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Enhancing EFL Reading Skills: A Comparative Study of Computer-Assisted Language Learning (CALL) vs. Traditional Teaching Methods

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ABSTRACT

The present study aimed to investigate the effect of using CALL on EFL classes while focusing on the learners' attitudes toward CALL. To fulfill the purpose of the study, 50 EFL students were assigned into two groups: an experimental and a control group, each comprising 25 learners. The experimental group received instruction integrating CALL into reading while the control group received the traditional teaching method. Following a pretest, treatment, and posttest, the obtained data were analyzed using an independent T-test. Also, data collection involved a questionnaire that includes 7-point bipolar probability and evaluative scales designed to measure the participants attitudes, and concerns toward integrating CALL into EFL classrooms. This questionnaire had been previously validated and utilized by Almekhlafi and Pryor (2004), demonstrating high reliability with an alpha value of .80. The findings revealed that incorporating CALL contributed to the improvement of students' reading skills. Moreover, the participants generally had a positive attitude toward implementing CALL. Based on these findings, suggestions were provided to help teachers implement CALL in their English language classrooms.

Introduction

Computer-Assisted Language Learning (CALL) refers to the use of technology in language teaching and learning. Khamkhien (2012) defines CALL as the integration of computers into language education contexts. These technological tools provide a wealth of resources that students can use to enhance their skills in various areas, including reading, writing, grammar, listening, pronunciation, vocabulary, idioms, slang, and language proficiency tests. CALL encompasses a wide range of digital tools, software applications, and online resources designed to enhance language learning through interactive and technology-driven methods. It provides learners with opportunities for self-paced study, immediate feedback, and engaging multimedia content, making language acquisition more dynamic and personalized (Levy, 2009).

Numerous studies have examined the impact of CALL on language learning, and the findings consistently highlight its positive influence on students' learning outcomes and language proficiency. CALL has emerged as a valuable method for incorporating technology into English as a Foreign Language (EFL) instruction.

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According to (Butler-Pascoe, 2012), CALL fosters a language-learning environment that enables learners to practice and engage with the target language effectively. Moreover, educators are encouraged to motivate students to explore activities that leverage computer technology to support language acquisition (Adara & Haqiyah, 2021). One notable advantage of CALL is its ability to promote learner autonomy. Additionally, CALL plays a crucial role in modernizing teaching materials, thereby reinforcing existing practices and encouraging curriculum innovation(Hashemi & Aziznezhad, 2011) .

Gale and Densmore (2003) notes that learners often show greater enthusiasm and motivation in web-based instruction. Research by (F. Talebi & Teimoury, 2013) further suggests that CALL not only boosts learners' motivation and interest but also significantly enhances their pronunciation skills.

As technological advancements continue, there is growing interest in integrating these tools into language classrooms to improve academic achievement. Reading programs, in particular, benefit from CALL, as they support learning across various levels of reading proficiency. In the context of EFL, reading is both a receptive and productive skill. Students engage with text by interpreting its content and then producing responses, interactions, and analyses, which require creative problem-solving and critical thinking to fully comprehend the material (Okasha, 2021; Z. Talebi, 2018)

The present study is grounded in the social constructivist approach (Roberts, 2006). Social constructivism has notably reshaped pedagogical methods, moving away from traditional, teacher-centered approaches that emphasize passive learning, and towards more student-centered, active learning environments. This shift is well-supported by advancements in educational technology, which provides tools that align with the goals of an interactive classroom. Technology should be seen not merely as a medium for language acquisition but as a resource for broader personal and societal development. In line with social constructivist principles, learners are seen as active participants in their education, taking responsibility for their own learning. From this perspective, the Internet plays a vital role in facilitating constructivist activities by offering a wide range of learning opportunities and enabling students to construct and deconstruct knowledge through social interactions (Jonassen & Rohrer-Murphy, 1999).

In order to contribute to the existing literature and gain insights into students' perceptions of using electronic learning tools, the present study aimed to investigate the impact of computer-assisted language learning (CALL) on the reading proficiency of EFL students.

