



## Is Computer Assisted Language Learning Effective in Improving Learning Vocabulary among Iranian EFL Students?

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### Abstract

The current study tried to investigate the impacts of using Computer Assisted Language Learning (CALL) on the development of vocabulary in comparison to the traditional method of vocabulary instruction by using the printed text materials among Iranian EFL students in a language institute in Jiroft, Iran. To conduct the study, 40 students were selected. Thus, the students were randomly divided into two equal groups of 20 students in each group, an experimental and a control group. A pre-test which was a vocabulary test was administered to all participants. The results of t-test revealed that there was no significant difference between in terms of vocabulary knowledge. The students in the experimental group had 12 sessions of instruction. They used CALL. The control group had the same hours of instruction, but the instruction was on paper and they didn't receive any audio-visual features. The result of paired sample t-test between pre-test and post-test indicated that there was a significant difference between the performance of the experimental and control groups in vocabulary knowledge. The vocabulary knowledge of the participants improved through CALL instruction.

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## 1. Introduction

Nowadays, the advancement of technology has influenced on all aspects of human life. Applying technology to learning especially learning a second or foreign language is an important issue in the world of education is becoming an important educational issue today. The use of technology in teaching and learning environments is an important aspect which has received considerable attention in recent years. Technology has drastically changed the traditional methods of teaching and learning. However, the application of technology in language classrooms and its effectiveness is still a challenging issue among language teachers and also researchers.

In recent years, many teachers have begun or at least tried to utilize technological devices in their classes. One of these fairly new approaches in technology which is enhancing the interest of students and has attracted the attention of many researchers is computer. The application of computer in modern educational settings especially in academic settings is growing in popularity. In fact, the application of computer involves a range of software to internet (Hewer, 2007). Computer assisted language learning (CALL) is defined by Egbert (2005 as cited in Figure & Jarvis, 2007) as "learners learning language in any context with, through, and around computer technologies" (p.4). CALL is considered as field which can be related to other fields in applied linguistics and teaching some particular skills (Beatty, 2003). Software and internet-based activities are two important categories which are used in CALL instruction (Hewer, 2007).

To promote all language skills, CALL is increasingly integrated into curricula. The application of Multimedia is one form of this integration. Today, Multimedia technologies are taking advantage of graphics, sounds, animations, and pictures. A large number of researchers have investigated the application of multimedia in language learning. The findings of earlier studies have indicated the effectiveness of using multimedia in language learning (Al-Seghayer, 2001; Jones & Plass, 2002; Moreno & Valdez, 2005; Nikolova, 2002; Tsou, Wang, & Li, 2002). In linguistics science CALL is a kind of new issue.

Linking both fields, it offers good promises to teachers, linguists, and computer researchers. With the growing sense of unity between linguists and computer scientists, some of the mysteries of language acquisition will be unraveled, which can furnish the new locus to language more effective and principled language teaching (Kenning, and Kenning, 1990). The linguist can provide the theoretical assumptions of language learning, the efficient approaches, and methods required by language learning and acquisition process, while the computer scientists can resort to the most sophisticated means, computer, to render those requirements. There are many peripheral applications for computers in the educational domain. Language testing, language research, and school management, for instance, all offer scopes for computer application.

In language achievement, vocabulary knowledge is a component skill that can play an essential role. To Kitajima (2001 as cited in Naraghizadeh and Barimani, 2013) "without words that label objects, actions, and concepts, a speaker cannot express intended meanings" (p.2). Words can be considered as units of meaning, and the words are the main components of sentences, paragraphs, and whole texts. Naraghizadeh and Barimani (2013) refer to language ability as the number of words an individual knows. In this case, an important area that deserves to pay attention is vocabulary learning/teaching.

According to (Baumann and Kameenui, 1991) "fertility versus futility debate" is an important argument over the effective vocabulary teaching strategy. Fertile vocabulary advocators refer to some studies which suggest the efficacy of direct instruction. To Nagy and Hermann, 1987 (as cited in Naraghizadeh and Barimani,2013) "those on the futile side of the debate argue in favor of vocabulary development within a broader educational framework that provides opportunities for students to map word meanings onto existing schemas" (p. 2).

