A Study of the Multimedia-assisted Vocabulary Instruction Methods for College Students[*]

Hee-Jeong Ihm

(Seoul National University of Education)

Ihm, Hee-Jeong. 2006. A Study of the Multimedia-assisted Vocabulary Instruction Methods for College Student. *The Linguistic Association of Korea Journal, 14*(2), 269-287. Acquiring vocabulary knowledge has great impact on the understanding of text in EFL context. Nevertheless, vocabulary instruction has been put aside as a subsidiary subject of other language skills. In addition to, the meaning-focused language teaching gives way to the need of developing more effective vocabulary teaching methods. This study aims to develop the multimedia-assisted vocabulary instruction by analyzing the results of the survey about students' attitude toward the instruction and the experimental instruction. As a result, the principles to accomplish the better outcome of the multimedia-assisted vocabulary instruction are suggested.

Key Words: vocabulary instruction, multimedia, English language teaching, university education

1. Introduction

In ELT context, teaching vocabulary has not been emphasized compared with teaching grammar, listening, and speaking skill. This situation corroborates the need for developing the methodology of teaching vocabulary. That is, vocabulary instruction has been put aside as a subsidiary subject of language skills. However, in order to

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comprehend a text, learners should be familiar with 95 percent of the words in the text at any level (Hirsh & Nations, 1992).   Moreover, according to Laufer (1997) and Nation (2001), the minimum number of the words to know in order to understand the academic text is between 3,000 and 5,000 words.   Also   Laufer & Sim's experiments (1985) revealed that readers seemed to depend more on the meaning of vocabulary rather than on the structures of the texts.   Along with the previous research founding, the focus of ELT instruction has been shifted from form-focused to meaning-focused instruction, and, as a result, meaning-based communicative language teaching was introduced. The meaning-focused language teaching gives way to the need of developing vocabulary instruction in ELT context.

Although the importance of vocabulary instruction being recognized, there is still few action research about ELT vocabulary instruction (Kwon 1995; Lee, 1996).   Consequently the useful teaching methodology to assist learners to learn vocabulary efficiently has been rarely developed.   Unlike the ESL context where learners are easily exposed to language input, in EFL situation, learners are facing the limited language learning environment in which learning occurs mostly in the classroom (Lee, 1996).   In addition, teacher-directed vocabulary instruction is uniformed, having no consideration of learners' vocabulary competence level.

The common vocabulary instruction is definitional approach: a teacher provides the meanings of the target words with example sentences.   It is difficult to find the case that supplementary audio and visual materials are utilized for vocabulary instruction.   For example, the results of the survey conducted in this study indicated that only one students out of 131 students answered that he had experience of being taught with the supplementary materials during vocabulary instruction. Considering the current situation of ELT vocabulary instruction in Korea, it is necessary to investigate the effective vocabulary teaching methodology to help students learn vocabulary effectively.   Currently as the effective vocabulary instruction presenting words in the context the learners are familiar with or utilizing the images or sounds that can

activate learners' background knowledge are recommended.

The purpose of this study is to confirm the effectiveness of the web-based multimedia-assisted vocabulary instruction that employs texts, visuals, and contexts simultaneously and to suggest instruction methodology. To accomplish the objectives of this study the following subsidiary research goals were set, and the research was conducted as follows:

First, in order to understand the current situation of vocabulary instruction for Korean college students, the survey was administered to a group of college students.

Second, the students' attitudes and their need of vocabulary instruction were identified through analyzing of the results from the survey.

Third, the web site was constructed reflecting the students' needs acknowledged from the survey.

Fourth, two types of vocabulary instructions- web-based multimedia assisted instruction and teacher-directed contextualized approach -were carried out and compared to find out whether there was any significant difference in the outcomes of students' vocabulary acquisition.

Fifth, according to the overall result of the experiment, effective multimedia-assisted vocabulary instruction methodologies were suggested.

2. Literature Review

As mentioned in a previous part, there are very limited numbers of researches about vocabulary learning and teaching in Korean ELT context. The previous domestic researches are categorized as follows: vocabulary list (Kim & Jeong, 1999), contrastive analysis of Korean and English vocabulary, learners' vocabulary learning strategies (Jung, 2000; Han, 2003, Kim, 1994, Park, 2001), vocabulary instruction and learning strategies (Lee, 1996). The previous oversea's research related to ESL vocabulary learning are: the effect of reading instruction on vocabulary instruction (Krashen, 1989; Nagy, 1988), development of learning

strategy for vocabulary learning strategy (Ahmed, 1989), and explicit and implicit vocabulary acquisition (Coady, 1993; Ellis, 1995; Nation, 1990).

