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El papel de los patrones CALL en la promoción del aprendizaje del idioma inglés en estudiantes de ingeniería

The Role of CALL Patterns in Promoting English Language Learning in Engineering Students

O papel dos padrões CALL na promoção da aprendizagem da língua inglesa em estudantes de engenharia

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Resumen

Este estudio examina el papel de los patrones CALL en la promoción del aprendizaje del idioma inglés en estudiantes de ingeniería. La investigación aborda la variabilidad en el dominio del inglés entre los estudiantes de educación superior y los desafíos que enfrentan aquellos en campos técnicos debido al acceso limitado a los recursos académicos en inglés. Centrándose en estudiantes de Ingeniería de la Universidad de Guayaquil, el estudio investiga las percepciones de estudiantes de inglés de séptimo nivel sobre las metodologías CALL y su relevancia en el entorno de aprendizaje. Utilizando un enfoque cualitativo, la investigación analiza las respuestas de la encuesta de 88 estudiantes y 21 entrevistas a maestros para identificar patrones en la implementación de CALL. Los hallazgos revelan diversas percepciones sobre la utilidad de las computadoras en el aprendizaje de idiomas y la efectividad de las estrategias CALL. La disponibilidad de recursos tecnológicos y la preocupación por la excesiva dependencia de las herramientas multimedia también surgen como cuestiones importantes. El estudio enfatiza la necesidad de enfoques CALL personalizados, la integración equilibrada de la tecnología y la interacción docente, y la asignación estratégica de recursos en los hogares y en las universidades para mejorar los resultados del aprendizaje de idiomas para los estudiantes de ingeniería..

Palabras Claves: Aprendizaje de Idiomas Asistido por Computadora (CALL); estudiantes de ingeniería; Percepciones de los estudiantes; Recursos tecnológicos.

Abstract

This study examines the role of CALL patterns in promoting English language learning in engineering students. The research addresses the variability in English proficiency among students in higher education and the challenges faced by those in technical fields due to limited access to English-language academic resources. Focusing on Engineering students at the University of Guayaquil, the study investigates the perceptions of seventh level English students about CALL methodologies and their relevance in the learning environment. Using a qualitative approach, the research analyzes survey responses from 88 students and 21 teacher interviews to identify patterns in CALL implementation. The findings reveal diverse perceptions about the usefulness of computers in language learning and the effectiveness of CALL strategies. The availability of technological resources and concerns about excessive reliance on multimedia tools also emerge as

important issues. The study emphasizes the need for personalized CALL approaches, the balanced integration of technology and teacher interaction, and the strategic allocation of resources in homes as well as in universities to improve language learning outcomes for engineering students.

Key Words: Computer Assisted Language Learning (CALL); Engineering students; Student perceptions; Technological resources.

Resumo

Este estudo examina o papel dos padrões CALL na promoção da aprendizagem da língua inglesa em estudantes de engenharia. A pesquisa aborda a variabilidade na proficiência em inglês entre estudantes do ensino superior e os desafios enfrentados por aqueles que trabalham em áreas técnicas devido ao acesso limitado a recursos acadêmicos em língua inglesa. Com foco nos estudantes de Engenharia da Universidade de Guayaquil, o estudo investiga as percepções dos estudantes de inglês do sétimo nível sobre as metodologias CALL e sua relevância no ambiente de aprendizagem. Utilizando uma abordagem qualitativa, a pesquisa analisa respostas de pesquisas de 88 alunos e 21 entrevistas com professores para identificar padrões na implementação do CALL. As descobertas revelam diversas percepções sobre a utilidade dos computadores na aprendizagem de línguas e a eficácia das estratégias CALL. A disponibilidade de recursos tecnológicos e as preocupações com a dependência excessiva de ferramentas multimédia também surgem como questões importantes. O estudo enfatiza a necessidade de abordagens CALL personalizadas, a integração equilibrada de tecnologia e interação entre professores, e a alocação estratégica de recursos em residências, bem como em universidades, para melhorar os resultados de aprendizagem de idiomas para estudantes de engenharia.

Palavras-chave: Aprendizagem de línguas assistida por computador (CALL); Estudantes de engenharia; Percepções dos alunos; Recursos tecnológicos.

Introduction

English language proficiency among higher education students, especially in Latin America, shows wide variability. While some students have a solid command of the language, others face significant difficulties, especially in university majors related to the technical or scientific field.

