



COMPUTER-ASSISTED LANGUAGE LEARNING (CALL): PEDAGOGICAL PROS AND CONS

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ABSTRACT

Computer-Assisted Language Learning (CALL) has begun a revolution in the domain of language pedagogy. Before the presence of technology, learning a language with the old-fashioned methods could not meet the learners' needs and what they expected from language for an effective communication. In addition, in the absence of software programming and so many other facilities by which learners could enhance their language abilities quickly, learning came to be tediously time-consuming. Therefore, the purpose of this review is to introduce some features of Computer-assisted Language Learning approaches and the related studies that have been carried out in this area. The pros and cons of this pervasive approach have been reviewed to show that this method can practically permeate through all language skills. On the basis of the analysis done by many researchers, it was found out that CALL can be so much applicable to both language learning and teaching in and out of the classroom. Most scholars unanimously emphasize that the use of computer and Internet can facilitate learning, particularly learning the second language. Beside some of its drawbacks, this approach reinforces the notion that the advantages of applying CALL in educational environment outweigh its disadvantages. It is also believed that it can be more beneficial and strategic than the traditional methodologies in the modern world. There are some software tools that have been analysed in the paper and the results are reported. The paper concludes how applying CALL system in and out of any educational centers can perfectly alleviate the difficulties of learning for students and significantly help the pedagogical methods become more productive.

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Contribution/ Originality

This paper has reviewed the pros and cons of the use of technologies, particularly computers and software applied to language learners to find out to what extent they can further the process of language learning.

1. INTRODUCTION

Technology has become an inseparable part of people's lives over recent decades. It also underlies the wide variety forms of communication among people all around the world in a way that makes it become a global village. It also increases language contact, and consequently most people feel the need to improve communications. One of the features of the improvement portrays itself as language education. Many learners have been involved in starting a new relationship and having a communication with people from different cultural backgrounds. They also follow up their academic goals in terms of using communication technology. From those goals, language learning has always been the main concern between the groups of people who academically pursue this aim. There are many different types of technologies that can lead to language learning of which computer-assisted learning (CALL) is the most significant.

1.1. Pedagogical Advantages of CALL Materials

1.1.1. Authenticity

CALL materials aim to put the aspects of learning theories into practice with the aid of computers and software programs. The use of games in learning procedures is an example that can be encouraging for learners. It is claimed that using computers involves students learning a language with more authentic materials ([Reinders and White, 2010](#)).

1.1.2. The Importance of Interaction

The salient advantage of CALL materials is that they ease the difficulties in interacting and language use among learners. It is linguists' belief that producing the language can make learners become aware of their gaps between the language they speak and the target language they want to learn. It is also asserted that language production functions as a form of practice in a way that supports the connections in the mind (Swain & Ellis, as cited in [Reinders and White \(2010\)](#)). There are many different programs designed to create opportunities for language use through e-mail, chat communications where a learner with L1 would be a partner of another learner with L2. Some researchers state that the understandable input from the interaction alone does not lead to the development of accuracy ([Reinders and White, 2010](#)). However, computer-assisted communication

materials and instructions should coordinate concentrate on some certain direction in order to differentiate the learners' needs and what they are expected to do with language ([Reinders and White, 2010](#)).

1.1.3. Data Access

It is crucial for learners to be supported by their teachers when facing difficulties in learning a language. There were some real-world activities conducted by Lewis and Reinders in which each student had an iPod to go out, talk to people, find and share information and answer questions. They had this possibility to record and ask their teachers if they faced any problems. This activity seemed to be very inspiring and had a positive effect on students' motivation and ability to speak ([Lewis & Reinders, as cited in Reinders and White \(2010\)](#)).

1.1.4. Feedback

CALL materials have made this possible for us to be given feedback with its different forms such as using sound, movement, text, or a combination of these. CALL can potentially provide us feedback based on the knowledge students have already had and also their specific needs in language learning.

