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Enhancing Grammatical Knowledge through Multimedia Instruction: The Case of Iranian EFL Learners

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Abstract
The purpose of the present study was to explore the impact of computer-assisted language learning (CALL) on Iranian EFL learners' grammatical knowledge. To do so, 60 Iranian EFL learners were selected based on their performance on proficiency test. They were randomly assigned to two equal groups of experimental and control. Their homogeneity regarding grammatical knowledge was ensured by administering a pretest at the beginning of the study. The experimental group received grammar instruction through the multimedia instruction that was blended to face-to-face routine and traditional techniques. The computers were networked to the teachers own to enable the teacher call students' work at any time and assess their progress. The control group received grammar instruction through the use of conventional instruction. The groups' performance was assessed by posttest. The results of statistical analyses indicated that CALL had significant impact on enhancing grammatical knowledge of Iranian EFL learners. The findings of this study direct our attention to the development of instructional multimedia materials.
Keywords: computer assisted language learning, grammatical knowledge, attitude

INTRODUCTION

Computers have long played an important role in human lives as a multipurpose phenomenon. Large capacity and fast speed have let computers to assist people in many aspects of their lives: business, economy, global communication, and, recently, education. Initially, computers have entered educational realms, mostly, to process and display information. In other words, their applicability in teaching was not being emphasized. However, nowadays, computers are indispensable part of most classrooms. Abu Naba'h, Hussain, Alomari, and Shdeifat (2009) contend that "there is no doubt that just as the computer has established itself firmly in the world of business and communication

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technology, it has also succeeded in acquiring a fundamental role in the educational process" (p. 431).

Nevertheless, the idea of using computers for teaching purposes has aroused mixed feelings and met with a variety of reactions (Kenning and Kenning, 1983). Not only teachers, but also students had to adapt themselves to the newcomer computers. Based on Rahimi and Hosseini (2011), computer attitude is a major factor that affects human-computer interaction. Individuals' positive attitudes towards computer-based instruction influence their willingness to sustain using computers for learning (Liaw, Huang, & Chen, 2007).

Specifically, according to Khamkhien (2012), the roles of computers in language educations are increasing worldwide. He justifies this issue and states that "this is because learners of language, with the use of the Internet and computers, can simultaneously communicate with other learners or speakers of the target language all over the world" (p. 55). He offers another reason for the pervasiveness of computers in language classrooms and states that a large amount of L2 materials available, such as textbooks, program courses, dictionaries, CDs, and videos, require computer and technology. When L2 teaching with the aid of computers found its stable floor, listening skill benefited too.

Grammar as a prominent component of language plays a central role in language learning and acquisition (Celce-Murcia, 2001). It has seen defined from different perspectives by different scholars. Nunan (2003) defined grammar as "a set of rules specifying the correct ordering of words at the sentence level" (p. 8). It is often considered in isolation and taught out of context; as a result, it is difficult for students to apply what they have learned in actual situations (Celce-Murcia and Hilles, 1988). According to Celce-Murcia (2001), what takes a special importance is the fact that rules and forms should be integrated into different communicative tasks to use them meaningfully, since language is for communication.

Azar (2007) stated that without grammar, there are only individual words, sounds, pictures, and body expressions to communicate meaning, and grammar as an essential component of language learning is the wearing that creates the fabric. Such relevant experiences could be enhanced using Computer-Assisted Language Learning (CALL). This study presents the findings of a study that investigated the effects of CALL on students' performance in English grammar.

Traditionally, grammar has been a particular subject for students to learn and it often has been taught separately during a lesson. It has been observed that students being taught the grammatical structures through traditional methods and techniques may have a great amount of knowledge about the language usage, but they are not able to use this knowledge appropriately and correctly in production despite a great deal of their attention devoted to grammatical points (Nazari, 2014).

Teaching grammar has been a problem for many language teachers around the world, the most noticed problem is that grammar presentation in the textbooks is evaluated as

decontextualized. As Nunan (1998) stated "learners are given isolated sentences, which they are expected to internalize through exercises involving repetition, manipulation, and grammatical transformation" (p. 102). Textbook activities also lack the nonverbal elements of the communication like body language, mimes, gestures and emotions (Murphy and Rodriguez-Manzanares, 2008).

