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## **Effects of Computer-Assisted Language Learning (CALL) on ESL Reading Comprehension at a Private Sector University in Pakistan**

Sana Bint-e-Javid<sup>1</sup>

Quratulain Anwar<sup>2</sup>

### **Abstract**

English is used globally as an international language. It is considered a prestigious language that provides greater opportunities for its users. Second language acquisition is not an easy task, for language acquisition, it is necessary to learn all the aspects of language such as oral and written. Learners efficiently learn language rules, pronunciation, grammar, and structure which can be learned more effectively by using Computer Assisted Language Learning (CALL) method. The recent study aims to explore the effectiveness of CALL in Pakistan at the tertiary level which focuses on the improvement of apprentices' reading skills. This is a quasi-experimental study; the data is obtained from 15 participants through a pretest and posttest. Posttest is conducted after three weeks of the pretest, during the intervention period CALL has been integrated into the language classroom for reading skill lessons. A paired one-tailed t-test has been used to analyze test scores and a descriptive data analysis method is used to detect learners' perceptions. The result of this research study shows that CALL is a highly effective technique used to increase the proficiency level of learners in reading comprehension.

**Keywords:** Computer Assisted Language Learning (CALL), Integration, Reading Skills, Learners' Perception, Technology.

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<sup>1</sup> Lecturer English, Department of Business Administration, Salim Habib University, Karachi, Sindh

<sup>2</sup> Visiting Faculty English, Iqra University Karachi, Sindh (Corresponding Author)

## Introduction

Technology is the application of scientific knowledge for practical purposes, which also assists teachers and learners in their teaching and learning process. Technology-based learning has become a new trend in this era of modernization around the world. Students in the 21st century are technology natives, as they grow with technology in everyday life. Also, technology-based learning transforms students from passive learning to active learning more profoundly (Annansingh,2019). Recently in the 21st century, learners have studied English courses using multiple applications and software. Jan (2018) argues “being digitally literate today involves the knowledge, attitudes, and skills needed for operating technologies, using the internet, understanding the media, and managing information. However, the convergence of literacies into the digital is; however, more than the sum of its single elements” p.26. English is being used in the world for communication and instruction purposes as an international language. It is also used as an official and second language in different domains such as in offices, educational institutes for academic instruction, and so on. Ryder & Machajewski (2017) revealed that there is a relationship between learning attitude and digital literacy. The 21st century is an era of globalization and modification has been done in every aspect of life which also resulted in the advancement in educational areas. Education has been influenced by this modernization, and for this purpose CALL is the best approach to learning a language and its aspects. Moreover, it provides particular information and promotes active interaction by targeting certain tasks and also encourages autonomous learning as it provides information, and feedback and allows students to check their answers at the same time. Students having personal computers and laptops show a more positive attitude towards language learning as compared to those who do not spend time learning language through these devices. Successful implementation of the use of computers for instructional purposes is based on three factors: students, teachers, and infrastructure/developers (Jamieson, Chapelle, & Preiss, 2005). Furthermore, the use of these devices in language learning provides a digital setting in which learners become more capable to enhance their self-direction, self-management, and self-assessment skills and makes them denizens (digital citizens). Some researchers also indicate that ESL language learners spend more time in online reading apps than reading offline because they find online web text more interesting and authentic than books (Gilbert, 2017; McGarr & McDonagh,2019). In this contemporary era, the use of digital resources like digital libraries for reading has increased which endorses digital reading and evokes learners to think critically beyond the domain of their targeted study. ESL teachers and learners need to inflate their literacy skills to get command over their language learning needs (Asrifan, Zit, Vargheese, Syamsu, & Amir, 2020).

Reading comprehension is essential for success in life and can be broadly defined as “understanding, using, reflecting on and engaging with written texts, to achieve one's goals, to develop one's knowledge and potential, and to participate in society” (OECD, 1999, p. 22). The reading comprehension abilities of students are not efficiently developed by teachers and learners themselves. A mental representation of the text in the form of a semantic network is what results from reading comprehension, but this representation is built up moment by moment as the reader moves through the text. Teachers believe

that only grammar, composition, speaking, and listening are the key components of the English language that should be focused on (Bhatti, 2013), while learners consider it a time-consuming activity. Furthermore, students do not find traditional activities interesting due to the lack of interactional activities. However, computers can engage language learners with interactive activities through which they can develop and enhance their reading abilities.

