THE IMPACT OF COMPUTER-ASSISTED LANGUAGE LEARNING ON SECOND LANGUAGE ACQUISITION

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Abstract
This research evaluates the usefulness of computer-assisted language learning (CALL) in enhancing second language acquisition outcomes, focusing on vocabulary, grammar, reading comprehension, and speaking skills. The study explores factors influencing CALL's impact, including learner characteristics, motivation, self-regulated learning strategies, and technology. Data was collected from 30 intermediate-level students and 10 teachers through pre and post-tests and a questionnaire. This study discussed the results in relation to the Theory of Second Language Acquisition and the Self-Regulated Learning framework. The findings support the positive impact of Computer-Assisted Language Learning (CALL) on language skills and emphasize the importance of self-regulated learning strategies in CALL. The research concludes that CALL effectively enhances second language acquisition and recommends integrating domain-specific CALL activities, creating a supportive environment, and offering professional development opportunities for educators to optimize its effectiveness. Based on the study's findings, it is recommended that the educators should integrate domain-specific CALL activities, create a supportive learning environment, and offer professional development opportunities to maximize the effectiveness of CALL in second language acquisition.
***Keywords**: CALL; computer-assisted language learning; English language learning; second language acquisition; SLA; teaching English language; theory of SLA; self-regulated learning;*

INTRODUCTION

Recently, the second language acquisition (SLA) field has witnessed significant advancements due to the integration of computer-assisted language learning (CALL) technologies. CALL refers to the incorporation of computer technology into language learning environments, offering interactive activities and resources to support language learners. The present research aims to explore the impact of computer-assisted language learning on second language acquisition, drawing upon the latest studies to investigate its effectiveness and potential benefits.

The utilization of technology in language learning has garnered considerable attention, with emerging research highlighting the positive influence of CALL on SLA outcomes. Recent studies have shown that CALL provides learners with opportunities for independent and personalized learning experiences, promoting learner autonomy and engagement (Lai & Li, 2022; Sadeghi & Rezaei, 2021). Interactive audiovisual aid materials and digital resources offered by CALL platforms enable learners to engage with authentic language input, practice language skills, and receive immediate feedback, ultimately enhancing language proficiency (Gao et al., 2022; Wang et al., 2021).

Moreover, the integration of CALL into language classrooms has been found to have a substantial impact on learners' communicative competence. Research has demonstrated that learners who engage with CALL activities exhibit improved oral and written production, expanded vocabulary knowledge, and enhanced grammatical accuracy (Gong et al., 2021; Tang et al., 2020). The hypermedia structures incorporated in CALL programs, such as audio and video recordings, provide learners with exposure to diverse accents, registers, and authentic language use, facilitating the development of language skills (Lee & Chien, 2022; Teng & Chang, 2021).

Furthermore, the adaptive nature of CALL platforms has contributed to their effectiveness in supporting SLA. Intelligent computer-assisted language learning systems (ICALL) employ artificial intelligence algorithms to analyze learners' performance and deliver personalized feedback and

remedial activities (Jin et al., 2021; Zheng et al., 2020). These adaptive features enable customized instruction, targeting learners' specific weaknesses and promoting efficient and effective language learning (Lin & Wang, 2022; Liu & Lin, 2021).

Additionally, the integration of technology in language learning environments has expanded learners' access to language resources beyond the constraints of time and space. Mobile phone apps and electronic verbal education programs provide learners with the flexibility to engage in language learning activities at their convenience, resulting in increased opportunities for language practice and exposure (Wu et al., 2022; Xie et al., 2021). This anytime-anywhere accessibility allows learners to engage in continuous language learning, enhancing their language acquisition process.

Nevertheless, it is important to critically examine the impact of CALL on SLA and consider potential challenges and limitations. Recent research has highlighted concerns such as the overreliance on computer-mediated instruction, which may reduce face-to-face interaction and authentic communication opportunities (Chapelle et al., 2022; Wang & Sun, 2021). Additionally, issues related to the digital divide and varying levels of technological proficiency among learners need to be addressed to ensure equitable access to CALL resources (Chen et al., 2022; Zhang et al., 2021).

