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The Effect of Computer-Assisted Language Learning on Teaching English Grammar for Iranian EFL Learners

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Abstract

This study tried to investigate the effect of using Computer Assisted Language Learning (CALL) on the achievement of Iranian students in learning grammar. The sample of the study consisted of 80 students distributed randomly on two experimental and two control groups. The instruments of the study were an instructional on-line program for teaching Conjunctions (coordinating, correlative and Transitional) and an achievement test. The findings of the study revealed that there were statistically significant differences between the students' achievement scores in grammar due to the instructional method of teaching. This difference was in favor of the students in the experimental group. There were also statistically significant differences between the students' achievement mean scores in grammar based on gender. Results showed that female learners outperformed male learners in the post test in both control and the experimental group. According to the findings of this study, it is recommended that teachers use CALL lessons in their instruction.

Keywords: *Achievement, Computer assisted language learning, EFL, Gender, Grammar, use of instructional program*

Introduction

Due to the influence of technology on education, relationship between language ability and computer use, have gained more attention during the last decade. Computer Assisted Language Learning (CALL) is often considered as an approach to language teaching and learning in which the computer is used as an aid to present, reinforce, and assess materials going to be learned (Rahimi & Yadollahi, 2011). Computer technology is one of the basic components of the

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electronic technologies. Computer technology has common characteristics in educational contexts in recent years (Rilling, 2000). The use of computer technology in English Language Teaching context has started since 1960s (Lee, 2000).

Different expressions have been used to define the integration of computers into ELT context, which is called Computer-Assisted Language Learning (CALL). Levy (1997, p.1) defines CALL as "the search and study of the usage of the computer in language teaching and learning" and goes on to state that "it is used as the general term to cover all roles of the computer in language learning "(p. 81). As it is clear in this definition, CALL is a broad term that includes all aspects of computer implementations into language classes. Furthermore, the influence of technology in language learning has made Computer Assisted Language Learning (CALL) the widely used technology based teaching and learning systems. In other words, the Internet has been used as a pedagogical tool for promoting language learning and teaching (Hismanoglu, 2010).

In addition, Sevingil and Bayyurt (2010) declared that the combination of Computer Mediated Communication (CMC) into foreign language classrooms is required for learning the second language. Yunus, et al. (2010) believe that technology is mixed with language instruction and this has become a daily occurrence. Such combination helps in the presentation, justification and assessment of the materials in language teaching and learning. Actually, CMC can be viewed as an essential part of foreign language classes (Vandergriff, 2006) which has made noticeable changes in education. Such changes in educational settings are aimed at improving the process of learning (Borgman et al., 2008). To reach this aim, comprehensive studies on the application technology in the educational settings are needed. Early studies on writing in CALL focused on two areas: developing word processing skills in learners and the use of text-based and later graphic organizers to support the writing process. Word processing was common in CALL previously but not anymore.

Pennington (2004) notes that research in word processing showed positive effects in writer attitudes, text length, text quality and quantity and in some cases quality of revisions; word processing is now used virtually by everyone for composing. Spell checkers and grammar checkers were used as useful tools in the development of second language writing. Systeme-D for French (Noblitt, Sola, & Pet, 1987) was a CALL program that involved aspects of vocabulary, grammar and composition to create an integrated composing and editing environment. Hirvela (2005) states college writing is becoming more computer-based and computer is turning into a common tool in writing instruction. So, it is necessary to learn about world of electronics by the help of writers and readers. Slattery and Kowalski (1998) mentioned that there are two waves in Computer Assisted Language Learning. The first one is related to using word processors and improvement in writing skill and even motivation. The second one is related to computer-mediated communication (CMC) which appeared with the arrival of Internet and the role of hypertext which connect a related text to numerous texts. In this way, students can electronically communicate with each other.

Farima & Teimour (2013) believed that Computer Assisted Language Learning can be helpful in improving Iranian EFL learners' pronunciation ability. Furthermore, Abu Naba'h1, Hussain1,

Al-Omari, and Shdeifat (2009) found that Computer Assisted Language Learning through instructional software program can improve grammar learning. They used an instructional software program to teach passive voice. Those students who were taught passive voice through this computer assisted language learning performed better than those students who were taught through traditional grammar teaching.

