

A review study of the use of ChatGPT in EFL classes: systematic review

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Conceptualization, B.K., G. G., and A.P.L.; methodology, G.G. and B.K.; software, G.G. validation, B.K. and A.P.L.; formal analysis, B. K. and A.P.L.; investigation, G.G.; resources, G.G.; data curation, G.G.; writing—original draft preparation, G.G.; writing—review and editing, G.G., B.K. and A.P.L.; visualization, G.G.; supervision, B.K.; funding acquisition, B.K.

All authors have read and agreed to the published version of the manuscript.

Abstract

This paper explores the rapidly growing impact of Artificial Intelligence (AI) in education, with a focus on its integration into teaching English as a Foreign Language (EFL). AI offers educators new opportunities to innovate and enhance the teaching process. This review aims to provide a thorough analysis of AI, specifically ChatGPT, in EFL classrooms, highlighting both the perspectives of teachers and learners. The study centers on university instructors who have incorporated ChatGPT into their daily English teaching practices. Research data was sourced from databases Scopus and Web of Science, with relevant studies selected based on predetermined criteria. Findings indicate that EFL teachers value ChatGPT for its ability to offer instant explanations, create supplementary teaching materials, and promote student engagement through interactive sessions. However, concerns persist regarding certain limitations of the chatbot, indicating the need for further refinements. The study emphasizes the importance of training and guiding educators in using AI tools effectively to minimize potential challenges. Lastly, it calls for more experimental research to further assess ChatGPT's role and effectiveness in EFL teaching.

Keywords: ChatGPT, teaching English, EFL, education

1. Introduction

With the advent of 21st-century modernization, Artificial Intelligence (AI) has emerged as a transformative tool in daily life. Initially conceptualized in 1956, AI encompasses a range of technologies designed to simulate human intelligence within machines. According to Russell & Norvig (2016), AI is generally intended to act as virtual assistance, facilitating and simplifying human tasks. As AI continues to gain traction, its applications are progressively infiltrating various domains of everyday life, including healthcare, robotics, finance, e-commerce, navigation, agriculture, gaming, travel, security and notably, education. AI manifests itself in diverse forms, such as chatbots, AI-driven writing tools, among other innovations.

The rapid advancements in information technology (IT) have compelled educational institutions to integrate mobile computing devices into academic activities (Bajcsy, 2002; Gikas & Grant, 2013). Within educational contexts, AI technologies have demonstrated the potential to enhance the learning process for both educators and students (Rahman & Watanobe, 2023). Various AI tools, such as Lyra voice assistant, Grammarly, and Chegg, when leveraged creatively by educators, can be effectively utilized across primary, secondary, and higher education settings. Recently, AI-powered assistants have gained substantial recognition within the English as a Foreign Language (EFL) community. Numerous studies have explored teachers' experimentation with AI to support various facets of language learning, including writing, speaking, reading, and listening.

Nobles and Paganucci (2015) claim that AI-based writing tools can substantially improve the quality of English writing. Consequently, many educators utilize these tools to enhance students' writing skills by focusing on revising and editing existing texts. Additionally, certain applications function as interactive writing assistants that support

users throughout the writing process by helping formulate and implement their ideas. For instance, Wordtune, an AI-powered writing assistant, offers contextually relevant suggestions during composition (Zhao, 2022).

Furthermore, Wiranti (2013) highlights a contemporary trend wherein foreign language acquisition is predominantly motivated by learners' desire for fluency in speaking the target language. To facilitate this, some educators employ Lyra Virtual Assistant (LVA), which utilizes Automatic Speech Recognition (ASR) technology to interpret and respond to student speech similarly to Human Speech Recognition (HSR) (Allen, 1994). LVA serves as a valuable tool for enhancing speaking proficiency, particularly in situations where access to native speakers or teachers is limited.