The integration of computer-assisted language learning has emerged as a promising tool for second language acquisition. The latest research indicates that CALL can enhance language learning outcomes by providing independent and personalized learning experiences, facilitating authentic language input, and supporting communicative competence development. The adaptive nature and flexibility of CALL platforms further contribute to its effectiveness in meeting learners' individual needs. However, careful consideration of potential limitations and challenges is essential to maximize the benefits of CALL in SLA. The objective of this study is to enhance the current body of literature by investigating the influence of Computer-Assisted Language Learning (CALL) on the process of acquiring a second language. This research seeks to provide insights into the potential benefits of utilizing CALL as a supportive resource for individuals learning a new language.

Problem Statement

In Pakistan, English language proficiency is considered essential for educational and professional success, but traditional language teaching methods face challenges in meeting the diverse needs of learners and limited resources (Ahmed & Hussain, 2021). The study in hand raises important questions regarding the effectiveness of technology in language learning and acquisition. Pakistan is a multilingual country with diverse linguistic backgrounds and a strong emphasis on English language proficiency. However, traditional language teaching methods often struggle to cater to the needs of a large population, limited resources, and varying levels of access to quality education. Thus, exploring the impact of computer-assisted language learning (CALL) on second language acquisition in Pakistan becomes crucial to address these challenges and enhance language learning outcomes.

Research Objectives

The study tried to achieve the following research objectives:

1. To evaluate the effectiveness of CALL in enhancing second language acquisition outcomes, including vocabulary, grammar, reading comprehension, and speaking skills.
2. To examine the factors influencing the impact of CALL on second language acquisition, such as learner characteristics, motivation, self-regulated learning strategies, and the role of technology.

Significance of the Study

The implication of this research reclines in its potential to enhance language learning outcomes by evaluating the effectiveness of CALL and addressing diverse learner needs. The findings can inform pedagogical practices, guiding educators in integrating technology effectively and promoting learner autonomy. Additionally, the study has policy implications, providing insights for policymakers to allocate resources and develop infrastructure to facilitate the integration of CALL in language education. This research contributes to the advancement of language education practices, harnessing the benefits of technology to address the challenges faced by language learners in diverse contexts.

Delimitations

Delimitations of the study include a small sample size of 30 intermediate students from two specific colleges in Gujranwala, resulting in limited generalizability. The study also had a potential gender imbalance due to separate male and female colleges. The data collection focused on English teachers' perspectives through questionnaires, omitting input from other stakeholders. Time constraints prevented a long-term follow-up to assess sustained language acquisition outcomes. The study relied on specific theoretical frameworks, potentially overlooking other relevant theories. In light of these limitations, the study provides valuable insights into the effectiveness of CALL in language acquisition within the specific context under investigation. Furthermore, it underscores the necessity for additional research with larger and more diverse samples to enhance the applicability and generalizability of the findings.

LITERATURE REVIEW

Computer-Assisted Language Learning (CALL) has emerged as a promising approach to enhance second language acquisition (SLA). This review aims to critically analyze previous literature and examine the impact of CALL on SLA. The review synthesizes and evaluates various studies to provide a comprehensive understanding of the relationship between CALL and SLA.

Several studies have explored the impact of technology-enhanced language learning on SLA. Smith (2017) conducted a meta-analysis of 20 studies and found that CALL positively influenced various aspects of SLA, including vocabulary acquisition and speaking proficiency. Similarly, Chen et al. (2019) investigated the effect of CALL on writing skills and reported significant improvement among learners.

Researchers have examined the cognitive processes involved in CALL and their connection to SLA. Jones and Lee (2018) investigated the role of attentional resources in CALL and found that learners who engaged in interactive CALL activities demonstrated greater improvements in SLA. Furthermore, Li and Wang (2020) highlighted the positive impact of CALL on learners' cognitive engagement, leading to enhanced SLA outcomes.

