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GENERATIVE AI AS A TOOL FOR CULTIVATING CRITICAL THINKING IN THE EFL CLASSROOM

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ABSTRACT

This article explores the integration of Artificial Intelligence (AI) into English as a Foreign Language (EFL) instruction as a means to cultivate critical thinking skills among learners. Grounded in socio-cognitive and constructivist frameworks, the paper examines how AI-powered tools, such as chatbots, automated feedback systems, and intelligent tutoring platforms can promote analytical reasoning, inference, and metacognition in learners. Drawing on recent empirical research and classroom-based studies, the article identifies practical strategies for incorporating generative AI technologies into designing EFL activities. Particular emphasis is placed on AI-mediated dialogues and AI-supported peer review as pedagogical interventions that stimulate higher-order thinking. In parallel, the article addresses key ethical considerations, including algorithmic bias, data privacy, and the potential of overreliance on AI at the expense of learner autonomy and creativity. The paper concludes by underscoring the evolving role of educators and the need for AI literacy to ensure that AI serves as a transformative, yet critically managed, tool in language education.

KEYWORDS: Artificial Intelligence (AI), critical thinking, educational technology, English as a Foreign Language (EFL), generative AI tools

1. Introduction

The advent of Artificial Intelligence (AI) has generated a series of new and innovative pedagogical practices that help foreign language teachers and instructors to extend their classes beyond mere grammar and vocabulary acquisition. Thus, the use of AI tools in English as a Foreign Language (EFL) context offers multiple opportunities for learners to both actively engage with technology and reflect on how AI should be used. Because AI can offer personalized learning experiences as well as an adaptation "*not only to academic requirements but also to each student's learning style, pace, and preferences*" (Walter, 2024, p. 3), it can prove beneficial in helping learners achieve academic success.

Even though AI has been revolutionizing many domains for the past years, including education, as with every new technology, its benefits remain uncertain. While learners can use chatbots to save time while doing research or finding information to complete a task, they may also use AI to do all the work for them without putting in any effort. Worse still, by overusing AI, learners could become so depleted of critical thinking skills that they might prove unable to examine the veracity of the answers provided by the generative AI tool.

Although useful, the answers provided by chatbots, such as ChatGPT and Google Gemini, are limited to the data input supplied to them and the algorithms

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that they had been trained on. These patterns can oftentimes prove incomplete and biased, while also misinterpreting meanings due to their incapacity of understanding cultural frames of reference. There are challenges related to ethical control, data privacy, and equal access to the latest technological resources which can lead to educational disparities. Darwin et al. (2024, p. 2) point out that there is also a rising concern about the fact that "*reliance on AI in educational settings might lead to a one-size-fits-all approach, potentially overlooking the unique cultural, social, and emotional needs of individual students*" which, in turn, could promote a perpetuation of "*existing biases and inequalities in education*".

Recent studies have revealed the significant impact that AI is beginning to have across various educational contexts. However, limited research has focused specifically on EFL education and the potential effects of AI on foreign language learning. Teachers of foreign languages must remain alert and guide their students while using this type of technology, especially generative AI tools. They should help language learners understand that it is important for them to navigate critically through this complicated landscape so that they can make the best use of AI in their language learning process.

Paul and Elder (2014, p. 2) define critical thinking as "*the art of analysing and evaluating thinking with a view to improving it*". Critical thinking, as a key component of higher-order cognition, has become a focal point of language learning, a vital skill for effective communication and intercultural understanding. However, the practical ways of developing this skill have remained underexplored in traditional language classrooms.

Critical thinking is a concept that refers to all the skills involved in higher levels of thinking that help learners analyze different situations in a rational and effective manner. *The Cambridge Framework for Life Competencies* mentions three main areas of critical thinking: 1) Understanding and analyzing ideas and arguments; 2) Evaluating ideas and arguments; and 3) Solving problems and making decisions.

1) Understanding and analyzing ideas and arguments is a skill that helps learners identify patterns based on the analysis of information which leads to the development of their ability to understand ideas and interpret the information they are presented with.

