

The Use of Chatbots in EFL Classroom: Literature Review¹

El uso de chatbots en el aula de inglés como lengua extranjera: Revisión de la literatura

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¹ Literature Review

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ABSTRACT: *This article presents a literature review on the implementation of artificial intelligence (AI) in higher education, focusing on the use of chatbots in teaching English as a Foreign Language (EFL). Despite persistently low levels of English proficiency in Colombia, which underscore the need for innovative pedagogical strategies, the use of AI-based tools such as chatbots in EFL classrooms remains underexplored in this context. This study aims to provide a scoping review of the existing literature on chatbot use in EFL classrooms, with particular emphasis on pedagogical applications and language learning outcomes, in order to inform future educational practices. A scoping review was conducted using an iterative approach to map the existing body of literature on this topic. The findings highlight the potential benefits of AI in EFL education, including increased student motivation, reduced anxiety associated with language learning, and improved conversational English skills through interactive and hands-on experience. The review also emphasizes the importance of developing ethical frameworks and institutional policies to guide their implementation of these technologies, as well as providing adequate training for educators to overcome the limitations that exist in the educational process. Finally, the study points out that in context such as Colombia, the implementation of chatbots faces technological and infrastructural challenges. Therefore, it is crucial for educators to adapt and develop effective strategies to integrate these tools into the classroom, maximising their benefits despite existing limitations.*

KEYWORDS: English as a foreign language (EFL); artificial intelligence (AI); chatbots; pedagogical applications; language learning outcomes; benefits and limitations.

RESUMEN: *Este artículo presenta una revisión de la literatura sobre la implementación de la inteligencia artificial (IA) en la educación superior, centrada en el uso de chatbots en la enseñanza del inglés como lengua extranjera (EFL, por sus siglas en inglés). A pesar de los persistentes bajos niveles de dominio del inglés en Colombia, que ponen de manifiesto la necesidad de estrategias pedagógicas innovadoras, el uso de herramientas basadas en IA, como los chatbots, en las aulas de EFL sigue siendo poco explorado en este contexto. Este estudio tiene como objetivo proporcionar una revisión exploratoria de la bibliografía existente sobre el uso de chatbots en las aulas de inglés como lengua extranjera, centrándose en las aplicaciones pedagógicas y en los resultados del aprendizaje de lenguas, con el fin de orientar futuras prácticas educativas. Se llevó a cabo una revisión de alcance utilizando un enfoque iterativo para mapear la literatura existente sobre el tema de investigación. La revisión destaca los beneficios potenciales de la IA en la educación EFL, entre ellos el aumento de la motivación estudiantil, la reducción de la ansiedad asociada al aprendizaje de idiomas y la mejora de las habilidades conversacionales en inglés a través de experiencias interactivas y prácticas. La revisión también enfatiza la importancia de desarrollar marcos éticos y políticas institucionales para guiar su implementación, así como de proporcionar formación adecuada a los docentes para superar las limitaciones presentes en el proceso educativo. Finalmente, el estudio señala que, en contextos como el colombiano, la implementación de chatbots enfrenta desafíos tecnológicos y de infraestructura, por lo que es crucial que los docentes se adapten y desarrollen estrategias efectivas para integrar estas herramientas en el aula, maximizando sus beneficios a pesar de las limitaciones existentes.*

PALABRAS CLAVE: Inglés como lengua extranjera (EFL); inteligencia artificial (IA); chatbots; aplicaciones pedagógicas; resultados en el aprendizaje de idiomas; ventajas y limitaciones.

1. INTRODUCTION

The field of education has incorporated Information and Communication Technologies (ICT) to enhance teaching and learning processes in response to globalization and emerging societal needs. The contemporary world is witnessing the emergence of a globalized society, driven by a confluence of factors such as cultural migration, the widespread use of English worldwide, technological advancement, and the increasing need for international communication (Santana & Betancourt, 2021). In this context, proficiency in English has become a fundamental requirement for effective participation in academic, professional, and social spheres worldwide. However, in Colombia the English proficiency of students remains low, representing a significant challenge for the country. Despite the efforts made by the educational system, such as the National Plan for Bilingualism, the low level of English is still a concern in most academic institutions in the country (Betancourt & de Sarmiento, 2024).

As a result, it is necessary to implement new strategies that help students achieve the English language outcomes proposed by bilingualism policies in Colombia. In this context, the emergence of AI in education has opened new possibilities, particularly through tools such as chatbots, which can support language interaction and performance in EFL classrooms.