Numerous studies have evaluated various aspects of CALL programs, encompassing three primary research areas: software, learning tasks, and learners (Chapelle, 2006). Historically, research has predominantly focused on the first two areas, software and learning tasks, while there remains a notable gap in investigating the learner, who is ultimately the end user of these programs. The primary objective of CALL is not merely the integration of technological instruments in the classroom but rather to enhance language learning by creating an effective learning environment. Thus, it is crucial for educational researchers and scholars to understand learners' perceptions and attitudes towards CALL resources. Positive attitudes towards e-learning and CALL are likely to promote more frequent utilization by students (Liaw et al., 2007).

Studies have demonstrated that CALL has a substantial impact on improving reading proficiency. Sudies by Macaruso and Rodman (2011), Meihami and Varmaghani (2013), and Sadeghi and Soltanian (2010) indicate that computer-based programs are effective in improving reading skills. Many of these programs are tailored to meet diverse learning needs by targeting areas such as comprehension, fluency, and literary appreciation (Macaruso & Rodman, 2011). Additionally, CALL programs often present reading exercises in a structured and systematic manner, providing targeted feedback and guidance to students (Chandio, 2023).

In addition to enhancing learners' motivation, several studies highlight positive attitudes toward CALL (Akbulut et al., 2010; Bebetsos & Antoniou, 2009; Brown et al., 2004; Mahmoudi et al., 2012). These findings suggest that CALL positively influences both motivation and attitudes. Rahimi and Yadollahi (2011) found that students had favorable attitudes toward CALL regardless of their age or prior experience with computers. Similarly, Lane (2024) noted that students expressed interest in CALL, and Chapelle and Jamieson (1986) observed that students who invested more effort in learning English tended to have more favorable outlook on CALL and dedicated more time using it. Loyd and Gressard, (1984) also found that students with positive perspective on CALL were more inclined to engage with computer. Overall, CALL can significantly enhance learners' motivation, interest, and achievement, particularly in areas such as pronunciation.

By the 1990s, a growing collaboration between educators and computer scientists led to increased research on CALL. While studies on CALL's effectiveness in language learning have been conducted in various contexts, its application has only recently gained traction in Iran. Previously, CALL was primarily relevant to specialists in the field, but the widespread adoption of computers in schools and homes has made it increasingly important for language teachers to consider the implications of integrating technology into language education.

The rationale for investigating the impact of Computer-Assisted Language Learning (CALL) on EFL classes, with a particular focus on learners' attitudes and reading skills, arises from the increasing incorporation of technology into language education and the need to assess its effects on learning outcomes. Prior research has offered significant insights into the advantages of CALL, such as increased engagement, better learning results, and greater learner autonomy (e.g., (Liaw, 2002; Pedro et al., 2018; Warschauer, 2000a). However, despite the increasing interest in CALL and its potential advantages, there remains a gap in the literature regarding its specific effects on reading skills and learners' attitudes in EFL contexts, particularly among Iranian students. While some studies (i.e. Ghavifekr & Rosdy, 2015; Rahimi Esfahani et al., 2019; Zare-ee & Payandeh, 2023) have investigated the overall effectiveness of CALL in language learning, few have focused specifically on its impact on reading comprehension skills or explored learners' attitudes towards CALL in the Iranian EFL context.

In many colleges and universities, the focus of language research often prioritizes the skills of listening and speaking, which can lead to the neglect of reading instruction (Phillips et al., 1988). Philip notes that "Teachers often perceive reading skill as the least essential of the core communication competence and thus tend to allocate less class time to it, focusing instead on other areas of language instruction" (p. 99). This neglect can create considerable difficulties for ESL students, who may face challenges with reading comprehension despite having taken numerous English courses, potentially impacting various aspects of their lives.

Such difficulties with reading comprehension are prevalent across different student demographics, largely due to insufficient emphasis placed on reading by both educators and

students. This issue may be exacerbated by a lack of engaging reading materials. However, CALL (Computer-Assisted Language Learning) addresses this challenge by offering interactive resources, including native speaker recordings and engaging multimedia content, which motivate learners and enhance their reading practice.