Some researchers supported teaching practices. One of them was Wood (2001) who combined incidental learning and direct instruction of unfamiliar words in natural contexts. Wood (2001 as cited in Naraghizadeh and Barimani,2013 )also discussed that "neither explicit instruction of a specific subset of word meanings nor incidental learning of vocabulary through literacy practices, such as extensive reading, is a sufficient strategy for vocabulary learning when used exclusively" (p.3). To this end, by applying these two approaches, rich learning environments which can improve the understanding of words and their semantic relationships can be created. Thus, a specific attention has been paid to CALL issue and its combination with two previous approaches discussed. It seems that this combination works well provided that the students will be given some opportunities to play with items, and to assimilate them. Jones and Fortescue (1987) believe that some students prefer to take word games, while some other students refer to list of words in vocabulary books and memorize them.

One of the significant implications of CALL software design is in vocabulary learning research. The previous studies in the area of CALL provide us with helpful information on how the software can be developed and used in CALL environments. To this purpose, the students understand how the computer can be applied in learning vocabulary items. Hegelheimer and Chapelle (2000) believe that CALL studies should have some theoretical foundations.

In order to do an experimental project, Horst, Cobb and Nicole (2005) created some on-line tools for vocabulary learning. The vocabulary learning tools included some important resources for learners like hypertext, dictionary and some databases with interactive self-quizzing features which have been designed in a way that can facilitate learners' deep processing. The students tried to insert "vocabulary information on a collaborative on-line word bank by themselves, and the gain of their vocabulary knowledge was examined in a posttest" (Naraghizadeh and Barimani,2013, p.3). The findings revealed that the words which had been entered into the word bank learned more than the words which had not been entered. Thus, the researchers came to the conclusion that vocabulary learning on-line set that have been prepared for the project could provide rich input and caused deeper processing. Another computer program called "Gertie" was created by Jones (1999) which was able to increase vocabulary learning. In this program sounds, photographs and written texts



were integrated. The results of this study revealed that the learners had a positive reaction to integration of computer for language learning.

## 2. Objective of the study

The current study tried to investigate the impacts of using Computer Assisted Language Learning on the development of vocabulary in comparison to the traditional method of vocabulary instruction among Iranian EFL students. Regarding the purpose of the study, the research question is as follows:

- What is the impact of CALL on learning vocabulary among Iranian EFL students?

## 3. Methodology

### 3.1 Population and location of the study

The present study was conducted in a language institute which was located in Jiroft, Iran. The participants of the study were both male and female students. They age ranged from 19 to 26 years old. The selection of the students was based on the students' proficiency level and the periods they were studying in the institute. Then an Oxford Placement Test was administered to obtain a homogeneous sample. After administering the OPT, 40 students were selected for the purpose of the study. Thus, the students were randomly divided into two equal groups of 20 students in each group, an experimental and a control group.

## 4. Instruments

The researcher used some instruments like an Oxford Placement Test, and a vocabulary levels test. An Oxford Placement Test with 50 items was administered to be sure of the homogeneity among the participants. The second instrument was vocabulary test which was used as pre and post-tests. The researcher prepared the vocabulary test by taking different vocabulary items from standardized proficiency tests. The researcher has tried his best to select some vocabulary items which were covered during the treatment. The vocabulary items were some words like content words, like nouns, verbs, adjectives and some passive and active items were essential for oral communication. The students were also provided with computers microphones and speakers. Computer software was another instrument. Thus, the researcher used "Tell Me More" which was the main software for this study.

## 5. Data Collection and Procedure

In order to collect the data the following steps were pursued. At first, the participants of the study were given an OPT to be sure of homogeneity among the participants in terms of their proficiency level. Then, the participants were randomly assigned into two groups of 20 students. After that, they were administered a pre-test with 50 items vocabulary test. Then, the obtained results of pre-test were analyzed, and became a source of confirmation that both groups (experimental and control) were of the same level in terms of vocabulary knowledge before starting of the program. Thus, the researcher measured the possible initial differences between two groups. The students in the experimental group received the treatment. The treatment was teaching vocabulary via the computer.

The researcher used "Tell Me More" which was an interactive multimedia CD\_ROM. It contained "animations, audio, images, maps, music, photographs, videos, and text incorporated into the software containing 30 situation-based chapters; each with lessons, exercises, and games to reinforce comprehension, vocabulary, grammar, writing, and speaking skills" (Naraghizadeh and Barimani,2013, p.5). Tell Me More included more than one hundred chapters, and each chapter consisted of vocabulary section, story section, grammar section, conversation section, and game section. However, the researcher just covered 6 chapters and 2 movies.