Currently, limited access to academic materials in English, such as textbooks, scientific articles, and online resources, represents a significant challenge for university students' learning. This limitation hinders their ability to obtain relevant and up-to-date information in their areas of study. Furthermore, it restricts your participation in research and academia internationally, which can limit your opportunities for professional growth and networking.

In the field of Industrial Engineering that will be the object of our study, students must have a solid command of English, adapted to their professional field. However, we face significant challenges in terms of infrastructure and the approach to teaching this language in college. Since there is a lack of an English laboratory and adequate technological equipment to teach the subject in person. Instead, English is taught virtually, making it difficult for teachers to interact, and support students. This limitation impairs the learning process and can make it difficult to develop the language skills necessary for your future professional career.

To carry out our study, we will focus on analyzing the students of the last level or course of English within the curriculum of the Faculty of Industrial Engineering. This career has an average of 2000 students, distributed in eight levels with around 200 students enrolled in each one. Each level is subdivided into parallels, consisting of approximately 40 to 60 students.

In this context, it is crucial to investigate the learning patterns of seventh-level students of Engineering English. Moreover, analyze how students learn English without a face-to-face environment and the direct support of the teacher. It will also reflect on engineering students' perceptions of the usefulness and relevance of computer-assisted language learning (CALL) programs.

Through this study, it seeks to identify the patterns that emerge in virtual English language learning classrooms using computer-assisted instruction. The findings will contribute to the identification of teaching strategies that promote the implementation of adequate technological resources in the Faculty of Industrial Engineering and will provide students with more complete training according to the needs of the current job market.

Theoretical framework

a. Technology in the teaching of the English language.

How to take advantage of technology in English language education has attracted much debate and academic attention (Dizon, 2021; Hazaea et al., 2021), especially when studying the different technological tools for learning, such as the use of streaming videos, or the use of mobile device applications (Haerazi et al., 2020), as well as the use of audio-description applications to promote accuracy and fluency in oral production (Moreno & Vermeulen, 2015).

The use of technology in language teaching has experienced a rapid expansion in recent decades. The integration of computers, mobile devices, applications, and platforms in the English classroom has made it possible to create interactive, accessible learning environments enriched with multimedia resources that facilitate language acquisition. Technology can be classified into four types: communicative, informational, constructive, and situational (Chen & Hwang, 2020; Lim & Tay, 2003).

Informational technology has been used to provide access to information in various formats, such as video, sound, and text (Lim & Tay, 2003). Situational technologies are useful for immersing users in a simulated environment so that they can have a vivid and engaging experience (Aldossari & Alsuhaibani, 2021). Likewise, constructive technology refers to the tools that facilitate the processing of information, the construction of knowledge, and the visualization of learning and self-understanding (Zlatkovska, 2010). Lastly, communication tools are applications or systems that mediate teacher-student communication and student-student interaction in virtual space (Liang, 2023).

This integration encompasses various digital tools, online platforms, software, and applications that enhance language learning experiences. According to Fitzpatrick in his book where he analyzes through a study of the art, needs, and perspectives of English as a second language, he indicates that Informational technology and communication are the most relevant to learning (Fitzpatrick, 2004).

b. CALL as a methodology for learning the English language.

Computer-Assisted Language Learning (CALL) is an educational approach that integrates information and communication technologies to improve the teaching and learning process of the

English language (Veloso, 2014). Chapelle and Özeron have studied different CALL methodologies, analyzing a variety of approaches and the use of different tools that can facilitate the acquisition of the English language and improve students' language skills (Chapelle, 1996; Özeron, 2009).

One of the methodologies such as information technology focuses on the use of ICT as a tool for learning English, we have the use of used mobile and desktop applications designed specifically for learning the English language to offer an interactive and personalized way to practice vocabulary, grammar, listening comprehension, and other language skills (Paudel, 2021). Furthermore, as portable technologies get smaller, they become less expensive, lighter, and more powerful, and have the potential to become a more integral part of language learning courses rather than the more complementary function that is often assigned to computer labs (Kiernan & Aizawa, 2004; Meurant, 2007; Stockwell, 2007).

Another tool is the use of online learning platforms, which provide structured courses and multimedia resources for the autonomous study of English, allowing students to learn at their own pace and access a wide range of materials (Crosthwaite, 2020; Gilmore, 2009). Likewise, online interactive educational games can motivate students to practice English while having fun, improving engagement and retention during learning (Godwin-Jones, 2014; Papastergiou, 2009).

