

## The Effect of Computer-based Programs on Iranian EFL Learners' Knowledge of Grammar through Writing

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**Abstract:** *In the last years, the philosophy of education has undergone great changes; with the dawn of technology, the education realm has received specific alteration. The use of technology, computer, in education dates back to 1960s and since then a lot of research has been done, with the aim of facilitating the process of language learning and teaching. Improving learners' ability in all language skills and sub skills have been the focus of attention in different works and studies related to computer assisted language learning (CALL). This being the case, the present study aims at investigating the possible effect of computer programs on improving EFL learners' grammatical knowledge through essay writing. The participants of the study, forty Iranian EFL lower intermediate learners, were put into control and experimental groups randomly. The data were collected and analyzed using independent t-test, which revealed the superiority of the experimental group in having fewer grammatical errors/mistakes in writing.*

**Key words:** *computer programs, writing, facilitating grammar gain, EFL learners*

### Introduction

During the last decades, different research suggests various methods and approaches to language learning and teaching. The reason why practitioners and researchers are seeking the new ways of presenting materials and offering novel ways in the process of foreign or second language acquisition is to facilitate learning and mastering of information for language learners.

Language learning and teaching have undergone great influence in the past years since the appearance of technology, one of which is computer assisted language learning (CALL). The history of using computer in language teaching dates back to 1960s. Warschauer & Healey (1998) divide the past history into behavioristic (1960s), communicative (1970s- and early 1980s) and integrative (late 1980s- and 1990s) CALL. They maintain that behavioristic CALL suggested practice and drill, and since it allowed practice on individual pace, it was viewed as a mechanical tutor. In communicative CALL the focus was on using forms rather than forms themselves, teaching implicitly, encouraging original utterances, and using the target language

instead of the first. And finally, in integrative CALL the real language use within an authentic context, such as task-based activity, was emphasized. Pichastor and Anglesa (1996) summarize the role of computer within the following approaches:

- a) grammar-based approach: consists of vocabulary and grammar drills
- b) functional-based approach: with the aim of promoting communication
- c) collaborative approach: to encourage group learning. They argue that although computer has made it possible to individualize learning, in cooperative learning students have the chance of discussion and correction of errors and mistakes in a more conducive way. They maintain that in collaborative approach the role of teacher is minimized and progressive development of learners' autonomy will result.

In the light of the information technology, which affects human life, there is a great tendency to make use of computers in all aspects of life, in this regard, education is not an exception. Abu Naba'h, Hussain, Al-Omari, & Shdeifat (2009, p 431) argue that

There is no doubt that just as the computer has established itself firmly in the world of business and communication technology, it has also succeeded in acquiring a fundamental role in the educational process. This role is becoming more powerful as computers become cheaper, smaller in size, more adaptable and easier to handle.

The technological improvements have changed every field of study, among which language teaching is the one that has been affected (Bekleyen and Yilmaz 2011). Meskill (2005) states that computer technology has entered the realm of education, and it functions as a supporting instrument in instruction. In CALL, the primary attention is on student-centered approach that allows learners to work on their own tasks individually. Software and internet-based programs are the basic components of CALL instruction. "CALL means learners learning language in any context with, through, and around computer technologies" (Egbert and Petrie 2005, p. 4)

The term technology includes tape recording, video, television, telephone, computer and the like, which all can be used as facilitators of instruction and learning in educational settings. Teaching and learning materials by taking advantage of technology may lead to the development of learners' critical thinking and autonomy, because they can increase self-efficacy, and in turn, it results in solving the problem without direct supervision of instructors or tutors. "A common justification for the use of computers in language teaching and learning is that it is said to promote learner(s) autonomy, which researchers and practitioners alike now set as a very important goal" (Jones, J. 2001, p. 1). "Since online educational technology can support a ubiquitous language learning environment, there are many ways to develop English learners' autonomy through self-access learning" (Kim 2014, p. 20). CALL offers individuals the

opportunity to learn on their own, specifically when there is no direct access to teachers and instructors it establishes a valuable aid in offering authentic supports.

