
| RESEARCH ARTICLE

Revolutionizing Language Learning: The Impact of AI in EFL Education

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| ABSTRACT

The purpose of this article is to present information about the impact of Artificial Intelligence (AI) in the EFL classroom. Thus, academic databases such as Google Scholar, ResearchGate and university repositories were consulted. After reviewing 236 documents, 41 articles were selected and analyzed. The results of this study provide evidence to argue in favor of the use of AI as a tool inside the classroom since it promotes autonomy, motivation and engagement coming from the students. However, further research should be conducted on the implementation of AI in the EFL classroom at both national and international levels in order to examine how this tool gradually evolves and changes the traditional way of teaching.

| KEYWORDS

Artificial Intelligence, English language teaching, English as a Foreign Language, digital tools, motivation, autonomous learning

| ARTICLE INFORMATION

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1. Introduction

Artificial Intelligence (AI) involves key aspects that can be used for different purposes in the field of education. AI has the capability to perform activities in different situations without human intervention, for example, it can provide large volumes of data in just a matter of seconds and adjust it to new information. As Alshumaimeri and Alshememry (2024) mention, this is thanks to two basic principles of AI which are autonomy and adaptability. These two principles describe the potential of AI and how efficient it can be for language learning and teaching since its adaptability allows it to adopt different roles when students hold language exchanges with different AI systems (Alsadoon, 2021; Arini et al., 2022; Sumakul et al., 2022). These exchanges serve as an opportunity for students to practice their language skills without the need of another human being.

According to Vera (2023), the use of AI inside the EFL classroom provides useful opportunities for students to create their own learning space, generating a greater impact in on their learning process. Additionally, there are several AI tools that assist both teachers and students in the different language skills such as speaking, grammar, vocabulary and pronunciation. AI enhances the learning experience, making it more interactive because there are intelligent tutoring systems, language assessment and virtual language tools that automatically provide support to the student. Besides, Alhalangy and AbdAlgane (2023) explain that AI provides a variety of up-to-date materials and real-world situations for both students and teachers, and they can benefit from those materials, enhancing the quality of education.

2. Research Question

Q1: What is the impact of Artificial Intelligence (AI) inside the EFL classroom in Colombia and around the world?

3. Research Design

A bibliographical review, according to Ocaña-Fernández and Fuster-Guillén (2021), is a research method whose purpose is to collect data coming from a variety of academic sources that have a determined topic in common. Of course, the process of collecting data implies factors such as the critical use of bibliography, the validity and quality of information found in different sources such as online repositories, videos, research databases, images, web pages, among others. Thus, the previous aspects are important for a researcher to start organizing the information needed and contribute in some way, to bridge the gaps that might be encountered in research.

In order to organize the information collected in this article, the three-step procedure proposed by Álvarez-Valencia (2014) was used in order to compile the information required for this study, this procedure consists of 1) reading the titles of potential articles or studies related to the topic of AI in EFL classrooms, 2) reading the abstract and keywords of every article or study to verify if the topic is related to Artificial intelligence and its use in the EFL classroom, and finally, 3) start classifying the type of study or article in order to know where it was conducted.

In addition, the different documents were analyzed using the six-step procedure proposed by Braun and Clarke (2006) known as thematic analysis. This method consists of selecting and classifying information by reading through a set of qualitative data, then looking for patterns to find themes and in the end, writing the report.