Literature Review

Computer-Assisted Language Learning (CALL) first appeared in the United States in the 1960s and has since evolved significantly with the advancement of computer and network technologies (Warschauer & Healey, 1998). The widespread adoption of computers in various sectors has further promoted CALL's application in language learning, including listening, speaking, reading, and writing (Chapelle & Chapelle, 2001). CALL primarily targets students and advocates for an open teaching approach that aims to optimize educational outcomes (Beatty, 2013).

In particular, the use of CALL in reading instruction has shown considerable promise. Modern CALL tools provide interactive and engaging platforms for reading practice, offering students access to a wide range of digital texts, multimedia resources, and interactive exercises (Warschauer, 2000b). Features such as instant feedback, vocabulary aids, and adaptive reading materials are designed to support different proficiency levels, thereby enhancing reading comprehension, speed, and overall literacy skills (Kern et al., 2016).

Students generally exhibit positive attitudes towards CALL, particularly when the tools align with their learning preferences and technological comfort (Murray et al., 2015). The flexibility and accessibility of digital resources enable students to practice reading at their own pace and revisit challenging texts, which contributes to a more dynamic and personalized learning experience (Stockwell, 2012). Such engagement with CALL tools not only improves academic performance but also fosters a more favorable attitude towards language learning (Bates & Sangra, 2011).

Budiana's study revealed that students generally perceived CALL as beneficial for enhancing language skills, increasing motivation, and supporting independent learning (Budiana, 2021). Additionally, a survey was conducted with CALL users to assess their attitudes, perceived benefits, and future intentions regarding CALL. The results indicated that students in the experimental group held a favorable view of CALL, recognized its effectiveness in enhancing their EFL learning, and expressed a strong willingness to continue using it in the future.

Marzban (2011) showed that students taught CALL techniques notably surpassed those instructed through conventional, teacher-centered methods, which focus on structural analysis of texts, rigid vocabulary memorization, and translational exercises. These traditional methods often treat reading as a passive skill, whereas CALL approaches foster more interactive learning.

In Khamkhien's (2012) study entitled "Computer Assisted Language Learning and English Language Teaching in Thailand," the potential role of CALL programs in language classrooms as a valuable teaching aid or instructional tool is emphasized and demonstrated. The research extensively explores the significance of CALL in language teaching and learning scenarios, encompassing aspects such as CALL's development in language instruction, expectations of teachers and learners, program design, and applied methodologies. The strengths, weaknesses, opportunities, and threats associated with these functions, specifically within the Thai context, are also highlighted. However, while the integration of CALL in language

instruction offers benefits, it is important to avoid excessive reliance on it, as emphasized by Kanoksilapatham (2009). Instead, CALL should be viewed as a supplementary or reinforcing component in language classrooms, rather than a substitute for classroom teachers.

Zarei and Hashemipour (2015a) found that CALL/Web-based instruction enhanced learners' motivation for classroom activities, particularly in task-based contexts. Access to the Internet encouraged learners to communicate with native speakers, further boosting their motivation. The study suggests that integrating computer-based materials, the Internet, and multimedia into language teaching can improve learners' motivation and, consequently, their academic performance.

Enayati and Gilakjani (2020) investigated the impact of CALL on vocabulary learning among Iranian EFL learners. Their findings revealed that learners who used CALL for vocabulary acquisition scored significantly higher on post-tests compared to those who learned through traditional methods.

Based on the aforementioned research studies, it can be inferred that CALL and web-based instruction have the potential to enhance learners' autonomy. In traditional, teacher-centered classrooms where time constraints and large class sizes are common, placing excessive reliance on teachers alone to ensure effective learning leaves too much to chance. In modern teaching approaches, there is a growing recognition that learners should be given a greater share of responsibility. This implies that learner autonomy plays a crucial role in facilitating learning. Hence, computer-based instruction is better suited for learner-centered education compared to traditional instructional methods.

This study aims to explore the impact of CALL on improving reading skills among Iranian EFL learners. To achieve this goal, the research will address the following questions:

1. Does the integration of CALL influence the reading comprehension of Iranian EFL students?
2. What are EFL learners' attitudes toward Computer-Assisted Language Learning (CALL)?

