



The Effect of Using Visual Aids, Semantic Elaboration, and Visual Aids plus Semantic Elaboration on Iranian Learners' Vocabulary Learning

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Abstract

This study investigated the effect of using visual aids, semantic elaboration, and visual aids plus semantic elaboration on the Iranian EFL learners' vocabulary learning. To conduct the study, the researchers assigned 49 elementary learners to three homogeneous groups according to their proficiency level. Then, a pre-test of Paribakht and Wesche's Vocabulary Knowledge Scale was given to each group. As the treatment, the first experimental group consisting of 17 learners received visual aids instruction. The second experimental group had 16 learners who received semantic elaboration method. The last experimental group including 16 learners received visual aids plus semantic elaboration instruction. After the treatment, a similar post-test was used again. Then, an ANOVA analysis was run on the data. The results of ANOVA analysis indicated a significant difference in the performance of the learners of three groups in their post-tests. For determining the place of the differences, post hoc test analysis was used. The results demonstrated that the visual aids plus semantic elaboration group outperformed the other two groups.

Keywords: Vocabulary, Visual aids, Semantic elaboration

INTRODUCTION

Today, it is agreed that human being's language is based on vocabulary, which consists of three basic language units of pronunciation, vocabulary, and grammar. But as Wilkins (1972) has said "Without grammar very little can be conveyed, without vocabulary nothing can be conveyed."(p.111). Nowadays, besides the acquisition of grammar, people become interested in the acquisition of vocabulary, since they have realized that the two are interdependent (Abrudan, 2010).

There are various kinds of vocabulary learning

strategies. Some teachers prefer direct teaching of the words in the classroom, while others assume that learning incidentally accounts for most vocabulary learning. Among the different strategies available in the field of language teaching, the researchers in this study have tried to investigate the impact of using visual aids, semantic elaboration, and visual aids plus semantic elaboration on the mastery of vocabularies.

There are different types of visual learning aids which include different media such as pictures, mime, videos, etc. Wright (1989) believes that "Pictures are not just an aspect of method but through their representation of

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places, objects and people they are an essential part of the overall experiences we must help our students to cope with" (p.2).

There is no single semantic technique which is known as the semantic processing method (Brown & Perry, 1991). It usually means associating a word with its definition. Semantic memory is that part of memory in which words are organized according to semantic groups or classes. Words are believed to be stored in long term memory according to their semantic properties (Richards and Schmidt, 2002). However, two defining characteristics of semantic processing or elaboration are used in this study: Focus must be on the meaning of the new word, and the learner must act upon the meaning of the new word in a way that is considered integrative in relation to already existing semantic systems.

In visual aids plus semantic elaboration method, using visual aids would provide an initial link between an L2 word and its meaning in L1, whereas semantic method would further fix the semantic association within existing knowledge structures.

2. Review of the Related Literature

2.1 Visual Aids

There are many types of visual aids and each has its own kind of information for the observer. According to Gairns and Redman (1986), visual aids include flashcards, photographs, wall charts, blackboard drawings and realia. They are mostly used to teach concrete terms like places and activities. Mime and gesture are also visual techniques which are often used to supplement and reinforce the meaning.

Some scholars like Domin (2007) believe that "today we also live in highly visual world, dominated by visual messages. Pictures are easy to interpret and they possess all important features of effective teaching aid." (p. 1)

In an article, Çetin and Flamand (2012) mentioned that the idea of using visual stimulus, including posters, as learning aids are built upon the assumption that a visual stimulus can both draw interest and attention as well as assist with memory.

2.2 Semantic Elaboration

There is no single semantic technique which is known as the semantic processing method (Brown & Perry, 1991). According to Perry (1982), when someone can give a meaningful response to a question that was asked about the meaning of the word, it is called the semantic processing or the semantic elaboration.

Semantic elaboration focuses on word meaning association attached on words (Thuy, 2013). Furthermore, being familiar with a range of association for a word can help the learners understand its full meaning and can help them recall the word form or its meaning in the appropriate context (Nation, 2001).