Within communicative technology, we have: Online conversation tutorial tools are other tools used that provide opportunities to practice speaking and listening skills through interactions with native speakers or dialogue simulations (Dong & Lu, 2020; Poole, 2016). Virtual and augmented reality also allows students to interact with simulated environments and situations in English, which can enhance their ability to deal with real-life situations (Sydorenko et al., 2019; Zheng et al., 2022).

Paudel explored the roles and practices of information technology and tools used in 40 schools in Nepal. The results indicate that most teachers expressed a positive attitude towards the role of ICT tools in language teaching. Even though teachers used ICT in their classes, many felt uncomfortable using new technological tools and applications. The findings suggest that teachers need training to develop their skills, knowledge, and confidence in the effective use of ICT and to take advantage of its optimal benefits (Paudel, 2021).

Carrió-Pastor simulated a real-life situation, in which members of business organizations were required to collaborate on projects in geographically distant places through written interaction via

chat, in which students had to hone their English communication skills to be able to successfully collaborate on the set of tasks; where the teachers supervised the tasks, but the interaction of the activities was under the control of the students. The findings of this study suggest that language teachers can take advantage of the use of collaborative tools such as Google docs to design specific language learning opportunities. However, we are aware of the limitations of this work. It only provides a basis for further studies to help us examine the effectiveness of combined use of collaborative communication activities using technology (Carrió-Pastor & Skorczynska, 2015).

It is important to note that there is no single, universally superior methodology; the choice depends on the educational context, the needs of the students and the learning objectives. Combining elements and tools from different methodologies can be beneficial to offer a more complete and enriching learning experience. Likewise, the use of these methodologies has derived from various strategies that teachers have had to apply to teach English as a second language.

c. CALL patterns for learning English as a foreign language.

Computer-assisted learning patterns are strategies used to incorporate information and communication technology through a computer into the language learning process (Anwar & Husniah, 2016). These patterns seek to take advantage of technology to enhance language teaching and learning, either on its own or as a complement to traditional classroom instruction (Chapelle, 1996).

Among the patterns that have been developed to address different aspects of language learning through CALL, we have the one addressed by Santoso, where interactive exercises were used through the liveworksheets platform to assess 60 students, where the results showed that English language learning via live blog-based worksheet did not work as well as expected. Demonstrating that general problems arose from internet access infrastructure development, understanding of worksheet instructions, and data packet limitation (Santoso et al., 2023).

Likewise, we also have the use of specific web applications for language learning, such as Duolingo, Busuu, LingoDeer, Lyricstraining.com, and Lingro.com (Fees, 2021). Astarilla in the study of the perception of the use of Duolingo in 135 Indonesian university students, found that more than 80% of students saw that the tool is easy to use, its use is convenient since they can use the tool at any time, 89.6% had a positive attitude towards the use of Duolingo, since they felt

motivated to use the tool. However, some problems were also reported, such as excessive ads in the tool, or the lack of explanation related to grammatical structures (Astarilla, 2018).

Other related actions are the use of activities and evaluations in interactive programs or websites where the learning material is uploaded. Among these tools, according to Fees, we have Voicethread.com, Edpuzzle.com, Kahoot.com, Quizlet.com, Toontastic.com, Flipgrid.com, Google forms, Canva.com, Thinglink.com, Storyboardthat.com, Scrrencast-O-Matic.com, Nearpod.com y Bookcreator.com (Fees, 2021).

Berti, in his study of the influence of Kahoot on the reading ability of 50 engineering students at SEKAYU Polytechnic, found that the use of activities with the help of the tool significantly improved the reading ability of the students, especially in the vocabulary used. Also presented a significant difference between students who were taught using Kahoot and those who were not. Since the tool consists of four types of functions, including quizzes, discussions, polls, and assessments, making reading activities funnier, and motivating students in the learning process (Berti Artika, 2022).

The revised CALL patterns and strategies offer different approaches that allow enriching the process of learning English as a foreign language, adapting to different learning styles and individual needs of engineering students. It is important to highlight that the effective use of these patterns that are currently used in language learning will depend on the adequate integration with pedagogical approaches and the consideration of the specific characteristics of the group of learners.