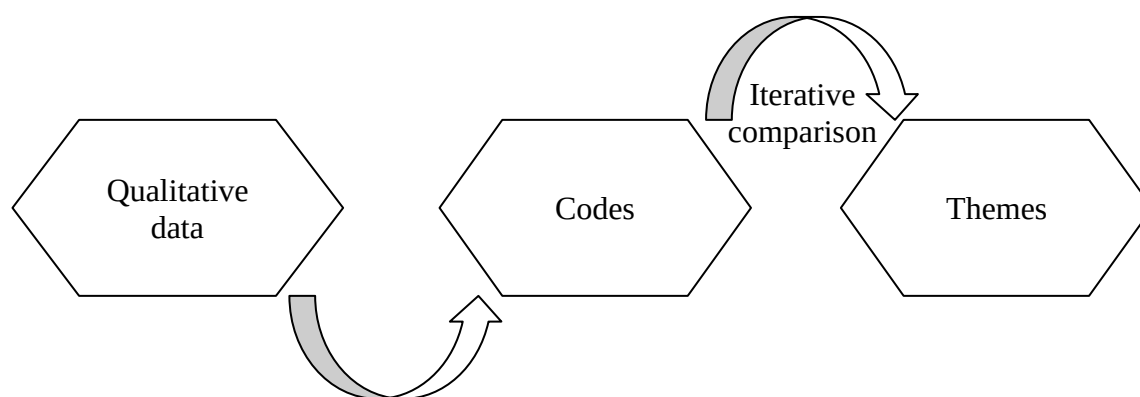


Figure 1. Braun and Clarke's (2006) Thematic Analysis process.

The search for information involved research databases such as Google Scholar, ResearchGate and some university repositories. After analyzing 99 international articles on different online databases, 27 articles related to the topic of AI teaching in the EFL classroom were selected for this study. Consequently, as for the national studies, after reviewing 130 articles, only 6 were related to the scope of this study. Therefore, it was necessary to consult university repositories from the most well-known universities to have complementary information on the topic of AI. In the end, only 5 theses were included and analyzed. The time span used in the study of these articles is very recent, ranging from 2020 and 2024 and only two articles whose dates are from 2001 and 2009. Thus, the following results were obtained:

International articles on Google scholar and ResearchGate	Number of articles selected	Country of Origin	Type of Article
99	27	Arabia, Australia-Croatia-Japan, China, Ecuador, Indonesia, Indonesia-Bangladesh-Saudi Arabia, Iraq, Malaysia-China, Saudi Arabia, South Korea, Spain, Sweden, Turkey, UAE	Peer-reviewed articles

As for the national articles, the following results were obtained:

Colombian articles on Google Scholar and ResearchGate	Number of articles selected	Country of Origin	Type of Article
130	6	Colombia	Peer-reviewed articles

Now, as for the studies found in repositories from Colombian Universities, the following results were obtained:

University	Number of studies selected	Place of origin	Kind of study
Pontificia Universidad Javeriana	1	Colombia	Bachelor thesis
Institución Universitaria Tecnológico de Antioquia	1	Colombia	Master's thesis
Universidad Santo Tomás	1	Colombia	Master's thesis
Universidad EAN	1	Colombia	Bachelor thesis
Universidad Abierta y a Distancia (UNAD)	1	Colombia	Bachelor thesis

After carrying out the selection of the documents that support the goal of this article, the next section shows a deeper analysis of the studies developed in Colombia and in other countries around the world related to the implementation of AI in the EFL classroom.

4. International studies applying AI

The incorporation of AI in language education around the world is increasing every day because this type of intelligence has appeared as an alternative to assist both teachers and students in the classroom. As stated by Son et al. (2023) there is a variety of AI tools that are capable of processing any kind of information that a user, student, or teacher- requires and help to their teaching and learning process. Some tools such as natural language processing (NLP), data-driven learning (DDL), automated writing evaluation (AWE), intelligent tutoring systems (ITSs), automatic speech recognition (ASR), and chatbots, among others have assisted both teachers and students into making language learning and teaching more accessible, no matter their background or proficiency (Jiang, 2022). Besides, Yuliani et al. (2024) and Moybeka et al. (2023) also refer to other AI tools such as speech recognition, text-to-speech apps, and language translation technologies that enhance language learning by motivating students as they are in control of their progress and see their improvement. Thus, the use of AI systems in the classroom is possible because they create a student-centered environment and encourage students to keep learning and increase their levels of proficiency.

The studies carried out by Amin (2023), Daulay et al. (2024) and Song C. and Song Y. (2023) regarding ChatGPT inform that students have been able to practice their language skills in real-time by using AI and ChatGPT technology. This practice has brought positive results such as students' enhanced confidence and deeper understanding of language after receiving immediate feedback. Additionally, teachers can guide students so that they use ChatGPT to get responses about different topics of their interest and then combine them with their thoughts so that they stimulate their critical thinking and participate in discussions.

