

# The Effect of Computer-Assisted Language Learning on Reading Comprehension in an Iranian EFL Context

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**Abstract.** This study is an attempt to examine the effect of computer-assisted language learning (CALL) on reading comprehension in an Iranian English as a foreign language (EFL) context. It was hypothesized that CALL has an effect on reading comprehension. Forty female learners of English at intermediate level after administering a proficiency test were randomly selected as the participants of this study and assigned into two groups of experimental and control. The experimental group received treatment using three types of software. The control group had the same materials as on the printed texts. T-test was employed to compare students' reading comprehension post-tests. The results of t-test supported our research hypothesis that there is a significant difference between experimental and control groups in terms of reading comprehension. The findings of this study carry important implications for foreign language syllabus designers, curriculum planners, and language instructors.

**Keywords:** CALL, reading comprehension, EFL, software, multimedia.

## 1. Introduction

Recently, computers have become so widespread in schools and homes and their uses have expanded so dramatically that the majority of language teachers must now begin to think about the implications of computers for language learning (Warschauer, 1996). CALL is a term used by teachers and students to describe the use of computers as part of a language course (Hardisty & Windeatt, 1989). It is traditionally described as a means of 'presenting, reinforcing and testing' particular language items.

Initially, there were some innovative uses of software which contained drills, practices and exercises. As the technology advanced, we began to see more interactive uses of CALL as well as an increase in the integration of various media into the computer system (Pusack & Otto, 1990). Kulik and Kulik (1991) reviewed more than 500 studies which compared learners who received computer-assisted instruction with

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the learners who received traditional instruction. They found that learners tend to learn more and in less time with computer-assisted learning.

Reading is an active skill that involves the reader, the text, and the interaction between the two. The acquisition of reading skills is a very important aspect of first language, as well as second or foreign language (FL) literacy. Reading in an L2 or FL is a dynamic and interactive process during which learners make use of a variety of skills and strategies, combined with background knowledge, L1-related knowledge and real-world knowledge to arrive at an understanding of written material (Aebersold & Field, 1997).

A review of the reading comprehension literature has shown that specially designed software, computer-assisted language learning program, online lessons, animated texts, use of multimedia contexts, interactive multi-modal materials, online dictionaries, e-books and a hypertext/hypermedia environment have been used to teach L2 reading comprehension. The different learning modes, skills and activities used in reading comprehension instruction in CALL environments are reported below.

Sawaki (2001) listed the studies carried out on computer-based and paper-based reading comprehension. The studies done by Heppner, Anderson, Farstrup, and Weideman (1985) showed that students outperform in the computer-based version of the reading tests, whereas some studies showed that they are equal.

The present study examined the effect of computer-assisted language learning on reading comprehension in the Iranian EFL context. The research question is as follows: Does computer-assisted language learning have any effect on reading comprehension?

## 2. Method

### 2.1. Participants and instruments

A total of 53 EFL learners initially participated in this experiment but after selection they were reduced to 40. The participants were Iranian female intermediate EFL learners with an age range of 18 to 25. The participation was voluntary and they had already enrolled in the English Language Institute. They shared the same linguistic and cultural background. The first language of the students was Azari. For the purpose of the study and to investigate the hypotheses, several instruments were utilized. The Reading section of the Cambridge ESOL Preliminary English Test (PET) was used for homogenizing the participants regarding their reading comprehension. For the post-test standard, a reading comprehension test was used. The allotted time for each test was 30 minutes.

Three types of software were used in the experimental group. The first software which was used was Rosetta Stone, which is a software for learning more than 30 different languages. It covers four language skills. This software is based on multimedia

which presents picture and sound. The reading part of this software contains texts with pictures. One of the features of this software is immediate feedback. The second software was VOA (Voice of America) Special English. It has 40 texts in different subjects for reading comprehension. This software reads the text for learners, so there is an opportunity for learners to learn correct pronunciation as well. One of the features of this software is a dictionary, Babylon which can present the meaning of words in more than 50 different languages. Learners can get the meaning of the word which is in the text just by one left click. The third software used was Learn to Speak English; it covers four language skills. This software is based on multimedia and presents picture, sound, practice and drills. In the reading part, this software presents the text with motion pictures which can affect comprehension positively. The control group had the same materials as on the printed texts.