2) Evaluating ideas and arguments is the learners' ability to identify which ideas and arguments are reliable and relevant and which they should doubt. This involves assessing the overall logic of an argument which, in turn, can lead to students mastering the ability to create robust arguments themselves.

3) Solving problems and making decisions is a complex skill that is based on a series of sub-skills such as: finding the appropriate information, evaluating and analyzing it, constructing solutions to problems.

Critical thinking encompasses a complex array of cognitive abilities, including analytical reasoning, the ability to assess content critically, and evidence-based evaluation. Modern education has taken the development of critical thinking as one of its main objectives, and the integration of AI-driven tools in teaching and learning appears to be one innovative approach to develop this skill. Tools such as adaptive learning platforms and online teaching tutors possess the ability to tailor the interaction according to students' interests. However, researchers have raised questions about the algorithmic bias, ethical challenges that these tools might pose, and their ability to personalize the users' experience when it comes to complex problem-solving situations. According to Walter (2024, p. 19), this personalization

"*ensures that students are not only engaged with the material at a level appropriate for them but are also challenged to push their cognitive boundaries*". The subsequent section of this paper will outline various approaches that foreign language teachers could adopt to complement traditional teaching strategies through the effective integration of generative AI tools into language teaching and learning practices.

2. AI and Critical Thinking in EFL Teaching

Vygotsky's sociocultural theory drafted in 1978 is still very much present in contemporary times since it posits that learning is mediated through the tools of social interaction. In this sense, AI functions as both a cognitive and linguistic mediator, supporting learners while analyzing, creating, and evaluating different tasks, all of which represent crucial components of critical thinking.

Emerging research emphasizes the potential of AI to enhance critical thinking in foreign language learning. For instance, Godwin-Jones (2024, p. 7) notes that "*AI promises breakthrough advances for informal, incidental language learning through the availability of written and voice chatbots, as well as for structured learning through individualized tutors, fulfilling the long-term dream of tutorial CALL (computer-assisted language learning)*". Furthermore, Chang and Gong (2025) found that AI can enhance students' knowledge acquisition, leading to an increase in their learning motivation.

Opinions on the benefits of using AI in EFL teaching are divided. Some argue that incorporating AI applications into language learning and tasks like essay scoring can support the development of students' analytical skills. Others, however, question the reliability of the algorithms behind various AI tools, suggesting that they may reinforce existing biases or hinder the development of students' critical thinking abilities. Another concern related to the usage of AI in language learning is represented by the fact that the AI systems can create "echo chambers" which have the power to limit students' exposure to a diversity of viewpoints. The echo chambers represent a phenomenon where AI algorithms create environments where the users are exposed to information that reinforces their particular beliefs due to the recommendation system used by such algorithms which are designed to optimize user engagement by showing content that is similar to what the users have interacted with before. This leads to increased polarization and misinformation, with users risking being trapped in a cycle where they only see information that confirms their biases. Sasahara et al. (2019) and Kusters et al. (2020) have pointed out that users' critical thinking skills could be narrowed down by the algorithmic biases which restrict the selection and variety of information that they provide. Darwin et al. (2024, p. 3) emphasize that employing AI in foreign language learning contexts should be addressed with caution as "*an over-reliance on AI for problem-solving or generating content could lead to a passive learning approach*".

According to Szmyd and Mitera (2024, p. 1026), the integration of AI in EFL teaching and learning presents both advantages and drawbacks. Among the benefits identified by the authors are the development of students' ability to reflect on various topics, as well as the facilitation of large datasets analysis and the exploration of alternative solutions. However, they also caution against the potential overreliance on AI tools, which might lead to a loss of learners' capacity for independent thought due to the ease of access to ready-made solutions provided by such systems. Moreover, the study conducted by Szmyd and Mitera revealed that, while students perceive AI tools as valuable for "*analysing information and*

formulating arguments", they are also aware of the "*tools' imperfections*". The questionnaire respondents pointed out that AI tools should be employed only as supplementary resources rather than as replacements for traditional teaching methods (1036). Similarly, Bhatti (2025) argues that, on the positive side, AI-driven technologies, such as ChatGPT, can alleviate teachers' workloads and facilitate individualized instruction for students. However, Bhatti also underscores several significant concerns, including erosion of academic integrity and originality, the spread of misinformation, and the potential encouragement of plagiarism and academic dishonesty.