2. THE CHARACTERISTIC FEATURES OF CALL

The area of CALL relates to the use of computer in language learning process. In the trend of learning language there are many different materials that can be taught through CALL programs such as, grammar, speaking and pronunciation, writing, and any other required skills. It can also provide feedback which is considered to be a crucial feature in any pedagogical practices. However, some educators see this pedagogical focus as a plot to divert attention from the real aims of education ([Chapelle, 2008](#)). Some also believe that providing students some set of words, expressions and any other materials endlessly and drilling them many different exercises on a regular basis do not necessarily mean that reliable language pedagogy has taken place.

3. SOFTWARE TOOLS TO SUPPORT LANGUAGE LEARNING

A huge amount of literature has proved the potentials of computer technology associated with learning and teaching languages. By realizing the potentials of computer technology, educators have become more interested in its use as a tool to augment foreign language teaching ([Liu et al., 2002](#)). Much of the reviewed literature regarding software tools consists of (1) a description of one or more pieces of software, (2) a description of how this software was integrated into the learning environment, (3) a description of the effects of the software on students, and (4) possible implications for further study ([Alderson & Levin, as cited in Liu et al. \(2002\)](#)). [Liu et al. \(2002\)](#) indicated that:

Evaluative software articles also tended to discuss whether or not software was robust enough for school use. Reading and writing were the most frequently addressed skill areas. Numerous

software programs were created in foreign languages such as English, French, Spanish, Italian, German, Japanese, and Russian. English as a second/foreign language was, however, the most commonly discussed target language (p.7).

3.1. Hyper Card

Hyper Card was known as one of the successful software authored by Macintosh Apple Company. This may be because of being user-friendly, inexpensive and highly accessible for both learners and educators ([Liu et al., 2002](#)). Some teachers encouraged students to develop their own HyperCard projects on PCs as a team work. It, therefore, helped them participate in some collaborative computer mediated activities. [Hubbard \(2014\)](#) claimed that employing such a working group had a significant effect on their motivation and their participation in the task.

3.2. Daedalus

Interchange is a component of Daedalus integrated writing environment (DIWE) which helps native English speakers and L2 to have real-time written conversation and it can also support them in English composition and literature. One significant feature of the software is that it enables learners, both native and second language learners, to have meaningful and authentic conversation ([Liu et al., 2002](#)).

3.3. Word Processing

A study conducted by [Abu Seileek \(2006\)](#) showed that the word processor had a remarkable effect on teaching and learning the skill of writing. According to the study, the students were able to pick their mistakes and correct them accordingly since the word processor had enabled them to benefit a more organized writing environment. Besides, the students had the opportunity to practice as many word-processor-based activities as they could such as checking style, grammar, and spelling errors ([Abu Seileek, 2006](#)).

3.4. Corpus

Corpus has brought its own set of facilities in the process of language learning. In the puzzle of learning a language, there was always a missing piece through which learners and teachers were not able to enjoyably enhance their knowledge based on natural texts and patterns or at least they did not have all that great collection of natural data at once. The salient features of corpus is that an extremely large collection of data is stored on computers so that has made it accessible to a classroom for learning the natural language, moreover, to conveniently explore variety of patterns of language use ([Reppen and Simpson-Vlach, 2010](#)).

3.5. Mobile Learning

Learning vocabulary is considered vital to the process of language acquisition. It is believed that learners of English as a Foreign Language cannot understand English unless they learn at least

5000 base words. (Laufer & Nation, as cited in [Derakhshan and Khodabakhshzadeh \(2011\)](#)). Aside from the technologies such as , audio CDs, DVD players, portable radios which have in turn enhanced the level of learners' knowledge, m-learning and particularly mobile devices ,regarding to its most recent concentration , are defined as devices that can accompany us at any moment. M-leaning presents its own advantages in the process of learning in which you are able to conveniently and freely use the device at any time you want. As far as assessment is concerned, in comparison to paper-based assessment, this can provide learners a less stressful environment. Besides, it makes learning more beneficial since it enables learners to get the most out of their time to practice when they even have very little time ([Derakhshan and Khodabakhshzadeh, 2011](#)).

