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Computer Assisted Language Instruction in EFL Academic Environment: A Hindrance or a Facilitator

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With the rising integration of computer technologies into educational systems, Computer Assisted Language Instruction (CALI) has become a trend in language learning and teaching particularly in English-as-a-Foreign-Language (EFL) academic environment. This study tries to display whether CALI has any significant effect on English language learning in an unexplored EFL academic environment in Iran. To this end, 60 senior university students (age range = 22-25), studying English as a Foreign language at the department of Foreign language in Isfahan University were randomly selected. Then, the sample was divided into two groups, i.e. control group (n=30) and experimental group (n= 30). In order to assure the homogeneity of the subjects regarding the English language proficiency, a standardized TOEFL Exam as a pretest was administered. Whereas the experimental group was taught via computer assisted language instruction, the control group received no CALI-related treatment. The language learning lasted for six-weeks. CALI included exercises and short quizzes on four language skills which were conducted at the end of every session. Overall data analysis revealed that in an EFL academic setting CALI would have a positively influential effect on learning English as a Foreign Language.

Keywords: Computer Assisted Language Instruction, EFL, Language Learners, Academic Setting, Iran.

INTRODUCTION

Modern technologies in particular computers are a familiar sight in classrooms in the twenty-first century in a wide variety of academic and non-academic contexts, and technology has been used to streamline many educational tasks (Ortega 1997). There are different types of educational computer use, and not every use of a computer in the classroom is considered computer-assisted language instruction (CALI). That is to say, the educational applications of computers that are regarded to be computer-assisted language learning (CALL) or computer-based language learning (CBI) are those cases in which either language learning is presented through a computer program to a passive student, or the computer is the platform for an interactive and personalized learning environment (Murray, 2000). Within the broad definition, CALI may follow different paths to the same end. One example is how computer-assisted language learning is used in relation to other teaching presentations. CALI can be used either in isolation, bearing the whole responsibility for conveying language learning to students, or in combination with conventional, i.e., face-to-face, teaching methods. Research has shown that the combination of conventional and CALI has been the most effective in raising student achievement scores (Kost, 2004).

Computer-assisted language learning is used through the entire range of education from preschool to professional school (Kitade, 2005). It has been offered in a wide variety of fields, including all the main school subjects taught in elementary and secondary schools. At CALI, the Center for Computer-Assisted Legal Language learning, law students from across the United States and other countries such as Belgium, Brazil, Canada, China, Denmark, Ireland, Kenya, Korea, Mexico, the Netherlands, Nigeria, Russia, Singapore, South Africa, Sweden, and Taiwan have access to CALL law school lessons to supplement their language learning (Dwyer, 2005). Computer-assisted language learning has also been growing in use in a wide number of employment areas. It has been used to teach novice nurses how to perform intravenous injections, to teach jet engine mechanics in the US Air Force maintenance tasks, and to
provide safety language learning for food service workers in an urban hospital (Hutchby, 2001). CALL can also focus on smaller segments of the population. Computer-assisted language learning has also been used to personalize learning for people with learning disabilities, language limitations, and physical limitations. In the latter case, screen-reading programs may cater to sight-impaired users, and a variety of specialized interactive devices, such as roller balls, joysticks, and oversized keyboards may be used by a person when a mouse or standard keyboard present a challenge (Chapelle, 2004).

The influence of CALI on English language learning which necessitates the true application of computer in language classrooms, especially in EFL academic contexts, has its own merits and demerits:

Concerning the advantages of CALI, a number of researchers (Chapelle, 2004, Davis and Brewer, 1997, Beatty, 2003) have supported the use of CALI in EFL language learning. In 1992, Beauvois said that three main advantages can be considered for CALL “By creating friendly programs by CALL, any user can work independently at the console.” Also, the programs respect the individuality of the students by allowing them to make frequent choices with many options. The feedback to the users helps the students to analyze patterns in the language.

In another study Chen (2005) revealed that CALL programs present the learner with a novelty: “They teach the language in different and more interesting, attractive ways and present language through games and problem-solving techniques. As a result, even tedious drills can become more interesting.” (p. 24)

Wagener (2006) believes that CALL is a precious source for self-study activities which are adaptable to the proficiency level of the students. Using a computer in teaching languages can offer unlimited types of activities with considerable potential for learning. Some researchers showed that besides teaching a foreign language, CALL programs will provide the learner with some sort of computer literacy, which is becoming essential in modern society and could be of great help in future training and career prospects (Swann, 1992, Lasagabaster and Sierra, 2003).