2.3 Empirical Background to the Study

Many researches have been done on the use of visual aids. Most of them are related to the use of pictures alone or in combination with another variable. For example, Al-Seghayer (2001) examined if the image modalities - dynamic video or still picture - is more effective in aiding vocabulary acquisition. The participants, 30 ESL students, were introduced to a hypermedia-learning program, designed by the researcher for reading comprehension. The program provides users reading a narrative English text with a variety of glosses or annotations for words in the form of printed text, graphics, video, and sound, all of which are intended to aid in the understanding and learning of unknown words. A within-subject design was used in this study with 30 participants being measured under three conditions: printed text definition alone, printed text definition coupled with still pictures, and printed text definition coupled with video clips. In order to assess the efficacy of each mode, a vocabulary test was designed and administered to participants after they had read the English narrative. Two types of tests were administered: recognition and production. In addition, a face-to-face interview was conducted, and questionnaires were distributed. Results of the both tests were analyzed. The investigation has yielded the conclusion that a video clip is more

effective in teaching unknown vocabulary words than a still picture. Among the suggested factors that explain such a result are that video better builds a mental image, better creates curiosity leading to increased concentration, and embodies an advantageous combination of modalities (vivid or dynamic image, sound, and printed text).

Chun and Plass (1996) presented the positive results of three studies with students in their second year of German who used Cyberbuch, a multimedia application offering various types of annotations (picture, text, video). The results of this case study supported the results of the previous research on the effectiveness of different types of annotations or glosses, according to which visual imagery was found to help in learning and retention of new foreign words. In this research, text plus picture annotations produced the best results in the recall protocol focusing on reading comprehension.

In another study conducted by Tabatabaei and Shams (2011), they had four groups. One of them was control group and three were experimental. The researchers took use of the computerized written texts. Each text was glossed and hyperlinked by a computer software program. When the students clicked on hyperlinked words, a new page appeared and showed the word with a definition in English (textual gloss group), a picture (pictorial gloss group), or a combination of both definition and picture (textual plus pictorial gloss group). The results revealed that all multimedia gloss groups comprehended computerized L2 texts significantly better than the control group but a significant difference between the multimedia gloss groups and the control group in the production of the target vocabulary items was found. The difference showed that regarding vocabulary learning, mix gloss group significantly outperformed the textual and pictorial gloss groups in computerized L2 text comprehension. With regard to these results, they concluded that using pictures and combination method had positive effect on vocabulary learning of the learners (Tabatabaei & Shams, 2011).

To the knowledge of the researcher, there was not any study to show the effect of semantic elaboration in isolation. Most of them investigated it in relation to other variables. For example, in a study done by Taevs, Dahmani, Zatorre, and Bohbot (2010), they investigated semantic elaboration in auditory and visual spatial memory. The aim of that study was to investigate the hypothesis that semantic information facilitates auditory and visual spatial learning and memory. An auditory spatial task was administered, whereby healthy participants were placed in the center of a semi-circle that contained an array of speakers where the locations of semantic and non-semantic sounds were learned. In the visual spatial task, locations of pictures of abstract art intermixed with semantic objects were learned by presenting these items in specific locations on a computer screen. Participants took part in both the auditory and visual spatial tasks, which were counterbalanced for order and were learned at the same rate. Results of Taevs, Dahmani, Zatorre, and Bohbot's (2010) work showed that for both auditory and visual modalities, there was a significant difference on both measures of recall for non-semantic vs. semantic stimuli, with the semantic recall being better. Interestingly, there was a cross-modal learning effect such that the auditory task facilitated learning of the visual task and vice versa. In conclusion, it was demonstrated that the semantic representation of items, as well as the presentation of items in different modalities, facilitated spatial learning and memory.

