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Investigating the Impact of Computer-assisted Teaching on Iranian EFL Vocabulary Learning

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Abstract

The last decade has been lots of changes in fields of second language teaching. Vocabulary knowledge is said to have a prominent role in learning a foreign language (Schmitt,2000). There has been considerable debate about the most effective way of developing learners' vocabulary knowledge. It is argued that computer - assisted language teaching (CALT) creates more favorable conditions and facilitates second language acquisition, for this reason CALT has been focus of attention of many second/foreign language teachers. The main purpose of this study is to investigate the impact of CALT techniques on FL vocabulary learning in comparison with FL vocabulary learning with traditional method (teachingFL without computer).Two groups of female intermediate learners of English as a foreign language have been taught under different conditions. Before using different methods of teaching, the participants of both groups were asked to complete a recognition vocabulary test as pretest. Thirty students in one class were taught by CALT method and thirty students in the other class were taught by Non-CALT method,(traditional language teaching).The experimental group (CALT) did better than the control group (Non-CALT) in post test. This study concludes that, students taught with (CALT) benefit more inSL/FL vocabulary learning than the students taught with (Non- CALT) .The findings will be useful for language teachers for providing materials for their classes.

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Introduction

Educational experts have been trying to find a solution to improve and ensure successful language learning. Educational researchers and psychologists have shown that successful learners are those active students who take charge of their learning (Bandura, 1997).The vocabulary lesson still has a place in a syllabus(Mc Carthy,2005). In English there is a relatively close relationship between how many words you know, as measured on the standard vocabulary tests, and how well you perform on reading tests, listening tests and other formal tests of your English ability .The sheer size of English vocabulary has a very marked effect on

the way we teach English, and severely constrains the level of achievement we expect of learners (Schmitt, 2002).The incursion of the electronic system into the educational systems, according to Sherman (2005) can solve teaching and learning problems even more rapidly and accurately than hitherto conceived.

According to the above and other similar studies and comparison of different final exam results of English in high schools of Eastern Azerbaijan Province, it becomes clear that most of the students have difficulties in vocabulary learning.

The present study has done with the purpose of shedding light on the use of CALT techniques

and their effect on vocabulary learning. This study attempts to investigate whether vocabulary learning of EFL learners is affected, differed or even improved by CALT techniques. As it is known for all that the topic of CALT is in its early stages of development and issues concerning this kind of teaching and their effect on language learning do still exist. There is still a long way for CALT techniques to reach their full potential. So the role of syllabus designers, material developers and language teachers are of high importance in the important activity of teaching by technology.

This paper focuses on:

1. CALT technique (Computer Assisted Language Teaching).
2. Non-CALT technique (Non –Computer Assisted Language Teaching).

E-learning can be considered to be highly related to learning and teaching as stated in (Jain et al, 2002).



Review of Literature

Technology may have first entered the language classroom in the 1950s and 1960s in the form of the language laboratory. Institutions hastened to dedicate rooms to the installation of multiple tape-deck-equipped booths where students gathered to listen to native speakers modeling the drills of the current day's lesson. When the personal computer came on the scene in the 1980s, the language-teaching profession had similar hopes for salvation (Brown, 2001).

Shortly after the internet explosion of the 1990s, technology was immediately integrated into the classrooms. Technology, even though symbolizes advancement in human knowledge, was seen as a setback by many educators. Many efforts have been established to help educators realize the benefits of technology and ways of

implementing them in the classroom. According to (Bransford et al. 2000), four factors significantly impact the learning process: (1) attention, (2) motivation, (3) emotions, and (4) experiences of the learner.

Focus of attention determines if a student mentally follows a lecture and, therefore, the degree of behavioral change. E-learning requires a strategy for getting and keeping the learner's attention. It is necessary to consider cognitive processes such as the learner's selection of incoming data into the sensory memory, organizing and integrating this information by building connections in short-term memory and encoding it by transferring it to long-term memory. Thus, it is recommended to apply certain principles for instructional design (Fleming & Levie, 1993).

Motivational states of students are of importance for stimuli given by the teacher to promote the learning process. (Bransford et al., 2000) state that "motivation affects the amount of time that people are willing to devote to learning".

(Entwistle, 1981) classified three motivational orientation styles:

- (a) meaning-oriented,
- (b) reproducing-oriented, and
- (c) achieving-oriented motives.