4. REVIEW OF THE LITERATURE

“Computers have been used for language teaching since the 1960s” (Warschauer & Healey, as cited in [Al-Kahtani \(2001\)](#)). These forty years of studying CALL can be categorized into three phases: behaviourist CALL, communicative CALL, and integrative CALL (Warschauer & Healey, as cited in [Hubbard \(2009\)](#)). Throughout all these three phases, the development of technology from mainframe computers to PCs and consequently to net-based computers paralleled in many different ways in the field of language teaching and learning (Kern & Warschuer, as cited in [Al-Kahtani \(2001\)](#)).

4.1. Behaviourist CALL

“Behaviourist CALL or Structural CALL was introduced in the 1960s and 1970s” ([Al-Kahtani, 2001](#)). There were some programs designed to teach by repeating and that was a means to check learners' responses to grammatical and vocabulary exercises. This helped them get feedback on the learners' answers ([Al-Kahtani, 2001](#)). However, some programs founded on behaviourist learning theories were rejected because they failed to provide learners with authentic communication. This is “consistent with the structuralist approach, which emphasized that repeated drilling on the same materials was beneficial or even essential to leaning” (Kern & Warschuer, as cited in [Al-Kahtani \(2001\)](#)).

4.2. Communicative CALL

In the 1970s and 1980s, communicative CALL was introduced in which the mainframe computers were replaced by personal computers. Some programs designed to facilitate the process of learning on personal computers. However, this was also considered as an unreliable system of language learning due to the nature of some programs and games included in which they brought potentially some drawbacks to the learning system ([Al-Kahtani, 2001](#)).

4.3. Integrative CALL

The last approach started in the 1990s is integrative CALL. It emphasizes the learning in an authentic social context. Multimedia technology represented by the CD-ROM shows the

combination of different media such as sound, graphics, text, and video on one machine which in turn paves the way for learners to learn all four skills at the same time in a certain context (Warschuer, as cited in [Al-Kahtani \(2001\)](#)).

5. INTERNET

Internet could perfectly enhance the use of computer to the extent that it turned out to be a very practical and do-it-yourself medium for updating information as well as a great way for communication. In this era, there are two terms stated which are synchronous and asynchronous communication (Warchuer & Healey, as cited in [Al-Kahtani \(2001\)](#)). The two relevant examples for these two communicating strategies are chatting online in the chat rooms in the form of asking and answering questions, discussion and writing e-mail messages or writing-based tasks respectively. Research done in this case proved that synchronous communication often helps students to overcome their shyness and it has them participate in discussions more often than not. A study of seven African American, six Hispanic, and six Anglo students' communication with each other in a networked computer classroom had been conducted by Sullivan (as cited in [Al-Kahtani \(2001\)](#)) in which it was shown how helpful computer-assisted method could be to these three groups. The outcome of the study demonstrated that Hispanic and African Americans dominated the discussions at the beginning of the semester, but there was a balance in participation by the three groups at the end of the semester.

6. CALL IN PRACTICE

In the study carried out by Warschuer (as cited in [Al-Kahtani \(2001\)](#)), groups of ESL students were compared. There were two types of discussions, electronic and face-to-face. Very similar to Sullivan's study, Warschuer's study showed that students who were less active in face-to-face discussion had remarkably participated in electronic discussion and they also shared more of their ideas with their peers. Based on Warschuer's attitude, when it comes to computer-based exercises, students feel more at ease in doing the exercise since they have quite a lot of time to progress and work individually to improve their language skill shortage. As a result that brings all students to come up with new ideas and share without any concerns. So these studies suggest that synchronous communication can smoothly unload unwanted stress from students, hence they would be able to create an idea which in turn makes them become more confident and motivated. In the study carried out by Cook (as cited in [Al-Mansour and Al-Shorman \(2011\)](#)), there were remarkable differences between the students' writing that benefited computer-assisted writing instruction and those who did not. Another study was done by Al-Menei to analyze the effect of CALL on Saudi students' writing skill in English. In paragraph writing and correcting grammar, some valuable results were found and students became able to improve their skill in this area significantly (Al-Menei, as cited in [Al-Mansour and Al-Shorman \(2011\)](#)).