Hashemi and Aziznezhad (2011) stated that one of the big advantages of CALL is that it helps to create autonomous learners. Another benefit is that it has a crucial role in teaching material. In other words, using CALL in a learning pedagogy promotes current practices and reinforces curriculum renewal. They also believed that before applying computer in a learning pedagogy, teachers should consider many important factors. First of all, they should evaluate the learners' computer skills to make them aware of the basic computer skills. The second factor is the learners' language level and navigation on the web. As far as most of the web sites are in English, the students need high knowledge of the English language. The last but not the least factor is some technical issues which should be taken into account like, access to network environment, use modern equipment and software, awareness of basic internet technology, and potential problems by teachers. Furthermore, Ghasemi, Hashemi, and Barani (2011) stated that learning via technology has many merits. For instance, through using internet, the learners can be provided current and up-to-date data and vast amount of information that can be retrieved easily and quickly. Computer, also, can serve a variety of uses for language teaching. It can be a tool for reading, writing, and doing researches, a stimulus for engaging students in authentic conversation and interaction, and a teacher practicing different drills and skills. More importantly, integration of computer-based materials into the educational environment transforms the students from passive recipients into active participants. Sophocleous (2012) explored the importance of the use of technology in language teacher training course. The researcher provided a CALL course for 11 students majoring in TEFL in Cyprus. All CALL courses were in the language laboratory. At the beginning, the students were helped to set up a wiki used a delivery and management tool to serve 3 purposes. 1. It provided students with the use of new technology based on second language teaching pedagogy. 2. It enabled students to keep a record of their work and learning for reflection. 3. It gave them an opportunity to create a site where they had enough online teaching materials to motivate them to use technology. For a semester students worked in language laboratory and at home with the use of wiki or similar software. At the end of the course, the students were asked to complete an evaluation questionnaire. The results of study shows that all students found wiki very useful and they said they would continue using wiki and other soft wares if they teach.

Over the years, more and more technical inventions have taken their place among the educational aids with which teachers surround themselves, so as to make their teaching more productive. What distinguishes the computers from other pieces of equipment, such as tape recorders and film projectors, and what forms in fact the basis of its being an educational aid is its interactive capability: "The unique property of the computer as a medium for education is its ability to interact with the student. Books and tape recordings can tell a student what the rules are

and what the right solutions are, but they cannot analyze the specific mistake the student has made and react in a manner which leads him not only to correct his mistake, but also to understand the principles behind the correct solution" (Nelson, Ward, & Kaplow,1997).

The computer gives individual attention to the learner and replies to them. Traditionally, it acts as a tutor assessing the learner's reply, recording it, pointing out mistakes and giving explanations. It guides the learner towards the correct answer, and generally adapts the material to his or her performance (Demaiziere, 1982). This flexibility, which can include allowing the learner to choose between several modes of presentation, is something impossible to achieve with written handouts and worksheets; it would require huge "scrambled books" with pages and pages of mostly unnecessary explanations, together with an extremely complicated system of cross-references. Nor would the learner get the instant feedback so beneficial to the learning process which the computer provides. The computer thus improves the acquisition of knowledge, develops the learner's critical faculties, demands active participation and encourages vigilance (Hah, 1996). The fact that computers are used in the teaching of other subjects and are put to a great many applications in society makes one suspect that no field lays completely outside their scope and that they might indeed be of some use (Davies & Higgins, 1980). There has been a large body of research addressing the effects of computer assisted language learning from various perspectives; however, there are few investigations on the effects of computer learning on grammar skills. Therefore, the present study addresses the following question:

RQ_1: Is there any significant difference between the scores of the experimental group taught using CALL-based methods and the control group taught using traditional methods in terms of grammar achievement?

RQ_2: Is there any difference between male and female students' performance in the post-test between two groups in terms of grammar achievement?

Methodology

Participants

The sample of the study consists of 80 students assigned randomly to four Groups. Students who participated in this study were advanced EFL learners passing a TOEFL course in Jahad Daneshghahi Institude in Tabriz, Iran. Two experimental groups (20 males and 20 females) and two control groups (20 males and 20 females) were used for this study.