Tang and Foley (2022) integrated AI into their English reading curriculum, aiming to enhance EFL learners' general AI knowledge. Their study was particularly notable for its recommendations regarding AI applications in EFL classrooms. Another recognized AI-supported tool in this domain was the Edmodo LMS (Edmodo shut down in September 2022), which facilitated the development of reading skills among learners (Aldahwan & Alsaeed, 2020). This AI-driven approach contributed to significant improvements in reading proficiency.

Finally, VOA Learning English remains a popular resource for improving listening skills, though it also supports other linguistic competencies. The application offers a broad selection of stories, news, and reports using simplified vocabulary and a moderate speaking pace to promote comprehension. Learners can access over 10,000 articles and 3,000 videos, categorized by difficulty to suit varying proficiency levels (Suryana et al., 2020).

Beyond skill-specific enhancements, AI applications also offer support for expanding users' vocabulary. One such AI-powered tool, ChatGPT, is commonly used for translating unfamiliar words, providing explanations, contextualizing terms, and engaging in complex conversations with users (Rahman & Watanobe, 2023).

2. Theoretical framework

To define ChatGPT, it can be described as an application powered by a sophisticated machine learning model known as the Generative Pre-trained Transformer (GPT-3) (Rospigliosi, 2023). This tool is developed based on the Open AI language model and is trained on an extensive dataset of human interactions, enabling it to perform complex tasks and generate responses that closely mimic human conversation (Susnjak, 2022). As a significant advancement in language learning models (LLMs), ChatGPT is capable of producing large volumes of text while maintaining a coherent, human-like dialogue. To improve the often-unpredictable behavior seen with GPT-3, developers have implemented several strategies to reduce toxic or inaccurate outputs. These strategies include (1) supervised fine-tuning (2) reward modeling, and (3) reinforcement learning (Rahman & Watanobe, 2023).

The operational mechanism of ChatGPT relies on its Generative Pre-trained Transformer architecture, which uses established algorithms to detect patterns in diverse data sequences. The most recent iteration, ChatGPT, operates on the GPT-3.5 model, which includes refined algorithmic processing for enhanced performance. The ChatGPT Plus version utilizes GPT-4, offering the ability to handle more complex tasks compared to its predecessors. Additionally, a core aspect of ChatGPT's functionality lies in its deep learning capabilities, which enable it to comprehend, process, and generate natural human language with notable complexity, accuracy, and practical usability (Haque et al., 2022).

ChatGPT's training process begins with general data and gradually narrows to more specialized data tailored for distinct tasks. It was trained on an extensive corpus of diverse online texts to develop an understanding of human language, further supplemented by transcripts to grasp the intricacies of human communication. Despite substantial improvements within a relatively brief timeframe, ChatGPT remains incapable of independently evaluating its responses. Consequently, human trainers engage in dialogues with the chatbot, ranking various responses based on their accuracy and appropriateness. User feedback is also solicited to enhance the chatbots' training, ensuring improved interactions and better alignment in future conversations.

3. Methodology

3.1. Search strategy and selection criteria

The applied methodology followed the PRISMA guidelines (<http://www.prisma-statement.org/>) for systematic reviews and meta-analyses. The search for suitable research studies was conducted in two acknowledged databases, *Scopus* and *Web of Science*. The search was not limited by a time period, but the end was October 2023. The retrieved articles date back to the last five years. The reason behind this is that we wanted to use only fresh and relevant studies. All the articles were written in the year 2023. The search for the studies was performed during the forty-second and the forty-third weeks of the year 2023.

3.2. Search terms

In order to obtain only relevant research studies, the main collocation phrases used for searching for the most relevant documents were as follows: *ChatGPT*, and *Education*. These keywords were combined with the following keywords *EFL* and *Teaching English*.

3.3. Application of inclusion and exclusion criteria

The identified research studies needed to be further examined based on the inclusion and exclusion criteria. The search focused on experimental and theoretical, peer-reviewed journal articles written in English and these articles belonged to the open-access category. Case studies, surveys, presentations, scientific event programs, literature reviews, editorials, and grey literature were all excluded to ensure a high level of scientific rigor and quality typically associated with peer-reviewed journal articles, as the lack of standardized peer-review processes in grey literature can lead to variations in reliability, validity, and replicability of results. Articles not written in the English language and non-open access articles were excluded as well.