Methodology

The paradigm of this study is a mixed type, applying a Concurrent Triangulation Design. In this approach, qualitative and quantitative data are gathered simultaneously, and the findings are compared to identify areas of agreement and disagreement. During the interpretation stage, the results are combined to offer a more thorough understanding of the study subject (Afshar & Ranjbar, 2023). This comparison helps to identify areas where the two types of data agree or disagree, by synthesizing the insights gained from both types of data (Ipek et al., 2022).

By collecting qualitative and quantitative data simultaneously, you can offer a more complete and robust analysis of how engineering students perceive understanding CALL patterns and

perspectives in their language learning process. This approach allows for a richer exploration of the topic and helps ensure that the findings are well-founded and reliable (Afshar & Ranjbar, 2023). The sample analyzed with a confidence level of 95%, and a margin of error of 7% is 88 students, the test method is at the convenience of the researcher (Otzen & Manterola, 2017) since it is determined to obtain the sample from the 160 students of the last level of English enrolled in the faculty of industrial engineering through a survey in the Forms office application, to analyze the methodologies of learning English in the participants.

The survey has been adapted from Özeron's study to evaluate the perception of CALL in primary school students (Özeron, 2009), where of the 75 questions of the 7 sections proposed by Özeron, 38 questions of 4 sections, were taken that referred to the objective of our study. The validity of the instrument was established through the expert judgment methodology (Medina Palencia, 2014), by teachers and researchers related to our study, the survey was validated in sufficiency, clarity, coherence, and relevance of it.

The survey aimed at students of the last level of English consists of 38 questions, which have been grouped into questions about their personal data with open answers, other questions were about the competence in the use of computers and perception of CALL strategies with answer options of both on a Likert scale, a fourth group of questions on the advantages and disadvantages of CALL with semi structured multiple-choice answers, it obtained an assessment using the Cronbach's Alpha formula (Quero Virla, 1997) of 0.88, considered very reliable. This instrument was made to the students through a google form.

From the survey, the information related to the categories that enunciated the perceptions of the CALL and the patterns of use for the process of teaching English as a second language is synthesized and categorized, as well as to know the perception of the advantages and disadvantages of the CALL on the part of the students. The answers obtained were tabulated for the analysis of the information collected.

The interview was carried out with 21 professors of the English area of engineering sciences of the University of Guayaquil, open questions adapted from the Özeron study were asked, which were extended from 6 to 8 questions that analyze the experience in the use of CALL, the strategies, and tools that they apply. This interview was conducted virtually through a Google form. Likewise, the

validity of the interview addressed to English teachers was calculated, obtaining the reliability of the instrument through Cronbach's Alpha of 0.84.

In this instrument aimed at teachers of English in the area of engineering, the answers are analyzed through a systematic review of the textual data obtained to identify patterns, strategies, and technological tools that teachers use to apply CALL in their classes with students of engineering. This analysis allows us to discover new knowledge of the studied methodology.

Results and Discussion

From the processing of the data obtained in the surveys of engineering students, general data such as gender, age, and the existence of a computer with an Internet connection are presented. It was found that the respondents are men: 64% and women: 36%, 79% between 19 and 24 years old and 21% older than 24 years. Likewise, all the students surveyed have their own computer.

All respondents have access to the Internet on their computer for English classes. On average, 56% have a high level of computer proficiency, while 4% describe having a low level of computer use. The rest indicate having moderate knowledge of the use of computers.

The findings discovered in the other sections of the survey are categorized by thematic areas which are: Computer Usage, Teaching through CALL, Technological resources, Tools used in the CALL, Students' perceptions of advantages and disadvantages of the use of CALL, and Teacher's perceptions about the use of CALL.

Computer Usage

Regarding the answers obtained in the section on the use of computers during the English learning process in three categories, we have that 74% strongly agree that the computer is a useful tool in language learning, but there is 28% that you are not sure. Likewise, 79% of students agree in general that the use of computers for activities and lessons in English helps them reduce their time. The results obtained are described in Table 1.

		SA	A	N	D	SD
	To learn English	36%	36%	14%	0%	14%

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Computer Use	To save time and effort in English lessons and activities	43%	36%	7%	0%	14%
	To improve English language learning	43%	21%	14%	7%	14%

Table 1. Results of computer use for learning English.

Teaching through CALL

57% of the students state that they agree with the CALL methodology compared to traditional methods, that is, 43% would prefer the commonly used methods. Likewise, 71% agree that technology improves the quality of learning. Likewise, it is observed that 21% indicate that the activities of the call are not contemplated in the level of studies. However, 72% consider that they agree that the call is pertinent in the use of classes for learning the English language. The results are observed in table 2.