Motivation plays a crucial role in SLA, and several studies have explored the impact of CALL on learner motivation. Chen and Liu (2019) conducted a study and found that learners who utilized CALL tools demonstrated increased motivation and engagement, leading to improved SLA outcomes. Additionally, Kim and Lee (2021) investigated the effects of CALL on learners' self-efficacy and reported a positive relationship between CALL use and increased self-efficacy, thus facilitating SLA.

Individual differences among learners can influence the effectiveness of CALL in SLA. Li and Gong (2018) examined the impact of learner autonomy on CALL and found that autonomous learners benefited more from CALL activities compared to less autonomous learners. Additionally, Cheng et al. (2022) explored the influence of learning styles on the effectiveness of CALL and reported that learners with a visual learning style performed better in SLA tasks through CALL.

Studies have also focused on pedagogical considerations in implementing CALL for SLA. Wang and Huang (2019) emphasized the importance of task-based CALL activities, which provide meaningful and interactive language practice opportunities. They found that learners who engaged in task-based CALL activities showed improved SLA outcomes. Furthermore, González-Lloret (2020) discussed the integration of CALL into the language curriculum and highlighted the need for effective teacher training to maximize the benefits of CALL in SLA.

The reviewed literature demonstrates the positive impact of CALL on various aspects of SLA. The findings highlight the potential of CALL to enhance vocabulary acquisition, speaking, writing, cognitive engagement, learner motivation, and individual differences. Moreover, pedagogical considerations play a crucial role in optimizing the benefits of CALL in SLA. However, further research is needed to explore specific contexts, learner populations, and implementation strategies to fully understand the implications of CALL in SLA.

The existing research on computer-assisted language learning (CALL) in the context of second language acquisition has primarily focused on specific language skills and lacks comprehensive investigation. There is a research gap in understanding the overall impact of CALL on second language acquisition outcomes, particularly in the Pakistani context. This study aims to address this gap by

conducting a holistic examination of the effectiveness of CALL, considering various language skills and contextual factors. The findings of this study contributes the existing literature and provides valuable insights for educators and policymakers seeking to optimize language learning through technology.

METHODOLOGY AND THEORETICAL FRAMEWORK

To achieve the objectives a mixed-methods research approach was employed. The study involved both quantitative data collection and qualitative data analysis. A total of 30 Intermediate level students from two colleges in Gujranwala, namely Govt. Graduate College (male) and Govt. Post Graduate College (female), were chosen for the study. Quantitative data was collected through pre- and post-tests to evaluate the variations in vocabulary acquisition, grammar proficiency, reading comprehension, and speaking skills among the participants. A control group that followed traditional classroom instruction was compared with an experimental group that received CALL intervention.

A systematic random sampling method was employed to select ten English teachers from the same institutes to complete a questionnaire. The data compiled from the students and the teachers then discussed and the results then analyzed in the light of the Theory of Second Language Acquisition, proposed by Long (1996) and the Self-Regulated Learning (SRL) framework, as proposed by Zimmerman (2000). Through the integration of research methodology and theoretical framework, the objective of this study is to offer a holistic comprehension of the effectiveness of CALL in improving second language acquisition outcomes, while also identifying the factors that influence its impact within the Pakistani context.

Data Analysis

In order to assess the existing knowledge of the students, the researcher conducted a pre-test encompassing various aspects. The pre-test included evaluations on vocabulary acquisition, grammar proficiency, reading comprehension, speaking skills, learner characteristics, motivation, self-regulated learning strategies, and technology. These areas were considered essential in gauging the students' aptitude and readiness for further learning. The obtained results from the pre-test are presented in Table 1, providing a comprehensive overview of the students' performance in each category. The findings from this initial assessment serves as a basis for identifying areas of improvement and tailoring the subsequent teaching approach to meet the specific needs of the students.