In a study, Brown and Perry (1991) compared three learning strategies—differentiated according to Craik and Lockhart's (1972) "depths of processing" theory - for ESL vocabulary. Six intact ESL classes at two levels of proficiency (high and low) were divided into three treatment groups (keyword, semantic, and keyword-semantic). Participants were Arabic-speaking students. Keyword classes were presented with the new word, its definition, and a keyword and students were also given practice in making interactive images. Semantic classes

were given the new word, its definition, two examples of the word's use in sentences, and a question which they were required to answer using the new word. The keyword-semantic classes received the new word, its definition, the keyword, and the example sentences and question. They also practiced making interactive images. Every day after instruction, each class was given a cued-recall test. The day after instruction ended, a comprehensive cued-recall test was given. On the following class day, all students took a comprehensive multiple-choice test. Nine days later, the cued-recall test was repeated, and the following day, the multiple-choice test was repeated. All tests were unannounced.

Findings demonstrated that the strongest effect was for the keyword-semantic method which produced significantly better results than the keyword method alone and was slightly better (although not significantly so) than the semantic method. These findings are especially interesting because they are consistent with the predictions made from the depths-of-processing theory (Craik & Lockhart, 1972; Craik & Tulving, 1975). That is, first, information processed at the semantic level produces better memory traces than that processed at acoustical and visual levels; and second, when elaboration occurs at a number of levels, memory traces are even stronger. From these, the conclusion can be made that the combination of these methods produced both stronger memory traces and better retrieval paths than if used alone. Also a delayed testing showed that the combined keyword-semantic strategy increased retention above the other conditions (Brown & Perry, 1991).

Inspired by the idea that the stronger the memory traces the better the learning and retrieval of the vocabularies might be, the researchers tried to investigate the impact of three different techniques of using visual aids, semantic elaboration method and the combination of the visual aids plus semantic elaboration on the vocabulary learning of the EFL learners.

To fulfill the mentioned purpose, the researchers addressed the following research

question.

1- Is there a significant difference among the three experimental groups who have received different vocabulary learning strategies of (visual aids, semantic elaboration, and visual aids plus semantic elaboration) regarding their vocabulary learning?

3. Methodology

3.1 Participants

The participants in this study were 49 elementary learners of an English in a language institute in Tabriz. Their age range was between 9-16 and each group consisted of both male and female students. The participants' first language was Persian, or Turkish. They studied English for about 5 hours per week in the institute. They were chosen from three intact classes, but they were randomly assigned into three experimental groups. The first experimental group consisted of 17 learners who received visual aids instruction. The second experimental group had 16 learners who received semantic elaboration method. The last experimental group had also 16 and they received visual aids plus semantic elaboration instruction.

3.2 Instruments

Three tests were used in the present study: A KET test that was administered to test the learners' proficiency level. It had 59 questions and each question carried one score. A pre-test which was a teacher made and prepared based on Vocabulary Knowledge Scale developed by Paribakht and Wesche (1993). And a post-test that was similar to the pre-test except in the number of the questions. It contained 35 questions.

3.3 Procedure

This study was conducted with forty nine participants who studied in an institute in Tabriz. They were selected from among three intact classes. Then these three classes were randomly assigned as three experimental groups. The Proficiency Test (KET) was given in order to assign the participants' level and to

check their homogeneity in terms of their proficiency. The first class was named visual aids group, it had 17 participants. The second class was named semantic elaboration group, it had 16 participants. The last one was named visual aids plus semantic elaboration group, it had 16 participants.

At the onset of the study, before starting the treatment session, a teacher made pre-test which was adapted from Vocabulary Knowledge Scale developed by Paribakht and Wesche (1993) was given in order to make sure that the learners were not familiar with the vocabularies which would be taught. These vocabularies were chosen from the books, Hip Hip Hooray series, that were taught in the institute according to their syllabus. This test contained forty questions. Each question had five parts. Five words were deleted after the pre-test since they were known by the learners.

For visual aids group, in most of the cases, the researchers used pictures, mime, video and flash cards. In semantic elaboration group, the researcher gave the new word, its definition, two examples of the word's use in sentences, and a question which learners were required to answer

by using the new word. In the third group, visual aids plus semantic elaboration, both of the above mentioned techniques were used simultaneously. It means that beside using pictures, realias, mime, and so on, two examples of the new words were given with the association of a question whose answer necessitated the use of the new word. Five words were taught in each session. This instruction lasted for seven sessions.