Reading comprehension has remained a neglected language skill in secondary schools in South Asia because teachers teach reading without understanding (Liu, 2008). The same scenario can be observed in the context of Pakistan where students are unable to get command over the understanding of English reading skills even after being taught English as a compulsory subject for twelve years (Bhatti, 2020). Several kinds of research have been performed to find suitable approaches to enhance the reading skills of learners in Pakistan but little or no research has been found on the efficacy of CALL.

The present research study aims to evaluate the significant influence of CALL on the reading skills of ESL learners at the tertiary level in Pakistan.

## **Research Objectives**

The objectives of the current study are:

- i. To investigate the impact of CALL on English reading skills.
- ii. To investigate learners' perceptions regarding the use of CALL.

## **Research Questions**

To achieve the required objectives, the following research questions were formulated:

- Q1. What are the perceptions of learners about the use of CALL in the classroom?
- Q2. How can CALL be impactful in acquiring reading skills at the tertiary level?

## **Literature Review**

The ability to use electronic devices in today's world is inevitable to gain the maximum benefits of modern technologies and students need to be well-trained in them. The inconsistency in using the latest technology has put the students of one institute at a disadvantage with other institutes which make the most of these technologies and has resulted in generating a gap among the learners of the same level (Quratulain, 2017). Therefore, Tafazoli, Gómez-Parra, & Huertas-Abril (2018) have suggested that the implementation of Computer Assisted Language Learning (CALL) first requires the students to have CALL literacy. Moreover, the impacts of unawareness of modern computer technologies have been pointed out by Aminatun and Oktaviani (2019) who suggested in their research that students often get discouraged because of a lack of information about what they are learning and less motivation provided by the instructors, probably due to lack of technological knowledge.

The vast advantages of CALL are lessened due to insufficient training of students and teachers in

Pakistan (Lodhi et al., 2019). The researchers tried to find the difficulties of students and teachers through a quantitative approach and revealed that both find the technology intimidating in the learning environment, the former, due to increases in their fees and the latter, due to a lack of computer literacy. Moreover, Bhatti (2013) in his experimental study on ninth-graded students revealed that more efforts are demanded by teachers in terms of incorporating CALL at secondary level learning. In addition, the perceptions of Iranian and non-Iranian English language students were explored by Tafazoli, Gómez-Parra, and Huertas-Abril (2018) in a cross-cultural study where they concluded that both Iranian and non-Iranian English language students possess a positive attitude regarding integrating CALL in their language classrooms but the female students require to be encouraged to achieve computer literacy to gain it as an opportunity for better learning. The male students, on the contrary, considered it essential in boosting their enthusiasm and self-confidence while learning a language.

Traditional methods of language learning have refrained students from learning the language effectively as it does not allow innovation in the classrooms (Ogilvie & Dunn, 2010). Looking at the effects of advanced and revolutionary approaches of CALL on the reading and writing skills of learners at the Tertiary level, Quratulain (2017) suggested that the process of reading and learning a language can speed up due to multiple ways of learning provided by computers. The researcher identified the benefits of the most commonly used computer the Word Processor, in fostering the learning speed of the students which proved to be constructive in learning both reading and writing skills. The research study demonstrates the importance of choosing the correct tools and software for learning a language because learners sometimes are ignorant of the benefits of CALL due to the inability to choose the best learning tool which causes them to rely on the traditional drill and practice methods and be deprived of innovations. Mutlu and Tuga (2013) carried out a study on forty-eight intermediate-level university students in Turkey, dividing the population into a controlled group and an experimental group which was provided with a five-week language learning strategy training through CALL. The study found that CALL exposes students to diverse methods of learning, further exploring that a collaboration between approaches of explicit language learning and interactive learning through CALL and the internet helped the students in improving their learning abilities.

Students from both public and private sector institutes admit the positive role of CALL in reading English fluently from computers, easily finishing their tasks, providing them with audio-visual learning, increasing their language proficiency, and making unfamiliar words easier to comprehend. Lodhi et al., (2019) explored the attitudes of male and female students of both government and non-government sectors concerning the facilitation of CALL in Language learning at an intermediate level. The study presumed CALL functioning in two ways for students; both as “a tool and a tutor” by aiding them in advancing their language skills and guiding them as an instructor in their communicative skills. As a tutor, CALL helps readers by increasing motivation and removing language learning barriers. Bhatti (2020) observed the impact of CALL in improving reading skills through his quantitative research study performed on secondary-level learners and to find out teachers’ perspectives about adding technology in their classrooms. 89% of teachers agreed that integrating CALL in the classrooms motivated the students

and made them confident while performing different activities. The research study also revealed that learners use CALL as their priority in learning reading skills and consider reading books as a second priority for boosting their learning abilities. The secondary-level learners of language revealed more curiosity towards the implementation of CALL and showed excitement in learning with the help of animated short stories, videos, and listening to native speakers.