From an educational perspective, the integration of technology in language learning has been linked to increased learner autonomy and meaningful interaction, which are key elements in communicative approaches to language teaching (Warschauer, 1996). In this sense, Chatbots have been regarded as agents that support language learning by facilitating real-time communication and personalized feedback. Previous research has shown that the implementation of chatbots is an effective way to foster the acquisition of a target language. Chatbots, defined as programs that use artificial intelligence algorithms to simulate human conversations, offer an opportunity to approach English language as a second language from a new perspective by providing personalized and adaptive interaction (Kumar, 2021). From a pedagogical perspective, these technologies have been associated with improvements in communicative competence and student engagement. Likewise, Holmes et al. (2025) remark that the application of AI in an educational context illustrates remarkable potential to enhance engagement and learning effectiveness by providing interactive support and a personalized learning experience.

However, despite the growing global interest in the use of chatbots for language learning, there is still a lack of comprehensive reviews examining their pedagogical impact, especially in contexts such as Colombia. This gap in the literature limits a deeper understanding of how these technologies can be effectively integrated into EFL teaching practices.

Therefore, this study aims to provide a literature review on the use of chatbots in EFL classrooms, focusing on their pedagogical applications, language learning outcomes, and implications for teaching practice.

A review of the existing literature identified 13 research articles conducted in Europe, Asia and Latin America. The findings reveal a gap in research related to implementation of chatbots to improve the English level of students in Colombia. This lack of local studies limits our understanding of the effectiveness and potential challenges of this strategy in the Colombian context.

The objective of this article is to provide a comprehensive documentary review of the existing literature on the implementation of chatbots in foreign language teaching. To achieve this objective, 13 articles were subjected to a critical analysis. This process allowed the researchers to identify similarities among the studies and determine the effects of chatbots on the academic community. The analysis led to the establishment of three categories: 1) the contributions of chatbots to students' learning processes; 2) the limitations of chatbots in the learning and teaching process; and 3) implications for teachers.

- Findings indicated that the use of chatbots in teaching English as a foreign language has a positive effect on second language learning, particularly in terms of motivation, anxiety reduction, communication skills, and autonomous learning. Chatbots not only have positive effects on the teaching and learning process but also present certain limitations, such as lack of cognitive presence and learners' lexical limitation when using vocabulary in context. However, the use of chatbots also poses several challenges, including the training of English teachers, the effective integration of ICT into the classroom, and equitable access to technological resources for incorporating these technologies into pedagogical practices.

2. THEORETICAL ASPECTS

2.1 TECHNOLOGY AS A TEACHING TOOL

Technology is a fundamental component of human development, and this article aims to delimit its importance and usefulness. The term *technology* derives from the Greek word *techne*, referring to art, technique, or crafts, and *logos*, meaning knowledge, discourse, or study (Mitcham, 1994). In this sense, technology encompasses the application of scientifically organized technical knowledge to create objects and artifacts that satisfy the needs of individuals and communities.

This definition suggests that technology has accompanied human progress throughout history. However, it must be understood in relation to the artificial, as the creation of human spaces is increasingly mediated by technology. In this regard, Solivéz (1991) states that “through technology, we transform the natural world by creating an artificial habitat, a technosphere that contains fewer unaltered natural elements. The process is not limited to the resolution of practical problems, which is the initial feature of techniques or technologies, but rather invades all fields of human activity” (p.4).

Technology can therefore be understood as the art of transforming the natural world into an artificial habitat that satisfies individual and social needs by facilitating and optimizing processes. In recent years, communication technology has experienced significant growth. According to UNESCO (1998), the rapid advancement of ICT has transformed the ways knowledge is constructed, acquired, and transmitted. Consequently, teachers must act as mediators and filters in the search for reliable and scientific knowledge (González et al., 2021).

In this context, Information and Communications Technologies (ICTs) refer to the set of resources, tools, equipment, computer programs, applications, networks, and media that enable the compilation, processing, storage, and transmission of information, including voice, data, text, video, and images (Law 1341, 2009, Art. 6). Based on these characteristics, ICTs can be considered an essential component of contemporary human experience, integrated into multiple aspects of daily life.

González et al. (2021) emphasize the importance of ICTs in the classroom, arguing that technology use has become a reality in educational contexts and has begun to challenge traditional teaching models. The impact of this evolution on the educational process is already

being perceived. Although the tools change, Cabero (2007) noted that new technologies have led to the use of different methodologies, resulting in changes in the field of didactics. This situation has transformed the teacher become a creator of new tools that facilitate the analysis, reflection, and study of education and technology.