This idea is linked to the principle of what Vygotsky calls the Zone of Proximal Development (ZPD). Considering social constructivism, when learners interact with ChatGPT, they can follow a similar pattern when they interact with a more capable peer. However, it is important to consider that to make the most of tools such as ChatGPT, teachers should develop an essential strategy such as prompt crafting. These prompts should include relevant information such as action, format, context, target and any other data that can ensure a satisfying response that helps teachers to structure their lessons and fulfill their goals (Mena-Octavio et al., 2024).

The study carried out by Tikiz-Ertürk et al. (2023) shows the influence of AI on both teachers and students because they present a variety of AI-based tools that have a direct positive effect on students' motivation, thanks to the interactive and captivating learning experiences. In that way, students could continuously work on their language skills when having communicative exchanges with AI, accessing diverse linguistic resources, and receiving immediate recommendations to improve. On the teachers' side, Tikiz-Ertürk et al. (2023) explain that AI and Chat GPT have decreased the amount of time that instructors spend on creating and adapting lessons that not only align with the curriculum goals but also trigger the needs and interests of their students. Finally, these tools have been used as an assistant that offers recommendations of up-to-date materials, multimedia resources, and samples of customized learning experiences that allow teachers to boost the quality of their teaching practices.

Another tool that has been seen as helpful in the teaching of a foreign language is the chatbots. A chatbot can be defined as a computer program that simulates human conversation in a written form or in audio (Alhalangy and AbdAlgene, 2023). Thus, the studies carried out by Alsadoon (2021), Arini et al. (2022), Sumakul et al. (2022) in the development of vocabulary and speaking demonstrated that chatbots such as NovoLearning, Elsa app and Siri assisted students in increasing their vocabulary and their speaking proficiency because students felt more motivated when talking to the IA than talking to human beings, reducing their stress levels and learning vocabulary more easily. In the case of Siri, Haryanto (2019) specifies that while using the tool, students make an effort to speak clearly enough so that their information can be understood by the app. More recently, the studies carried out by Garrote-Jurado et al. (2023) and Shikun et al. (2024) showed that the use of chatbots improved students' oral proficiency and they felt more autonomous in their learning because they were able to interact with the AI from their mobiles everywhere since the chatbots included a wider variety of topics to encourage learners to engage in conversations.

Finally, regarding writing and grammar learning, the use of AI tools such as Intelligent Teaching Systems (ITSs), AI-driven automated paraphrasing tools (APTs), Data-Driven Learning (DDL) and the Plote Generator app have helped students to improve their writing composition. The studies implemented by Alhalangy and AbdAlgene (2023), Alammam and Amin (2023) and Son and Philpott (2023) helped students to identify the elements of narrative writing, they demonstrated enthusiasm when working with the apps and this fostered intrinsic motivation and autonomous learning. Besides, it allowed students to meet academic writing standards and learn at the same time how to organize information, use grammar correctly, punctuation, include synonyms, change word forms and use discourse markers among other things that improved the quality of their texts (Luo et al., 2024).

In addition, these students affirmed that this DDL helped them to prevent plagiarism since they learned about the importance of acknowledging authors' work and citing sources. However, Alammam and Amin (2023) inform that some drawbacks in the use of AI-driven automated paraphrasing tools include the lack of accuracy when selecting words, misunderstanding the context, and threatening creativity. All of this invites reflection upon the adverse results that can occur when being dependent on these tools. This is why after revising similar cases in other studies, Alammam and Amin (2023) state that students should find a balance between the use of APTs and working on their paraphrasing skills.

5. National Studies implementing AI

The integration of AI into the English teaching-learning process has been demonstrated through various innovative strategies implemented by Colombian teachers, promoting a didactic and meaningful learning experience. AI can be applied as a complement in the educational field, as it provides significant contributions and can be implemented in many ways, starting from student accommodation (Cabrera, 2022). Moreover, the goal of integrating AI in education involves applying techniques to develop more intelligent computer-assisted teaching and learning systems. These systems should adapt to the characteristics of learning and knowledge in each user, offering personalized and flexible teaching (Jiménez, Ovalle, and Branch, 2009).

For instance, Caro-Prieto (2024) supports in his project the creation of AI-generated images, aiming for students to develop linguistic skills by describing images in English, fostering descriptive accuracy, stimulating visual communication, and enhancing creativity. Therefore, Díaz-Ramírez and Díaz-Ramírez (2024), in their research, identified the advantages of using AI, which they found positive, highlighting autonomous and automatic learning, and the easy access to resources and information through the adoption of ChatBots, VictorIA, and Tomas. In the same way, Zadi et al. (2021) developed a prototype of an educational digital game using a chatbot as the interlocutor in the game, which contributed to motivation and knowledge acquisition in English.