CALL aids the learners to learn in an autonomous environment by using their self-independence and problem-solving skills thus promoting the student-centered approach. The learners can independently learn due to having easy access to technology anywhere and anytime which has aided them by easily becoming self-directed and improving their language skills on their own. Language learning is a social process and requires the pupils to be active outside the classrooms and get engaged in digital opportunities rather than concrete guidelines. Hyland (2004) investigated learner autonomy through out-of-class learning activities at a university in Hong Kong on student teachers. The activities included reading newspapers, magazines, books, novels, and articles, watching TV programs, speaking with fellow students and with family members, listening to the radio, writing emails, surfing the internet, attending meetings, and talking to people in shops. Learners were found to tend to learn outside of the class and find it more interesting to learn in innovative ways. Expecting learners to become independent in their learning is not likely to happen in traditional classrooms where learners are not ready to accept their responsibility to learn and are less enthusiastic and less motivated (Mutlu and Tuga, 2013). Computers and technology have provided students autonomy as they can decide their own time, place, and circumstances to learn instead of being confined to a place and a time to learn. Moreover, McBride (2009) argues in his research study that in the process of learning a language, CALL can help learners connect with the digital social environment by communicating directly with native speakers of the language.

Learning Vocabulary through CALL has been the most researched topic in several contexts and has provided us with diverse conclusions (Saeed and Al-Zayed 2018; Shokrpour, Mirshekari & Moslehi 2019; Talarposhti & Pourgharib 2014). It was stated by Saeed and Al-Zayed (2018) in their mixed method research study that CALL is beneficial for learners in learning vocabulary and grammar. In an experimental research study, Shokrpour, Mirshekari, and Moslehi (2019) examined the effects of CALL-based instructions on Iranian intermediate EFL learners. A pre-test was taken from the sample before the six-week treatment and the results showed no significant differences between the experimental and controlled groups. The post-test however, showed clear differences between the outcome of the two groups and displayed the compelling effects of CALL. Talarposhti and Pourgharib (2014) ascertained that the satisfactory results in learning vocabulary through CALL are due to the visual and aural resources present in computers.

Making CALL more ordinary in the classrooms has now become mandatory as it has become an inevitable part of the learning culture. It has submerged in every learning environment to an extent that it might replace teachers one day as suggested by some researchers. Saeed and Al-Zayed (2018), conducted their research on Jordanian BA students majoring in Literature and Language to know their

perceptions about the integration of CALL in their language-learning classrooms. The research study followed a random sampling method and utilized tools like questionnaires and semi-structured interviews to collect data from the sample. The research study suggested that pupils feel comfortable with the usage of technology in classrooms and find CALL more encouraging towards learning a language. The study also caters to the idea that using CALL can help students save time while completing their assignments while increasing their productivity and creativity by boosting their critical thinking abilities.

Given the importance of identifying the significance of CALL in the 21st century, this study investigated the efficacy of CALL for enhancing reading abilities at the tertiary level in Pakistan and explored students' perspectives on the incorporation of CALL in language classrooms. It gathered the perceptions of students regarding the use of CALL in reading classrooms. The dearth of research studies on finding students' perspectives about CALL in improving their reading skills in Pakistan, is the main factor to be motivated to conduct this research. The study involved 15 university students of tertiary level whose name identities and other information were ensured by keeping them confidential.

## **Methodology**

The purpose of this research study is to examine the effectiveness of CALL for enhanced reading abilities at the tertiary level. A quasi-experimental design aims to establish a cause-and-effect relationship between an independent and dependent variable. Nonrandomized intervention studies of all kinds fall under the umbrella of quasi-experimental studies. When a randomized controlled trial cannot be conducted for ethical or logistical reasons, these designs are routinely utilized. A quasi-experimental design is used where pre-test and post-test and a questionnaire based on students' perception regarding the integration of CALL in their studies, are utilized as a tool. The pre-test and post-test are based on seven questions of reading comprehension which carry equal marks. Yang (2015) claimed Google Forms to be the best free solution that researchers can have to conduct an online experiment. Moreover, it supports image-video embedding facilities. All the data is stored and saved automatically in Google-drive, so the loss of data has not been a threat anymore, which is one of the biggest concerns for a researcher (Flowers, 2014; Mesureur & Firth, 2012). In addition to this, a questionnaire is also filled up by the students about their perceptions regarding the impact of CALL on learning reading skills.