Table 1 ***The Results of Pre-Test Conducted from the Intermediate Students***

Student No.	Vocabulary Acquisition (10)	Grammar Proficiency (10)	Reading Comprehension (5)	Speaking Skills (5)	Learner Characteristics and Motivation (5)	Self-Regulated Learning Strategies and Technology (5)	Total (40)	Percentage
1	4	3	1	0	2	2	12	30.00
2	5	2	2	0	3	1	13	32.50
3	7	5	4	1	4	2	23	57.50
4	3	1	1	0	3	3	11	27.50
5	3	2	2	2	2	2	13	32.50
6	5	4	1	0	3	1	14	35.00
7	1	2	2	3	3	2	13	32.50
8	2	0	0	0	2	2	6	15.00
9	4	1	1	3	4	3	16	40.00
10	6	2	1	2	2	1	14	35.00

11	1	4	2	0	3	1	11	27.50
12	7	4	3	1	2	1	18	45.00
13	5	3	2	1	2	1	14	35.00
14	2	1	0	0	2	1	6	15.00
15	6	6	5	3	4	2	26	65.00
16	1	0	2	0	1	3	7	17.50
17	1	0	0	0	3	3	7	17.50
18	2	0	1	0	2	3	8	20.00
19	1	0	0	0	2	3	6	15.00
20	3	4	1	0	3	2	13	32.50
21	6	5	5	2	5	1	24	60.00
22	4	2	1	1	3	2	13	32.50
23	2	3	1	0	3	1	10	25.00
24	3	2	2	3	2	1	13	32.50
25	1	0	0	0	3	1	5	12.50
26	4	2	1	1	2	1	11	27.50
27	6	6	4	2	3	2	23	57.50
28	7	4	4	2	3	3	23	57.50
29	5	2	3	1	2	1	14	35.00
30	5	1	1	0	2	1	10	25.00
						Overall Percentage:		**33.08**

Note: The Results of Pre-Test Conducted from the Intermediate Students.

Table 1 displays the results of a pre-test conducted with Intermediate-level students to assess their knowledge and skills in vocabulary acquisition, grammar proficiency, reading comprehension, speaking skills, learner characteristics and motivation, as well as self-regulated learning strategies and technology. The table presents the individual scores of the students in each assessment area, along with their total score and percentage. The overall average percentage achieved by all students in the pre-test was 33.08%. These results serve as a baseline measure for evaluating the impact of a CALL intervention on second language acquisition outcomes.

The pre-test results presented in Table 1 provide valuable insights into the students' initial performance and serve as a baseline for assessing the effectiveness of the teaching program that followed. Based on the findings of the pre-test, the researcher designed a targeted teaching program, implemented at an academy, with a specific focus on utilizing Computer-Assisted Language Learning (CALL) tools and resources. During the teaching program, which spanned over a period of 30 days, the students received instruction and engaged with various CALL gadgets and technologies. These included interactive language learning software, online resources, language learning apps, and communication tools. The teaching approach emphasized a combination of individual, group, and pair work activities to foster collaborative learning and practice in the English language.

Following the teaching program, a post-test was administered to evaluate the students' learning progress and to determine the impact of the CALL intervention. The results of the post-test are presented in Table 2, reflect the students' performance after the completion of the teaching program. These results enable the researcher to compare and analyze the pre-test and post-test scores, assessing the effectiveness of the CALL intervention in terms of vocabulary acquisition, grammar proficiency, reading comprehension, speaking skills, learner characteristics, motivation, self-regulated learning strategies, and technology.