There was another study conducted to investigate the effect of CALL in teaching English grammar on the achievement of secondary students. The aims of the study concerned three

questions. The first attempt made to figure out if there were any significant differences between students achievement mean scores in grammar attributed to either traditional teaching or computerized one. The second question stated to find if there are any differences between students' mean scores in grammar attributed to the stream of study (scientific & literary) and the last question related to the gender of participants and their achievement mean scores would be compared based on their genders. The findings and the results of the first question were really noticeable that the mean score of the experimental group was (26.21) and of the control group was (23.95) which the difference is remarkably higher in comparison with the pre-test in which the mean scores for experimental and control group were (22.09) and (21.66) respectively. Regarding the passive voice test, the use of software program had a great effect on students' learning. Surprisingly, the result related to the second question was further proof of how CALL was effective on scientific students. Comparing scientific students' mean scores with literary ones, the former group gained a higher score in the post-test (25.56) than the latter one (24.6). This means that scientific students that benefited CALL and specifically a software program could have a better mark. The third result came out was attributed to the gender variable. It showed that males surpassed females in the post-test with higher mean scores, (24.46) and (25.7). The upshot of the findings was that males are more interested in computers and multi-media than females ([Nabah et al., 2009](#)). The secondary students' experience of web-based language acquisition is a study conducted by [Felix \(2004\)](#) concentrating on language learning style. The study investigated whether or not the students take online materials as useful and interesting way of learning. The materials used were 'alone in addition to face-to-face teaching', 'by distance with a tutor', 'by distance without a tutor' in which the purpose of the investigation was how students feel about web-based environment, and secondly, the questions working alone or with others make any difference. The third purpose focuses on how gender affects the results, and finally, it was investigated if there were any differences in perception between the two groups participated in the study 1 including tertiary subjects and the current study 2 including secondary subjects. This was applied to five schools. One in Poland teaching EFL, three in Melbourne teaching Japanese, Spanish and French, and one in Brisbane teaching French. The activities considered were creating on-line quizzes in the target language, participating in chatrooms, getting involved in listening tasks, writing emails, and working through interactive language exercise. It came out that approximately 57.8% of them believed that the best way to use Web materials was in class along with a face-to-face teaching. Very few of them were in agreement with distance learning without a tutor. These findings were the same as the previous study (study 1) had been carried out in 1999. Among the students, 36.3% were interested in working alone, 32.5% preferred to work with a partner and 31.3% preferred to work in group, however, this was 44% compared with the study 1. Besides the preferences stated by students, there were some other things students stated about whether they enjoy or feel comfortable about the Web. The results showed that 81.6% of the students were comfortable with Web at the start of the study and even more (88.8%) satisfied at the end of the study. Compared to study 1 in 1999, the desire for using Web as language learning tool