CALL has been proven to be, generally, effective in promoting language learning and enhancing traditional teaching methods (Chang 2007, p. 331). It does not mean the traditional ways of presenting materials to learners are the worst approach and CALL is the best to be applied; rather it is argued that this technology can provide language learners with a supportive and influential instrument if it is applied properly. Houcine (2011) argues that despite the fact that there has been some dispute over the use of computers and the internet in foreign language teaching, nowadays it is widely agreed that it has positive effects on the learning process. "Computer-assisted language learning is an approach to teaching and learning foreign language where the computer and computer-based resources such as the internet are used to present, reinforce and assess material to be learned" (Al-Mansour and Al-Shorman 2012, p. 51). CALL provides learners a new chance of getting information, although the traditional learning approaches are still helpful for presenting and getting materials. Furthermore, using computer in educational settings does not remove the need to teachers, rather teachers and learners are the inseparable elements in language learning. Son (2002) argues that learner, teacher and computer are the three major components of CALL. He adds that despite their distinct features, they are complementary to each other.

The use of computer enables language learners to adjust their pace and their way of learning. It provides a situation to interact with the students. Books tell about the rules and right solutions, but they do not analyze students' mistake to help them correct the mistakes and provide the reason why they are wrong. Learning of materials, increasing critical thinking, facilitating learning processes, reducing anxiousness, promoting experiences and computer literacy, enhancing self-esteem, encouraging risk-taking, providing feedback, removing the class from being monotonous, supporting problem solving, improving learners' achievement, and the like are among the very effective and positive influence of computer technology on the realm of education.

However, there have been some limitations on using computers in teaching materials to language learners, in some settings. First, all language classes are not equipped with computers. Second, all language instructors are not well familiar with this technology. Learning a foreign language is more assisted if instructors are familiar with computer knowledge and how to use it. Chapelle (2001, p. 2) argues that

Anyone concerned with second language teaching and learning in the 21<sup>st</sup> century needs to grasp the nature of the unique technology-mediated tasks learners can engage in for language acquisition and how such tasks can be used for assessment. Language learners typically use computers at least to write papers, receive and send e-mail, and browse the World Wide Web; one

challenge for language teachers is to shape some of their computer- using experiences into language learning experiences.

Third, some are not aware of the influential impact of computer in educational training. And fourth, learners may do not have direct access to a computer or they may not have adequate knowledge of how to use it as an aid.

The significance of CALL programs is known by parents, teachers, learners, syllabus designers and others who are engaged in educational affairs. This study aims at exploring the effect of using computer on increasing learners' knowledge in grammar through essay writing activity. On the literature review, a lot of research working on the use and impact of computer to promote learners' ability in writing is available, but this study takes a different approach in that it focuses on the use on net and word environment to enhance grammar knowledge of EFL learners through writing essays and compositions by taking advantage of CALL.

### **1.1 Statement of the problem**

Most EFL learners have grammatical problems particularly when they are required to write a composition. That is, despite the fact that they have already studied grammar, they are unable to use the taught materials in writing. The researchers found that EFL learners' inadequate grammatical knowledge and their reluctance in referring back to grammar books for guidance are among the main factors influencing their repeated grammatical mistakes. This inadequate knowledge of grammar leads the learners to feel disappointed when they are asked to write. When EFL learners' grammatical knowledge is weak, learning of all other skills and sub skills of the target language is affected, not just writing.

### **1.2 Aims and significance of the study**

This study aims at introducing a new approach of learning and improving grammatical points to EFL learners by means of computer when writing. In other words, the researchers in the current study are looking for a new way of instructing materials, grammar, by using computer-based instruction programs. They argue that the use of computer motivates the learners in learning the new materials since they can learn on their own individually. The results of the study are conducive to language teachers, in addition to language learners, in EFL contexts in that it can help teachers to apply the same approach in their classes, if the results are satisfactory. In other words, this study is an attempt to provide insights on the benefits of CALL for learning grammar knowledge in more details in EFL settings. The findings of this study may offer support and evidence to bridge the gap between the theoretical and practical aspects of employing CALL in teaching grammar. In addition, the findings may be practical for different individuals at different levels. Finally, this type of research may encourage other scholars to carry out further studies in this regard, which will lead to the improvement of related literature.