The teacher’s role as a facilitator remains unchanged, as stated by Jiménez and Franco (2023), where students emphasized the importance of the teacher’s continuous presence and guidance, whether in person or virtually. Furthermore, González et al. (2021) state that the role of the English teacher is transformed by implementing new techniques, turning them into facilitators of the processes developed in the classroom, using information and communication technologies. This transformation seeks to ensure that students effectively develop their learning process.

The use of ICTs in classrooms is becoming increasingly prevalent and represents a significant evolution in teaching methods and learning processes. However, the implementation in Colombia remains limited due to government policies, geographical barriers, and insufficient economic support for the educational sector. Despite these challenges, teachers play a crucial role in expanding access to this technologies and adapting them to diverse educational contexts across the country.

Finally, it is concluded that technology constitutes a fundamental tool for transforming education. Its growth, particularly in communication, has changed how knowledge is acquired and transmitted, requiring teachers to act as mediators to ensure students’ learning processes. In the educational context, ICTs represents an evolution in teaching methods and learning processes. Teachers are required to become facilitators of learning processes through the appropriate use and application of technology. Despite the challenges in its implementation, teachers’ creativity, inventiveness, and resourcefulness can contribute to considering ICTs as a didactic and pedagogical tool in the classroom, positively impacting education.

2.2 COMMUNICATIVE SKILLS

The concept of communicative skills encompasses several perspectives, some of which are discussed in this section. Chomsky (1965) introduced the term *linguistic competence* to refer to “the abilities and dispositions for interpretation and performance”. However, this conception lacks elements that allow for a more precise

delimitation of communicative competencies. Hymes (1971) expanded on this definition, conceiving it as a communicative performance that meets the demands of the environment. Although Hymes's definition covers a significant part of communication, it overlooks the fundamental role of linguistics in this definition, which is crucial for teaching English as a second language. Piaget (1981) proposed the theory of cognitive development and the use of mental operations to explain the development of skills and communicative competencies in students. This theory considers the existence of abstract knowledge that intervenes in the psychomotor development of the student. In brief, communicative competencies refer to the ability and willingness of communicative actors to respond to the communicative demands of their environment, while considering the mental processes of everyone's development.

According to Reyzábal (2012), communicative competencies are the set of knowledge, skills, and abilities required for appropriate, correct, coherent, and aesthetic use of both oral and written communication. This includes comprehension and expression, analysis and synthesis, identification, comparison, creation, and recreation of messages. The focus is on listening and speaking, as well as reading and writing competently. In this idea, the author proposes that communicative competence involves the effective use of a complex system of interdependent languages and codes. This allows a subject to be in constant contact through multiple signs and signals, without discarding the main one, which is verbal language (oral and written). Therefore, communicative competence refers to the ability to communicate clearly, coherently, and appropriately in any communicative situation.

Finally, competence can be defined as an individual's comprehensive ability to effectively understand, produce, and interpret messages in various contexts and using different media.

2.3 ARTIFICIAL INTELLIGENCE

Artificial intelligence is a widely used concept, although it is not new. It has been part of academic and technological discourse for several decades; however, it has gained greater relevance in recent years due to its increasing presence in everyday life. John McCarthy introduced the term *artificial intelligence* at the Dartmouth conference and defined it as "the science and engineering of making intelligent machines, especially intelligent computer programs" (McCarthy, 1959). Since then,

the definition of artificial intelligence has evolved according to different contexts and theoretical perspectives. Currently, there are several definitions of AI. For instance, Russell and Norvig (2021), define artificial intelligence (AI) as a branch of computer science concerned with simulating intelligent behavior in machines, including their ability to imitate and, ideally, enhance aspects of human behavior. At its core, AI aims to develop systems that can learn from experience, adapt to new inputs, and perform tasks automatically without direct human intervention.

The field of artificial intelligence seeks to understand and replicate cognitive processes such as reasoning, learning, problem-solving, and decision-making, all based on computational models and algorithms. However, it is still widely considered that the cognitive component falls short when compared to the complexity and flexibility of human thinking. Significant advances have been made in machine learning algorithms and neural networks, particularly in the last decade. However, these systems still have limitations in terms of the breadth and depth of human thought. Yang (2022), recognizes this constraint, explaining that these systems remain highly limited as they lack comprehension of the true nature of the real world, as their training solely relies on extensive textual data.