3.4. Synthesis strategy

The collected papers were checked individually to discover whether they were relevant to this study. The initial search in the databases *Web of Science* and *Scopus* generated 194 articles (WOS) and 336 articles (Scopus). After the implementation of inclusion and exclusion criteria eleven articles were found suitable for this study. These articles after the implementation of inclusion and exclusion criteria were analyzed in a systematic review process.

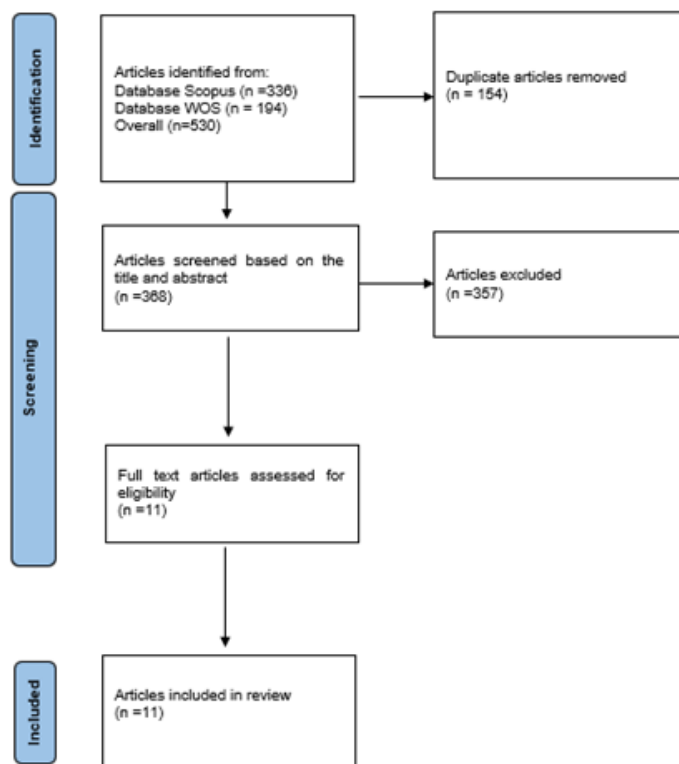


Fig. 1: PRISMA Flow Diagram for articles selection

3.5 Analysis of the articles (MOSL4L 2.0 analysis)

Read, Kukulska-Hulme, Barcena, and Traxler (2021) created a framework called Mobile Open Social Learning for Languages or MOSL4L 1.0. The objective behind creating this framework was not only to quantify and characterize effective language learning but also to provide a way to structure effective language learning experiences by setting different reproducible experimental factors (Pareja et al., 2023). In 2023 the MOSL4L framework got a redesign (Figure 2) to be more efficient, systematic, detailed, and general, thus creating MOSL4L 2.0 (Pareja et al., 2023). This framework was used to analyze the selected articles and to provide the most precise and relevant data for the systematic review. The results are presented in Table 2 and Table 3.