## 2. Literature review

In a study Ongalo, Wambugu and Anditi (2014) indicated that computer based programs enhance learners' attitude toward learning English grammar.

Ghorbani and Marzban (2013) conducted a study to investigate the effect of CALL on Iranian beginner EFL Learners' grammar learning and concluded that the use of CALL results in the improvement of grammatical knowledge of the learners. That is, experimental group outperformed the control group in gaining the knowledge of grammar. The results, also, indicted that in teaching grammar CALL can be a suitable device.

In another study, Shafaei (2012) investigated the helpful effect of CALL on learning English. The results of the study revealed that approximately most EFL and ESL learners recognized the merits of taking advantage of computer in learning English language. The subjects believed in the positive role of computer in learning grammar.

Fang (2010) studied the impact of computer-assisted programs for EFL learners and concluded that most of the participants who took advantages of computer- mediated feedback in their writing, benefited from it. The learners showed a high tendency in using computer programs as a writing instrument. This program, computer-mediated feedback, proved to be effective in providing positive effect on EFL learners' writing development. It is reported that if EFL instructors encourage learners to use different computer- based resources in EFL writing process, it helps them to achieve autonomy.

Abu Naba'h, et al. (2009) in a study on the effect of computer in teaching grammar to the secondary students found that in teaching the grammar of second language, using computer-based instruction is effective. As they report, male students benefited more than females', perhaps due to their inclination toward computer or their harder work. The results, furthermore, indicated that scientific students outperformed the literary students in having a better mark on the post-test of grammar without considering the method of teaching and gender of the participants.

In another study, BAŞ and Kuzucu (2009) investigated the impact of CALL and Dyned (dynamic education) program on students' achievement and their attitudes toward English lesson and found that the given technologies have a greater positive impact on students' achievement and attitude in comparison to the traditional teaching methods. The results, also, revealed that teachers were willing to use CALL programs in their teaching classes, because it increased students' motivation and learning opportunity. Grammar, reading and vocabulary were reported to be the most important aspects of language that have to be emphasized.

Chang (2007) in their study concerning the effect of using CALL on advanced Chinese foreign language learners" found that computer devices were helpful in developing listening and speaking of the learners. To participants, CALL was supposed to be an encouraging way of learning advanced Chinese. Chang, also, reported on the learners' self-efficacy and positive attitude toward learning.

Almekhlafi (2006) found that learners benefited from CALL and they showed a great tendency to employ it in future. In this connection Nutta (1998) found the usefulness of computer based grammar instruction as effective as, and perhaps more effective than, teacher based instruction in some cases.

The user of computer can use different types of computer-based programs to provide corrective feedback for the errors and mistakes learners commit (AbuSeileek and Abualsha'r 2014). This correction usually encompasses the form rather than content.

Researchers are doing their best to provide the learners with the most conducive ways of learning and acquiring a language. In case of EFL, since the learners do not have access to native speakers for help and guidance, the situation is more complex and demanding. In writing composition, teachers spend a relatively great amount of time grading the students' papers. Most teachers face sizable grammatical mistakes and errors students commit in writing, despite receiving and covering grammar and structure in previous courses. Seemingly the error cycle in student' composition is endless and it will not disappear. In EFL settings, mostly, a part of the problem originates from the interference of first language and lack of using the taught materials. Although valuable books are available, they are time consuming for the learners to read and understand in detail, and students are not able to achieve a degree of error-less in writing. So, it puts a heavy burden on the instructors, researchers and practitioners to look for other ways that seem to be helpful in increasing learners' grammatical knowledge.