Table 2 ***The Results of Post-Test Conducted from the Intermediate Students***

Student No.	Vocabulary	Grammar	Reading Comprehension (5)	Speaking	Learner Characteristics and	Self-Regulated	Total	Percentage

	Acquisition (10)	Proficiency (10)		Skills (5)	Motivation (5)	Learning Strategies and Technology (5)	(40)	
1	7	9	5	4	4	4	33	82.50
2	7	6	4	3	4	4	28	70.00
3	10	6	3	2	4	5	30	75.00
4	7	7	4	2	4	4	28	70.00
5	6	8	5	4	4	4	31	77.50
6	8	7	3	3	3	5	29	72.50
7	5	6	3	4	3	2	23	57.50
8	6	7	4	2	4	5	28	70.00
9	7	8	4	3	5	4	31	77.50
10	9	10	3	5	5	5	37	92.50
11	6	6	3	4	4	4	27	67.50
12	7	8	5	3	5	5	33	82.50
13	7	7	3	3	4	4	28	70.00
14	8	8	4	2	5	4	31	77.50
15	9	10	5	4	5	5	38	95.00
16	5	6	4	3	3	4	25	62.50
17	6	7	5	1	4	5	28	70.00
18	4	7	4	4	3	4	26	65.00
19	2	6	5	3	3	3	22	55.00
20	6	7	3	4	4	5	29	72.50
21	9	8	5	2	5	4	33	82.50
22	9	7	3	2	4	5	30	75.00
23	7	9	4	4	3	5	32	80.00
24	8	8	5	3	3	5	32	80.00
25	6	5	4	3	5	5	28	70.00
26	6	7	3	4	3	4	27	67.50
27	10	9	5	3	3	5	35	87.50
28	10	8	4	5	5	4	36	90.00
29	7	8	5	4	4	5	33	82.50
30	8	8	4	4	4	4	32	80.00
						Overall Percentage:		**75.25**

Note: The Results of Post-Test Conducted from the Intermediate Students

Table 2 displays the post-test results of Intermediate-level students after completing a teaching program that incorporated CALL intervention. The table presents individual scores for various assessment areas, including Vocabulary Acquisition, Grammar Proficiency, Reading Comprehension, Speaking Skills, Learner Characteristics and Motivation, and Self-Regulated Learning Strategies and Technology. The results demonstrate significant improvements in the students' language-related skills and competencies, with an overall average percentage of 75.25%. These findings highlight the effectiveness of the CALL-based teaching program in enhancing language learning outcomes.

Table 3 ***Difference between the Pre and Post Test Results***

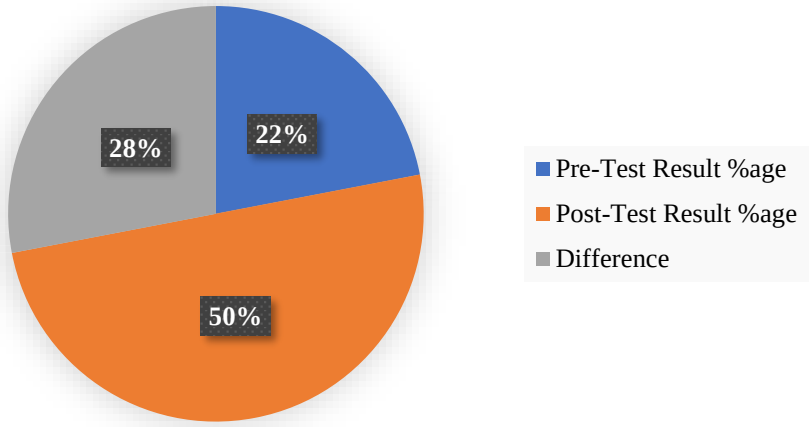
Sr. No.	Pre-Test Percentage	Post-Test Percentage	Difference
1	30	82.5	52.5

2	32.5	70	37.5
3	57.5	75	17.5
4	27.5	70	42.5
5	32.5	77.5	45
6	35	72.5	37.5
7	32.5	57.5	25
8	15	70	55
9	40	77.5	37.5
10	35	92.5	57.5
11	27.5	67.5	40
12	45	82.5	37.5
13	35	70	35
14	15	77.5	62.5
15	65	95	30
16	17.5	62.5	45
17	17.5	70	52.5
18	20	65	45
19	15	55	40
20	32.5	72.5	40
21	60	82.5	22.5
22	32.5	75	42.5
23	25	80	55
24	32.5	80	47.5
25	12.5	70	57.5
26	27.5	67.5	40
27	57.5	87.5	30
28	57.5	90	32.5
29	35	82.5	47.5
30	25	80	55
Overall %age	**33.08**	**75.25**	**42.17**