Emotions, An emotion – whether negative and positive one – may influence learning due to its special nature. With respect to (Paulsen, 2005), "emotion is an unconscious arousal system that alerts us to potential danger and opportunities". Thus, addressing a learners' emotional channel can be seen as a key cognitive process for transferring data into the short- term or even long-term memory.

Knowledge transfer, (Anderson, 1995) states that "interference happens, when information gets mixed up with, or pushed aside by, other information".

As (Schmitt, 1997; Sökmen , 1997) claim organizing vocabulary in meaningful ways makes it easier to learn. Textbooks often present new vocabulary in thematic sets as an

aid to memory, but there are other types of organization and these can be described under three broad headings: real-world groups, language-based groups, and personalized groups.

As (Miller, 2002) argues, the computer is the ability to provide rich learning experiences for students giving them the power to influence the depth and direction of their learning. With the use of the computer as an instructional tool, the creative ability level (high, medium, low) of students will be greatly enhanced by computer – aided instruction as it has been proven or shown to have statistically positive effects on learning. The computer –aided students accomplish more in more in less time and with a better quality. The creative ability level gaps of student will close and eventually the lower level disappears.

As (Okegbile, 2003) reported, computer application in educational processes contributes immensely to the teaching and learning process, and its electronic nature improves the quality and quantity of both teaching techniques and learning modes. Appropriate instructional materials are not just limited to charts, real objects but extend to instructional materials such as audio-visual instructional packages and computer – aided instruction.

According to (Schmitt, 2002) deliberate vocabulary teaching can have the aim of helping learners gain knowledge of strategies and of systematic features of the language that will be of use in learning a large number of words. These features include sound-spelling correspondences (Wijk, 1966; Venezky, 1970; Brown and Ellis, 1994), word parts, (prefixes, stems and suffixes), underlying concepts and meaning extensions, collocational patterns and types of associations (Miller and Fellbaum, 1991).

Deliberate vocabulary teaching can take a variety of forms including

- Pre-teaching of vocabulary before a language use activity.
- Exercises that follow a listening or reading text, such as matching words and definitions, and creating word families using word parts or semantic mapping.

- Self-contained vocabulary activities like the second-hand cloze (Laufer and Osimo, 1991).
- Word detectives where learners report on words they have found.

- Collocation activities.
- Quickly dealing with words as they occur in a lesson.

The recent advances in educational applications of computer hardware and software have provided a rapidly growing resource for language classrooms. The practical applications of CALL are growing at such a rapid pace that it is almost impossible for a classroom teacher to keep up with the field.

Warschauer and Healey (1998:59) offered the following benefits of including a computer component in language instruction:

1. Multimodal practice with feedback.
2. Individualization in a large class.
3. Pair and small-group work on projects, either collaboratively or competitively .
4. The fun factor .
5. Variety in the resources available and learning styles used.
6. Exploratory learning with large amounts of language data.
7. Real-life skill-building in computer use.

Computer education should as a matter of urgency be given its rightful place in the national policy on Education. Most schools should have enough computers for meaningful learning to take place. Only by reading lists of new words and translating them to Farsi or Azerbaijani, students cannot learn them well, so we should find some ways that can help us to promote students' vocabulary learning. Computer-assisted language teaching can be one of the ways to consider.

Appropriate instructional materials are not just limited to charts, real objects but extend to instructional materials such as audio-visual instructional packages and computer – aided instruction.

In this paper we will explain that the above interpretations are correct and the relationship is indeed valid.

Purpose of the study

The purpose of this study was to determine the effectiveness of computer on students' ability in foreign language learning.

Research questions

The present study undertakes to examine the impact of computer-assisted teaching on students' vocabulary learning. Thus, the study addresses the following research questions:

1. What is the effect of using CALT technique as compared with Non-CALT technique in teaching vocabulary to foreign language learners?
2. To what extent does CALT technique affect vocabulary learning of Iranian EFL learners?
3. Will using computers in the classroom facilitate vocabulary teaching/learning or not?

Hypotheses

Concerning the above-mentioned research questions, the following null and alternative hypotheses have been formulated:

HO: There is no significant difference between achievement scores of the students taught by CALT and those taught by NON-CALT technique.

H1: The achievement scores of students taught using CALT is significantly greater than those taught by Non-CALT technique.