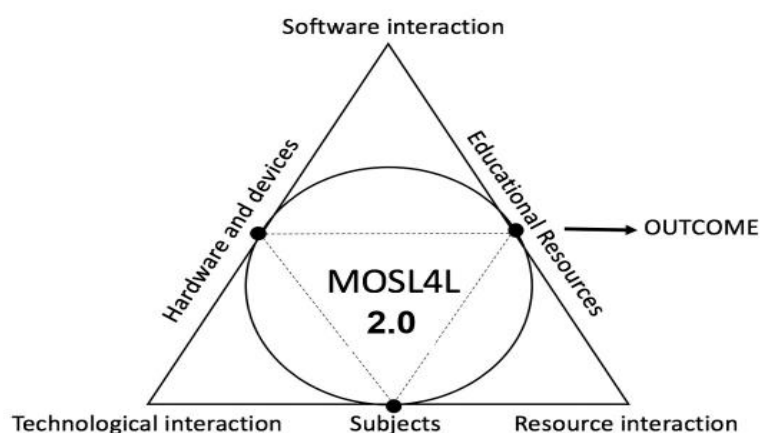


Fig. 2: Schematic representation of the MOSL4L 2.0 framework

4 Results

The chosen articles for this research study are from different parts of the world. Among these countries are China, Norway, Netherlands, Saudi Arabia, Japan, Hong Kong and Indonesia. In all research studies, university students were represented. In one of the studies (Mohamed, 2023), the participants were educators of the English language from the Northern Border University. Table 1 provides an overview of the articles, with their title, year of publication, and the name of the author(s). To make the figures and tables more transparent, the articles were numbered from one to eleven.

Number of the article	Title, author, year of publication of the article
#1	A SWOT analysis of ChatGPT: Implications for educational practice and research (Farrokhnia et al., 2023)
#2	An Exploratory Study of EFL Learner's Use of ChatGPT for Language Learning Tasks: Experience and Perceptions (Xiao & Zhi, 2023)
#3	Assessing the Usability of ChatGPT for Formal English Language Learning (Shaikh et al., 2023)
#4	Examining the Effectiveness of AI-integrated Approach in EFL Writing: a case of ChatGPT (Siti Yulidhar Harunasari, 2023)
#5	Investigating OpenAI's ChatGPT Potentials in Generating Chatbot's Dialogue for English as a Foreign Language Learning (Young et al., 2023)
#6	Exploring the potential of an AI-based Chatbot (ChatGPT) in enhancing English as a Foreign Language (EFL) teaching: perceptions of EFL Faculty Members (Amr M. Mohamed, 2023)
#7	ChatGPT and the EFL Classroom: Supplement or Substitute in Saudi Arabia's Eastern Region (Mahdi A. Ahmed, 2023)
#8	How to harness the potential of ChatGPT in education? (Zhu et al., 2023)
#9	Embracing the Disrupted Language Teaching and Learning Field: Analyzing YouTube Content Creation Related to ChatGPT (Li et al., 2023)
#10	ChatGPT's Capabilities in Spotting and Analyzing Writing Errors Experienced by EFL Learners (Algaraady et al., 2023)
#11	ChatGPT for Language Teaching and Learning (Kohnke et al., 2023)

Tab. 1: The list of the selected articles with assigned identification number

Five of the eleven collected studies were experimental, while the other six were theoretical studies. Table 2 and Figure 3 provide an overview of various types of learning. Out of the eleven articles only eight focus on the improvement of all the language skills (reading, writing, listening, speaking) (Figure 5). There are only two articles that deal with the improvement of writing and reading skills and one article, which deals with the improvement of reading, listening, and speaking skills (Figure 5).

Identification number of the article	Face-to-Face	Blended	Digital	Formal	Online
#1	YES	NO	NO	NO	NO
#2	NO	NO	YES	NO	YES
#3	NO	NO	NO	YES	NO
#4	NO	NO	YES	NO	NO
#5	YES	YES	NO	NO	NO
#6	YES	NO	NO	NO	NO
#7	YES	YES	NO	NO	NO
#8	NO	NO	YES	NO	YES
#9	NO	NO	YES	NO	YES
#10	YES	YES	NO	NO	NO
#11	YES	NO	NO	YES	NO

Tab. 2: An overview of the key findings from the selected studies

Identification number of the article	Individual learning	Group learning	Community-based learning
#1	YES	NO	NO
#2	NO	YES	NO
#3	NO	NO	YES
#4	NO	YES	NO
#5	YES	NO	NO
#6	YES	NO	NO
#7	YES	NO	NO
#8	NO	YES	YES
#9	YES	NO	NO
#10	YES	NO	NO
#11	YES	NO	NO