		SA	**A**	**N**	**D**	**SD**
CALL in classes	It has advantages over traditional methods	36%	21%	21%	7%	14%
	Technology can improve the quality of student learning	57%	14%	14%	0%	14%
	Fits in with your class curriculum	36%	43%	7%	0%	14%
	Pertinent during activities in classes for learning English	36%	36%	0%	14%	14%

Table 2. Results of teaching through CALL during classes.

Technological resources

The technological resources to which they have access during English classes for the teaching of CALL in the institution of higher education were evaluated. Of those surveyed, 50% agree that the institution has the technological resources for the CALL application during English learning in

classes, 72% indicate that they have access to a computer during class while 28 % do not have access to this technological equipment during English class. Table 3 shows the results.

		SA	A	N	D	SD
Resources for CALL	The university where you study has enough computers to teach English through	29%	21%	21%	0%	29%
	During your class, you have access to the use of the computer	29%	43%	21%	0%	7%

Table 3. Results of perception of technological resources for the application of CALL.

Tools used in the CALL.

65% of students perceive that teachers use web tools that provide interactive, visual and sound representations for CALL implementation during classes, and 95% of respondents strongly agree that these tools are used for learning activities. reinforcement outside class hours in contact with the teacher.

15% of all students perceive that the tools are a substitute for the teacher and that it is useful for autonomous language learning, while the remaining 85% do not see it that way; 95% of the students indicate that the tools are used to learn in the vocabulary learning process, 56% for grammar and reading reinforcement processes, 35% for listening processes and 25% for listening, speaking and pronunciation processes . It should be noted that the students chose multiple answers regarding the use of the tools.

Likewise, during classes it is perceived that the use of these tools for learning speech and pronunciation is 54%, and the use to reinforce the lessons learned has a perception of 82%. Among the most used tools, students have pointed out that live worksheet links, game platforms, and language translation and repetition platforms are used.

Students' perceptions on advantages and disadvantages of the use of CALL

In this section, the percentages presented are calculated from the total number of respondents for each question evaluated in the advantages and disadvantages section of the survey, where a student could select several options that he perceives as an advantage or disadvantage of the CALL. At the same time, there were two open questions to indicate other options with advantages and disadvantages in addition to those presented in the multiple choice.

Among the advantages that the students selected, we can say that 90% think it makes the class more dynamic and attractive, thanks to the use of different technological tools. Likewise, 87% consider that it helps to develop language skills among students. 77% perceive that the tools of this methodology allow them to learn the language independently. 45% indicate that the use of this methodology helps to reduce anxiety during the process of learning English. And one of the advantages, although in a smaller selection, is that only 15% consider that it also allows them to interact with students from other cultures. According to the textual analysis of the open questions, we can indicate that the students perceived the use of CALL at home as an advantage.

Students also perceive certain disadvantages of the patterns used by their teachers during the teaching of English with the use of CALL. Where 80% of the respondents indicate that the tools used such as the websites do not have feedback regarding the language. 74% indicate that not having a support teacher makes learning difficult, especially when it comes to the use of technical vocabulary. They also indicate that these require an internet connection for use, so a good connection is required to use them.

Teacher's perceptions about the use of CALL

From the interview carried out with the professors who teach English in the engineering career at the University of Guayaquil, we obtained the following results:

The first topic analyzed was the level of preparation of the English teachers interviewed, where 11 of them were academically prepared to teach English, with master's degrees in English pedagogy. However, some of them have master's or bachelor's degrees in other areas but have English proficiency certifications or doctorates. It was also noted that in their careers or among their

preparation there are no specializations in the use of ICTs for teaching English, since 12 of them had no knowledge related to what the CALL approach is.

Of the teachers who have applied the methodology in their classes, most of them have applied it using interactive web page tools, although they also use, but less frequently, applications only for mobile use. Teachers also use CALL to help reinforce technical vocabulary, using tools that reinforce speaking, pronunciation and writing, submitting web page assignments as homework. Among the most used tools during class, teachers indicated that the use of interactive games in applications such as Kahoot has allowed vocabulary to be reinforced, since these games based on multiple-choice questions are prepared by the teachers themselves.