AI encompasses a wide range of subfields, including machine learning and natural language processing (NLP). Machine learning develops algorithms that enable systems to learn from data and make predictions or decisions without written programming. NLP enables computers to understand, interpret, and generate human language intelligently. The integration of artificial intelligence and its subfields have facilitated its use in academia, medicine, training, and manufacturing industries.

2.4 CHATBOTS IN THE EFL CLASS

A chatbot is a computer program that simulates human conversations through text or voice interfaces. According to Akgun et al. (2021), chatbots are automated conversational agents that use natural language processing and machine learning algorithms to interact with users in a human-like manner. Chatbots are computer programs that use artificial intelligence algorithms and natural language processing to understand human questions, requests, and responses. For Garcia-Brustenga et al. (2018), define chatbots as computer programs that replicate human-like conversations through natural language structures.

Chatbots provide useful conversational interactions in various contexts, ranging from business efficiency to personalized assistance. Their main objective is to emulate human conversation while minimizing human intervention in communication. According to Holotescu and Holotescu (2016), automated conversational agents have become increasingly common because they are widely used to replicate customer service interaction in various domains. Chatbots are being created to meet the increasing demand and are used in various fields to replace human agents in completing tasks and providing social and emotional support. Fryer et al. (2019), chatbots can play the role of a tireless assistant, freeing humans from repetitive work. This ability to emulate and assist is transforming the way we interact with technology. As Bilquise et al. (2022) state, “conversational technologies are transforming landscape of human-machine” (p. 1).

In short, chatbots are conversational technologies that generate human-like interactions with the purpose of assisting users, simplifying tasks, and facilitating human-machine interaction.

3. METHODOLOGY

To better understand the literature related to the implementation of chatbots in the teaching of English as a foreign language (EFL), the researchers conducted a scoping review using an iterative approach. The objective was to map the existing literature on the research topic and identify gaps and potential areas for future research.

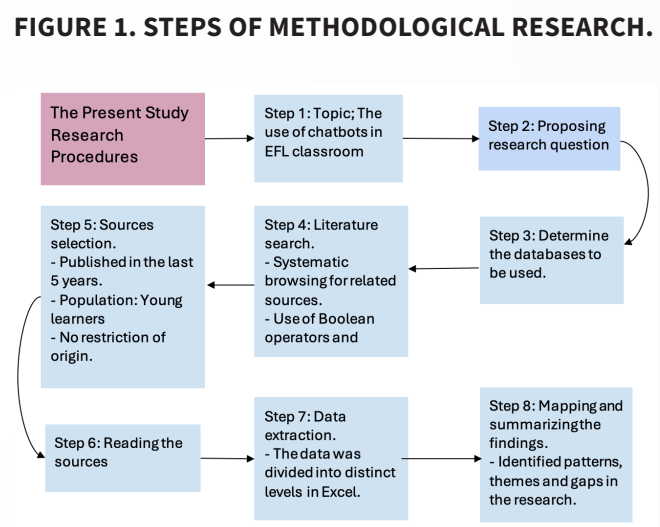
The researchers searched the Taylor & Francis database, REDIPE journals, and the academic search engine Google Scholar. The search was guided by Boolean operators and truncators strategies. All search results were reviewed independently by two researchers. Studies addressing the implementation of artificial intelligence in education, as well as related topics such as the use of technology in the classroom, were included.

A total of 22 articles addressing the use of chatbots for educational purposes were identified. However, only 13 studies were selected based on the following criteria: articles published within the last five years, studies focused on young learners of English as a foreign language, and studies involving English teachers. No restrictions were applied regarding country of origin.

The content of the selected articles was evaluated and synthesized in an Excel spreadsheet according to the following levels: article title, author name(s), citation, country of origin, year of publication, abstract, keywords, methodology, findings, and conclusion. Although no structured quality appraisal tool was not used, the studies were evaluated qualitatively based on their methodological clarity, sample characteristics, and the consistency and contribution of their findings to understanding to the chatbot use in EFL contexts.

To gain a deeper understanding of the sources and to identify categories, the researchers conducted a second reading of the sources. To achieve this, the color-coding method was employed, which enabled the researchers to identify similarities between the articles and ascertain the impact of chatbots on the academic community. The aforementioned steps are depicted in the accompanying graph.

FIGURE 1. STEPS OF METHODOLOGICAL RESEARCH.