2.1. The Influential Factors in Acquiring Vocabulary

Lee (1996) argued that the four factors-frequency of word occurrence, saliency, imàgeability, and contextuality- have impacts on the results of vocabulary learning.   However, this arguments do not consider the effects of learners' strategies and teaching methodology on the outcomes of vocabulary acquisition.   Thus, in the literature review part, this study also investigated the previous research about the effective vocabulary learning strategies.

2.1.1. Frequency of exposure to the target word

Even after a language learner understands the meaning of a word within the context, the learner needs to be exposed to the word several times to acquire completely it (Nagy, 1988). According to Jenkins & Dixon (1983) the optimal frequency of exposure for vocabulary acquisition ranges from six to 12 times. Rott(1999) found that the minimum frequency number of exposure for vocabulary acquisition is six times, which relates with the results of Saragi, Nation, and Meister's experiment (1978) that showed the effectiveness of   the frequency of exposure to the targets words.   In the experiment, the numbers of students who acquired vocabulary increased after the students became exposed to the target words more than six times. Furthermore, Zahar, Cobb, and Spada's study (2001) discovered that the frequency of exposure was more significant to the high level ESL students than to low level students.   The results of the study drew the conclusion that the learners' language level determined the frequency of exposure to the target words.   The above the previous studies comprise that it is necessary for learners to get exposed to the target words, at least, six times.   The matter is how to get learners to be exposed to

the target words.

2.1.2. Role of the context

The importance of contextualized vocabulary learning has been supported by many researchers. Under the contextulized first language environment, vocabulary learning is easily achieved. Likewise, the second language learning could be contextualized by providing the second language learners with supplementary visual aids and by activating their background knowledge (Krashen, 1989). In particular, to provide a comprehensible input for vocabulary learning, inciting learners to activate their background knowledge is very important. The contextualized vocabulary learning is very closely related to the implicit learning during reading or listening activities. This type of vocabulary learning is distinguished from the intentional learning that is characterized by its focused explanation of a particular word without presenting a context.

EFL learners, who are exposed to the limited language input, also have some difficulties in learning the target vocabularies due to the lack of background knowledge about a target word. By providing the simulated language input to EFL learners multimedia-assisted vocabulary learning, as a solution to the problems EFL language learners have, makes it possible for the learners to experience optimal language learning context.

2.1.3. Effective vocabulary learning strategies

Traditional vocabulary instruction is manifested as being teacher-directed and meaning-based. The active role of learners in learning vocabulary was found to be a positive reinforcement for vocabulary acquisition. Accordingly the great emphasis is put on encouraging learners actively to participate in vocabulary learning. Regarding the learner's strategies in learning vocabulary, Gu & Johnson (1996) introduced vocabulary learning strategies: beliefs about vocabulary

learning, metacognitive regulation, guessing strategies, dictionary strategies, note-taking strategies, memory strategies (rehearsal and encoding), and activation strategies. Nation (2001) also proposed the classification schemes of vocabulary learning strategies including planning of vocabulary learning, access to source of vocabulary knowledge (analysing word parts, using parallels with other languages) and learning processes. The most frequently used learning strategies are guessing from the context, mnemonic devices, and vocabulary note taking. In order to utilize the strategies effectively, the contextualized vocabulary instruction through reading materials is recommended. Web-based multimedia-assisted vocabulary instruction enables learners to put the learning strategies into practice, for example, by including the contents through which the learners are able to perform a proper strategy.

2.2. Multimedia-assisted Vocabulary Instruction

In recent days, the studies have been carried out to explore the effectiveness of multimedia-assisted vocabulary instruction (Choi, 1995; Brett, 1998; Chun & Plass, 1996; Davis & Lyman-Hager, 1997; Duquette, Renie & Laurier, 1998). The studies found that students preferred computer-assisted vocabulary learning to traditional vocabulary learning using paper dictionaries. In addition the context retrieved from the Internet helped learners to figure out the meanings of the target vocabulary (Kost, 1999; Kramsch et al., 2000; Li & Hart, 1996). Nation (2001) suggested the methods of multimedia-assisted vocabulary instruction such as adding color marks or flash function for noticing, delayed presentation for learner's retrieving, and increasing amount of clues given to learners for understanding the meanings of words.