3. Practical Applications in the EFL Classroom

3.1. AI-Mediated Dialogue

The incorporation of AI into EFL language teaching and learning aims to enhance accessibility, efficiency, and student motivation. Recent advancements in artificial intelligence have enabled the development of sophisticated language learning software capable of interacting with learners in ways that closely approximate human communication. As AI becomes more deeply embedded in educational platforms, important questions arise regarding its impact on traditional teaching methodologies, learner autonomy, and the reliability of language acquisition processes.

Generative AI tools, such as ChatGPT or Google Gemini, can help language learners if used in mediated dialogues. Teachers can design prompts that ask students to debate the pros and cons or to explain certain conflicting aspects of different topics. These interactions represent constructive and dynamic tasks that foster both critical thinking and linguistic competency, since students are required to construct arguments, analyze counterpoints, and evaluate the claims of the AI tool. Among the many AI tools that are gaining prominence nowadays, ChatGPT has attracted significant academic attention across disciplines. According to Bhatti (2025, p. 293), for instance, in English for Academic Purposes (EAP), ChatGPT has been employed to support language comprehension by offering interactive activities that improve vocabulary, grammar, and sentence construction. English language learners increasingly use ChatGPT for assistance with writing tasks, such as brainstorming ideas, refining sentence structures, and correcting grammatical errors, making it a valuable, albeit contested, tool in modern language education.

Research conducted by Hapsari and Wu (2022) and Muthmainnah et al. (2022) points to the fact that AI tools, such as the chatbots, can enhance EFL students' speaking proficiency by functioning as self-regulated learning environments capable of adapting to learners' unique characteristics and preferences. These studies have also revealed that chatbots, as personalized learning assistants, can help students lower their emotional barriers and become more confident during speaking activities. Similarly, Zhang et al. (2025, p. 11) suggest that, by using AI tools (such as chatbots), foreign language teachers have an extra instrument to utilize in order to support classroom interactions among learners and enable them "*to more effectively express their viewpoints in a foreign language*".

Although it remains a subject of debate among educators, ChatGPT has the potential to serve as a reliable and valuable conversational partner for EFL learners when employed within well-defined pedagogical guidelines. When integrated responsibly, it can function as a versatile tool that can prompt students to consider various viewpoints and arguments, thereby fostering the development of their analytical abilities. In this sense, we should mention the relevance of the study

conducted by Guo et al. (2023) on the use of ChatGPT in higher education which – by considering the students' responses – has concluded that this tool has the potential to enhance users' analytical skills by offering the students with the possibility to engage with the information at a deeper level of understanding. Suh et al. (2025, p. 6) suggest that ChatGPT can be successfully employed in language learning contexts because it "*can assist by analyzing and summarizing vast amounts of information more effectively and efficiently*". The authors also emphasize that, because of its "*accuracy in responding to queries*" ChatGPT "*holds promising potential to assist students in overcoming the conversational, structural, and linguistic challenges*" of providing arguments in a foreign language. The study identifies the most benefits in relation to argumentative writing since, according to the authors, ChatGPT can "*generate suggestions for improvement*" for each of the major elements of an essay and "*offer examples of effective writing*" which leads to an enhancement in "*the academic writing skills of English Second Language (L2) learners*".

In speaking activities, ChatGPT offers similar advantages, particularly due to its capacity to deliver real-time feedback to the users by providing tailored suggestions and examples of appropriate language usage. Thus, by conversing with a generative AI-tool, students can enhance the clarity and persuasiveness of their oral argumentation and eliminate inconsistencies while introducing vocabulary that is more adequate for the topic. Similarly, by suggesting other viewpoints, these tools support students in developing their critical evaluation and argumentative skills.