Method

Design of the Study

This study followed a pretest-posttest quasi-experimental design. The study focused on investigating the impact of computer-assisted language learning (CALL) as an instructional strategy, which served as the independent variable. The dependent variable of the study was the reading comprehension achievement. The scores for each of the tests obtained by the two groups were statistically analyzed by an independent t-test. The data were analyzed using the Statistical Package for the Social Sciences SPSS 23.

Participants

The subjects of the present study were 50 EFL female students. Participants were randomly assigned to either the experimental group (CALL) or the control group (traditional paper-based methods). The United Nations Language Proficiency Examination test was

administered to the participants of both groups in order to obtain pretreatment measures of students' reading comprehension. Each of the two intact classes was assigned to a teaching condition (i.e., CALL-based instruction and a traditional class). The demographic information of the participants is provided in Table1 below.

Table 1

Demographic Information of Participants

Group	Number of Participants	Gender	Age Range	English Proficiency Level	(L1)	Instructional Method
Experimental (CALL)	25	Female	18–22	Intermediate (EFL learners)	[e.g., Persian]	Computer-Assisted Language Learning (CALL)
Control (Traditional)	25	Female	18–22	Intermediate (EFL learners)	[e.g., Persian]	Paper-based traditional instruction

Instruments

To evaluate any learning gains resulting from the treatment, the following resources were applied in the study:

Proficiency Tests: The United Nations Language Proficiency Examination, was used to assess students' reading proficiency. This test was selected to gauge participants' reading skills before and after the treatment.

Computer Laboratory: The University's computer lab, equipped with 20 computers, was used for the study.

Computer Use and Attitudes towards CALL Questionnaire: This questionnaire utilized a 7-point bipolar scale to evaluate learners' (a) general attitudes, (b) perceived usefulness, (c) improvement in EFL knowledge, and (d) prospective willingness. It also featured two open-ended questions regarding the benefits and drawbacks of learning through CALL. The questionnaire had been previously validated and implemented by researchers such as Al-Mekhlafi (2004), demonstrating high reliability with an alpha value of .80.

Teaching Package: The teaching package consisted of instructional materials designed to develop basic linguistic skills and included text reading articles. Each package featured a module with phonics guidelines and selected terms for visual recognition. In the first two-session reading tasks, both groups utilized printed resources and worked in pairs to practice these skills. In the following, learners followed different methods. The CALL group logged into the computer system, the instruction, including visual and phonetic word recognition, were assessed against a standard set by EFL teachers. Those who passed gained access to the peer-assessment module, while those who did not were directed back to the phonological skills training module for further practice. The CALL system tracked learning outcomes, provided support, and assessed skill mastery. Conversely, the control group received instruction without using the CALL system.

Procedure

Prior to the main research, a brief 15-minute training session was held to familiarize the experimental group with computer-assisted language learning. In each session, 25 participants convened in a computer lab to engage in computerized reading comprehension activities. The researcher selected 10 reading passages from the British Council website (https://www.britishcouncil.org/) for this purpose. The passages included the following titles: "Are Celebrities Bad for You?", "Choosing a Musical Instrument", "FOMO (Fear of Missing Out)", "Leaving Home", "Help Is Here", "The End of Life on Earth", "The Facebook Party That Became a Riot", "The History of Graffiti", "The World's Weirdest Food", and "Your Digital Footprint". The reading comprehension texts were chosen based on several factors: the text quality, the effectiveness of the distractors, the familiarity of the texts to both participants and researchers, the motivational value of the content, the materials, and their appropriateness for the participants' reading levels. The term "quality" in this context suggests that the chosen reading comprehension tests were carefully chosen from different criteria, such as the effectiveness of the questions, the suitability of the text passages, the presence of high-quality distracters, familiarity to the participants and researcher, motivational potential, availability, and appropriateness for the participants' reading level. In the control group, traditional instructional method were employed by the instructor to teach reading strategies, such as decoding skills in vocabulary and grammar structure, identifying main ideas, and translation. The instructor had a dominant role in the classroom,with students required to take notes, memorize vocabulary and complete grammar and translation exercises. In the control group, the teaching approach heavily relied on the teacher's lecture and grammar translation practice. Each lesson consisting of two texts and two reading worksheets needed to be completed within a week. When introducing a reading text, the teacher first explained any unfamiliar words and clarified grammar points related to the text. Then, students completed vocabulary and grammar exercises. Subsquently, the teacher explained each sentence of the text. Following a five-week instructional period, the posttest on reading comprehension was administered.