There is a controversy among scholars concerning whether providing corrective feedbacks is useful or not. Direct correction of learners' errors by instructors and offering right alternation is not always successful. Sometimes, direct correction leads to learners' frustration and disappointment; they may get afraid of losing face due to committing mistakes. Instead, providing a situation in which learners themselves can identify the correct forms seems to be more effective. The use of computer can help language learners develop functional language learning. This study, however, attempts to investigate the possible impact of putting the learners in a condition in which they themselves identify right options through the use of CALL. The findings of the study may encourage a self-motivating task by EFL learners to increase their grammatical knowledge through the use of computer programs, "word" environment and "online grammar checker". So, the current study relies on the following hypothesis and attempts to answer the given research question:

$H_0$  = CALL has no impact on improving EFL learners' grammatical knowledge through writing essays and compositions.

Research Question: Is there any relationship between using CALL, "word environment" and "online grammar checker", and Iranian EFL learners' grammatical improvement through essay writing? In other words, does "word environment" and "online grammar checker" affect the retention of grammatical knowledge of Iranian EFL learners, through writing?

### 3. Method

#### 3.1 Participants

Forty EFL learners studying English participated in this research. They were all at lower intermediate level. After administering a pre-test, to ensure the homogeneity of the subjects, they were put into two groups randomly; 20 in control and 20 in experimental group. They took part in the classes during a semester. Due to some limitations, only one of the researchers was responsible for teaching the materials to the subjects.

#### 3.2 Procedure

Writing was a part of the module that had to be practiced in the class. The pre-test indicated that the samples had problems in using the appropriate forms of grammar. Both groups underwent the same instruction for essay writing. That is, the instructor taught the same materials to both groups, but for the control group traditionally, and for the experimental group computer-based programs, "word" environment and "online grammar checker", were introduced, in writing the essay, which helped the participants identify the grammatical errors and mistakes. To ensure that the participants in the control group did not carry out the same techniques in writing their essays, the groups' classes were held on distinct days. A part of each session was devoted to teaching various types of writing including narration, description, explanation, argumentation and the like, which were taught and practiced during the semester in the classroom. The primary attention was paid on subjects' writing system, content, rather than grammatical points, form, due to the objective of the course and the fact that they had already studied grammar. Participants were required to hand in a paper each class concerning the taught materials. The instructor asked the control group to accomplish tasks traditionally, as for the experimental group they were required to type the given tasks in "word" environment, and then to consult "online grammar checker" for necessary modifications that the computer signals as mistakes or errors. The instructor gave the supplementary explanation for the parts the EFL learners had problems concerning the right choices offered by the computer. That is, if they did not know why their choices were wrong or why the computer suggested options were preferred, the instructor helped the class.

### 3.3 Instrument

At the end of the semester, the participants took part in the post-test exam. A part of the test included cloze passages and the subjects were required to fill in the required parts, the blank parts required grammatical knowledge of the participants.

### 4. Data analysis and results

The data were collected and analyzed using independent t-test, which revealed that the experimental group had a fewer grammatical mistakes and errors than the control group, and that they had mastered the structural and grammatical knowledge better. The results indicated that the participants' grammatical deficiencies were removed to some degree by taking advantage of CALL programs. The experimental group outperformed the control group in grammatical knowledge through the use of computer in writing essays and compositions. For the given blanks, the experimental group provided more correct options, which indicate the better mastery of structural and grammatical knowledge of the learners due to the benefits of CALL.

#### Independent Samples Test

	Control group	experimental group	t	df
Grammar	13.45 (2.11)	15.00 (2.53)	-2.10*	38

Note\*:  $p \leq .05$ . Standard Deviations are given in parentheses below means.

An independent-sample t-test was conducted to compare the mean scores of the participants in the control and the experimental groups, the mean scores and standard deviations of 13.45, 2.11 and 15, 2.53 were reported for the control and the experimental groups respectively, which indicated that the difference between the groups' mean scores was statistically significant ( $T(38) = -2.1, P = .042$ ) in favor of experimental group.