At the end of the treatment period, another teacher-made test was given as a post-test which was adapted from Vocabulary Knowledge Scale developed by Paribakht and Wesche (1993). It was used to measure the amount of the vocabulary learning in each group. This was the same as the pre-test but the number of the questions reduced to thirty five.

4. Data Analysis

The collected data were entered into the SPSS 19 for further analysis. Then the following statistical analyses and procedures were utilized in order to analyze the collected data.

An ANOVA test was conducted to compare the means of the three groups obtained in the Proficiency Test.

Table 1.
Descriptive statistics for the Proficiency Test (KET)

Grade	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for			
					Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Visual	17	12.41	1.97	.47	11.40	13.42	8	17
Semantic	16	12.00	1.31	.32	11.30	12.70	11	16
Combined	16	12.88	1.85	.46	11.89	13.86	11	18
Total	49	12.43	1.74	.24	11.93	12.93	8	18

Table 2.
Results of One way ANOVA for the Proficiency Test (KET)

Grade	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	6.13	2	3.06	1.00	.37
Within Groups	139.86	46	3.04		
Total	146.00	48			

Based on the findings of one way ANOVA (Table 2), the difference between the three mentioned groups was not significant ($p = .37$) and it was more than the significance level (0.05) selected to examine the differences in this study. It means that three groups were homogeneous in their proficiency level.

In order to compare the impact of the three mentioned vocabulary teaching strategies on the

vocabulary learning of the EFL learners, the researchers ran two ANOVA analysis on the pre-test and post-test mean scores of three groups who have had a different treatments during the study. First a descriptive analysis and an ANOVA test were run on the pre-test mean scores of the three groups. The results of the descriptive analysis are shown in the following table 3.

Table 3.
Descriptive Statistics from the Pre-Test for Three Groups

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
Visual	17	46.17	3.59	.87	38.00	54.00
Semantic	16	44.81	2.80	.70	39.00	50.00
Combined	16	46.75	2.74	.68	43.00	54.00
Total	49	45.91	3.12	.44	38.00	54.00

As Table 3 shows, the mean score of the visual aids group during the pre-test was 46.17 and the mean score of the semantic elaboration group in the pre-test was 44.81 and the mean score of the third group was 46.75. In order to see whether there was any significant difference

among the groups during the pre-test an ANOVA was run on the pre-test mean scores of the groups.

Table 4 represents the results of ANOVA for the comparison of the pre-test mean scores for the participants of three groups.

Table 4.
Results of ANOVA for the Comparison of Pre-test Mean Scores of the Three Groups

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	31.76	2	15.88	1.66	.20
Within Groups	437.90	46	9.52		
Total	469.67	48			

According to table 4, $F = 1.66$ and $p = 0.20$. The results show that the difference among the three groups' mean scores in the pre-test is not significant because the p-value is 0.20 and it is more than the level of significance (0.05) selected to examine the differences in this study. It can be concluded that the groups are not

different in the pre-test of Paribakht and Wesche's Vocabulary Knowledge Scale.

Then, the researchers employed another one-way ANOVA and descriptive statistics to compare the post-test mean scores of the three groups of the study.

Table 5.
Descriptive Statistics from the Post-Test for Three Groups

	N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
Visual	17	145.70	10.32	2.50	124.00	163.00
Semantic	16	146.43	9.38	2.34	130.00	163.00
Combined	16	166.62	3.42	.855	159.00	172.00
Total	49	152.77	12.71	1.81	124.00	172.00

As it is indicated in table 5, the mean score (166) of the third group who have received a combined method of visual aids plus semantic elaboration vocabulary learning strategies was higher than the other two groups (146, and 145), and likewise, the mean score (146) of the second group of semantic processing was higher than

the first group mean score (145) in the post-test administration. In order to see whether this difference has reached to the level of significance or not, the researchers ran another ANOVA analysis, the results of which are represented in the following table 6.

Table 6.
ANOVA Test Results Obtained from the Post-Test of Three Groups

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4561.31	2	2280.65	32.77	.00
Within Groups	3201.21	46	69.59		
Total	7762.53	48			

* p<.05

The results of the ANOVA analysis in Table 6 reveals a significant difference among the groups mean scores in the post-test, $F(2, 46) = 32.77, p = .00$ in their vocabulary learning. So,

we need to appoint the location of the differences with Post Hoc Test Analysis, the results of which are represented in the Table 7.