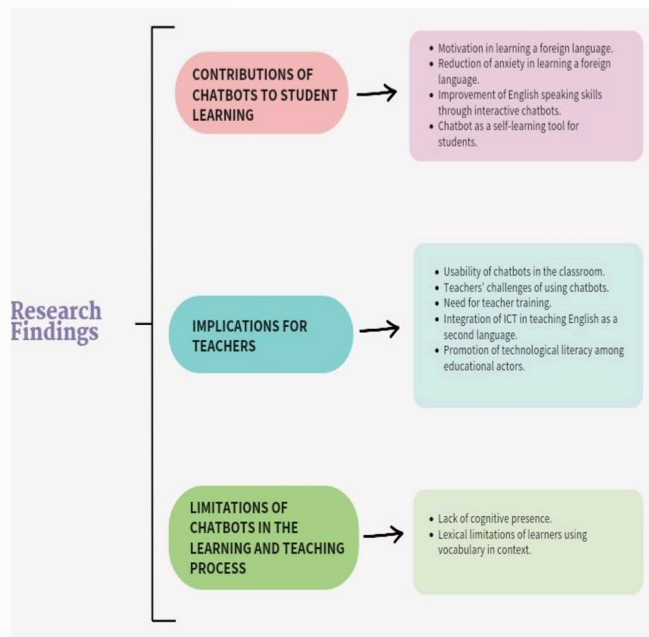
Note: The image shows a flow chart describing the steps of the research methodology using the iterative approach.

4. FINDINGS

This section presents a detailed literature review on the use of chatbots in the teaching of English as a foreign language (EFL). It considers studies published in the last five years, primarily in Asian countries such as Malaysia, South Korea, China, Taiwan, and Iran, that examine the use of these artificial intelligences in the educational context. This section presents a detailed analysis of the main findings of 13 selected studies, focusing on the perception, interaction, and limitations identified in the student population. It also summarizes the implications of using chatbots for teachers in terms of usability, adaptation, and challenges. No prior studies were found regarding

the implementation of artificial intelligence, specifically chatbots, in Colombia or Latin America. Therefore, further research on this topic is necessary for the continent. However, this review examines three studies conducted in Colombia and Mexico regarding the use of technology in the English classroom.

FIGURE 2. RESEARCH FINDINGS.



Note: The image shows the results found in this research regarding the use of chatbots in English language teaching.

4.1 CONTRIBUTION OF CHATBOTS TO THE LEARNING PROCESS FOR STUDENTS

Based on the research conducted on the use of chatbots, technology, and education, this section synthesizes the emerging findings from the 13 reviewed articles, with special emphasis on students' perceptions, interaction, and identified limitations. Recent studies show that the use of chatbots in foreign language learning has positive effects on motivation, anxiety reduction, communication skills, and self-directed learning.

4.2 MOTIVATION IN FOREIGN LANGUAGE LEARNING

Several studies have found that the implementation of technology, specifically chatbots, positively affects students' motivation and improves their English language learning experience. Through the use of chatbots, students can be more actively involved in knowledge exploration and integration. Additionally, chatbots may serve

as a motivational tools for language practice at home by providing more authentic exposure to the target language. In this regard, Chuah et al. (2021), state, "there is a huge potential of using chatbots to encourage ESL students to actively use the target language, as ESL learners tend to lack the chance to use them at home" (p. 11).

In the exploratory study conducted by Chuah et al. (2021), it was concluded from the information collected through the research instruments used, that is, online surveys and questionnaires with elements of the Likert scale and based on the theoretical framework Community of Inquiry (Col), that teachers' perception of the influence of chatbots on students' motivation to learn English was positive. After analyzing the data, it was evident that chatbots were perceived as tools that can increase opportunities for authentic language use, provide engaging activities that improve students' understanding, and have a wide catalog of useful resources. The above translates into a greater interest in getting involved in learning a second language.

4.3 ANXIETY REDUCTION IN FOREIGN LANGUAGE LEARNING

Anxiety has been widely addressed on research on learning processes, particularly in the teaching and learning of English. Learning English in a Spanish-speaking country can be challenging, as students may experience anxiety related to making mistakes, speaking incorrectly, or being evaluated by the teacher, who is often perceived as an authority figure. Previous research that has been carried out with the implementation of chatbots has shown that chatbots have greatly reduced the anxiety of students in Taiwan and China by offering a less threatening environment, as mentioned by Hsu et al. (2021), "It can be seen that TPBOT is a great assisted self-learning tool to help eliminate learners' anxiety about speaking foreign languages with foreigners" (p.10).