Through convenience sampling, this research is carried out at a private-sector university in Karachi. The participants of this study are English language learners enrolled in an undergraduate business program. Participants are chosen from the "Academic Reading & Writing" course because this course enables students to learn new information, develop critical reading ability, determine the author's work and views, understand the topic, and main ideas, and develop their ideas. There is an intact group of 15 participants who attempted the pre-test and post-test. This is an intervention process that furnished students' reading, acquired proficiency, and flourished advanced critical reading skills. Nine lessons on reading with the help of computers including images, graphs, print advertisements, newspaper articles, and animations through PowerPoint presentations which are efficiently designed are offered to the group. A Pre-test is conducted before the integration of CALL technology to study the reading part of the subject. To develop

reading skills, classes are conducted twice a week. After teaching and practicing reading techniques for three weeks in the classroom, a post-test is conducted which indicates that scores on tests after training are greater which proved that CALL is an effective way of adopting technology to improve learners' skills.

## Data Analysis

The data is analyzed through Statistical Package for Social Sciences (SPSS) software version 22. The researchers used paired samples t-test to test the following hypothesis. The paired sample t-test is used when we need to find out the difference between two variables in the same sample. Mostly these two samples are separated by time (Ross & Wilson, 2017).

H0: There is no significant influence of CALL on the reading skills of ESL learners at the tertiary level in Pakistan.

Table 1  
*Paired Samples Statistics*

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 Score on test before Training	7.6000	15	3.04256	.78558
Score on test after training	10.6667	15	1.23443	.31873

Table 2  
*Paired Sample t-test Paired Differences*

Paired Differences	Mean	Std.Dev	Std.E.Dev	Interval Diff		Paired t-test		Significance value
				Upper	lower	t value	df	
Score before Training Score after training	-3.06	2.49	.643	-1.68	-4.44	-4.76	14	0.00

The table "Paired Sample Statistics" indicated that the mean value of learner scores before the test is 7.600 with a standard deviation of 3.0425, however, the mean value of learners' scores after the test is 10.66 with a standard deviation of 1.22.

Table 2 "Paired Sample Test" shows that the significant value after comparing pre-test scores and post-test scores is less than 0.05 and as per rule the null hypothesis " There is no significant influence of CALL on reading skills of ESL learners at tertiary level in Pakistan." has been rejected because the analyzed data demonstrates that CALL is significant on reading skills of ESL learners at tertiary level in

Pakistan.

Furthermore, the data collected by questionnaires on students' perceptions are analyzed through descriptive analysis on SPSS. Descriptive statistics are used to characterize the fundamental characteristics of a study's data. They give quick summaries of the sample and the metrics. They are the foundation of every quantitative data analysis and simple graphical analysis.

**Table 3**  
*Descriptive Statistics Regards Students' Perception On Integration of Call in Their Studies*

Statements	Total sample	Minimum	Maximum	Mean	Std. Deviation
i. Multiple ways of learning English through CALL	15	5.00	5.00	5.0000	.00000
ii. Computers are beneficial for students' level	15	3.00	5.00	4.2667	.79881
iii. Computers are fun to use as they provide graphics, animations, colors and layouts	15	2.00	5.00	3.5333	1.12546
iv. Students like to use educational websites due to varieties of language exercises and practices	15	1.00	5.00	2.6667	1.39728
v. Educational websites are convenient to learn the English language	15	3.00	5.00	4.5333	.63994

Table 3 "Descriptive Statistics Regards Students' Perception On Integration of Call in Their Studies" shows that all students agreed that there are multiple ways of learning through CALL. Seven students strongly agree that computers are beneficial for students' level, five agree and three show a neutral response. Moreover, four students strongly condemn that computers are fun to use as they provide graphics, animations, colors, and layouts, five are neutral while three disagree to the point. Most students disagree that they like to use educational websites due to varieties of language exercises and practices, only three agree with this. In addition, ten students agree that they use educational websites to learn the English language, others give neutral responses, and none disagree.