On the other hand, Gutiérrez-Pico (2024), in his study, incorporated the use of AI in English text writing using tools such as QuillBot, Grammarly, and Lighmap to improve the quality of the students' written texts. AI provided more accurate and complementary feedback than a teacher could offer. Additionally, Ramírez-Cañas (2021), in his document, addressed the use of AI technologies, specifically natural language processing (NLP), in foreign language teaching, focusing on the Task-Based Learning (TBL) approach and how games can complement and enhance educational outcomes.

AI also demonstrated its role as a translator in the study carried out by Ayala et al. (2023), who identified positive results because these tools optimized translation time while providing grammatical and spelling solutions. Meanwhile, Claro-Narváez et al. (2024) view AI and gamification as significant support for bilingual learning environments, helping students overcome the fear of verbally expressing their ideas in class. These authors recognize AI and gamification as useful educational tools for promoting educational innovation.

Finally, Berdugo-Torres (2011), in his study, states that AI has been progressively integrated into foreign language teaching through the evolution of computer-assisted language learning, synthesizing the following key points: the development of advanced tools, innovative methodologies, technology-mediated interaction, and the implementation of multimedia resources. In summary, AI in language teaching provides personalization, adaptability, and authenticity to the educational process, fostering both autonomous and collaborative learning in advanced technological environments.

6. Conclusion

After analyzing all the articles at both national and international levels and taking into account the research question posed at the beginning of this article, the authors of this article decided to answer those questions in different categories to explain the effect of AI in the EFL classroom.

6.1 Motivation and Engagement. The use of AI inside the classroom fosters motivation and engagement because students feel more confident when they are interacting with electronic devices such as smartphones, tablets, laptops etc., and they are very familiar with those devices. Besides, AI also shows improvements regarding summative and formative assessment because it provides adaptive testing, immediate grading, feedback, and security. Through AI, it is possible to carry out a variety of tests and activities that assess students according to their language level and skills.

Moreover, AI has been used as a tool that examines students' performance in different kinds of assignments and allows teachers to get a complete overview of students' progress. Teachers have the possibility to analyze and interpret this information to make the necessary adjustments to their teaching strategies, resources, and lesson planning. Accordingly, AI has contributed to the advancement of exams and assessments by offering individualized tests, instant suggestions for improving learning and teaching, secure processes during test-taking, and continuous data analysis to ensure effective teaching processes. In this manner, students feel more confident to develop different activities and they engage more by using these dynamic apps (Amin, 2023).

6.2 Autonomy and Self-regulation. Considering all the advantages that AI brings to language education, it is relevant to take into account the new roles that both teachers and students should assume and develop. Students of today should be guided so that they can rely on relevant and verified information as well as navigate safely on the internet (Amin, 2023). The challenge for teachers evolves and instructors' role is not only integrating AI into their teaching practices and discerning between appropriate and inappropriate materials and learning experiences, but they also need to help students find a balance between the use of technology and the development of their interpersonal skills, they need to guide students on how to use AI to favor their autonomous learning, work on their critical thinking and problem-solving skills and, therefore, transforming teacher-student interaction (Luo et al., 2024).

6.3 Metacognitive and Reflective Skills. Critical thinking is not something that can be developed by simply participating in language classes, instructors need to invest some time to provide instruction and scaffolding through a variety of activities that can use AI (Muthmainnah et al., 2022). An example includes engaging in a critical discourse analysis of news stories with a presentation. This can help learners to make assumptions, analyze information, and make inferences, and with this kind of task, they can gradually develop critical thinking. As revealed by the previous authors, implementing inquiry-based learning through AI into English classes has also helped learners develop problem-solving skills. Another example is suggested by Harunasari (2023), who argues that ChatGPT can be used as a tool for generating ideas so that students can write and create new content rather than just using the texts produced by the tool.