In the study conducted by Hsu et al. (2021), the central issue addressed was anxiety when speaking English as a foreign language. The authors proposed the implementation of an artificial intelligence chatbot called *TOEIC Practice Chatbot* (TPBOT) as a tool to help students reduce speaking anxiety and improve their English-speaking skills. This intervention was particularly related to preparation for the TOEIC (Test of English for International Communication), a standardized test that assesses English reading and listening comprehension skills in international workplace contexts.

The TPBOT chatbot used in the study was accessible through the LINE platform on students' mobile phones. It was equipped with an automatic correction system that allowed users to practice pronunciation and engage in dialogues with the chatbot. The researchers divided the participants into two groups: an experimental group and a control group. The experimental group used the chatbot for oral training over a four-month period, whereas the control group did not use the chatbot. After the implementation process and data analysis, the results showed a significant improvement in the oral expression scores of the experimental group compared with the control group. These results appeared to generate a sense of satisfaction and confidence among participants, which consequently contributed, to a reduction in anxiety when speaking English.

4.4 ENGLISH SPEAKING THROUGH INTERACTIVE CHATBOTS

The reviewed studies suggest that interactive chatbots can contribute to the development of English-speaking skills by providing students with additional opportunities for oral practice. Some students perceived a significant improvement in their daily use of chatbots, particularly in terms of interaction and fluency. However, lower-proficiency students showed varied results in final evaluations, suggesting that chatbots may function more effectively as practice tools than as stand-alone solutions for language learning (Yin & Star, 2020).

This difficulty acted as a form of feedback, allowing the student to understand how to pronounce a word properly. Furthermore, when chatbots are perceived as authentic conversational partners, students' interactions with them may become more natural and effective. These findings suggest that the integration of technologies such as chatbots can be a valuable tool for improving for improving communicative skills in a foreign language.

Studies have shown that chatbot use can support the development of speaking skills. Hsu et al. (2021) reported that "the students in the experimental group have effectively improved their English-speaking ability through interactive learning with TPBOT. In addition, their post-simulated test scores have also been significantly improved" (p.11). Participation with the TPBOT (Teacher's Personal Bot) has proven to be especially beneficial, as students experience a notable improvement in the accuracy of their oral expression, thanks to the immediate responses provided by the chatbot (p.11).

Overall, the findings related to improving speaking are that it encourages continuous practice of the language, encourages, and facilitates language exercises, allowing students to acquire a deeper understanding and greater fluency in English. Therefore, chatbots may support the development of communicative skills, especially speaking skills, in foreign language learning contexts.

4.5 CHATBOT AS AUTONOMOUS LEARNING

According to Huang et al. (2022), "chatbots can perform the function of learning partners outside the classroom" (p. 15). This suggests that chatbots may support and facilitate the learning process even when the student is not under the direct supervision of the teacher or physically present in the classroom. This is possible because chatbots can function as self-learning tools due to their accessibility, availability, and capacity to provide immediate feedback. Additionally, chatbots may reinforce and connect classroom content with real-life situations. In this regard, Essel et al. (2022) state that "using chatbots as a learning tool can help students connect what they are studying with real-world challenges, encouraging them to reason in-depth about their studies" (p. 14).

Furthermore, Huang et al. (2022) concluded that chatbots can serve as support tools for students who struggle with language learning content. This support may include clarification of concepts, resolution of doubts, daily language practice, and feedback. Chatbots may also fulfil two additional roles that promote self-learning: interlocution and transmission. As interlocutors, chatbots simulate human interaction and actively participate in conversations. This enables artificial intelligence to create an interactive and adaptable learning environment that promotes educational practice beyond the classroom.

5. LIMITATIONS OF CHATBOTS IN THE LEARNING AND TEACHING PROCESS

Previous studies have shown that the use of chatbots not only has positive effects but also presents certain limitations that should be examined in future research. These limitations include a lack of cognitive presence and comprehension difficulties caused by lexical constraints.