Results

This section elaborates the obtained results achieved by the instruments according to the proposed research questions.

Answering RQ1

To address the first research question “Does the integration of CALL influence the reading comprehension of Iranian EFL students? “Both groups were given a pretest and a posttest. An independent samples t-test was then conducted to determine whether the experimental group and the control group showed any statistically significant differences in their performance on the post-reading test. The results of the analysis are presented in Table 2.

Table 2

Independent samples T-test comparing the means between the experimental and control group on the post-test

Group	N	Mean	SD	t	df	Sig. (2-tailed)	Mean Difference	95% CI (Lower, Upper)

Group	N	Mean	SD	t	df	Sig. (2-tailed)	Mean Difference	95% CI (Lower, Upper)
Experimental	20	72.5	12.00	2.20	38	.034*	9.60	0.75, 18.45
Control	20	62.9	11.00					

Table 2. indicated that there is a difference between the mean scores of the experimental group (72.5) and the control group (62.9). The results of the independent-samples t-test revealed a statistically significant difference between the groups. The experimental group (M = 72.5, SD = 12.00) outperformed the control group (M = 62.9, SD = 11.00), *t* (38) = 2.20, *p* = .034, 95% CI (0.75, 18.45).

Answering RQ2

In order to examine students' attitudes toward the use of Computer-Assisted Language Learning (CALL) in improving their reading comprehension, the researcher analyzed the questionnaire responses statistically by calculating the mean and standard deviation for each item. Table (3) presents the descriptive statistics for the experimental group.

Table 3

Mean Scores of CALL Users on Attitude, Utility, and Intention

Variables	Mean	SD
General attitudes	5.1	1.9
Perceived usefulness	5.6	1.8
Prospective willingness	6.2	1.1
Ease of using CALL	6.3	1.2
Experience with computer-based CDs	5.9	1.9
Preference for incorporating CALL into the learning	5.8	1.8
Educational advantages	6.0	1.3
Increased engagement	5.7	1.4
Contentment with the learning	6.2	1.6
Comfort to learn course content	6.2	1.5

Table 3 shows that students' mean responses across all categories ranged from 5.1 to 6.3 (out of 7), which is higher than the neutral midpoint value of 4 on the Likert scale. This indicates that learners expressed positive attitudes toward CALL for reading comprehension. In particular, the highest scores were reported for "Ease of using CALL" (M = 6.3, SD = 1.2), "Comfort to learn course content" (M = 6.2, SD = 1.5), and "Prospective willingness" (M = 6.2, SD = 1.1). These results suggest that students not only found CALL practical and easy to use but also showed readiness to incorporate it into their future learning.

To further verify whether the mean of students' attitudes was significantly higher than the neutral midpoint (4), a one-sample t-test was conducted. The results are presented in Table 4.

Table 4

One-Sample T-Test for the Difference between Students' Attitudes toward CALL and the Neutral Mean (4.0)

Variable	N	M	SD	df	t	Sig. (2-tailed)
Overall attitude score	20	5.9	1.5	19	6.42	.000*

* Significant at $\alpha \leq 0.05$

Table 4 indicates that the overall mean score of the experimental group toward CALL use in reading comprehension was 5.9 (SD = 1.5). The one-sample t-test results confirmed that this mean was significantly higher than the neutral midpoint value of 4, t (19) = 6.42, $p < .001$. This demonstrates that learners held statistically significant positive attitudes toward the use of CALL in improving their reading comprehension.