As a action research Kang's research (1995) revealed that the computer-assisted contextualized vocabulary instruction was far more effective than the pencil-paper method, the computer word-for word method, and the computer and picture-assisted instruction. The result of this study indicated that when the three types of materials-visual,

auditory, and the contexualized-are given simultaneously, the instruction will have positive impacts on the learners. On-line dictionary also contributes to increasing students' vocabulary skills (Leffa, 1992). To keep up the results related to multimedia-assisted vocabulary instruction, the further researches that uncover the methods of word presentation need to be continued.

3. Research Methodology

The study was conducted 1) to investigate whether the multimedia -assisted vocabulary instruction yields greater results than the traditional instruction and 2) to explore the effective instruction methodology to teach vocabulary.

3.1. Research Procedures

This research was performed according to the following procedures. First, in order to investigate the Korean college students' current situation of vocabulary learning including their attitude toward multimedia-assisted vocabulary instruction, the survey was administered. Second, on the basis of the results of the survey, the contents of the multimedia-assisted vocabulary instruction were developed. Third, two groups-an experimental group and a control group-were compared after multimedia-assisted vocabulary instruction and traditional vocabulary instruction were implemented respectively to each group. The pre-test was administered to both groups to check the existing knowledge of the target words. After the instruction, two groups were also put to a post-test to measure any gains of each group. The next step was to find out whether there were significant differences between the mean scores of the pre-test and the post-test on the basis of the results of t-test. Finally, the discussion and possible implication of the finding were followed.

3.2. Subjects

The subjects of this study were college students from two departments enrolled in the course the researcher was teaching. 131 college students consisting of 19 male students and 112 female students responded to the survey questionnaire that was designed to examine their attitude toward the multimedia-assisted vocabulary instruction. For the experimental instruction, two classes were selected: one class consists of 34 science education major students and the other 38 art education major students.   The art education major students was treated as an experimental group.   To observe the differences between the mean scores of the pre-test and the post-test within each group, the English proficiency skill of each group was not considered as the influential variable.

3.3. Questionnaire

The purpose of the survey was to investigate students' attitude toward multimedia-assisted vocabulary instruction as well as the current situation of Korean college students' vocabulary learning. The questionnaire was composed of four parts: personal information, the current situation of vocabulary learning, attitudes toward multimedia-assisted vocabulary instruction, and students' opinion about multimedia cpnneys.

3.4. Experimental Instruction

The experiments of this study have a quasi-experimental, pre-test/post-test, differential treatment design, with the instruction method as the independent variable and the scores on the post- tests as the dependent variables.   Two groups of the subjects were presented with the seven words, respectively under the control and the experimental condition.   For the tutorial session for each group, the words were selected from the Han (2004)'s research related to web-based vocabulary learning. She chose eight words in consideration

of low frequency of use. In this study, seven words[1] were introduced for both tutorial sessions.

Prior to the learning session, a pre-test was administered to each group. The control group took the traditional, contextualized vocabulary instruction. The instruction continued for around fifteen minutes for both tutorial sessions. During the contextualized vocabulary instruction for the control group, the researcher taught the target words while showing the words within the written context, without presenting any visual and auditory clues. On the other hand the experimental class, the research used the multimedia contents created referring to the results of the survey. As presented in Figure 1, 2, and 3, the students could get access to different modalities of the target words: visual, auditory, and web-based interactive vocabulary activities. In particular, as the Figure 3 showed, the interactive multimedia materials were created with the *Hot Potatoes*. The instruction also lasted for fifteen minutes, but unlike the control group, the experimental groups were exposed to different of language input.