## **Findings & Discussion**

The purpose of this research study is to explore the effectiveness of CALL in improving reading skills in English language classrooms at the tertiary level in Pakistan. It also investigates the perceptions of learners about adding CALL in their language classrooms. The data regarding the perspectives of students about integrating CALL in language classrooms is gathered with the help of close-ended questionnaires and pre-test and post-tests are conducted to check the reliability of CALL in the enhancement of reading skills. A total of 1 of 5 English language students participated in this study who are all enrolled in an undergraduate business program and are completing their "Academic Reading & Writing" course.



The t-test result of the current research study states that the significant value is less than 0.05 which means that CALL is an effective practice through which the reading skills of apprentices can be upgraded. Therefore, it concludes that the CALL environment is more efficient than the traditional teaching classes in developing reading skills at the tertiary level.

The results of this research study show consistency with the prior research done by (Bhatti, 2020; Saeed and Al-Zayed 2018; Shokrpour, Mirshekari & Moslehi 2019; Talarposhti & Pourgharib 2014) who explored the usefulness of CALL in enhancing language learning abilities of the students. The research studies demonstrated the efficacy of CALL and further consolidated the position of the latest technology in the modern tech-savvy world. The study findings are also in agreement with that of Lodhi et al., (2019) who explored positive attitudes among all male and female students of government and non-government sectors about enabling CALL in Language learning at the intermediate level.

The study accentuates the bearing of CALL on reading skills. This research study shows very successful results in responding to the research questions discussed in the beginning about the influence of CALL on reading skills. The results of this research study are identical to other studies such as those of Bhatti (2013), Liu (2015), and Bhatti (2020). This research also assessed the methods and practices through which reading skills can be improved with the incorporation of CALL. Bhatti (2020) has explored the significance of CALL used by teachers in English language classrooms to improve their reading skills. It has been found that reading skills proficiency level can be enhanced by the integration of the CALL method in learning classrooms because it is the most constructive and productive method with academic benefits for ESL learners to increase their learner's proficiency level (Irshad & Ghani, 2015).

This research study proposes some worthy findings in terms of integrating CALL and extends its contribution by providing relevant and worthwhile results. The results of this research study are commensurate with the findings of Tafazoli, Gómez-Parra, and Huertas-Abril (2018) and conclude that learners held a high attitude towards the use of computer tools in learning a language. The learners went through nine weeks extended reading and writing program which enabled them to polish their skills with the help of visual aids, animations, graphs, images, and newspaper articles provided by the computers. The extended program conducted before the post-test aids the readers and favors the findings of Quratulain (2017) and Mutlu and Tuga (2013) who suggested that the diverse means of learning offered by CALL, speeded up the process of learning reading skills.

Furthermore, the data collected through a questionnaire on students' perception of CALL in enhancing their study skills, shows that all students found CALL useful for learning English through numerous techniques, computers, and other resources providing benefits in terms of enhancing their proficiency in level whereas learners also found visual aids interesting. In contrast, the use of educational resources such as educational websites for practice purposes is used less however they use educational websites for learning purposes.

## **Conclusion**

In general, Pakistani ESL students have shown a positive perspective toward using CALL, especially in

enhancing their reading abilities. The learners believe that they can be facilitated by the latest technology if it is rightly provided to them in their learning environment. The findings taken from the questionnaire also demonstrates the positive opinions and perception of students. When answering the questions, the students reveal their belief in the benefits of computers and agree that computer websites are convenient and fun to use. They also accept that computers allow them to get information from abundant sources, making the learning process fun and enjoyable as they provide graphics, animations, colors, and layouts. Furthermore, pupils consider computers because they provide them with multiple ways of learning the English language and they are suitable for their learning level. Students are also convinced that using computers in the language learning process can improve their reading skills. Due to the educational websites which provide them with varieties of language exercises and practices.

CALL shows its value by enhancing the reading skills of the students. The positive outcomes are evident from the results of the pre-test and post-test. However, this study is limited to knowing the students' perspectives on learning reading skills which are conducted in one city in Pakistan. Additional research studies can be conducted in the domain of more than one province in Pakistan in the future. It is suggested that in the future the range of research studies can be extended in terms of other three important skills; i.e. writing, speaking, and listening. Upcoming research studies can also be based on gender-related issues in CALL and further research to develop a suitable curriculum to implement CALL in language learning classrooms.

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