000
Productive Pretest	6206.762	1	6206.762	168.888	.000
group	432.010	3	144.003	3.918	.011**

*Dependent Variable: Posttest, Covariate: Pretest, Fixed factor: group
**Group (treatment) effects are significant at .05 level.

LSD Post hoc comparison results also indicated that the three experimental groups acquired significant improvement after treatments when they were compared to the control group as shown in Table 8. This means that the input and output tasks had significant effects on the progress of students' productive vocabulary knowledge, especially the difference between Oral Interaction Group and the Control Group demonstrated the highest significance level. Even though the differences among three different experimental groups were not statistically significant, the oral output treatment led to the highest effect on the productive knowledge of the students with a mean gain score of 8.91.

TABLE 8
LSD Comparisons of the gain scores in Productive Test between Groups

Groups	Mean Difference	Std. Error	Sig.
Control vs. Input	-3.73	1.81	.042*
Control vs. Written Output	-4.31	1.87	.024*
Control vs. Oral Interaction	-6.31	1.87	.001*
Input vs. Written Output	-.5797	1.74	.740
Input vs. Oral Interaction	-2.5797	1.74	.141
Written Output vs. Oral Interaction	-2.000	1.81	.272

*Gain score differences are significant at .05 level.

V. DISCUSSION

It is speculated by the findings of this study that the multiple encounters of target words over three sessions helped the students acquire high gain scores in their vocabulary tests, while they might have lessened the gap of gain scores among groups. The gap was lessened even more in receptive knowledge than in productive knowledge among groups. Despite the effect of spaced repetition leading to overall high gain scores with smaller gaps among groups, the treatment intervention still made a statistically significant difference in the productive knowledge development.

The gain scores of receptive knowledge were almost three times higher than those of productive knowledge. It is because only a very small part of receptive knowledge can become productive knowledge (Laufer, 1998; Morgan & Oberdeck, 1930 cited in Waring, 1999). In addition, the productive knowledge can not be built without productive use of vocabulary (Laufer, 1998). It means that it is difficult to gain productive knowledge without output opportunities. The findings of this study confirmed that exercises which require active and productive use of vocabulary are essential to yield the positive effects in vocabulary knowledge development and those exercises can make the difference bigger in productive knowledge than in receptive knowledge.

1. The First Hypothesis

The first hypothesis of this study was that the students' receptive knowledge of the target vocabulary will be promoted either by input-based or output-based tasks to the same degree, while their productive knowledge will be better improved by output-based exercises than any other exercises. This claim was not supported by this study. The results of the study demonstrated that output-based exercises, especially oral interaction-based output, affected the most positively on enhancing the students' receptive as well as productive knowledge of vocabulary. However, the differences between control and each experimental group were not statistically significant in receptive knowledge; while statistical significance was found in productive knowledge. Therefore, it was concluded that lexical competence (receptive knowledge) as well as performance (productive knowledge) can be enhanced more effectively by output-based exercises than input-based exercises.

The treatment factor was found to have played a relatively small role in the overall big achievement. The little influence of the treatment seems to have appeared because of the students' repeated encounters of the words through the instruction in the second (reading) and fourth (word matching) sessions, too. In other words, it is speculated that the overall big progress in all groups could be made because the instructions for enhancing students' vocabulary knowledge were given over three weeks so the students were benefited from the exercises via spaced repetition.

However, this study demonstrated the differentiated effects of the input and output treatments which took place in the third session on the learning of both receptive and productive vocabulary. Comprehensible input is crucial to the L2 acquisition process. The problem is that students cannot make improvement easily beyond their existing level if they cannot recognize what they do not know with the input exercise only. That is, input only does not give effective chances for students to notice a gap between what they already know and do not know. The aural input exercise which the students in Input Group did in the treatment session does not seem to give sufficient opportunities for the students to develop their vocabulary knowledge comparing to the output exercises. On the other hand, output exercises (written and oral interaction) allowed the students to recognize problems in their vocabulary knowledge and helped to develop even more.