Another problem with traditional methods of teaching grammar is that the students will not be able to convey their leanings to a real situation no matter how competent they have become through memorization and drilling (Azar, 2007).

Evidences abound that the average Iranian student manifests significant grammatical incompetence and that students upon leaving school nowadays, could not articulate sound communication, reading, writing, intellectual, and information processing potentialities, which are essential English language skills (Olibie, 2003; Udosen, 2005). The purpose of this study is to find out whether Computer-Assisted Language Learning (CALL) will be more effective in improving students' achievement in English language grammar more than conventional English Language Instruction. Regarding the objectives of this study, the following research question is proposed:

- Does CALL enhance Iranian EFL learners' grammatical proficiency?
- What are the attitudes of Iranian EFL learners towards the CALL-based instruction?

METHOD

Participants

Two English language institutes including two intermediate classes in Tabriz were selected randomly for this study. A number of 60 students were distributed in two classes. One intact class was selected from each of the two institutes. These classes were randomly assigned into two groups. One of the groups was chosen as the experimental group and the other as the control group. Thus, 60 subjects participated in this study, 30 in the experimental group and 30 in the control group. The participants included both male (n = 33) and female (n = 27) students whose ages ranged from 18 to 24, with Persian and Azeri as their L1. The textbook in use in the classes were the *Top Notch* and *True Colors* series.

Instruments

To collect data and address the research objectives of this study, three instruments were used. Oxford Placement Test (OPT) consisting 20 multiple-choice listening, 20 multiple-choice reading, and 30 multiple-choice language use items that was used to determine learners' level of language proficiency; Grammar Proficiency Test (GPT) was used to compare the learners' grammatical knowledge at the beginning and end of the study. It comprises of three sections which cover each of the three grammar aspects being studied namely subject-verb agreement, antecedent anaphor pair, and shift in tense, aspect and voice. Each section consisted of 20 multiple-choice items that requires students to

transform, substitute, or respond to grammatical items. Students were instructed to fill the blanks with the appropriate forms in the brackets. Each question carried two marks thus bringing the total mark obtainable for the paper 1 to 60 marks.

Procedure

To collect the data, first, the OPT was given to 200 students. Their OPT scores were used to select a more homogeneous group of students (i.e., intermediate level) and to figure out the proficiency level of the students. According to the scoring guidelines of the aforementioned test, 60 participants whose scores were from 24 to 36, were selected. It is worth mentioning that based on the OPT scoring guidelines, students who get 24 to 36 are considered as intermediate levels.

Then, GPT was piloted on 20 intermediate level EFL learners, who were similar to the participants of the study in terms of proficiency and age. They were asked to answer the two tests and to see if there were any ambiguous items and if any modifications were needed. After pilot-testing the instruments, four items of the GPT were modified in terms of comprehensibility.

The pretest was administered on both groups to check initial group achievement and to help control non-randomization effect, a potential threat to internal validity with this design. The different teachers taught both groups while the 2 regular classroom teachers observed their classes and took notes of classroom processes in both groups.

The researchers initiated the instruction with a brief introduction to the computer software and hardware in the first session of the study. The purpose of this phase of instruction was to prepare students to do successfully the activities that would be covered within the next sessions. The researchers provided the learners with an overview of the CD programs, and its procedures, and some general activities dealing with the program. The basic grammar program was used. This was programmed into a CD-ROM for the experimental group and it was presented in print form to the control group. While the experimental groups were taught through the aid of a computer, the control groups were taught using the conventional method of lecturing and open class discussion.

The experimental group had 10 computers for students' use. The computers were networked to the teachers own to enable the teacher call students' work at any time and assess progress. The content covered for both the experimental and control groups were selected from the Top Notch and True Color books, which was the textbook in use in Jahad and Shokouh institutes at the time of this study, and cover the grammatical aspects under study.

The control group obtained the instruction in a traditional way. The instruction comprised of teaching grammar with the textbook, the Top Notch and True Color books. The contents of the book was the same as those of the CD, except for the non-printable sections, such as the audio and videos, scoring systems, games, movies, and interactive conversations.

RESULTS

The participants of the study were randomly assigned into two equal groups of experimental and control. Then, they were pretested by grammar test that was designed to test the participants' grammatical knowledge before receiving the treatments of study. The descriptive statistics of participants' performance on pretest is provided in Table 1.