Figure 1. Example of the Multimedia Contents

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1) The selected words are barrage, extemporaneous, facetious, blatant, inundate, infinitesimal, behoove, incarcerate

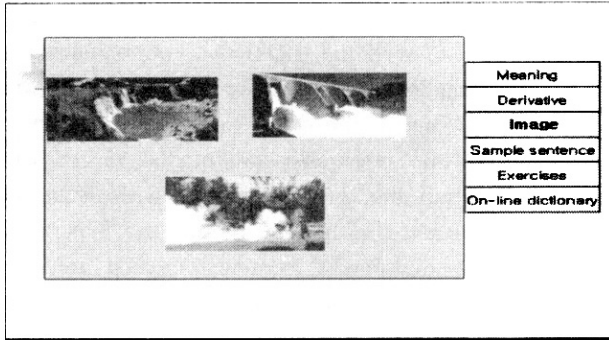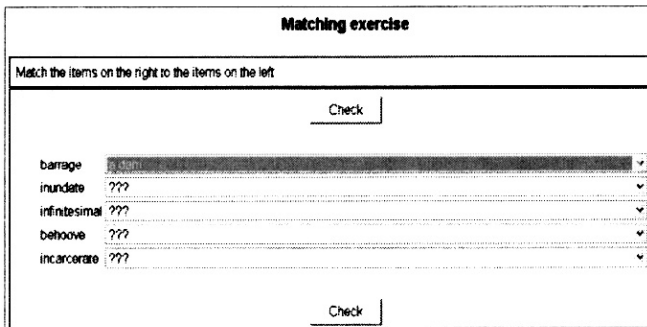Figure 2. Example of Multimedia Contents

Figure 3. Example of Web-based Interactive Exercise

4. Results

4.1. Result 1

The results of the survey provided useful resources to understand the conditions of Korean college students' English vocabulary learning, and futhermore to organize the multimedia contents the students prefer.

Initially, Table 1 showed what vocabulary learning methodologies the students have depended on. The remarkable result was that thirty nine percents of students answered they did not, in particular, study English vocabulary.

Table 1. Vocabulary Learning Method

Methodology	N	%
Contexualized learning	33	25.0
Annotated word list	12	9.3
Contexualized & word list	34	26.0
Do not study English word	52	39.7
	131	100.0

The examination of Table 2 revealed that the most common vocabulary teaching method was featured by incidental vocabulary learning through which words are treated while teaching reading. The one important result of this survey was that there was only one student having an experience of learning English words with supplementary materials.

Table 2. Vocabulary Instruction Method

Methodology	N	%
Contextualized/incidental	67	51.1
Not contextualized/sample sentences	25	19.1
No vocabulary teaching	33	25.1
Supplementary materials	1	0.8
On-line dictionary	4	3.1
No response	1	0.8
	131	100.0

In addition, almost only half numbers of respondents (65 students out of 131) answered that they have had learned English vocabulary

through   multimedia.   As   to   the   students'   attitude   toward
multimedia-assisted vocabulary instruction, 40.5 percents of the students
showed   positive   attitude   toward   multimedia-assisted   vocabulary
instruction.   However, 51.1 percents of the students seemed to be
unsure about the effectiveness of the instruction.

As   shown   in   Table   3,   the   features   of   multimedia   contents   that
students   regard   as   effective   for   vocabulary   learning   are   repetitive
presentation of the target vocabulary within a context.   The table also
indicated that very few students chose the presentation of the word list
with the corresponding L1 meaning to be the important element of the
multimedia contents.

Table 3.   Feature of Multimedia Materials Students Prefer

Important features	N	%
Repetition	48	36.6
Context embedded presentation	64	48.9
Using on-line dictionary	10	7.6
Word list with L1 meaning	3	2.3
No response	6	4.6
	131	100.0

Additionally,   the   result   of   the   survey   revealed   that   students
recognized   the   interactiveness   between   a   learner   and   multimedia
contents   as   the   important   features   of   the   effective   multimedia
vocabulary learning contents. The overall conclusion could be drawn
from   the   analysis   of   the   survey   questionnaire: students   favor   the
contextualized and multimedia-assisted vocabulary instruction in which
interaction between a learner and   contents exists.   In accordance with
this conclusion,   the multimedia contents were developed on purpose to
teach the target words during the experimental session.   The main
features   of   the   developed   contents   were   word   presentation,
pronunciation, and images related to the meanings of the words.

4.2. Result 2

Prior to experimental session, the pre-test was conducted to examine each group's knowledge about the target words. After 15-minutes-instruction, post-test was also practiced to get the mean score of each group and to compare the means.   The test results were presented in Table 4 and Table 5.   The results of mean t-test comparing students' scores showed that significant gains were made by the both groups.