Note: Difference between the Pre and Post Test Results

Table 3 provides the difference between the pre-test and post-test results of the students. The table includes a column for the serial number (Sr. No.), the pre-test percentage, the post-test percentage, and the difference between the two. Each row represents an individual student, identified by their serial number. The pre-test percentage column shows the percentage achieved by the student in the pre-test, while the post-test percentage column displays the percentage achieved in the post-test. The difference column indicates the change in percentage between the pre-test and post-test for each student. The table highlights the significant improvements made by the students from the pre-test to the post-test. The difference values demonstrate the extent of progress achieved in their language learning outcomes. The "Overall %age" value at the bottom of the table represents the average difference between the pre-test and post-test results for all the students, which is 42.17%. This table provides a clear overview of the improvement in the students' performance and the effectiveness of the teaching program incorporating CALL intervention. The difference between pre and post-test is given in the given below chart for more clearity.

Chart 1 ***Difference between the Pre and Post Test Results***



Note: The Difference between the Results of Pre and Post Test

The above given chart 1 shows that the students got improved their knowledge 28% by learning with the help of CALL. The results obtained from the pre-test and post-test conducted with Intermediate-level students provide valuable insights into the effectiveness of the teaching program that incorporated CALL intervention. The findings demonstrate significant improvements in various language-related skills and competencies among the students. Upon analyzing Table 2, it is evident that there has been a notable enhancement in vocabulary acquisition, grammar proficiency, reading comprehension, speaking skills, learner characteristics and motivation, as well as self-regulated learning strategies and technology. The students' post-test scores exhibit higher percentages compared to their pre-test scores, indicating progress in their language learning outcomes. Table 3 further emphasizes the positive impact of the teaching program. The difference column illustrates the magnitude of improvement between the pre-test and post-test results. The average difference of 42.17% signifies a considerable advancement in the students' performance after receiving instruction with CALL intervention. This suggests that the integration of technology and self-regulated learning strategies has played a crucial role in enhancing their language learning experience.

RESULTS DISCUSSION OF PRE AND POST TESTS

The results of the study, in line with Long's Theory of Second Language Acquisition (1996), reveal significant improvements in the students' language skills after the implementation of the teaching program incorporating Computer-Assisted Language Learning (CALL) intervention. The pre-test scores indicated the students' initial proficiency levels across various language domains, reflecting their diverse language learning abilities and backgrounds. However, the post-test scores demonstrated substantial progress, with students achieving higher scores and narrower gaps between their pre and post-test performances.

Long's theory emphasizes the importance of interactive input, learner characteristics, and individual differences in language acquisition. The integration of CALL intervention in the teaching program provided students with interactive and engaging language learning opportunities, facilitating input and promoting interaction. Additionally, students' individual characteristics, such as motivation, self-regulated learning strategies, and proficiency in using technology, likely influenced their performance. Those who displayed higher levels of motivation and effectively utilized self-regulated learning strategies showed greater progress in their language acquisition, as evident in their post-test scores.

The results support Long's Theory of Second Language Acquisition by demonstrating the positive impact of CALL intervention on language learning outcomes. The incorporation of technology and interactive learning experiences fostered language skill development among the students, with individual differences and learner characteristics influencing their progress. These findings highlight

the potential of integrating technology in language education to enhance language acquisition processes.