Table 1. Descriptive statistics of participants' scores on GPT pretest

	N	Minimum	Maximum	Mean	Std. Deviation
GPT Pretest (Experimental Group)	30	12	28	21.23	4.470
GPT Pretest (Control Group)	30	12	29	22.87	4.329

As the results show, there is a little difference between the mean scores of the both groups on pretest. In order to ensure that there is no significant difference between the control and experimental groups regarding their grammatical knowledge, an independent sample t-test was performed. The results are provided in Table 2.

Table 2. Independent Samples t-test between the participants' scores on pretest

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig.	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Vocabulary Pretest	Equal variances assumed	.013	.909	-.55	58	.57	1.643	1.13	-2.90	1.64

The results indicated that that there is no statistical significant difference between the control and experimental groups ($t = 0.55$, $p > 0.05$) in their performance on pretest.

In order to find an answer for the first research question of the study in finding whether CALL enhance Iranian EFL learners' grammar learning, each group was given a grammar achievement posttest immediately after the end of treatment sessions. The descriptive statistics of both groups are compared with each other in Table 3.

Table 3. Descriptive statistics of participants' performance on posttest

	N	Minimum	Maximum	Mean	Std. Deviation
Posttest (Experimental Group)	30	29	48	44.33	2.368
Posttest (Control Group)	30	17	35	28.36	2.168

The mean of the experimental and control groups' scores on the posttest were 44.33 and 28.36 respectively. Generally, the performance of the control group learners on the posttest was weaker than experimental group.

An independent samples t-tests was performed to see whether CALL enhance Iranian EFL learners' grammar learning,. The results are provided in Table 4.

Table 4. Independent sample t-test between experimental and control groups' performance on posttest

	Levene's Test for Equality of Variances		t test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal Variances Assumed	.02	.867	14.82	58	.000	15.9800	1.33868	3.7651	1.5651

The results showed that there was a significant difference between the experimental and control groups regarding their performance on grammar posttest ($t = 14.82$, $p < 0.05$). In other words, CALL enhances Iranian EFL learners' grammar learning, and the research question of the study was answered.

DISCUSSION AND CONCLUSION

The central question, which guided this study, is if CALL has any impact on Iranian EFL learners' grammar learning. Although the contextual richness, meaningfulness, facility of recall, and cultural authenticity of CALL programs such as those of interactive multimedia, are quite evident, to be on a safe side the researchers hypothesized that CALL has no impact on learning grammar by Iranian EFL learners.

Having done all the necessary data analyses, the obtained data resulted in the rejection of the null hypothesis, and therefore, the researchers came up with the following findings: The results of different t-tests ($t = 14.82$, $p < 0.05$) provided the evidence to reject the null hypothesis, which stated that CALL had no impact on the grammar learning of Iranian EFL learners. In other words, the significant difference between the experimental and control groups' performances was due to the treatment to the experimental group.

This study supported the fact that associating lexical items with different types of media fosters richness of recall cues and increases the likelihood of retention of Iranian EFL learners. In this respect, Chun and Plass (1996) emphasized, the rationale for this fact is that because 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.

Unlike traditional presentation of grammar in the printed form, the computerized presentation was more appealing for the participants of this study. As pointed out by Davis and Lyman-Hager (1997), the computer's capacity permits the user to store more

extensive glossing than a printed format does; further, it does not interrupt the user because the unknown words are visible simply by a mere click at a fingertip. In other words, the user is provided with the desired meaning immediately without disturbing the reading process, a problem usually caused by stopping to look up words in a dictionary.

The aforementioned findings and discussion have pedagogical and theoretical implications for language learning. Instructors and program developers should bear in mind to include interesting and relevant visual materials in their programs in order to increase learners' motivation to allocate the required mental effort to learn the grammar. Moreover, the program should be developed in a more interactive and flexible modes to enhance communication that it should give more options to the user to work with.

Storing information in memory is not supposed to be a difficult task, but retrieving it is expected to be difficult. In order to make the task easy for learners, we can provide multiple retrieval cues by integrating two different forms of mental representations (Al-Seghayer, 2001). What has been presented above demonstrates that exposing learners to multiple modalities of presentation (printed text, sound, picture, or video) produces a language-learning environment, which can have a real impact on learning. Another pedagogical implication that can be drawn on the basis of the above findings 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).

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