The results of the student surveys reveal a number of interesting patterns in relation to the implementation of CALL. First, it is clear that the majority of students surveyed have Internet access and demonstrate strong computer skills. This finding establishes a solid foundation for the successful introduction of CALL in English classes, since the necessary technological resources are widely accessible. However, the discussion about the usefulness of the computer in the learning process reveals a division among students. While a sizable group sees the computer as a valuable tool for learning, another segment representing 35% of students is skeptical. This variability may be due to differences in learning preferences, previous experiences, and individual expectations regarding language teaching. Therefore, it is essential that the CALL implementation be flexible and adaptable to meet the diverse needs of students.

In general, students positively perceive this methodology for learning English, since it allows them to interact with learning tools applying ICTs both on the computer and on certain mobile devices. Showing a greater affinity for visual, auditory, and interactive representations, suggesting that these tools can be effective in arousing interest and improving knowledge retention. However, there is some concern about the excessive dependence on these tools to the detriment of the role of the teacher. Likewise, students identify several advantages, such as the development of specific language skills, the dynamization of classes through interactive tools and the possibility of learning independently. These advantages are aligned with the technical nature of engineering students, who often appreciate structure and logic in learning. However, the disadvantages are also obvious. The lack of language-specific feedback is a common concern among students, highlighting the need to

develop effective strategies for providing personalized feedback. In addition, the dependence on a stable Internet connection to access the tools can limit the accessibility and comfort of learning.

The interview with the teachers provides valuable information about their preparation and perception regarding CALL, as well as knowing which are the tools and strategies that they apply during their classes. It should be noted that half of the teachers interviewed have master's degrees in English pedagogy, which indicates a significant level of academic training in language teaching. However, it is worrying that some of them are not familiar with the CALL methodology, which suggests the need for additional training in this field. In addition, it is observed that most of the teachers who use CALL do so mainly through online interactive tools such as Kahoot, liveworksheet, and online videos, which reinforces the importance of visual and auditory representations in the learning process.

From the student surveys and the interviews with teachers, it is evident that the perception of technological resources is analyzed. While some students feel that they have the necessary resources for the CALL application, others perceive limitations in the availability and quality of the tools. This discrepancy highlights the importance of teacher training and investment in technological infrastructure to ensure that resources are aligned with learning objectives. Furthermore, the discussion of the advantages and disadvantages of CALL underscores the importance of finding a balance between the use of technology and direct interaction with educators. Teachers have a critical role in providing language-specific feedback and addressing internet connection limitations.

Conclusions

This study provides an in-depth view of the perceptions and practices in the implementation of CALL in engineering students. The results reveal several patterns and tools that indicate both the potential and the challenges associated with this methodology. Students' perceptions of the usefulness of the computer in learning English vary, suggesting the importance of addressing their individual needs and expectations.

The CALL methodology is generally well-known among students, indicating a familiarity base that can be drawn upon for more effective implementation. However, the successful implementation of

CALL requires careful consideration of available technological resources and their alignment with educational objectives. It is crucial to provide access to interactive and multimedia tools that enrich the learning experience while maintaining a balance between teacher interaction and support.

The advantages of CALL, such as the development of specific language skills and the dynamization of classes, are evident and can be used to improve language teaching in technical environments. However, the disadvantages, such as a lack of language-specific feedback and a dependency on connectivity, need to be addressed through effective course design strategies and a focus on the quality of the user experience.

Ultimately, this study underscores the importance of careful and tailored implementation of CALL in language learning in engineering students. As technology continues to transform education, it is essential that educators find effective ways to integrate the role of CALL into their pedagogical approaches, taking advantage of its advantages and addressing its challenges to provide an enriching and effective learning experience.

In summary, the successful implementation of CALL requires a deep understanding of the needs and expectations of both students and teachers, as well as careful adaptation to these differences to maximize its effectiveness in learning English in the context of engineering.

References

Afshar, H. S., & Ranjbar, N. (2023). Mixed Methods Research in Applied Linguistics: The Status Quo of the Current Issues and Practices. Iranian Journal of Language Teaching Research, 11(1), 49–74. Https://Doi.Org/10.30466/Ijltr.2023.121272

Aldossari, S., & Alsuhaibani, Z. (2021). Using Augmented Reality in Language Classrooms: The Case of EFL Elementary Students. Advances in Language and Literary Studies, 12(6). Https://Doi.Org/10.7575/Aiac.Alls.V.12n.6.P.1

Anwar, K., & Husniah, R. (2016). Evaluating Integrated Task-Based Activities and Computer Assisted Language Learning (CALL). English Language Teaching, 9(4), 119–127. Https://Doi.Org/10.5539/Elt.V9n4p119

Astarilla, L. (2018). University Students' Perception Towards the Use of Duolingo Application in Learning English. Conference Proceedings Celscitech-Umri, 3.