The students in the control group were taught vocabulary through the printed text. The activities were the same for both experimental and control group, except using Tell Me More. Thus, the students in the control group were not provided with computer or any authentic program. The teacher was the corrector for the students' errors in the control group. However, the experimental group received feedback both from the teacher and the computer. For example, the students in the experimental group did the exercises through their keyboards.

## 6. Data analysis

The aim of pre-test was to be sure that there were no initial differences between the participants in terms of their vocabulary knowledge before the starting of the program. To this end, all the participants answered 50 multiple-choice items. Table 1 indicates the descriptive statistics of both control and experimental groups.

**Table1 Descriptive statistics of the students' scores on pre-test**

	Group	N	Minimum	Maximum	Mean	Sts. Deviation
Pre-test	Experimental	20	12	27	18.83	3.04
	Control	20	11	29	19.17	3.27





To be sure of homogeneity among the participants in both groups in terms of vocabulary knowledge before the starting of the program, an independent sample t-test was performed. As Shown in Table 2, there is no statistical difference between the experimental and control groups ( $t = 0.916$ ) in the pre-test.

**Table 1 t-test for Equality of Means**

		F	Sig.	t	df	Sig.	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
Pre-est	Equal variances assumed	.297	.517	.849	38	.328	.845	.916	-1.024	2.427

The students in both groups were given another test similar to the pre-test after conducting the research. The results of their performance are presented in Table3.

**Table 3 Descriptive statistics of the students' scores on post-test**

Pre-test	Group	N	Minimum	Maximum	Mean	Sts. Deviation
	Experimental	20	27	42	31.23	3.08
	Control	20	23	37	26.65	2.69

A paired sample t-test between the scores of both experimental and control groups was performed to investigate the null hypothesis.

**Table 4. Paired Samples t-test**

		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig.
					Lower	Upper			
Pair1	Scores on pre and post-test	2.267	5.358	.526	-21.369	-23.568	41.346	79	.000

As shown in Table 4, there was a significant difference between the students in the experimental groups in terms of their performance in pre and post-test ( $t = 43.64$ ). Thus, CALL instruction was effective and improved the Iranian students' vocabulary knowledge.

## 7. Discussion

The present study confirmed that different types of media along with lexical items can help Iranian students to recall cues in retention of the items. Regarding this issue, Chun and Plass (1996), emphasized this fact that as "words are coded dually in two modes, they are learned better than those coded only in one mode. Dual coding provides more paths for retrieval, and as such, helps learners build two types of recall cues in memory" (Naraghizadeh and Barimani,2013, p.8).

The findings of the present study are in line with Lyman-Hager's (1997) statements who believed that computerized presentation is more appealing. In contrast to traditional teaching of vocabularies, the computerized form was so attractive for the participants of this study. To Davis and Lyman-Hager (1997), a computer has more capacity than a printed format for a user to store extensive glossing. Moreover, the computer does not interrupt the user "because the unknown words are visible simply by a mere click at a finger tip" (Naraghizadeh and Barimani, 2013, p.9).

One important features about the potentiality of a computer which has been concentrated by many different researchers (e.g. Martinez-Lage 1997; Al-Seghayer 2001; Wood 2001) is the multimodal presentations of different types instructions. Martinez-Lage (1997) stated that immediate access to annotated information in a program is provided through multimedia presentations which included audio, visual, and textual annotations.

Regarding the statistical results of this study, there was a significant difference in the performance of the students in experimental and control groups. Thus, the treatment was effective for the experimental group. In addition, the findings of



this study revealed that some CALL programs like video clips can be more effective for the teaching of vocabulary items than pictures in textbooks for Iranian students.

## 8. Conclusion

What was explained in earlier parts revealed that exposing students to multiple modalities of presentation makes a language learning environment that has a real affect on language learning. Another implication related to the findings of this study is that "organizing information in working memory seems to be aided by learners making connections between the verbal and visual system, and this helps in linking information to components of the mental model in long-term memory" (Chun & Plass, 1996, p. 517). To make an effective multimedia instructional material, two important principles should be considered: first, "instructional materials designed to accommodate individual differences should combine the use of integrated media" (Naraghizadeh and Barimani, 2013, p.10). The second principle which can be taken into account as shown by Chun and Plass (1997) is the selection of mode of presentation and it should support the cognitive process. Thus, an instructional designer should make a decision on the appropriate mode of presentation in a given learning situation.

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