Another explanation can be made on the basis of the benefits of tasks with increasing cognitive demands as Robinson (2001) argues. Robinson claims that "task demands are the attentional, memory and reasoning demands of tasks that increase the mental workload the learner engages in performing the task" (p. 302). So this can lead to more noticing of relevant forms or words and result in more learning. The cognitive demands seem to have grown higher in the order of an input-based exercise, a written output-based exercise, and

an oral interaction-based exercise since the output group students had to be involved in more layers of language dimension than input group students.

The surprising result of the high achievement in the receptive knowledge test of the Control Group could be explained with the factor of students' overall attitude in the classroom. The class cohesion of this group seemed to have been stronger than any other classes throughout the semester, and most of the students in this class were enthusiastic comparing to those in other classes. A speculation could be made that the class atmosphere with the students' positive attitude led to the students' high achievement in learning in this group. However, the attitude factor was not so influential in the productive knowledge test, which in turn can be explained that the nature of exercises they performed were much more influential since the improvement of productive knowledge requires complex cognitive spur.

2. The Second Hypothesis

The second hypothesis was that oral interaction-based exercises would be more effective on the improvement of the students' vocabulary knowledge than written output-based exercises in gaining productive vocabulary knowledge. The findings of the current study supported the hypothesis that oral interaction-based exercises will better contribute to the improvement of receptive and productive vocabulary knowledge than written output-based exercises. The Oral Interaction Group acquired the highest mean gain score (+8.91) in productive knowledge tests, though the differences between experimental groups did not show a statistical significance. The mean gain scores of Written Output Group, Input Group, and Control Group were 6.91, 6.33, and 2.60 respectively.

A couple of explanations might be available to explain about the efficacy of oral interaction-based exercises. First, there is the complexity of the linguistic aspects in oral interaction processing. While written output processing requires morphological specifications with semantic information, oral output processing requires the specifications needed in written output processing plus phonological specifications as well. As the output processing burden increases, more cognitive effort of learners is required. As a result, it could stimulate the retention of receptive and productive vocabulary knowledge of learners even more. As Hulstijin states: "The more a learner pays attention to a word's morphonological, orthographic, prosodic, semantic and pragmatic features and to intraword and interword relations, the more likely it is that the new lexical information will be retained (Hulstijn, 2001, p. 285)."

Another explanation can be made on the basis of the interactional nature of the oral interaction-based exercise: it is advantageous over the unidirectional written output exercise. The students had opportunities to judge the comprehensibility and linguistic well-

formedness of their utterances against feedback obtained from their partners. That is, the students in Written Output Group could recognize their problems through internal feedback with self-monitoring only, while those in Oral Interaction Group could use not only internal but external feedback from their partners as well. Though Swain (1995, 1998, 2005) did not differentiate the oral and written output in her output hypothesis when she argued for the four functions of output in language acquisition, the hypothesis-testing function might be even more strengthened by the oral interaction because the students could get immediate feedback.

3. The Third Hypothesis

The third hypothesis was that the students who do the output-based and oral interaction exercises will outperform the students who do the input-based exercises in both of the short-term and long-term retention of the target vocabulary items. Unfortunately, this was not tested because the delayed test results were discarded due to the invalidity of the obtained data. More careful practice should have been conducted throughout the experiment process.

V. CONCLUSION AND PEDAGOGICAL IMPLICATIONS

This study was aimed to investigate the efficacy of different types of classroom exercises for productive and receptive knowledge development of vocabulary. It was found that the oral interaction-based exercise was the most effective in promoting vocabulary knowledge, and especially for enhancing productive vocabulary knowledge. Since the instructional intervention was a small part of the overall classroom sessions, the group differences were not very clearly demonstrated in this experiment with the considerable gains which were resulted by spaced repetition exercises over three sessions. Nevertheless, this study is meaningful since it strongly proved the effectiveness of multiple encounters of target vocabulary items and superiority of oral interaction-based exercises in vocabulary learning. The findings of this study are valuable since they provided us with a firm ground for designing and selecting the kinds of output exercises. Thus, the findings of this study could help language educators and material developers devise pedagogical tasks which effectively promote the students' L2 vocabulary knowledge.