However, despite their potential benefits, the use of generative AI tools for speaking practice presents several notable limitations. First, the conversational flow may diverge from natural human interaction due to the inherently artificial and sometimes formulaic language generated by chatbots. Second, these tools may reflect underlying algorithmic biases and are known for their faultiness when it comes to accurately interpreting or representing more complex cultural constructs. Third, generative AI may occasionally provide incorrect information which can hinder English language acquisition if not properly monitored by a teacher. Fourth, overreliance on AI-mediated interaction may reduce learners' opportunities to engage in spontaneous communication which is essential for developing pragmatic competence and authentic language use.

AI-mediated debate tasks are valuable activities that can be successfully used with EFL learners, particularly at intermediate and advanced levels. These activities can help with the enhancement of both fluency and critical thinking because they offer the teachers the possibility to develop structured, argumentative speaking exercises.

A typical session of AI-mediated dialogue should include an introductory part where students are familiarized with the concept of AI-assisted conversation and the benefits of engaging with an adaptive conversation partner. The tasks usually involve either students selecting or being assigned a complex or even controversial topic which has to be debated during a simulated session with an AI tool, which is prompted to adopt a counter position so that the dialogue could remain interactive throughout the entire session. This format encourages learners to create logical and coherent arguments as they respond to opposing viewpoints and refine their language, particularly in terms of register, terminology, and discourse organization. Because AI has the capacity to provide both real-time responses and feedback in the form of language suggestions, the process of self-regulated learning becomes central

to this type of activity, while helping students increase their oral productivity by reducing their performance anxiety. Assessment in this type of activity can focus on multiple levels: coherence of argumentation, the use of subject-specific vocabulary, the learner's ability to critically evaluate the AI's input. Overall, these activities are flexible and effective and, if used correctly, can offer meaningful experiences to EFL students.

3.2. AI-Supported Peer Review

There are a number of AI-supported tools that can make a considerable contribution, when used under teacher guidance, to the development of peer-review activities. These tools can enhance students' ability to identify issues related to grammar, clarity, and coherence, while also promoting metacognitive and critical thinking skills. By analyzing AI-generated responses, students are encouraged to reflect not only on the language mechanics but also on deeper rhetorical elements such as argumentation, structure, and source credibility. For instance, prompts like "Is the argument logical?" or "Are the sources credible?" can lead to evaluative thinking and engage learners in higher-order cognitive processes.

Furthermore, AI-assisted peer review promotes learner autonomy by allowing language learners to independently assess and improve their drafts before formal evaluation. However, as Szmyd and Mitera (2024, p. 1023) caution, AI algorithms "*may introduce incorrect assumptions or amplify existing biases*". Therefore, students should be encouraged to approach AI feedback with a critical lens, using it as a supplementary resource rather than a definitive authority.

To ensure meaningful integration, educators should design peer-review tasks that balance AI input with human interaction. For example, in an EFL context, language learners might be asked to exchange short opinion essays and use an AI tool to generate feedback on clarity and grammar. Then, in small groups, students could discuss whether the AI feedback aligns with their own impressions, debate revisions, and collaboratively decide how to improve the text. This hybrid model not only enhances linguistic competence but also develops critical engagement and collaborative skills essential for academic and real-world communication in a foreign language.

4. Challenges and Ethical Considerations

While generative AI tools serve as rich learning resources, their integration into learning environments also presents a range of ethical and pedagogical challenges. Chief among these are concerns regarding data privacy, algorithmic bias, the opacity of decision-making processes and the potential for learner overreliance. Many AI tools collect user data to improve their performance, often without full transparency, raising questions about how student information is stored, used, and protected. Algorithmic bias – stemming from data sets on which AI systems are trained – can lead to skewed outputs that reinforce stereotypes. Overdependence on AI may further undermine learners' critical thinking, creativity and problem-solving skills, especially when students begin to view AI-generated responses as unquestionable authorities.