Table 4.   Control Group

Test	M	SD	T	p
pre-test	1.43	.843	-8.152	0.000*
post-test	4.57	1.409		

N=23   p<.05*

Table 5. Experimental Group

Test	M	SD	T	p
pre-test	2.0	1.0	-18.820	0.000**
post-test	5.85	.362		

N=27   p<.05**

5. Discussion

Even though the rapid development of technology has continued, the application of the technology to ELT is not widely done, especially, in teaching English vocabulary. As we notice the results from the survey, students' limited experiences of the multimedia-assisted English learning produced that 51.1 percent of the students to be surveyed were not sure of the effectiveness of the instruction.   The lack of students' learning experiences of multimedia-assisted instruction is attributable to the insufficient teacher's knowledge about the multimedia-assisted teaching method.   Teachers, as mediators between a student and technology,

should play a role to facilitate the learning process and to integrate appropriately the technology with teaching context. Using technology in the EFL classrooms, after all, immensely depends on the teacher's attitude toward technology. Considering the variables that influence the outcome of the ELT vocabulary instruction, teachers provide more dynamic and meaningful input utilizing different technologies of the multimedia contents.

Realizing that the importance of teachers' teaching methodology, we need to consider how to embody multimedia-assisted vocabulary learning through multimedia technology. The students' responses to the survey conducted in this study pointed out that they considered the repetition function the most important factor to learn vocabulary. The students' opinion about vocabulary learning coincided with the Chapelle (2003)'s claim that put emphasis on the significance of the enhanced input. The input enhancement can be accomplished by, for example, underlining text on a page or stressing lexical phrases in aural input. By the process, the input becomes salient to learners. The likelihood of learners acquiring linguistic input increases if their attention is drawn to salient linguistic features (Robinson 1995; Skehan 1993). Through repetition of the target linguistic input, learners are likely to be exposed to the input frequently. However, the matter is how to achieve the repetition, in other words, what modes of repetition can be effectively implemented within the multimedia context. In particular, when the target words are not familiar to learners, repetition might work best in combination with other input enhancement, for example, providing the language input by the interactive activity.

With regard to the significance of the contextualized ELT vocabulary instruction, this study proved how the contextualized instruction could enable the learners to acquire the knowledge about the target words even without providing multimedia-enhanced language input. The results of the experimental instruction showed that the control group that was taught only by text-based and contextualixed method also achieved the significant gain in learner's vocabulary knowledge. However, it is doubtable whether the acquired knowledge can stay after

certain time pass. Further research needs to be done to investigate this issue.

The language input can be enhanced through technology-mediated language task where there is interaction between a learner and a computer. Through the interaction a learner receives some form of the enhanced input. In order to provide interactive language input to the learner of the experimental group in this study, the multimedia contents was developed through the authoring tool, *Hot Potatoes* for vocabulary instruction. This content enabled learners to engage in interactive learning process in which learners' choices about the answer get instant feedback. As revealed from the result of the survey conducted in this study, EFL learners chose the interactive learning contents as the most important factors. The above findings are very useful for the design of materials for vocabulary instruction. When designing the task to teach vocabulary, the extent the learners actually engage in the interactions should be considered in order to make technology-mediated interaction be effective and active. Thus, all the relevant factors to promote vocabulary learning are summarized as: access to repetition in the input, developing learner's autonomy, and enhanced motivation to engage in interaction.

6. Conclusion

The increase of ELT methodologies and development of technology in 21 century requires language teachers to develop more interactive and meaningful instruction to manage the diverse learners. In other words, language teachers should provide new learning environment in which students are exposed to meaningful and interaction language input. To realize the optimal language instruction, the teachers will make the best use of computers in classroom when students are encouraged to carry the communicative and technology-mediated task. Keeping in mind that technology can underlie the fundamental change in language education beyond mere inceremental use to assist traditional classroom, teachers

should also develop multimedia-assisted communicative tasks on the basis of the following principles: activating learner's knowledge connected to his knowledge structure, getting learners to be exposed to the repeated case of the new items, and providing opportunities to use the words productively.

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Hee-Jeong Ihm
Department of English Education
Seoul National University of Education
Seocho-dong 1650, Seocho-gu, Seoul, Korea   137-742
Phone: 82-2-3475-2549
Email:hjihm@snue.ac.kr