Like any other new technologies applicable for English language learning, CALI is not free from some demerits. Learners who do not have prior experience in using a keyboard might waste quite a bit of valuable time identifying letters on the keyboard. However, with practice this can be worked out if one is not afraid of learning new things (Chapelle, 2004). Working with computers normally means that the learners work in isolation. This obviously does not help in developing normal communication between learners, which is a crucial aim in any language lesson. In practice, learners tend to revert to their mother tongue in discussions. The teacher should not allow this if s/he wants to improve the students' language skills (Kitade, 2005).

According to Diao and Sweller, (2007), CALL programs deal mainly with reading and writing skills, and even though some listening programs have been developed recently, they are very limited (there are very few interactive games with outstanding graphics, colors, and spoken language capabilities). The programs which develop communicative interaction normally present predetermined uses of language based on the writer’s imagination of what would take place rather than what people really say in real situations (so called “false conversations”). This sometimes creates confusion and frustration on the part of the learner. However, these problems tend to lessen as students become more familiar and comfortable with these programs (Jimenez and Perez, 2002).

Furthermore, it is evident that time and effort required to develop such programs can be considerable. Being mostly pre-programmed, computers cannot cope with the unexpected situation (Skinner and Austin, 1999). It is more tiring to read from a screen than from a printed text. For teachers who develop their own material, the time spent on programming and typing in the lessons can be quite lengthy. Technically speaking, the advantages of using computers in English language learning outweigh its disadvantages. Considering an EFL academic context, the present study aims at shed lights on four aspects of language skills in order to show the influence of CALL on learner's language proficiency. The application of new technology for foreign language teaching and learning has become popular since 1980 decade and it is widely agreed upon that CALL gives language users more freedom in learning, makes a more individualized learning setting, and hereby improves self-study learning (Molholt, 1988; Swann, 1992; Jimenez and Perez, 2002; Wagener, 2006; Figura and Jarvis, 2007; Ma, 2007; Fischer, 2007). The benefits of CALL are more accepted in terms of its prowess to enhance motivation (Chang, 2005) and would pave the ground for immediate feedback that is essential for deep learning (Heift and Rimrott, 2008; Hmard, 2006). Thus, it should be noted that CALL enables syllabus designers and language programmers to revise traditional language methodologies and find out the most volatile instruction in foreign language learning and teaching (Pennington, 1999).

**CALI in the Literature**

The effect of CALI on English language learning has been shown by a number of researches in a wide variety of academic and non-academic settings. In 2001, Hutchby pointed out that integrating new technologies including computers can enhance language learning proficiency by stirring up learners’ motivation. Also, he mentioned that learners’ concentration for learning the course contents including pronunciation, reading
comprehension, and new exercises would be significantly increased. In the same vein, Lambacher (1999) demonstrated that acoustic data to offer visual aid for Japanese EFL language learners improved their perception and production of English consonants via application of CALL. Verified by other studies, audio vs. audiovisual media were used for perceptual training of English consonant and resulted in that the audiovisual presentation was superior, and additionally the improvement of pronunciation was consistent with perceptual enhancement (Hazan et al., 2005).

In a meta-analysis, Cliff Liao (2004) conducted a research to synthesize existing research comparing the effects of CALL versus traditional language learning on students’ achievement in Taiwan. The results suggested that CALL is more effective than traditional language learning in a Taiwanese EFL setting. The results from this study advocated the positive effects of CALL in language learning over traditional language learning.

Florence Chenu and his colleagues (2007) investigated whether CALL has an advantage on the learning of French relative clauses by intermediate non-native learners. Their participants were randomly distributed across a control and an experimental group. The control group attended a 3-hour traditional class on French relative clauses. The same content was taught to the experimental group in a 3-hour self-training session during which participants used a CALL system. At the end, a post test was administered. Whereas most participants showed a strong preference for traditional teaching, both methods displayed a similar improvement for both groups.