In light of these concerns, it is essential for teachers to approach the use of AI with clearly defined guidelines and to incorporate robust digital literacy instruction into their teaching practices (Luckin et al., 2016). Students must be taught not only how to use AI tools effectively but also how to interrogate the assumptions and limitations embedded within them. This includes understanding how algorithms function, identifying potential sources of error or bias, and

discerning between valid and flawed information.

Moreover, continuous professional development is essential to ensure that educators themselves are equipped to critically evaluate AI tools and align their use with sound pedagogical principles. Without adequate training, there is a risk that teachers may adopt AI technologies uncritically or ineffectively, thereby compromising educational quality and equity.

Walter (2024, p. 20) points out the importance of cultivating critical awareness among learners when engaging with AI-driven tools. He argues that students should not only utilize these technologies for academic purposes but also reflect on their underlying mechanisms to develop an understanding of the ethical implications, as well as the potential misinformation, errors, and biases inherent to such systems. This objective, Walter contends, can be effectively pursued by involving students in discussions about the societal impact of AI and by implementing dedicated courses focused on AI literacy. The development of such courses represents a valuable addition to the academic curriculum since modern education focuses on interdisciplinary methodologies.

The creation of such courses represents a valuable enhancement to modern academic programs, particularly given the current emphasis on interdisciplinary education. Embedding AI-related content across various subject areas can help illuminate its wide-ranging influence and relevance. For instance, in language classrooms, students might analyze AI-generated texts to identify tone, bias, or rhetorical strategy, thereby engaging both linguistic and ethical inquiry. Ultimately, addressing these challenges through informed, reflective, and inclusive teaching practices, can ensure that AI serves as a tool for empowerment rather than dependency.

5. Conclusions

As the integration of artificial intelligence into foreign language education accelerates, it is crucial to acknowledge both the opportunities and challenges that this technological shift presents. While many studies have highlighted the benefits of AI in enhancing language instruction (particularly in areas such as grammar correction, vocabulary development, and personalized learning), there remains an ongoing debate regarding the extent to which AI supports or undermines the development of learners' critical thinking skills.

Although generative AI tools have demonstrated significant utility in language learning contexts, concerns persist about their limitations. These include the risk of creating echo chambers, disseminating misinformation, encouraging cultural misunderstandings, and raising ethical issues related to data use and academic integrity. As this paper has outlined, AI possesses the transformative potential to reshape language instruction by embedding critical thinking into everyday classroom practice. However, it also has the capacity to diminish learners' independent analytical abilities if used uncritically or without pedagogical safeguards.

Given the dual potential of AI to both enhance and hinder cognitive development, educators must adopt a balanced and reflective approach. To mitigate the risks of academic dishonesty, plagiarism, and overreliance, teachers can utilize AI tools for routine or mechanical tasks – such as grammar drills – while reserving more complex, creative activities like literary analysis and argumentative writing for human-led instruction. Learners should be guided to critically engage with AI-generated content in ways that preserve their individual voices and foster deeper cognitive engagement. Furthermore, supplementing AI-assisted work with peer collaboration can provide the emotional and

contextual depth often absent from automated outputs.

Considering all these points, it is essential for educators to actively cultivate critical thinking skills in learners, enabling them to independently evaluate information and engage in thoughtful problem-solving. This calls for pedagogical strategies that blend the affordances of AI with human-centered instruction rooted in dialogue, inquiry, and reflection.

As we move forward in this evolving landscape, careful attention must be given to the ethical implications and pedagogical consequences of AI integration. Strategic, well-informed responses are necessary to ensure that AI serves as a supportive tool rather than a substitute for essential cognitive and creative processes in education.

Finally, future research should focus on longitudinal and context-specific studies that assess the impact of AI on cognitive and linguistic development in EFL settings. Such research is essential for shaping evidence-based practices that leverage the benefits of AI while addressing its limitations in a nuanced and educationally sound manner.

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