On the basis of the findings of this study, systematic vocabulary exercises based on student-student interaction can be proposed in language classes. The use of carefully designed oral interaction-based vocabulary exercises will contribute to the enhancement of receptive knowledge such as reading or listening, as well as productive knowledge such as

speaking or writing.

Several limitations or weaknesses of the study should be pointed. First, even though the current study had been planned to examine the treatment effects on the students' long-term retention of the target vocabulary as well, the long-term retention could not be investigated due to the invalidity of the data for this. More careful direction should have been forwarded to the participants to keep the validness of the data. Second, students' attitudes such as class cohesiveness were found to have affected the students' gain scores, even though it was not considered to be included in the procedure of this study. This factor should have been investigated simultaneously to give more objective explanation of the influence of this factor on students' performance. Future research which studies the effects of certain instructional intervention should include the factor of students' attitudes in class since it was found that it actually affected the students' achievement in this study. Third, the multiple encounters of target words in class greatly affected the students' achievement, which in turn negatively affected the result of the study in examining the precise differences among different treatments. Therefore, to get a better picture of the differences of treatment effects, it is advised that instructional devices such as the inclusion of a word matching exercise other than target treatments be restrained.

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APPENDIX A

Reading Passage Sample in Textbook Chapter 1

The goal of social welfare is to fulfill the social, financial, health, and recreational requirements of all individuals in a society. Social welfare seeks to enhance the social functioning of all age groups, both rich and poor. When other institutions in our society, such as the market economy and the family, fail at times to meet the basic needs of individuals or groups of people, then social services are needed and demanded.

In less industrialized societies, people's basic needs have been fulfilled in more direct and informal ways. Even in this country, fewer than 150 years ago most Americans lived on farms or in small towns with extended families and relatives close by. ……

It is the business of social welfare:

- To find homes for parentless children.
- To **rehabilitate** people who are **addicted** to alcohol or drugs.
- To treat those with **emotional** difficulties.
- …..

(about 700 words)

APPENDIX B

Sample Items in Written Output Exercise

빈 칸을 알맞은 말로 채워서 문장을 완성하시오.

The goal of social welfare is to _____ the social, financial, health, and recreational requirements of all individuals in a society. Social welfare seeks to _____ the social functioning of all age groups, both rich and poor.

It is the business of social welfare:

- To find homes for _____ . (부모없는 아이들)
- To _____ people who _____ _____ __ alcohol or drugs. (재활시키다, 중독되다)

- To treat those with _____ difficulties. (정서적 혹은 감정적인)
- To make life more meaningful for _____ _____. (노인들)

APPENDIX C

Sample Items in Word Matching Task

.

1	financial	*	*	나이가 든
2	enhance	*	*	재활시키다
3	discrimination	*	*	재정적인
4	elderly	*	*	폭력
5	violence	*	*	학대

APPENDIX D

Sample Items in Pretest and Posttest for Receptive Knowledge of Words

다음 영어 문장을 읽고 밑줄 친 단어의 뜻을 써 보시오.

1. These places fulfill the basic needs of the tourists, such as shopping and food.
2. The economic recession and the financial crisis also lead to the competition of job hunting..
3. There are four useful skills which will enhance the effectiveness of note-taking.
4. The purpose of our prisons is not just to punish offenders but to rehabilitate them.
5. Humans (and indeed all mammals) can become addicted to various drugs quickly.

APPENDIX E

Sample Items in Pre and Posttest for Productive Knowledge of Words

다음 우리말 문장을 영어로 옮겨 써 봅시다. 의사 전달에 중점을 두어 문장의 의미와 관련된 알고 있는 단어를 모두 사용하여 써 봅시다.

1. 이 청소년 법정의 목적은 어린이들의 권리를 보호하기 위한 것이다.
2. 장애의 있고 없음은 소득 수준과도 연관되어 있다.
3. 직업 훈련은 학습자들이 직업을 구할 준비가 되도록 도와준다.
4. 노인들은 혼자서 살아서는 안 된다.
5. 당신의 우울증은 정서적 학대에 의해 발생하였다.

Examples in: English
Applicable Languages: English
Applicable Levels: College

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