Tab. 3: An overview of the key findings from the selected studies

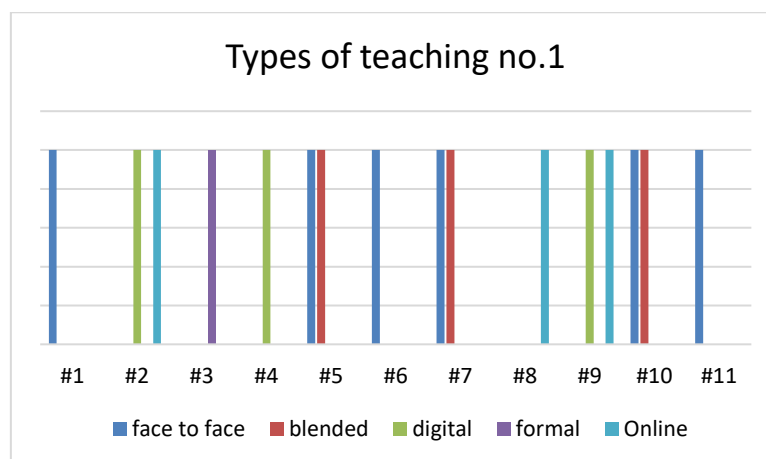


Fig. 3: Visualization of the different types of teaching used in the selected studies

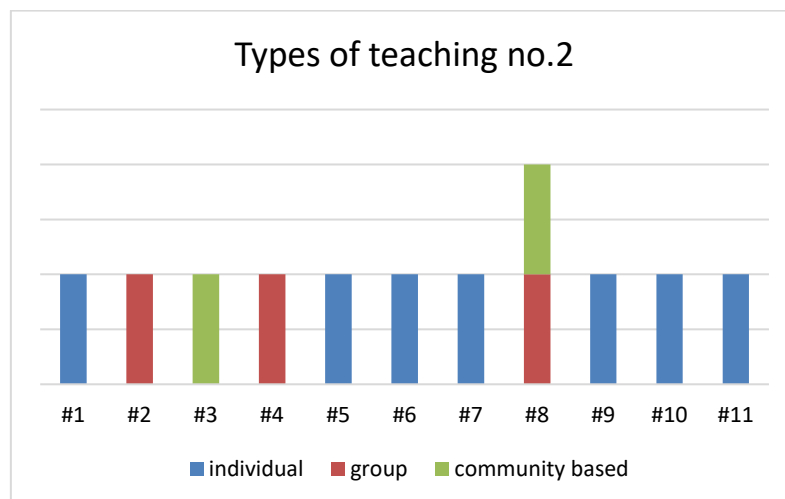


Fig. 4: Visualization of the different types of teaching used in the selected studies