The experimental group mastered grammatical knowledge, through writing, in a more helpful and effective way via computer-based activities than the control group who were taught traditionally. Computer programs, in this study, proved their basic role as an assist in learning English language components in EFL contexts. That is, the use of technology in the educational programs, proved effective in enhancing the learners' ability in English language grammar.

### 5. Discussion

Grammar is fundamental to language learning, and at the same time it is a hard and demanding task for EFL learners. In addition to studying the related books, it is suggested that instructors offer EFL learners motivating and conducive techniques to compensate for the inadequacy of

grammatical knowledge. The use of computer technology provides an interesting condition for EFL learners to consult for the veracity and correctness of a particular grammatical point. This study does not recommend the elimination of text books at all, rather introduces CALL-based programs as a complement and supplement of previous materials to EFL learners' grammar knowledge through a fun environment. The use of CALL has shown to be effective in learning and teaching the components of target language. Teachers' familiarity with computer helps them to take advantage of this technology in their classes to increase the chance of learning of the taught materials.

Writing as one of the major skills of language learning, particularly in EFL contexts, deserves particular attention. The use of CALL may increase the motivation of EFL learners if they find it conducive to achieve self-autonomy. Not only did the learners benefited from using computer-based programs in this study, but also the researchers found it helpful for teachers to apply the same approach in grammar and writing classes. The experimental group found language learning more interesting through the use of computer related activities. At home they had enough time to do the assigned tasks. Sometimes, they shared their information with their classmates and peers. The use of CALL made the learners expand their knowledge of grammar without direct teaching of the materials by the instructor. The use of computer, also, helped them increase their self-efficacy in language learning. The findings suggest the efficiency of CALL programs in achieving the intended goal. The participants in experimental group argue that this technique was helpful, especially in cases they made a mistake unintentionally due to the lack of enough attention and concentration, for instance, when they forgot to add or to ignore the possessive 's'. In other words, the use of computer not only provided the learners with the opportunity to master new information concerning the grammatical points, but also it helped them compensate for unintentional mistakes. It is concluded that CALL functions as a reliable source that EFL learners can consult to improve their grammar knowledge in and outside the classroom without close supervision of tutors. So, the null hypothesis is rejected and it is claimed that CALL has a positive impact on improving grammatical knowledge of Iranian EFL learners. The findings of this study are in agreement with the works of Ghorbani and Marzban (2013) who found computer programs as suitable tools for learning grammar, and who believed that CALL improves Iranian EFL learners' grammar knowledge. The results, moreover, support the works of Shafaei (2012) and Fang (2010) who maintained the positive role of computer for EFL learners to master English grammar. This study, also, confirms the usefulness of computer programs to learn and improve grammatical knowledge in EFL contexts, which is approved by other researchers in the field (Lu, Martin & Shah, 2009; Olibie, 2010).

The result of this study, furthermore, confirms the significance of teachers' flexibility and tendency to utilize CALL programs in classrooms. According to Hubbard (2008, p. 176)

The future of CALL is closely tied to the future of language teacher education because language teachers are the pivotal players: they select the tools to sup-

port their teaching and determine what CALL applications language learners are exposed to and how learners use them.

CALL, in the current study, was shown to be a proper supplement and complement of conventional teaching English grammar in and outside the classroom. By taking advantage of computer technology in educational settings, EFL learners' autonomy may result.

## 6. Limitation of the study

The educational setting was not equipped with computer technology, so the teacher could not provide all the learners with a chance of using and practicing English materials, individually, by taking advantage of computer in the classroom. Furthermore, age factor was not considered, due to some limitation, rather level of the learners, lower intermediate, was focused.

## 7. Suggestion for further research

The same study is suggested to investigate the effect of CALL on mastering content, not just form of English language through essay writing for EFL learners. Further research, also, may be done to investigate if computer-based programs affect the vocabulary knowledge of EFL learners through essay writing.

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