Instrument

To perform this study successfully, the researchers have developed two types of instruments: an achievement test, and an online program. For choosing homogeneous groups a proficiency test was used. In the beginning, the number of students in the classes was 96. After the proficiency test those students who got 1 SD over or below the mean score were chosen. This test had consisted of listening, reading and grammar parts. The achievement test was designed by the researcher. It was used as both a pre-test and a post-test to identify the effect of the web-based program on students' achievement. The test consisted of 30 multiple-choice items of four alternatives from "Longman TOEFL Preparation Book". The total score is out of 30 and all

questions are related to the usage of conjunctions in English. The objective of the pre-test was to assess the students' background knowledge of the ability to use conjunctions. The same pre-test was used at the end of the study as a post-test to assess the students' achievement on the topic. The test content was validated by two English language teachers. They were asked to validate the content of the test with regard to test instructions, the relevance of questions to content, its suitability to the research goals and objectives, the number and arrangement of questions, and the suitability of the time allocated to the test. Their notes and suggestions were taken into consideration, and the researcher made the necessary modifications before applying the test. The test reliability was gained through a test-retest method, which was applied on a pilot group of 15 students who were randomly chosen from the population of the study and excluded from the sample. The test was repeated on the same group to check its reliability two weeks later. The reliability correlation coefficient of the test-retest was 0.91, which is considered to be suitable for the purpose of this study. The program which is used from *https://www.ecenglish.com/* is organized in the following way:

1. Introduction
2. Instruction
3. Use
4. Coordinating conjunctions
5. Correlative conjunctions
6. Transitional conjunctions
7. Explanation and Examples
8. Exercises
9. Drills and Practice
10. Test yourself

The program also presents model answers for the items presented in the exercises. Moreover, students receive feedback for their achievement because the program contains a system for correction. Students can easily get their scores after finishing any exercise.

Procedure

The process of data collection lasted for eight weeks. At the first step, the researcher assigned the participants into two experimental and two control groups. The grammar test as a pretest was administered. Experimental group took part in eight sessions in which they practice grammar of English through computer. All students had to connect to the internet through their laptop or their cell-phones. They used a grammar teaching program in a website (www.https://www.ecenglish.com/) .Simultaneously, the participants in the control group applied the traditional method for learning the grammar of the conjunctions and did not use computer. In the experimental group students received the immediate feedback. However, in the control group feedback on the correct selection of answer was given the next session. At the end of the course, both groups' grammar skill was assessed through the grammar test as a posttest.

Results and discussion

The results of t-test for proficiency test showed that there wasn't any significant difference between learners in control and experimental groups. Table 1 shows the descriptive statistics and independent sample t-test analysis of grammar test held as a pretest and post-test. The mean score of the experimental group in the pre-test is 15.47 and the control group is 15.70. As it is seen, there isn't any significant difference between two groups in the pre-test p>.05. This ensured the researcher of the homogeneity of both experimental and control groups in terms of their grammar skills at the entry level. However, in the post-test, the independent sample t-test shows a significant difference in the mean scores of the control 20.89 and experimental groups 28.78 on the grammar test p=0.00. It seems that both groups have improved in the post-test, however, this improvement is higher in the experimental group.

Table 1
The Descriptive Statistics and Independent Sample t-test Analysis of Grammar Test in the Pretest and Post-test

Group	N	Mean	Std. Deviation	Std. Error Mean	T	df	P
Pre-control	40	15.47	1.45	0.38	1.76	78	0.84
experimental	40	15.70	1.62	0.25	1.76		
Post-control	40	20.89	2.23	0.34	2.13	78	0.005
experimental	40	28.78	2.14	0.45	2.13		

For answering to the second question an ANOVA test was conducted and the results show that female learners performed better than male students in both groups in the post-test.

Table 2
Means and Standard Deviations in the post-test for Male and Female Learners

Gender	Means	Std. Deviations	Number	F	Sig.
Female	24.56	2.54	40	15.353	0.00
Male	22.16	2.48	40		
Difference	0.9	0.06			

Table 2 shows that there is statistically significant difference $p < 0.05$ between the mean scores of both male and female students. The calculated F value was 15.353 which is statistically significant at $p < 0.05$. This proves that there is an effect on students' achievement based on their gender. This effect is in favor of female students.

Discussion and Conclusion

The rapid growth of computer as a new technology in this modern era has caught the attention of all educators in different fields such as language teachers. Jamieson and Chapelle (2010) stated that language teachers and learners should use computer-based materials as a routine part of language learning opportunities. There are numerous websites which contain plenty of foreign

language learning materials and software which have been activated during last decades. As Uzun (2012) mentions, not only teachers but also learners are provided with rich resources of educational equipment. The aim of this study was to examine the effects of Computer Assisted Language Learning (CALL) on Iranian EFL learners' grammar skills. Findings from this study indicated that using computer-based materials in a classroom had significant effect on the students' grammar skills. The findings revealed that both groups were equal in their performances in the pre-test. In the post-test both groups improved; however, this improvement was higher among experimental group which used CALL for learning Conjunctions. Besides, female learners outperformed male students in both groups in the post-test. It can be concluded that CALL can improve students' grammar skills. The findings of this study is in line with the results gained by (Al-Mansour & Al-Shorma, 2012; Razavi& Ketabi, 2011;Talebi & Teimour, 2013) on the positive effect of computer-assisted materials on students' language achievement.