Methodology

Participants: This study involved two groups of students, the control group and the experimental group of the same grade of a high school in Tabriz the capital of the Northwestern Province of East Azerbaijan in Iran. Sixty female students were selected with scores of a pre-test. The participants' ages ranged between 15 and 16. Both control and experimental groups were consisted of thirty students. All of them were bilingual. The native language of the learners was Azerbaijani, the regional language used for every day communication (Farsi, the national language of Iranians, is used as the official language for public-life activities, especially schooling in Azerbaijan area in Iran), and English was their third/foreign language. The vocabulary of English in the experimental group was taught by CALT method and the vocabulary of English in the control group was

taught by Non-CALT method, traditional teacher-led training.

Material

Two different teaching methods CALT and Non-CALT were employed during the study. Two vocabulary tests were administered to these participants, the first one was used as pre-test and the second one was used as post-test. The purpose of pre-test was knowing the students' vocabulary knowledge for two groups' homogeneity, and after treatment the post-test was administered in order to know the effect of treatment on students' vocabulary knowledge.

Procedure

The research was conducted in a high school in Tabriz, Iran. Before the experiment, the participants were informed that the tasks would be considered as part of their course grades. They were also informed that the tasks would be used for research purposes. The time for answering each test was clarified and then treatment before post-test was given to experimental group, in order to know the effect of computer on vocabulary Learning in foreign Language, also for deciding whether computer will facilitate vocabulary teaching/learning or not. The results suggested that the experimental group, who used a computer, outperformed the control group in vocabulary knowledge, and using computer in teaching facilitates foreign language acquisition. These results suggest positive implication of integrating technology in the language classroom for vocabulary development.

Results

The data obtained from two groups performances were analyzed by their means, variances and standard deviations. The results of analyses revealed that there were significant difference between CALT technique students and Non-CALT technique students in terms of their performance in vocabulary tests. The results of statistics are presented in Table 1. Data analysis results for vocabulary learning by participants in CALT and Non-CALT methods are shown in Table 1. As table 1 shows, the higher mean was observed in the experimental group, that they benefited from computer-assisted language teaching.

As a result, the research hypotheses that students taught using CALT will perform better than those taught by Non-CALT technique and computer has a facilitating role in vocabulary teaching/learning, were supported by the results of these analyses. The difference between the CALT technique students and Non-CALT technique students are illustrated in figure 1. According to CALT group's mean ($\bar{x}=18.28$) in table 1, it is obvious that computer has a facilitating role in teaching/learning vocabulary in comparison with Non-CALT group's mean ($\bar{x}=16.23$).

Figure 1 clearly displays the means, variances and standard deviations differences. It compares the \bar{X} , V and SD of experimental group and the \bar{X} , V and SD of control group.

Discussion and Conclusions

The experiments were carried out to determine which of the two methods of vocabulary teaching/learning is more efficient and according to (Nagy and Herman, 1985) there are various levels of or dimensions to word knowledge. The scores on the tests administered after the experimental learning session show the overall effect of CALT method on learning process as a whole. This way of teaching/learning was new to the students. Modern technology offers unique possibilities for rehearsal practice that will ensure further consolidation.

To discuss the results, we return to our research questions. They addressed impact of computer-assisted language teaching on learners' vocabulary and the role of computer in teaching/learning vocabulary. Dependent variable was FL vocabulary achievement and the independent variable was CALT method. The experiment found a positive effect for CALT method in promoting participants' performance in terms of vocabulary. Therefore, the null hypothesis of the study was rejected. The achievement scores of students taught using CALT is significantly greater than those taught by Non-CALT technique.

This finding is similar to findings of Bazzazi (1999) and Groot (2002) in which significant

effect of computer in promoting FL learning were observed.

On the basis of the findings of this paper it is concluded that the application of computer in learning environment has exerted significant influence on the students' performance in vocabulary. Instructors should be aware of the potential benefits of integrating technology in the language classroom, and multimedia plays an important part in vocabulary acquisition. The more the students use the appropriate strategies, the more their vocabulary develops. Accordingly, our prediction that CALT technique students learn vocabulary in a different and more effective way than their peer Non-CALT technique and computer has a facilitating role in FL teaching/learning are confirmed and they are reflected in the learners' performance. In most developed countries, involving students in their own learning and focusing on how to teach them to become more independent learners is a major educational goal.

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Appendices

The test used as post-test .
Allowed Time: 40 minutes

A: Fill in the blanks with the given words.(There is an extra word)

(Foreign – order – snowplow – beside – louder – drew – pick)

1. It cleans snow away from roads. It is a
2. We don't beautiful flowers in the parks .
3. How many languages does your brother know?
4. I like toa sandwich for my lunch.
5. He the picture of a mushroom on a piece of paper.
- 6.I don't sither because she talks a lot.