Regarding collaborative mobile learning environments, Muthmainnah et al. (2022) explain that these can bring several benefits. Thus, when applying collaborative mobile strategies, students become more committed to participating, exchanging

information with group members, and gaining valuable knowledge while interacting in formal and informal settings. Learners develop negotiating skills while coordinating roles and organizing material via wireless networks that have face-to-face communication. Students can learn and understand some complex concepts by accessing different multimedia sources. They can also explain their points of view easily through videos, instant messages, photos, music, audio, animations, and simulations.

Considering the mentioned contributions, the collaborative learning approach is enhanced with AI and mobile learning. The focus is on hands-on learning, where students discover and construct their knowledge and the teachers accompany them in the process and help to improve their learning experiences by selecting high-quality content. Instructors help to guide the group dynamics and suggest appropriate multimedia tools for the activities. This contributes to the efficiency and efficacy of collaboration with mobile learning.

6.4 Attitudes towards AI in Education. The studies included in this research shows that teachers' attitudes towards AI tools improved after gaining hands-on experience with AI-powered tools, illustrating the impact of experiential learning on educators' views. Therefore, teacher training programs need to prioritize immersive experiences with AI tools and digital platforms. Such practical exposure can encourage a culture of innovation and adaptability, helping teachers adopt new teaching methods and improve student learning outcomes. Furthermore, fostering collaboration and professional learning communities centered on AI integration can promote knowledge sharing and peer support, enhancing teachers' ability to effectively use AI in language education.

6.5 Further Research and Considerations. In a study case, Vera (2023) pointed out the importance of ethical considerations related to the use of technological tools in EFL classrooms. Some of the factors that teachers in the study case mentioned are student privacy, transparency, and critical thinking. To protect students' privacy, they suggest using clear guidelines and protocols such as data encryption, secure storage, and limited access to personal information. For transparency, teachers advocate clear communication with students about how AI tools collect data, use algorithms, and their potential effects. In the same way, teachers also encourage critical thinking by engaging students in discussions about the ethical implications of AI, including its biases and impact on society. According to the group of teachers involved, the main objective and another role for language instructors should be to create a responsible and ethical learning environment that takes advantage of AI while safeguarding students' best interests.

Moreover, Yuliani and Rahayu (2023), and Belda-Medina and Goddard (2024) mention that lecturers perceive AI as a challenge due to the lack of time to get in-depth knowledge about it. Some other concerns are related to the minimization of the role of the teacher in the classroom, the teachers' need to have ongoing training to keep updated and be able to integrate AI into their lessons, facing privacy issues, the risk of plagiarizing and the inappropriate use of AI on behalf of students who sometimes take advantage of these technological tools to cheat on assignments (Tikiz-Ertürk et al., 2023). This is a matter that also concerns some students who recognize that they can become too dependent on this kind of AI tools and this can have an impact on their critical thinking skills and their human initiatives to propose and innovate (Yuliani et al., 2024). The last authors also highlight that education faces some challenges such as the lack of infrastructure and technology in developing countries or the need to develop digital teaching techniques to use AI tools appropriately and make the most of the teaching opportunities that these tools can provide in education.

In the same way, Hazaymeh et al. (2024) affirm that some difficulties in incorporating AI in education are the cost and the technical expertise that is necessary to arrange and maintain the systems. Besides, cultural factors are also important to consider since it is crucial to verify that the AI algorithms are impartial and suitable to the culture where it is used as this can have an impact on the authenticity of the language experiences proposed by AI. In addition, Mena-Guacas et al. (2023) express that Artificial Intelligence holds significant potential to enhance education, but it must be applied thoughtfully. Further research is essential to fully grasp its effects and determine the most effective strategies for integrating these technologies into classrooms. This approach can help mitigate potential challenges and ensure AI is utilized productively.

Finally, it is important to mention that AI is a tool that assists teachers in numerous tasks and jobs. However, replacing teachers with AI is not suitable in pre, elementary, and middle school since educators possess unique skills such as emotional intelligence, creativity, and the ability to build relationships, which are relevant factors in the learning process (Sotomayor-Cantos et al., 2023). Human teachers are needed to teach students and use electronic devices for language input and information. Taking this into account, teachers first need to understand deeply how to use AI in English language teaching and learning before implementing this in the classroom with students. Alshumaimeri and Alshememry (2024) agree with the idea of understanding all the implications of applying such innovations in an EFL classroom and ensuring that teachers are prepared to meet the demands of 21st-century learners.

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