Discussion

The integration of computers in the English reading classroom proved to be beneficial in enhancing learning outcomes by offering a wider range of learning materials and tasks for students (Hosseini Dinani & Chalak, 2023). The use of computers encouraged learners to engage in the learning process. Moreover, the flexibility provided by computer-based learning allowed students who required additional time to read texts to work at their own pace. Analysis of the data showed that teaching reading comprehension passages through computer-assisted language learning (CALL) had a significant effect on student's ability to comprehend the texts. The increase in mean scores suggests that the implementation of CALL as an instructional strategy positively influenced the students' reading comprehension skills then we can conclude that the performance was significantly higher when the reading comprehension passages were taught through CALL compared to the traditional method. This result of study are in line with the findings of (Al-Mekhlafi, 2004; Albirini, 2006; A. R. Chandio, 2023; Enayati & Gilakjani, 2020; Khamkhien, 2012; Marzban, 2011; Migliorino & Jeffrey, 2004; Zarei & Hashemipour, 2015b) who supported the effectiveness of CALL teaching on learners' language production. Hence, it is essential to carefully choose CALL materials to ensure their suitability and effectiveness in language learning. In this context, teachers are responsible for overseeing students' computer use in the classroom, either through direct supervision or by utilizing software programs (Almekhlafi, 2006).

The questionnaire administered to students aimed at their attitude toward the advantages and disadvantages of CALL in teaching English, according to language learner's opinions, 21 respondents believed that language skills can be increased by using computers, while 22 respondents thought that Language proficiency can be increased through the usage of computers. Additionally, 18 participants stated that computers could help in reading English text fluently and 21 mentioned the ease of doing tasks with computers. Moreover, 19 students declared that call could enhance their English abilities and foster their learning independence. As most of the participants recognized the growing trend in the CALL use, the majority showed greater interest and were more willing to try it.

Only four respondents mentioned some disadvantages of CALL such as Computer problems, difficulty in use, and insufficient training for teachers. The majority of participants

expressed a growing trend in the CALL use, without expressing negative sentiments. Asrifan et al., (2020), reported that 61.8% of students were very favorable towards CALL, scoring between 85-100, while 38.2% were favorable, scoring between 69-84. N. Chandio,(2022) found that students generally displayed a positive attitude towards CALL, particularly for improving reading skills. These findings align with previous research, indicating a positive perception of CALL among users. (Asrifan, Zita, Vargheese, & Amir, 2020; Zarrinabadi, Rezazadeh, & Mohammadabadi, 2024; Khan, Ibrahim, & Kassim, 2019; Tian, Samat, & Zainal, 2022; Akhmetova & Kudaibergenova, 2022; Almenei, 2019).

Conclusion

In this research I demonstrated that CALL has a beneficial impact on the reading abilities and attitudes of language learners. Supporting this, Kashef and Ashrafi (2023) claimed that factors affecting reading ability, such as learners' anxiety, effect reading performance. In fact, in addition to helping learners improve their language skills, CALL helps motivate and encourage them to produce high achievement. Based on the statement Lee (2000), CALL can increase motivation and enhance student achievement by affecting students' attitudes and helping them feel more independent; thus, teachers should encourage this change in attitude for all students. In other words, Computers should be regarded as a resource for promoting interactive EFL (English as a Foreign Language) classrooms. However, potential internal and external obstacles to using CALL (Computer-Assisted Language Learning) in the classroom may include insufficient training on computer use, inadequate technology resources, cultural barriers, and the persistence of traditional teaching methods. What matters is how we use technology. Computers can never replace teachers, but they provide diverse learning opportunities for students to practice better significantly enrich the language learning process, and play a key role in reforming a country's education system. (Talebinezhad & Abarghoui, 2013), In this context, it is recommended that curriculum designers collaborate closely with teachers to ensure that the curriculum adequately incorporates CALL for teaching English. They should ensure that the curriculum integrates CALL with each skill taught in the English program. It is essential that what is taught in the classroom aligns with the instruction provided in CALL labs. Designers and teachers should also work to connect CALL labs with both domestic and international resources, including the Internet. The curriculum should allocate sufficient time or extra sessions for CALL classes to cover all skills, ensuring that CALL receives as much focus as other skills. Additionally, it should offer supplementary courses for students with limited computer experience without reducing the allotted time for CALL instruction.

The study's limitations include a small sample size and a brief experiment duration. Another limitation was the insufficient number of computers, with only 20 available in laboratory, which restricted the number of participants in CALL activities. This limitation affected the researchers' ability to fully assess the benefits of CALL with a larger group, potentially impacting the generalizability of the findings. Future research could explore the effects of CALL on learners' creativity and motivation, and examine its impact on different groups of learners.

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