Table 7.
Results of the Post Hoc Test for Comparing Means of Three Groups

(I) Method Group	(J) Method Group	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Visual	Semantic	-.73	2.90	.80	-6.58	5.11
	Combined	-20.91*	2.90	.00	-26.76	-15.07
Semantic	Visual	.7316	2.90	.80	-5.11	6.58
	Combined	-20.18*	2.94	.00	-26.12	-14.25
Combined	Visual	20.91*	2.90	.00	15.07	26.76
	Semantic	20.18*	2.94	.00	14.25	26.12

*. The mean difference is significant at the 0.05 level.

According to Table 7, there was not a significant difference between the visual aids group and the semantic elaboration group, because the p-value was .80 which is more than the set significant level, whereas, the difference between the visual aids group and the visual aids plus semantic elaboration group was significant, because the obtained p-value of .00 was less than the set significant level of .05. Likewise, the difference between the semantic elaboration group and the visual aids plus semantic elaboration group was significant ($p = .00$). By looking at the mean scores and p-values of each group, it can be concluded that the difference between the visual aids plus semantic elaboration group and the

visual aids group and also the difference between the visual aids plus semantic elaboration group and the semantic elaboration group regarding the vocabulary learning was statistically significant.

5. Discussion

The present research was designed to investigate the effect of using visual aids, semantic elaboration, and visual aids plus semantic elaboration on Iranian EFL learners' vocabulary learning. The statistical results indicated that there was a significant difference between the groups' performances on post-test of Paribakht and Wesche's Vocabulary Knowledge Scale and their

pre-tests. The results of the Paired Samples T-tests analysis revealed the positive effect of treatment about visual aids, semantic elaboration, and visual aids plus semantic elaboration on the vocabulary improvement of experimental groups. However the comparison of the three groups by means of an ANOVA analysis indicated that the participants of the third group who have had a treatment of visual aids plus semantic elaboration outperformed the other two groups.

The research that has been done by Zheng (2012) about vocabulary learning and teaching confirms the results of the current study. He found that vocabulary learning strategies facilitated word learning. Through instruction, word learning strategies enabled students to learn the target language vocabulary more efficiently, and to be able, eventually, to manage their own learning.

The findings are in consistent with the findings of Al-Seghayer (2001) who claimed that we remember images better than words; hence we remember words better if they are associated with images. He concluded that the pictorial/verbal combination involves many parts of the brain and provides greater cognitive power.

According to Taevs, Dahmani, J. Zatorre, and D. Bohbot (2010), semantic elaboration has an effect on auditory and visual spatial memory. They found that for both auditory and visual modalities, there was a significant difference on both measures of recall for non-semantic vs. semantic stimuli, with the semantic recall being better. The results of their study confirmed the results of the present study in semantic field.

The outcomes of this study are also in line with Bower and Winzenz (1970). They found the usefulness of the two deep strategies of semantic and imagery mediation according to the "levels of processing" (Craik and Lockhart, 1972).

The results of the study proved Nation's (2001) claims. He mentioned that knowing a range of association for a word helps understand its full meaning and helps recall the word form or its meaning in appropriate context.

The results of the Post Hoc Tests analysis also provide support for the claim of Brown and

Perry (1991) who compared three learning strategies: keyword, semantic, and keyword semantic. They found that the strongest effect was for the keyword-semantic method which produced significantly better results than the keyword method alone and was slightly better than the semantic method. These findings are consistent with the predictions made from the depths-of-processing theory (Craik & Lockhart, 1972; Craik & Tulving, 1975).). That is, first, information processed at the semantic level produces better memory traces than that processed at acoustical and visual levels; and second, when elaboration occurs at a number of levels, memory traces are even stronger. From these, the conclusion can be made that the combination of these methods produced both stronger memory traces and better retrieval paths than if used alone (Brown and Perry, 1991).

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