### 2.2. Design and procedure

The design of the study was quasi-experimental. Two intact groups, after administering the proficiency test, were assigned randomly into two groups of experimental and control groups.

First, the Reading section of the proficiency test, PET, was administered as a pre-test to determine students' homogeneity regarding reading comprehension. The students in the control group read texts from the printed pages during ten sessions in a conventional classroom, while the experimental group read the same texts from the computer screen using three different types of software. The two groups followed the same aim and scope of the course and they were taught by the same teacher. Finally, both groups took the post-test. In order to make students familiar with the software, the second session was devoted to training. The treatment started from the third session for 10 sessions.

### 3. Results

In order to make sure that the participants in both control and experimental groups were at the same proficiency level, a 20-item test in reading comprehension was used. As shown in Table 1, there was no significant difference in scores for the experimental group ( $M = 12.45, SD = .2.76$ ) and control group ( $M = 12.20, SD = .2.19$ ),  $t(38) = -.317, p = .753 > .5$ . This suggests that students in the two groups were fairly homogeneous in the reading comprehension knowledge at the beginning of the study.

Table 1. Independent t-test based on pre-test for experimental and control groups

	Group	N	Mean	Std. Deviation	Levene's Test for Equality of Variances		t-test for Equality of Means		
					F	Sig.	t	df	Sig. (2-tailed)
pre-test	Control	20	12.20	2.19	1.349	.253	-.317	38	.753
	Experimental	20	12.45	2.76					

As shown in Table 2, there was a significant difference in post-test scores for the experimental group ( $M = 16.10, SD = 1.17$ ) and control group ( $M = 13.80, SD = 1.36$ ),  $t(38) = -5.741, p = .0001 > .5$ . This suggests that there was a significant difference between post-test scores of the experimental and control groups in terms of reading comprehension ability.

Table 2. Independent t-test based on post-test for experimental and control groups

	Group	N	Mean	Std. Deviation	Levene's Test for Equality of Variances		t-test for Equality of Means		
					F	Sig.	t	df	Sig. (2-tailed)
post-test	Control	20	13.80	1.36	.563	.458	-5.741	38	.000
	Experimental	20	16.10	1.17					

According to the results of this study, CALL can enhance and improve the reading comprehension of EFL learners; in other words, the students who were taught using CALL performed better than students who were taught by the traditional printed text.

**4. Discussion**

The purpose of the present study was to investigate the effects of computer-assisted reading support on the comprehension of EFL learners. To reach this goal, two modes of teaching reading were compared with regard to their effectiveness for foreign language reading comprehension: the computer-assisted reading and the traditional print mode. The results of the data analysis indicate that comprehension scores increase when readers read computerized texts that provide reading support. According to this research, this increase in comprehension is the function of the computer that permits deeper and more interactive information between the reader and the text.

Researchers using CALL in the area of reading have frequently reported beneficial effects of such instruction. In these studies, researchers reported improvement in pre- and post-test measures of comprehension and reading proficiency (Sawaki, 2001). The findings of the present study are in line with the aforementioned studies.

**5. Conclusion**

The superior performance of the learners in the experimental group might be contributed to the interactive nature of CALL, which, in turn, can make language learning more interesting. Moreover, using the interactive computer software in the class may have encouraged the readers to process the meaning of the text more deeply and more actively.

This interpretation suggests that the computer might provide unique opportunities for managing readers' interaction with the text during the independent reading.

The result of this study provides insight into the effect of interactive computer software on students' reading comprehension and supports the conclusion that computer-assisted language learning can enhance the reading comprehension of EFL learners.

**Acknowledgements.** We would like to thank the participants of the study.

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Published by Research-publishing.net  
Dublin, Ireland; Voillans, France  
info@research-publishing.net

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CALL: Using, Learning, Knowing  
EUROCALL Conference, Gothenburg, Sweden  
22-25 August 2012, Proceedings  
Edited by Linda Bradley and Sylvie Thouésny

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ISBN13: 978-1-908416-03-2 (paperback)  
Print on demand (lulu.com)

*British Library Cataloguing-in-Publication Data.*  
*A cataloguing record for this book is available from the British Library.*

*Bibliothèque Nationale de France - Dépôt légal: décembre 2012.*