In another study, Fei-Hsuan Liao (2010) made an attempt to display the effect of CALL software on English perceptual training. This software (English Perceptual Pronunciation Training) was designed to train the learner’s perception of English vowels by building up adequate acoustic images in the learner’s mind. Non-English majors who received training via CALL software were the leading subjects of the study. The researcher found out that English perceptual training is enhanced by application of CALL software.

The review of literature revealed that some studies find a significant priority of CALI techniques; others find no significant influence between CALI and other teaching methods. For instance, a positive impact of CALI has been found by Nutta (1998) assessing the effect of Computer assisted instruction (CALI) against teacher-centered instruction on the acquisition of English as a second language (ESL). In this study, computer-assisted students gained better scores than teacher-centered students, which would be concluded that computer-assisted instruction can be a beneficial method of teaching L2 grammar.

In another study, Nagata (1996) calculated the efficiency of intelligent feedback CALL on the acquisition of Japanese postpositions by English-speaking students. Experimental group of students was assigned to the CALI and the control group took the traditional instruction. The experimental group reached higher scores in production than in comprehension. Also, the students’ point of views in the experimental group was significantly better towards their instruction than the control group. It has been concluded that, compared to traditional instruction the study demonstrates an advantage of an intelligent CALL program has an advantage over a traditional instruction.

In 1992, Liou, et al, (1992). compared two groups of EFL Chinese students. One group received a CALL course while the other group was taught in a teacher-assisted condition. To investigate the subjects’ point of views, the authors used a questionnaire. Finally, they found out that the blend of traditional instruction and CALL is beneficial, or at least not detrimental.

In a Taiwanese context, Chen (2005) observed the effect of traditional method with or without computer assistance on the acquisition of parts of speech by students who were studying English as a foreign language. At the end of the instruction the author concluded that the group receiving CALL obtained better results as opposed to the other group.

Gayraud, et al (2007) did a research to find out that whether CALL has an objective learning advantage on the acquisition of French relative clauses by intermediate EFL learners and the impact of the medium (spoken + written vs. written only). The researchers came to the conclusion that less proficient learners, by using a CALL instruction focusing on written presentation only, will make much progress.

Kobayashi (2011) made an attempt to identify best practices for blended learning in English as a foreign language (EFL) programs. He proposed that it is essential to understand how learners perceive and evaluate such programs, taking into consideration such variables as learner attitude, proficiency level and computer literacy. This case study evaluated a blended learning EFL program using CALL courseware in light of learners’ computer literacy and perceptions of its usefulness. The participants were Japanese first and second year university students. Statistical analysis of the results of the survey conducted revealed that the students’ perceptions of the program differed according to the proficiency levels of students. It also showed that the interface of the courseware affects student attitudes toward learning so that the instructor’s assistance is indispensable.

Concerning the effects of CALL instruction on Iranian EFL academic context, little research was found. One of the outstanding studies in this field was conducted by Dashtestani (2012). He explored the attitudes of Iranian EFL teachers toward the use of CALL in EFL courses as well as their perceptions of possible barriers to the implementation of CALL. His participants were 212 EFL teachers. Questionnaires, semi-structured interviews, and non-participant observations were applied as the
research instruments. At the end he found that that Iranian EFL teachers hold positive attitudes toward the use of CALL. It was also revealed that the participants perceived computers as beneficial tools to be included in EFL courses. The participants further reported several serious barriers to the application and inclusion of CALL in Iranian EFL courses. Strategies and measures to be adopted in order to incorporate CALL into Iranian EFL courses were investigated as well. Finally, it was illustrated that Iranian EFL teachers do not make use of CALL in their courses. This shows a discrepancy between teachers’ attitudes and their actual use of computers in EFL courses. The findings promise implications for renewing EFL programs and teacher training/education courses (Dashtestani, 2012).

It is ostensible that the need to open out the findings of the effects of CALI on EFL academic setting is of paramount importance. Thus, the present research is seeking to answer the following question:

Does Computer Assisted Language Instruction (CALI) have any effect on English language learning in EFL academic contexts?

**METHODOLOGY**

**Participants**

In order to investigate the effect of CALI on English language learning, an experimental design was applied. First, 60 senior university students (age range = 22-25), studying English as a Foreign language at Isfahan University were randomly selected. Then, the sample was divided into two groups, i.e. control group (n=30) and experimental group (n= 30).