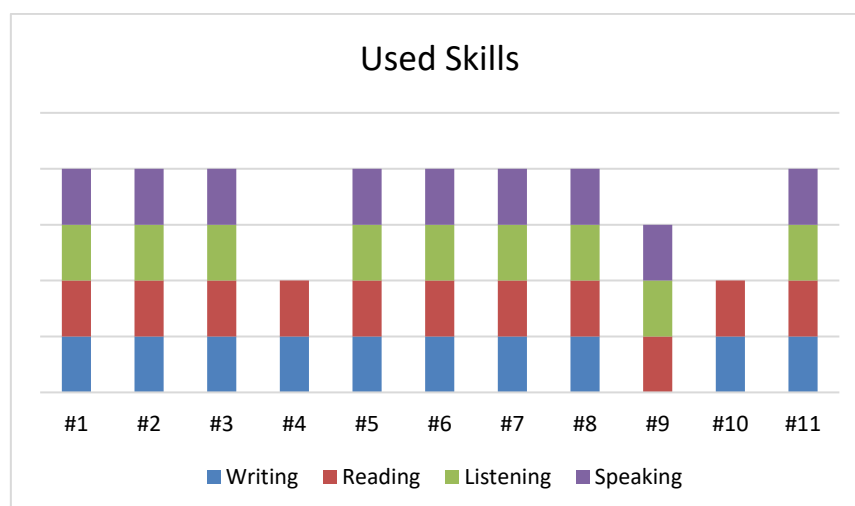


Fig. 5: Visualization of the used skills among the selected articles

Farrokhnia et al. (2023) (#1) intended to show the potential (strengths and weaknesses) of ChatGPT by creating a SWOT analysis. Their findings suggest that ChatGPT can be used as a creative tool for EFL classes, but it still has its limitations. The main reason to use ChatGPT in the education process is its ability to facilitate personalized learning and to generate plausible and real-time feedback. They also add that it is not yet clear to what extent feedback provided by ChatGPT is helping the students during the education process. They recommend using ChatGPT to facilitate personalized learning and add that the teachers' creativity can also change the usefulness of ChatGPT in EFL classes.

Xiao and Zhi (2023) (#2) aimed to explore the multiple ways learners use ChatGPT in EFL classrooms. For their study, they asked 15 university students, between the ages of 20-25 years old, to describe their experiences of using ChatGPT. For the study the authors used semi-structured interviews focusing on the students' views and experiences with ChatGPT for language learning. The interviews were conducted in Chinese and were later transcribed by experienced research assistants. The interviews were also audio-recorded. Out of the 15 students, twelve students described ChatGPT as a useful tool for learning English, two of the students described the application as not as a useful tool as they first expected, and one of the students said that the chatbot was not user-friendly and was not useful at all.

Shaikh et al. (2023) (#3) investigated different possible usages of ChatGPT in EFL classes. For the study they asked 10 students, who were between the ages of 26 to 38 years old, to participate in their experiment. Five out of the ten university students were at masters and five postgraduate education levels. The participants were instructed to have different conversations with ChatGPT. Among the conversations were formal writing, and informal writing,

the participants also asked the chatbot to fix grammar mistakes. Later the participants were also instructed to practice vocabulary learning with ChatGPT. The total time given to the participants for all the tasks was one hour. After the tasks, all of the participants were asked to fill out a questionnaire for their feedback about the usability of ChatGPT. According to the acquired data, and the responses, ChatGPT is useful for language learning, it is user-friendly and easily accessible for the learners.

Siti Yulidhar Harunasari (2023) (#4) wrote a study, where the main focus was the usability of ChatGPT for teaching writing in EFL classes. In the experiment sixteen university students took part. The age group was between 20 and 25 years old. For the study, the author used both quantitative and qualitative methods. Quantitative data came from the assessment of students' works (from post-test scores), while qualitative data was obtained from questionnaire feedback and the chat history data of the students' conversations with ChatGPT. Based on the feedback from the students, and the received data, Indonesian students are not comfortable with using applications like ChatGPT as a learning tool and they do not view the chatbot as a possible option as a writing assistant.

Young et al (2023) (#5) set as their goal to find out if there is a difference in how learners with different levels of proficiency in the English language view ChatGPT as an important learning tool for their studies. To be able to measure this data, they used Flesch reading ease scores, the McAlpine EFLAW metric, and the Dale-Chall metric. Based on their findings (Flesch reading ease scores), they conclude that most of the simulated dialogues were easy to comprehend. They also add that the generated materials might not be suitable for senior high school students or students of higher education. The data, they collected (Dale-Chall metric) shows that the usage of the chatbot is unsuitable for students with CEFR levels B2-C2. They conclude with the results from the McAlpine EFLAW metric, where they found that ChatGPT-generated materials are most suitable for learners with CEFR level A2.