5.1 DEFICIENCY IN THE DEVELOPMENT OF COGNITIVE SKILLS

Chatbots are designed to function under patterns and operate using predefined algorithms; therefore, they

cannot adapt to the individual needs of the student, that is, they do not consider the student's context, they cannot provide emotional support, and they cannot encourage creativity. and innovation in the same way that a human being would do based on life experiences. Additionally, Chuah et al. (2021), concluded that "cognitive presence was perceived as lacking due to chatbots not being intelligent enough to prompt students to engage in deeper reflection" (p. 9). Thus, chatbots' ability to understand the deeper meaning of questions and generate answers that promote deep reflection may be limited.

In another instance, the research carried out by Huang et al. (2022) mentions that most of the research that focuses on the use of chatbots does not consider the quality in terms of cognitive learning but rather pays more attention to the number of interactions between students and chatbots. Therefore, researchers called for the importance of evaluating the nature and quality of these interactions in relation to language learning.

5.2 STUDENTS LEXICAL LIMITATIONS IN USING VOCABULARY IN CONTEXT

Chatbots may have difficulty contextualizing vocabulary within meaningful sentences and conversations because they often generate responses to specific prompts without fully considering the broader context or communicative situation. Students in their initial stages of foreign language acquisition may rely more on context to understand the meaning and use of words.

In the study carried out by Yin & Satar (2020), students with a lower linguistic proficiency experienced difficulties understanding the content due to the lexical elements generated in the interaction between the pedagogical chatbot and the students. As a result of this limitation, students were often required to adjust their responses to align with the chatbot's expected input and improve interaction with the artificial intelligence system.

Chuah et al. (2021) conducted a study that analyzed teachers' perceptions of chatbot use. The findings showed that chatbots were perceived as useful tools for simulating authentic language use. However, teachers expressed concerns about chatbot accuracy, particularly in the correction of grammatical errors. Additionally, chatbots were perceived as effective in creating social and teaching presence, but their cognitive presence was considered weaker since they were not intelligent enough to encourage deeper reflection.

• Usability

Chatbots can be easily usable tools in the educational field according to teachers. Artificial intelligence is an assistance tool that is not complex to install, its design is friendly, so its introduction is simple and minimal effort is required for its use. Chuah and Kabilan (2021) stated that "teachers also believed that chatbots are easy to use (mean = 4.34) and had no difficulty introducing them to students during teaching and learning activities" (p. 9).

In their study, Chuah et al. (2021) found that teachers had a positive perception of using chatbots to teach English. The authors noted that chatbots can facilitate the simulation of authentic language use, support social and teaching presence and provide immediate feedback. Teachers also emphasized the ease of use of chatbots. With the characteristics listed above in mind, it can be argued that chatbots have the potential to serve as effective pedagogical and didactic tools for English language teaching. When implemented appropriately, they can contribute to accessible learning environments for both teachers and students.

However, Chuah et al. (2021) also identified some shortcomings in the use of chatbots in education. Teachers expressed concerns about the accuracy of the chatbots, particularly in correcting grammatical errors. Additionally, they perceived that chatbots lack the cognitive presence necessary to stimulate deeper reflection in students. Finally, the teachers expressed the need for more intelligent responses, greater accuracy in feedback, the inclusion of collaborative features, and the design of a variety of activities. Despite these concerns, the teachers accepted chatbots as a classroom tool.

• Teachers' Challenges of Using Chatbots

In contrast, González et al. (2021) argue that the teaching of English as a foreign language needs to be rethought to meet the demands of the current generation, requiring well-trained teachers. In the Colombian context, new teacher training is needed in the classrooms of English majors and in general, especially considering that, although some educational institutions have technological resources, there are still challenges in their effective integration into the teaching-learning process. Also, it is accurate to conclude that educators have been slow to adopt technological innovations. While teachers use ICTs resources, they still manage them in a similar way to traditional tools and do not allow technology to gain greater relevance in the classrooms.

As González et al. (2021) emphasize, “include training spaces within English majors, in which they are dedicated to training teachers capable of using technology, giving it an important meaning as a tool, for pedagogical use, in such a way so that its pedagogical praxis is innovative and interesting for those who are learning the foreign language” (p. 14).

Hwang & Chang (2021) discuss the advantages and difficulties of implementing chatbots in the classroom. They note that teachers must navigate structural situations, resource limitations, and environmental provisions. The researchers suggest that Colombia can benefit from integrating ICTs into the teaching of English as a Second Language (EISL). Firstly, the cognitive and symbolic benefits that ICT brings to the educational process are highlighted, allowing greater development of skills in students. Furthermore, its implementation contributes to the technological, administrative, and pedagogical progress of educational institutions, promoting a more dynamic and updated learning environment.