Berti Artika, S. (2022). The Influence of Kahoot in Reading Skill of Informatics Engineering Students at Politeknik Sekayu - Repository Eprints. Http://Repository.Univ-Tridinanti.Ac.Id/4605/

Carrió-Pastor, M. L., & Skorczynska, H. (2015). Collaborative Learning and Communication Technologies in Teaching Business English. Procedia - Social and Behavioral Sciences, 178, 32–37. Https://Doi.Org/10.1016/J.Sbspro.2015.03.142

Chapelle, C. A. (1996). Call–English as A Second Language. Annual Review of Applied Linguistics, 16, 138–157. Https://Doi.Org/10.1017/S0267190500001483

Chen, M. R. A., & Hwang, G. J. (2020). Effects Of a Concept Mapping-Based Flipped Learning Approach on EFL Students' English-Speaking Performance, Critical Thinking Awareness and Speaking Anxiety. British Journal of Educational Technology, 51(3), 817–834. Https://Doi.Org/10.1111/Bjet.12887

Crosthwaite, P. (2020). Taking Ddl Online. Designing, Implementing, And Evaluating a Spoc on Data-Driven Learning for Tertiary L2 Writing. Australian Review of Applied Linguistics, 43(2), 169–195. Https://Doi.Org/10.1075/Aral.00031.Cro/Cite/Refworks

Dizon, G. (2021). Subscription Video Streaming for Informal Foreign Language Learning: Japanese EFL Students' Practices and Perceptions. Tesol Journal, 12(2). Https://Doi.Org/10.1002/Tesj.566

Dong, J., & Lu, X. (2020). Promoting Discipline-Specific Genre Competence with Corpus-Based Genre Analysis Activities. English For Specific Purposes, 58, 138–154. Https://Doi.Org/10.1016/J.Esp.2020.01.005

Fees, J. (2021). Free Digital Resources for Online Language Teaching, Learning, And Course Management. Https://Doi.Org/10.17613/Ypxn-P784

Fitzpatrick, A. (2004). Information And Communication Technologies in The Teaching and Learning of Foreign Languages: State-Of-The-Art, Needs and Perspectives; Analytical Survey. Https://Unesdoc.Unesco.Org/Ark:/48223/Pf0000139195

Gilmore, A. (2009). Using Online Corpora to Develop Students' Writing Skills. Elt Journal, 63(4), 363–372. Https://Doi.Org/10.1093/Elt/Ccn056

Godwin-Jones, R. (2014). Games In Language Learning: Opportunities and Challenges. Language Learning & Technology, 18(2), 9–19. Http://Llt.Msu.Edu/Issues/June2014/Emerging.Pdfhttp://Llt.Msu.Edu/Issues/June2014/Emerging.Pdf

Haerazi, Utama, I. M. P., & Hidayatullah, H. (2020). Mobile Applications to Improve English Writing Skills Viewed from Critical Thinking Ability for Pre-Service Teachers. International Journal of Interactive Mobile Technologies (Ijim), 14(07), 58–72. Https://Doi.Org/10.3991/Ijim.V14i07.11900

Hazaea, A. N., Rashad, W., Bin-Hady, A., & Toujani, M. M. (2021). Emergency Remote English Language Teaching in The Arab League Countries: Challenges and Remedies. Computer Assisted Language Learning Electronic Journal, 22(1), 207–229.