Amr M. Mohamed (2023) (#6) investigated the perceptions of EFL faculty members at NBU about the effectiveness of ChatGPT in supporting the students' English language learning. For the study, the author selected ten EFL faculty members from the Northern Border University based on their subject matter expertise and enthusiasm to participate in in-depth interviews. The interviews lasted up to 25 minutes each and were audio-recorded and later transcribed for analysis. The author also used email interviewing because of its convenience, speed, and access to a large number of participants. The overall conclusion of the article is that there are pros and cons of ChatGPT as a language learning tool, as it can be used as a useful apparatus to improve the efficiency of EFL classes, mostly because it can help teachers in their work. On the other hand, there are some concerns (mostly ethical and privacy) with ChatGPT.

Mahdi A. Ahmed (2023) (#7) explored the position of ChatGPT in Saudi Arabia's Eastern Region's EFL classrooms. The study was based on the feedback (responses to five open-ended questions) of 64 EFL learners. Learners reported greater satisfaction with the teacher's role in all the researched factors (except for ease of use). The data collection period was four weeks long and the responses were sought in an eight-item written interview divided into four satisfaction components: Learning content, learning progress, ease of use, and interactive opportunities. The consensus of the article was that ChatGPT can be used as a supplement during the learning process but cannot replace the teacher's role without proper training for cautious use. It is also stated that ChatGPT does not help student's progress due to the lack of learning satisfaction achieved during the use of this tool.

Zhu et al. (2023) (#8) in their study presented a thorough SWOT analysis of ChatGPT, based on how the chatbot can be properly integrated into teaching and learning practice to harness its potential in education. Grounded on their SWOT analysis and the COST model for human learning, they proposed a set of strategies for utilizing the potential of ChatGPT in education. In addition to these strategies, policies and administrative measures should be taken care of to ensure data privacy and security, while also mitigating the risk of AI-assisted cheating. They also add that educators should be vigilant and responsive to new developments and consistently reassess how the application of ChatGPT or other chatbots can be used effectively while also maximizing its benefits and minimizing its weaknesses.

Li et al. (2023) (#9) in their study focused on the implementations and perspectives of YouTube content creators, while also on their impact on the ecosystem of language teaching and learning. They used mixed methods of netnographic approach, which they combined with qualitative and quantitative techniques. The number of identified videos was 140 – these videos were analyzed to uncover underlying themes an in-depth content analysis was conducted. The discovered four categories of creators were the following: educators, learners, technology professionals, and e-learning providers. The study also emphasizes the benefits and drawbacks of the integration of AI-powered tools in language learning.

Algaraady et al. (2023) (#10) aimed to find out if ChatGPT could identify writing errors and the capabilities of ChatGPT in analyzing EFL errors compared to instructors of EFL. For their study, they applied a mixed-methods approach, where they combined qualitative (to improve the understanding of the source of errors) and quantitative methods (to control the frequency of errors). They also applied two different strategies, the first being where human

instructors analyzed written texts to identify errors. The second strategy was based on using ChatGPT to analyze the same written texts by asking different questions regarding grammatical mistakes and writing style. All of the texts were written in English. They also had 88 university students as participants in the experiment. Out of those students, 54 were male and 34 were female. The age of the students was between 20-25 years.

Kohnke et al. (2023) (#11) explored the potential of ChatGPT in the EFL classroom, but there are some difficulties with the application (fear of cheating, no motivation, and problems with responses). Their study also provided some initial ideas about options on how ChatGPT can support language teaching and learning. It also has offered examples of learning tasks for new users of ChatGPT (for teachers and learners alike). They conclude their study with the claim that the chatbot is a versatile and valuable tool for language learning and also encourages language teachers to explore the pedagogical possibilities of ChatGPT for educational enrichment.