However, the implementation of ICTs in educational environments also faces various difficulties. Economic, infrastructure, social, or cultural investment limitations can hinder equitable access to these tools. Addressing these barriers is crucial to ensuring inclusive and equitable education, as disadvantaged sectors are at risk of exclusion. Finally, it should be noted that while teachers may introduce various subjects for the use of chatbots, they can also create spaces for recreational activities and learning about the importance and integration of AI.

It is crucial to promote technological literacy among educational stakeholders, as the need to develop technological skills for online education is widely recognized. New generations have different needs and interests; therefore, English teachers must be prepared to respond to the demands of the modern educational context. Cely-Betancourt (2023) states that it is necessary to implement active methodologies and new ways of teaching, as well as to develop thinking through creative proposals.

Educational authorities also have a fundamental responsibility to ensure equitable access to ICTs in education, promoting equal opportunities. Ethical aspects, such as promoting science, technology, and innovation by teachers and developing technical and soft skills for the effective use of ICTs in teaching English as a second language, should also be considered.

6. DISCUSSION AND CONCLUSIONS

The theoretical and empirical evidence reviewed suggests that chatbots can contribute positively to the learning process in several ways. The findings indicate that the implementation of chatbots in educational settings may produce notable outcomes, including increased student motivation, reduced anxiety, improved communication skills, and the promotion of self-directed learning through the integration of ICTs.

First, one of the main findings identified in the reviewed literature concerns motivation in second language learning. The use of chatbots appears to have a favorable influence on students' attitudes toward the language and enhance their learning experience, thereby fostering a sense of confidence and facilitating more seamless interaction with the language. Research has demonstrated that it has the capacity to markedly diminish anxiety levels during English language acquisition, particularly in the domain of oral expression. Recent findings have demonstrated that chatbots facilitate the establishment of self-directed learning environments, wherein students receive immediate feedback and support for their learning outside the classroom, both synchronously and asynchronously.

Nevertheless, the evidence is not entirely consistent. While some studies report substantial enhancements in language learning outcomes, others have highlighted limitations associated with a lack of cognitive presence and lexical constraints, which may hinder more advanced language development. Therefore, it is necessary to improve the design of chatbot-supported activities and pedagogical processes, considering that chatbot responses and interactions may be restricted by their programming, training data, and system design.

The implications for teachers were also analyzed. Some interviews and some of the results that were considered mention that chatbots can be useful in the classroom but pose challenges for teachers. From an educational standpoint, challenges related to effective integration and pedagogical utilization have been identified. Whilst a number of studies have indicated that educators view chatbots as a beneficial addition to their lessons, finding them to be straightforward to utilize and a valuable instrument for integration into their pedagogical practices, other research findings emphasize significant challenges. These include a deficit of pedagogical training

among educators and extrinsic factors such as institutional constraints and scarce resources. This aspect reveals a gap between perceived usability and actual pedagogical integration. It is suggested that the successful integration of chatbots is contingent not only on their design features, but also on contextual and instructional factors.

It is also important to consider that the reviewed studies vary significantly in their methodological approaches, which may affect the consistency of the reported findings. Many studies are based on short-term interventions and moderate sample sizes, which restricts the generalizability of the results. These differences may be explained by variations in the design of the research, the size of the sample, and the prevalence of short-term interventions.

The findings suggest that chatbots should not be regarded as independent solutions, but rather as supplementary tools that necessitate meticulous incorporation into pedagogical practices. Further research is imperative to ascertain the effectiveness of these measures in specific contexts, such as Colombia. This will inform potential future applications and enable technological tools to be adapted to the needs of students and teachers. The

early implementation of chatbots, artificial intelligence and ICTs in the classroom to mediate the student learning process is an important consideration in education. It is important to acknowledge the pivotal role educators play as guides, developers, and facilitators of creativity from a humanistic perspective. This enables the learning process, particularly in the context of this evolving tool, to adapt seamlessly to classrooms in Colombia.

This exploratory analysis of the use of chatbots in education enables us to consider various research and implementation areas in Colombia. These include the adaptability of chatbots to rural areas and school infrastructure; the knowledge gap regarding artificial intelligence between teachers and students; the regulation of chatbot use in Colombian classrooms; the evaluation of critical thinking in relation to artificial intelligence; and institutional government policies to mitigate or manage the use of artificial intelligence.

In summary, this article provides an initial theoretical overview of chatbots and identifies potential research variables that should be considered in future studies and educational investments.

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