rose from 57% to 73% in the current study. This can highlight the fact that in the present study the participants were younger and more computer-literate than the older counterparts in study 1. Another usefulness of the web stated was about learning the particular aspects of language learning as in vocabulary (47.6%) and writing (45.1%). However, the students believed that the system could not be of any help with speaking as there was no audio-graphics to have them speak on-line. Aside from disadvantages, using Web as an environment for both tertiary and secondary had an enormous positive effect on learning. Besides, it was found out that non-native students worked longer than their native speaker counterparts. Last but not least, all participants lean highly toward having access to a teacher, either face-to-face or by e-mails and also using the Web as an add-on to the teaching face to face ([Felix, 2004](#)). [Rosell-Aquilar \(2004\)](#) investigated students' online information literacy skills and their impressions of the web as a resource for foreign language learning. The focus on the study was on the use of the World Wide Web considering foreign language learning as a source for students to find information when searching essay topics. It is assumed that students know how to do those searches. However, the relationship between learners and Web should be investigated. Therefore, it is necessary to examine and research those assumptions. This study was conducted to know how generally foreign language learning for higher educated students interacts with Web. For the purpose of the study, a new questionnaire was provided and distributed among 198 Spanish students at the University of Southampton in April 2000. They were asked how they use Web, what for, how they go about finding the information they need, and what they perceive. Also, they tried to find the advantages and disadvantages of using Web as a research tool for language learning to compare it to other resources. After analyzing the data, it was concluded that most of the students were confident in using Web considering finding the necessary information related to the essay fairly quickly. There was extremely positive perception of using Web. The students believed that they really learned Spanish while using Web. Most of the participants managed to obtain the information they needed to complete their tasks. He believes learning a skill needs training so it should be included in their curriculum. Online information literacy skills are the transferable students' skills which it needs to be brought into the university syllabus as a course of study ([Rosell-Aquilar, 2004](#)).

7. CALL DRAWBACKS

Even though there are many advantages of using computer technology in learning a language, It has its own limitations and weaknesses. The very first debatable thing is to have the technology knowledge before applying computer technology to practice second language learning. Not all teachers have enough technological training to guide their students exploring computer and searching internet. So it does not seem to be a perfect training method ([Roblyer, as cited in Lai and Kritsonis \(2006\)](#)). The other problem with the method is the programs designed in which there is a possibility for the students to master the three skills out of four which are reading, listening, and writing but not for speaking. Some programs have been designed for listening skill recently, although they are not supposed to be practical. They are just smart enough to evaluate user's

correctness of speaking but not appropriateness (Warshauer, as cited in [Lai and Kritsonis \(2006\)](#)). As second language learners' situations are various and ever changing, computer technology along with its artificial intelligence will not be able to manage and deal with unexpected questions students might encounter ([Lai and Kritsonis, 2006](#)). Broadly speaking, many educators have cited the lack of united theoretical framework for the design and the evaluation of CALL systems ([Chapelle \(2008\)](#), as cited in [Ehsani and Knott \(1998\)](#)). It was scrutinized whether unlimited access to a speech-recognition-based language program would improve the general standard of pronunciation of a group of middle-aged immigrant professionals studying English in Sweden. The paper also surveyed the effects of CALL on using speech processing in order to be able to keep track of the feedback and the evaluation of pronunciation progress. For the purpose of the study, a copy of the program Talk to Me from Auralog as a supplement to a 200-hour course in technical English was given to two groups in two different years. The control group took a course in fall of 2000 and the experimental group took the same course in spring of 2001. One requirement of the course was a five-hour pronunciation tutoring for the groups. As a result, after receiving five-hour pronunciation tutoring in the course, the two groups did not improve as much as expected. As for control group, the mean score showed slight decline from 4.7 to 4.6, and that of the experimental group the mean score 4.1 remained unchanged ([Hincks, 2003](#)).