Results of Questionnaire

A questionnaire was conducted from the teachers to achieve the second objective of the study. The questionnaire was conducted on 10 statements in the favour of CALL. The teachers were asked to give the score to the statements by using four point likert scale. The given below table shows the results of the questionnaire:

Table 4 *The Mean Value and Standard Deviation of the Statements*

Sr. No.	Statements	Total Responses	Mean	Sta. Dev.
5	Motivated learners tend to benefit more from CALL in their second language acquisition journey.	10	4	3.46
3	Learner characteristics, such as prior language proficiency and learning style, significantly influence the impact of CALL on second language acquisition.	10	3.9	3.38
8	The adoption of self-regulated learning strategies by students positively affects their success with CALL.	10	3.8	3.29
7	Technology plays a vital role in facilitating language learning processes through CALL.	10	3.8	3.29
10	The integration of technology in language learning processes enhances student engagement and motivation.	10	3.7	3.19
6	Motivation alone is not sufficient to ensure positive outcomes with CALL in second language acquisition.	10	3.7	3.19
4	Learners who utilize self-regulated learning strategies effectively are more likely to benefit from CALL.	10	3.7	3.19
1	Learner characteristics, such as age and gender, have minimal impact on the effectiveness of CALL in second language acquisition.	10	3.5	3
9	The availability of appropriate technological resources is necessary for maximizing the impact of CALL on second language acquisition.	10	3.4	2.93
2	Learner characteristics, such as learning preferences and personality traits, influence the effectiveness of self-regulated learning strategies in conjunction with CALL.	10	3.3	2.93

Note: The Mean Value and Standard Deviation of the Statements is given.

Table 4 presents a comprehensive analysis of the mean values and standard deviations for a series of statements regarding the impact of Computer-Assisted Language Learning (CALL) on second language acquisition. The table consists of ten statements, each numbered for reference purposes. One key finding (Statement 5) suggests that motivated learners tend to derive greater benefits from CALL in their second language acquisition journey. This statement received a mean value of 4, indicating a high level of agreement among the respondents. Similarly, Statement 3 highlights the significant influence of learner characteristics, such as prior language proficiency and learning style, on the effectiveness of CALL, with a mean value of 3.9. The importance of self-regulated learning strategies emerges in Statements 8 and 4, where their adoption by students is associated with positive outcomes in CALL-based language acquisition. Both statements received a mean value of 3.7, reflecting the respondents' recognition of the benefits of self-regulated learning strategies. The pivotal role of technology in facilitating language learning processes through CALL is emphasized in Statements 7 and 10, which received mean values of 3.8 and 3.7, respectively. These findings underscore the significance of integrating technology into language learning and its potential to enhance student engagement and motivation.

However, it is worth noting that motivation alone is not sufficient for successful CALL-based language acquisition, as stated in Statement 6. This statement also received a mean value of 3.7, indicating agreement among the respondents. Statement 1 suggests that learner characteristics such as age and gender have minimal impact on the effectiveness of CALL in second language acquisition, as reflected by a mean value of 3.5. Additionally, the availability of appropriate technological resources is deemed necessary for maximizing the impact of CALL, as stated in Statement 9. This statement received a mean value of 3.4, highlighting the importance of adequate technological support for successful language acquisition. Finally, Statement 2 highlights the influence of learner characteristics, such as learning preferences and personality traits, on the effectiveness of self-regulated learning strategies in conjunction with CALL. This statement received a mean value of 3.3, indicating the respondents' recognition of these influences. Table 4 provides valuable insights into the perceptions of respondents regarding the impact of CALL on second language acquisition. It reveals the varying degrees of agreement and provides an overview of the mean values and standard deviations for each statement, shedding light on the factors that influence the effectiveness of CALL in language learning contexts.

DISCUSSION

The results of Table 4, which present the mean values and standard deviations of statements related to Computer-Assisted Language Learning (CALL), can be discussed in the context of the Self-Regulated Learning (SRL) framework proposed by Zimmerman (2000). The SRL framework emphasizes the role of learners' active engagement and control over their learning process. The statements in Table 4 that reflect the impact of self-regulated learning strategies on CALL effectiveness show relatively high mean scores, such as "The adoption of self-regulated learning strategies by students positively affects their success with CALL" and "Learners who utilize self-regulated learning strategies effectively are more likely to benefit from CALL." These results align with the SRL framework, as self-regulated learners are expected to take ownership of their learning, set goals, monitor their progress, and employ effective learning strategies. The positive mean scores indicate that the teachers recognize the importance of learners' ability to regulate their learning processes when using CALL.