Ipek, O. F., Abant, B., & Mutlu, H. T. (2022). English Outside the Classroom in The Age of Technology: A Concurrent Triangulation Mixed Method Study. International Online Journal of Education and Teaching, 9(1), 104–122. Https://Orcid.Org/0000-0003-1921-3332

Kiernan, P. J., & Aizawa, K. (2004). Cell Phones in Task-Based Learning - Are Cell Phones Useful Language Learning Tools? Recall, 16(1), 71–84. Https://Doi.Org/10.1017/S0958344004000618

Liang, W. (2023). Towards A Set of Design Principles for Technology-Assisted Critical-Thinking Cultivation: A Synthesis of Research in English Language Education. Thinking Skills and Creativity, 47, 101203. Https://Doi.Org/10.1016/J.Tsc.2022.101203

Lim, C. P., & Tay, L. Y. (2003). Information And Communication Technologies (ICT) In an Elementary School: Students' Engagement in Higher Order Thinking. Journal Of Educational Multimedia and Hypermedia, 12(4), 425–452. Https://Go.Gale.Com/Ps/I.Do?P=Aone&Sw=W&Issn=10558896&V=2.1&It=R&Id=Gale%7ca115966473&Sid=Googlescholar&Linkaccess=Fulltext

Medina Palencia, Y. Y. (2014). El Video Como Estrategia Para La Enseñanza Del inglés. Escenarios, 12(2), 116. Http://Repositorio.Uac.Edu.Co/Handle/11619/1417

Meurant, R. C. (2007). L2 Digital Literacy: Korean EFL Students Use Their Cell Phone Videocams to Make an L2 English Video Guide to Their College Campus. Proceedings The 2007

International Conference on Intelligent Pervasive Computing, Ipc 2007, 169–173. Https://Doi.Org/10.1109/Ipc.2007.17

Moreno, A. I., & Vermeulen, A. (2015). Using Visp (Videos for Speaking), A Mobile App Based on Audio Description, To Promote English Language Learning Among Spanish Students: A Case Study. Procedia - Social and Behavioral Sciences, 178, 132–138. Https://Doi.Org/10.1016/J.Sbspro.2015.03.169

Otzen, T., & Manterola, C. (2017). Técnicas De Muestreo Sobre Una Población A Estudio. International Journal of Morphology, 35(1), 227–232. Https://Doi.Org/10.4067/S0717-95022017000100037

Özeron, G. (2009). Perceptions of EFL Primary School Teachers Towards Call. Çukurova University.

Papastergiou, M. (2009). Digital Game-Based Learning in High School Computer Science Education: Impact on Educational Effectiveness and Student Motivation. Computers & Education, 52(1), 1–12. Https://Doi.Org/10.1016/J.Compedu.2008.06.004

Paudel, P. (2021). Information And Communication Technology in Foreign Language Classes in English: Roles and Practices. International Journal of Technology in Education and Science, 5(1), 37–55. Https://Doi.Org/10.46328/Ijtes.179

Poole, R. (2016). A Corpus-Aided Approach for The Teaching and Learning of Rhetoric In An Undergraduate Composition Course For L2 Writers. Journal Of English for Academic Purposes, 21, 99–109. Https://Doi.Org/10.1016/J.Jeap.2015.12.003

Quero Virla, M. (1997). Confiabilidad Y Coeficiente Alpha De Cronbach. 12(2), 248–252.

Santoso, E., Negeri, S., Lampung, O., Pendidikan, D., Kebudayaan, D., & Lampung, P. (2023). Students' Perception on Blog-Based Liveworksheet in English Language Learning at Senior High School of Sport Lampung. 572–581. Https://Doi.Org/10.2991/978-2-38476-060-2_53

Stockwell, G. (2007). Vocabulary On the Move: Investigating an Intelligent Mobile Phone-Based Vocabulary Tutor. Http://Dx.Doi.Org/10.1080/09588220701745817, 20(4), 365–383. Https://Doi.Org/10.1080/09588220701745817

Sydorenko, T., Hellermann, J., Thorne, S. L., & Howe, V. (2019). Mobile Augmented Reality and Language-Related Episodes. Tesol Quarterly, 53(3), 712–740. Https://Doi.Org/10.1002/Tesq.507

Veloso, C. S. G. (2014). La Efectividad De Un Diseño CALL Para El Aprendizaje Del Resumen En Escolares. Literatura Y Lingüística, 30, 182–207. Https://Doi.Org/10.4067/S0716-58112014000200011

Zheng, C., Yu, M., Guo, Z., Liu, H., Gao, M., & Chai, C. S. (2022). Review of the Application of Virtual Reality in Language Education From 2010 To 2020. Journal Of China Computer-Assisted Language Learning, 2(2), 299–335. Https://Doi.Org/10.1515/Jccall-2022-0014

Zlatkovska, E. (2010). WebQuests as a Constructivist Tool in The EFL Teaching Methodology Class at a University in Macedonia. Corell: Computer Resource Language Learning, 3, 14–24.