B: Fill in the blanks with the given words.(There is an extra word)

(Wise – noise – leave – waiter – steam – brightly– duty – change – share)

7. The was coming out of the hot water.
8. I want to play football, so I must my clothes .
9. Your room is very dirty. It's your to clean it.
10. I'm hungry. I want to eat myof food.

11. The brought us some soup in the restaurant.
12. Some drivers don't drive very fast. They are
13. The sun is shining in the sky.
14. When I was walking in the street , I heard the of a car .

C: Fill in the blanks with the given words.(There is an extra word)

(grows – butcher's – foreign – dirty – get up – bakes — vegetables – member – paper)

15. Onions, potatoes and tomatoes are
16 .Meat is sold in the
17. I am a of our school football team .
18. A baker bread.
19 We have to early in the morning.
20. Books are made of
21. German is a language in Iran.
22. A flower on a plant.

D : Choose the synonym of the underlined words.(There is an extra word)

23. You forget the foreigner names easily.
24. The cats can climb trees.
25. He went to a school for little children.
26. The math problem is not difficult.

- A. easy
B. don't remember
C. kindergarten
D. go up
E. raise

E: Choose the correct answer.

27. Farmersplants, vegetables and flowers.
a. build b. raise
c. form d. make
28. Your shoes are Put them outside.
a. poor b. rich
c. dirty d. clean

29. A works in a restaurant .
a. waiter b. farmer
c. baker d. butcher

- 30.A bank may have many
a. branches b. hands
c. arms d. money

F: Choose the synonym of the underlined words.(There is an extra word)

31. I'm sure he'll give an answer to my question
32. Smoke rises from the fire.
33. I bought a garden when he grew up.
34. Can you build a wall?

- a. became older
b. comes up
c. reply
d .make
e. moves

G: Choose the correct answer .

35. His father has a lot of money. He is aman.

- a. young b. clever
c. rich d . poor

36. Don't tell this to others. It's a /an.....

- a. secret b. asleep
c. foreign d . funny

37. A cleans the rooms and washes the dishes.

- a. farmhand b. butcher
c. baker d . servant

38. Don't worry .Birds will fly back in

- a. winter b. summer
c. spring d. autumn

39. I have no to wait here .

- a .time b . hungry
c .party d . dirty

40. We need and water to live.

- a .moon b . air
c .fly d . distance

Table-1

Groups	N	X(Mean)	V	SD
Control	30	16.23	2.07	1.44
Experimental	30	18.28	3.10	1.76

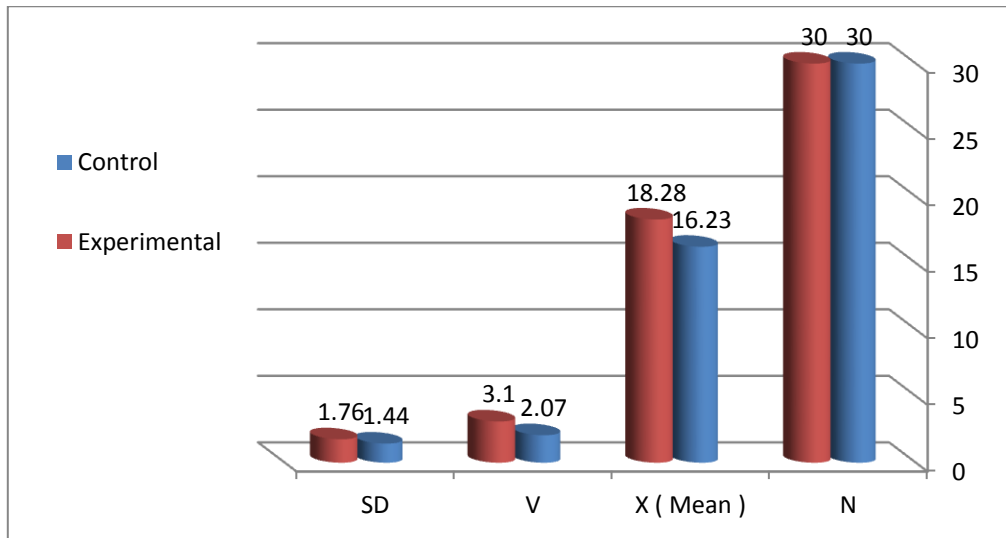


Figure 1: vocabulary performance of groups