**Materials**

In order to assure the homogeneity of the subjects regarding the English language proficiency, a standardized TOEFL Exam as pretest was administered. This exam enabled the researchers to grasp homogenous subjects which then they could divide them into control and experimental groups. Four types of computer programs specialized for teaching all language skills, i.e. Reading, Writing, Listening and Speaking were used for experimental group.

**Procedure**

Subjects of the study were randomly chosen from senior Iranian EFL students majoring at English language and literature in Isfahan University. They, then, were divided into experimental and control groups. A pretest was administered to subjects to make sure that they are at the same level of English language proficiency (See Table 1). As mentioned before, the pretest was a standardized TOEFL Exam.

Whereas the experimental group was taught via computer assisted language learning (CALL), the control group received no CALI treatment. The language learning lasted for six-weeks. CALI included exercises and short quizzes on four language skills which were conducted at the end of every session. The researcher continuously monitored both experimental and control group classrooms in order to be sure of appropriate conducting of the research. At the end of the research, a post-test was administered to examine the subjects’ proficiency level.

**Data Analysis**

Table 1 shows the statistical difference between mean scores obtained from pre-test. Degree of freedom (df=58) at p= 0.05 and t=0.23 is smaller than t-table (t table= 1.71). So, there was no significant difference between mean scores of experimental and control groups. This means that English language proficiency of two groups, i.e. experimental and control, to some extent, was equal.

As shown in table 2, at 58 df and p= 0.05, t is 4.63 which is bigger than t-table (1.71) at p= 0.05. Thus, it would be concluded that means of experimental and control groups are statistically significant. This can be attributed to the positive effect of CALI on English language proficiency of EFL academic students.

Furthermore, table 3 displays the t value for each language skill of the present research which is much more than t-table value. This verified that CALL is beneficial at learning of language skills. Overall statistical analysis revealed that the scores obtained by EFL university students enjoying CALI were higher than their counterparts who received no computer assisted language learning. It should be noted that, comparing the mean scores of four language skills (Table 3), one

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**Table 1. T-test between pre-test scores of Experimental and Control groups**

<table>
<thead>
<tr>
<th>Groups</th>
<th>X</th>
<th>SD</th>
<th>t</th>
<th>t-table</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>14.12</td>
<td>2.33</td>
<td>4.63</td>
<td>1.71</td>
<td>58</td>
</tr>
<tr>
<td>Control</td>
<td>10.91</td>
<td>2.67</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
would find out that the effects of CALL on writing skill (X=4.12, SD=0.8) was more than other skills which per se says that the writing skill is much more affected by CALL.

**DISCUSSION**

As was mentioned before, all English language skills were influenced by CALI. A number of studies indicated that using computers had a strong impact on learning different foreign language skills. Overall data analysis of the present study suggested that the mean difference between experimental and control groups was not significant (X_e=14.12, X_c=10.91). Furthermore, t-test analysis of post-test between experimental and control groups revealed that the difference between mean scores was significant (t=4.63, t-table=1.71, df=58) and in the line with previous research (Chapelle, 2004, Davis and Brewer, 1997, Beatty, 2003).

In other words, whenever CALI was applied in order to teach EFL content, the amount of foreign language learning significantly increased.

**CONCLUSION**

Integrating and using technologies including computers into educational environment particularly language classrooms embarked on a new revolutionary area. Knowing the undeniably beneficial effects of computers, nowadays, EFL teachers feel confident to enjoy Computer Assisted Language Instruction (CALI). It must be mentioned, however, that CALI would not be the only choice for EFL teachers if they want to present foreign language contents. Up to their situation and the general language proficiency of the students, foreign language teachers must decide when, where and how to apply CALL in their instruction. This study has its own limitations. The first limitation was the sample of the study since the researcher did not have access to more than 60 participants. Such type of research can be done with more participants. The second limitation was that this study was exclusively designed for an academic EFL context rather than ESL. Although a bunch of research has been conducted in both contexts, however, further research is needed in order to grasp the differences regarding implementing CALI in the academic and non-academic EFL and ESL settings.

**REFERENCES**

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