4. Discussion and conclusions

When exploring the integration of ChatGPT in EFL classes, several facets come to the forefront. One of the key aspects is the adaptability of ChatGPT as an auxiliary tool in language learning. Its ability to simulate conversations in various contexts, offer immediate feedback and provide personalized learning experiences (Mahdi, 2023). The systematic review implemented in this paper focuses on articles from reliable databases that were related to the study topic to identify the impact of artificial intelligence in foreign language learning using ChatGPT by systematically reviewing studies related to this area. The majority of the studies assume that ChatGPT enhances the quality of foreign language teaching as it is regarded as a user-friendly, free, and available application (Xiao, Zhi 2023). Still, in the case of Harunasari (2023), the study found that ChatGPT does not provide satisfactory content for the learners, as they missed the feedback that their teachers provided. According to Mohamed (2023), there are certain concerns about ChatGPT (ethical and privacy) as the teachers, who use this AI-powered chatbot are afraid that students might use it to write their homework, essays, or theses. Zhu et al. (2023) add that educators should also pay attention to these new technologies to be able to utilize them fully while reducing the threats they might hold.

In their SWOT analysis, Farrokhnia et al. (2023) presented a clear overview of the internal and external factors of using ChatGPT in the education process. Among the strengths they included *Generating plausible responses* -as the chatbot has access to pre-trained data, to ensure that the given responses make sense within the context. *Self-improving capability* – ChatGPT gets fine-tunings by researchers, developers, and average users, to keep it up to date. *Providing personalized response* – The application can adapt to individual learners' needs by offering customized exercises, explanations, and resources based on the learner's level and goal, and finally *Providing real-time responses* – ChatGPT generates replies to user inputs with minimal delay, in a matter of seconds. Moreover, the chatbot can cache, meaning it stores multiple copies of data for future use, thus speeding up the response time.

On the other hand, they listed several weaknesses of ChatGPT, like *Lack of deep understanding* – ChatGPT cannot replace the interpersonal and emotional aspects of human teachers. *Difficulty in evaluating the quality of responses* – the chatbot may provide answers that sound plausible but are fundamentally incorrect. It can also provide vague or overly general responses, which can be misleading for learners as ambiguity and lack of specificity can hinder the quality of communication. *The risk of biases and discrimination* – ChatGPT lacks the practical, real-world experience and cultural understanding that human teachers possess, so it may not provide insights into local customs, cultural norms, or regional dialects. *Lack of higher-order thinking skills* – The knowledge of ChatGPT is limited to information available up to January 2022 (Rudolph et al., 2023) and also lacks creativity – it generates texts based on patterns in data (Dimitrov, 2023).

The major limitation of this systematic review study is that during data collection only open access articles were included. The authors had a clear motivation behind this choice as they wanted to include recent, and relevant studies, thus excluding all grey literature and articles that were not open access to the academic reader audience. This finding reveals that not much attention is paid to the use of ChatGPT in EFL classes and therefore more research should be done in this direction of Foreign Language Teaching since AI-powered tools are becoming more and more popular and relevant not only in FLT but also in our everyday life.

Implications for future research and practice

- *Exploring creative integrations*: The results of this review emphasize the need for innovative ways to integrate ChatGPT into language teaching, beyond conventional methods.
- *Addressing ethical and privacy issues*: Future research should focus on addressing ethical concerns and ensuring data privacy in the use of AI tools, such as ChatGPT.
- *Continuous evaluation and adaptation*: The dynamic nature of AI technology calls for ongoing evaluation and adaptation of teaching strategies to leverage the evolving capabilities of tools like ChatGPT.

Overall, the article provides a thorough examination of the current state of ChatGPT's application in EFL classrooms, offering valuable insights for educators, researchers, and policy-makers in the field of language education and AI.

List of abbreviations:

EFL – English as a Foreign Language
AI – Artificial Intelligence
LMS – Learning Management System
GPT – Generative Pre-trained Transformer
LVA – Lyra Virtual Assistant
ASR – Automatic Speech Recognition
IT – Information Technologies
LLM – Language Learning Model
SWOT – Strengths – Weaknesses – Opportunities- Threats
ChatGPT - Chat Generative Pre-Trained Transformer
HSR – Human Speech Recognition

Institutional Review Board Statement: Not applicable

Informed Consent Statement: Not applicable

Data Availability Statement: All data are included in the article.

Conflicts of Interest: The authors declare no conflict of interest.

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