8. CONCLUSION AND IMPLICATIONS

In this article we reviewed a number of articles related to the positive effects of computers and internet on language acquisition conducted by different scholars at different universities. There are three aspects of CALL approach discussed: behaviourist, communicative and integrative CALL. Integrative CALL was among the most effective one in the 1990s. Other two related terms were synchronous and asynchronous. The former one was realized helpful and practical in communication in which students find the opportunity to overcome their shyness and participate more and more in discussion through web-based tasks. Compared to face-to-face discussion, students were more interested in participating in electronic one. Some valuable results achieved as a result of evaluating Saudi students' writing and grammar. The similar study was conducted to compare grammar learning based on scientific and literary learners in which scientific students gained a higher mean score than the other group. Moreover, participants' gender mattered in a way that males found multi-media and computers more interesting than females. [Felix \(2004\)](#) showed that most students agree on computer and internet-based learning on condition that they have access to their tutor online or face to face but not by distance without a tutor. Some difficulties in applying this approach were revealed such as not being familiar enough to technology to use the software. In some cases, it was shown that the result of the designed software for speech and pronunciation improvement was below expectations. However, generally speaking, CALL can always be of a valuable help to students and teachers in most aspects of language learning and teaching. According to the findings of using CALL approach in educational system, it has had an incredible role in speeding up the learning process in adults and youngsters. CALL can also be applied to educational infrastructures as in children language learning system in the future.

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REFERENCES

- Abu Seileek, A.F., 2006. The use of word processor for teaching writing to EFL learners in King Saud University. *Journal of King Saud University*, 19(2): 1-15.
- Al-Kahtani, S.A., 2001. Computer-assisted language learning in EFL instruction at selected Saudi Arabian University. Unpublished Doctoral Dissertation, University of Indiana, Pennsylvania.
- Al-Mansour, N.S. and R.A. Al-Shorman, 2011. The effects of computer-assisted instruction upon on Saudi University students learning of english. *Journal of King Saudi University*, 24: 51-56.
- Chapelle, C.A., 2008. Computer-assisted language learning. In F.M. Hult & B. Spolsky (Eds). *The handbook of educational linguistics*. UK: Blackwell Publishing. pp: 586-592.
- Derakhshan, A. and H. Khodabakhshzadeh, 2011. Why call why not mall: An in-depth review of text-message vocabulary learning. *Theory and Practice in Language Study*, 1(9): 1150-1159.
- Ehsani, F. and E. Knott, 1998. Speech technology in computer-aided language learning: Strengths and limitations of a new call. *Language Learning & Technology*, 2(1): 54-73.
- Felix, U., 2004. A multivariate analysis of secondary students' experience of web-based language acquisition. *ReCALL*, 16(1): 237-249.
- Hincks, R., 2003. Speech technologies for pronunciation feedback and evaluation. *ReCall*, 15(1): 3-20.
- Hubbard, P., 2009. Computer-assisted language learning: Foundations of call. London: Routledge.
- Hubbard, P., 2014. Foundation of computer-assisted language learning. [PDF Document]. Available from Linguistic Department-Standford University <http://web.stanford.edu/~efs/callcourse2/CALL1.htm>.
- Lai, C. and W.A. Kritsonis, 2006. The advantages and disadvantages of computer technology in second language acquisition. *Doctoral Forum Journal*. Houston, Texas, 3(1): 1-6.
- Liu, M., Z. Moore, L. Graham and S. Lee, 2002. A look at the research on computer-based technology use in second language: A review of literature from 1990-2000. *The Journal of Research on Technology in Education*, 34(3): 1-54.
- Nabah, A.A., J. Hussain, A. Al-Omari and S. Shdeifat, 2009. The effect of computer assisted language learning in teaching english grammar on the achievement of secondary students in Jordan. *The International Arab Journal of Information Technology*, 6(4): 431 -439.
- Reinders, H. and C. White, 2010. The theory and practice of technology in materials development and task design. In J. Rechards & N. Harwood (Eds). *English language teaching materials*. Cambridge: Cambridge University Press. pp: 58-80.
- Reppen, R. and R. Simpson-Vlach, 2010. Corpus linguistics. In N. Shhmitt (Eds). *An introduction to applied linguistics*. London: Hodder Education. pp: 89-105.
- Rosell-Aquilar, F., 2004. Well done and well liked: Online information literacy skills and learner impressions of the web as a resource for foreign language learning. *ReCall*, 16(1): 210-224.

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