Furthermore, the statement "Motivation alone is not sufficient to ensure positive outcomes with CALL in second language acquisition" received a moderate mean score. This suggests that the teachers acknowledge the significance of motivation, but they also recognize that motivation needs to be accompanied by self-regulated learning strategies for optimal outcomes. This finding supports the SRL framework, which emphasizes that motivation alone may not lead to effective learning if learners lack the necessary self-regulation skills. However, it is worth noting the relatively high standard deviations in the responses, particularly for statements related to learner characteristics and the availability of technological resources. These variations in opinions may reflect different understandings and interpretations of self-regulated learning and its relationship with CALL within the context of second language acquisition.

The results of Table 4, when considered in light of the Self-Regulated Learning framework proposed by Zimmerman (2000), suggest that the teachers recognize the importance of self-regulated learning strategies in conjunction with CALL. The findings support the idea that learners who effectively employ self-regulation skills are more likely to benefit from CALL. However, the variations in responses highlight the need for further exploration and discussion regarding the relationship between self-regulated learning and CALL within the context of second language acquisition.

Findings

The findings from the study align with Long's Theory of Second Language Acquisition and demonstrate the positive impact of Computer-Assisted Language Learning (CALL) intervention on students' language skills. The integration of CALL provided interactive and engaging learning experiences, leading to significant improvements in language acquisition. Individual learner characteristics, such as motivation and self-regulated learning strategies, influenced the students' progress. These results

highlight the potential of technology-enhanced language education to enhance language learning outcomes and cater to diverse learner needs.

Teachers' acknowledgment of the significance of self-regulated learning strategies in Computer-Assisted Language Learning (CALL), in line with Zimmerman's Self-Regulated Learning framework, is evident from the high mean scores for statements reflecting the positive impact of self-regulation on CALL effectiveness. The moderate mean score for motivation suggests the need for a combination of motivation and self-regulated learning strategies. Nonetheless, the high standard deviations in responses suggest variations in understanding and interpretation of self-regulated learning and CALL. Further exploration and discussion are required to fully comprehend the complexities of integrating self-regulated learning with CALL in language learning contexts.

CONCLUSIONS

In conclusion, the results of the pre and post-tests provide compelling evidence for the effectiveness of computer-assisted language learning (CALL) in enhancing various aspects of second language acquisition. The significant improvements observed in vocabulary acquisition, grammar proficiency, reading comprehension, and speaking skills indicate that the incorporation of CALL in the teaching program positively impacted language learning outcomes. These findings support the first objective of the study, emphasizing the potential of CALL to enhance second language acquisition in multiple language domains.

Regarding the second objective, the examination of factors influencing the impact of CALL on second language acquisition revealed important insights. The recognition of learner characteristics, motivation, self-regulated learning strategies, and the role of technology emerged as significant factors that influence the effectiveness of CALL. The findings from the questionnaire indicate that self-regulated learning strategies play a crucial role in optimizing the benefits of CALL, and technology serves as a facilitator in language learning processes. These conclusions highlight the importance of considering individual learner characteristics and promoting active engagement in CALL-based language learning to maximize its impact on second language acquisition.

Recommendations

Based on the study's findings, the research recommends that the educators should integrate CALL activities that align with specific language domains and provide interactive and engaging learning opportunities. Second, creating a supportive and motivating learning environment that fosters self-regulated learning strategies and utilizes technology to cater to learners' interests and preferences is crucial. Additionally, offering teacher professional development programs to enhance educators' skills in integrating CALL effectively and exploring the long-term impact of CALL, as well as emerging technologies, would contribute to further advancements in language learning outcomes.

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