There are lots of specific software that have been created for learning English which includes the possibility of teaching and training the different skills of language. Most of the activities for improving language are based on drills and it is available in computer based language teaching. Therefore, learners in computer based language teaching have the possibility of learning different aspects of language through predetermined texts. Nonetheless, despite the lack of true/real interaction and real context, this experience has been proved to be highly motivating, since the graphic environments that software programs offer appear quite realistic. As a result, if learners focus on the activity, they may feel that they are in the real context. Furthermore, these programs offer every grammatical point with sample and enough exercise to be sure of learning. In addition for every skill as listening, vocabulary, structure, reading and writing they provide learners with sufficient and appropriate materials as well as exercises. Since this study focus on learning grammar, I just mention the software which tries to teach grammatical points. In this software all grammatical structures are explained and enough exercises are provided.

According to the findings of this study, computer is as a tool or an application that can help students to increase their grammar learning. Furthermore, students sent their result to the teacher via e-mail. In this way teacher will get informed of students' weakness or strength. Moreover, teachers can get better feedback to improve their students' errors and mistakes. Since the use of computers and consequently internet is increasing rapidly in Iran, EFL teachers can be encouraged to use computer based language learning as an available supporting learning tool to facilitate language teaching. It can happen because of increasing interest and motivation of students to the use of technology as a new material for learning English. Teachers can use the limited class time for more productive skills through using computer based language learning.

In this study, the classroom activities were designed in such a way that the students became familiar with the most common types of conjunctions. The first research question sought to find out whether there was any difference between traditional approach and computer-based instruction on the development of EFL learners' grammatical ability. The findings from this study revealed that the students in the experimental group performed better than the students in the control group because their grammar class was conducted by using the Computer based

language teaching through using laptop or cell phone. The students in the experimental group who were exposed to computer based instruction received automatic feedback which proved more beneficial and helped them revise their answers instantly during the period of instruction which lasted for one semester. Furthermore, they couldn't go to next exercise without checking the correct answers and getting written feedback on every question. The students in the experimental group were more successful in improving grammatical skill and were able to use the correct form of grammatical structures. On the other hand, the students in the control group who were taught based on traditional approach in the classroom had to wait for one week to receive the feedback from their instructor and they were deprived of immediate feedback which was provided by the computer. Besides, it was boring for students in the control group to review their grammatical test the next session. Getting feedback in the same session of doing the task seems more appropriate and productive for learners. According to De Beaugrande's (1981), the participants in the experimental group could learn grammatical structure better than the participants in the control group, since they were ready to get the correct answer and feedback. The results obtained from this study confirm the idea that by providing appropriate environments for teaching grammar, learners can produce correct sentences and improve grammatical structure (Pennington, 1996). The second research question of this study aimed at finding out whether computer based instruction help students to guess the correct form of conjunctions based on gender. According to the results, as shown in the tables, the female students both in the experimental and control group were more successful in selecting appropriate conjunctions than male students.

However, this success was higher in the experimental group. It can prove that computer based instruction was more effective than the traditional approach of teaching grammar. To sum up, the findings suggest that by using computer based grammar teaching, students in the experimental group gradually gained experience to improve their grammar skills and increase their ability to use more appropriate structures. These findings prove that the integration of web-based materials in language learning classrooms can motivate the learners and improve their performance. The findings of this study will be valuable for teachers, material developers and instructors to consider the usefulness of computer-based instructional materials. In addition, investing more in designing and applying such materials is highly recommended.

This research was conducted in Azarbaijan Province where people speak Turkish and Persian, there should be some other researches in other districts of Iran with different language background. This study was conducted with a small group of population. In future studies, a larger number of participants can be used to assess the results of this study. In addition, there should be some other research on this topic with different language proficiency. Besides, in future researches, the researcher can use other methods for collecting data like questioners, interviews, observation, video records, etc. In this case, their data collection procedure of their studies will achieve more detailed information.

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