



## The Role of Artificial Intelligence (AI) in EFL Classrooms

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### Abstract

This paper sheds light on integrating Artificial Intelligence (AI) in English language learning. It aims at providing definitions and characteristics of AI in educational backgrounds along with its benefits and how it has developed until recently. Moreover, AI used to encourage the English communication skills of learners is discussed. It can be clearly seen that AI is revolutionizing language education by delivering personalized, engaging, and efficient learning experiences. Utilizing computer-assisted language learning, AI enhances advancements in sizable data and natural language processing to provide tailored lesson plans, interactive practice tools, data-driven insights, and automated assessment. In addition, limitations in AI-powered tool use to develop language learning skills are stated. Research on automatic translation machines is also reviewed to demonstrate their advantages and some points that should be considered. Studies on AI conducted in Thai EFL classrooms are discussed to understand the technological trends and how AI has been implemented to support EFL education in Thailand. Besides the advantages of AI, its potential drawbacks and limitations are presented to make the article well-balanced. Finally, the paper offers innovative suggestions and implications for pedagogy with AI in the area of EFL teaching and learning.

## 1. Introduction

The revolution of Industry 4.0 enhances technological advancements by creating potential opportunities and challenges for smart manufacturing systems in the 21st century. Moreover, the advancements in technology improve productivity, cost reduction, and efficiency in globalization (Dugosija, 2024; Fitria, 2021; Ghafar et al., 2023; Malik et al., 2024). Technology has become one of the essential parts of people's lives because it has been developed to facilitate people's daily activities (Fitria, 2021; Ghafar et al., 2023). One technology affecting today's globalized world is Artificial Intelligence (AI). Notably, AI plays a very important part in a wide variety of human life. In addition, it has developed, transformed, and facilitated on a daily basis. AI is increasingly used to connect various sectors in great efficient ways including agriculture, business, transportation, healthcare, communication, science, finance, banking, entertainment, customer service, manufacturing, social connectivity, and education (Almelhes, 2023; Collins et al., 2021; Dugosija, 2024; Haenlein & Kaplan, 2019; Malik et al., 2024).

AI has been widely employed for decades. Fitria (2021) states that AI comes from the words "artificial" and "intelligence". The word "artificial" means not real or not made of natural things but made to be like something that is real or natural whereas "intelligence" means the ability to learn, understand, and think about things (Longman Dictionary, 2024).

AI is the machine that duplicates intelligent human exploits (Troyanskaya et al., 2020). Fast and Horvitz (2017) state that AI is computer science focusing on solving cognitive issues frequently connected with human intelligence including insight, cognition, and natural language understanding. Artificial Intelligence is known as "intelligent behaviors in humans, animals, and machine and attempts to find ways" (Whitby, 2009, p. 11). That is, AI helps enhance learning, understanding, problem-solving, decision-making, and creativity.

AI originated from a branch of computer science (Fitria, 2021; Ghafar et al., 2023; Wei, 2023; Zawacki-Richter et al., 2019) and various fields such as philosophy, cognitive science, neuroscience, and economics (Tegmark, 2018). AI is intelligent machine-development to perform diverse tasks like human acts: learning, planning, solving problems, and language understanding (Ghafar et al., 2023; Malik et al., 2024).

In a conference at Dartmouth College, New Hampshire, the USA in 1956, John McCarthy and his co-workers proposed their Dartmouth Summer Research Project on Artificial Intelligence (Almehmadi, 2024; Almelhes, 2023; Collins et al., 2021; Haenlein & Kaplan, 2019; Sumakul et al., 2022; Zawacki-Richter et al., 2019). It was, significantly, the first time that the phrase “Artificial Intelligence” was introduced. Additionally, he referred to the phrase “Artificial Intelligence” as the engineering and scientific aspects of developing intelligent tools (Ruszel & Norvig, 2020). Since then, AI has been studied and developed in order to expand its potential benefits in various contexts, particularly the context of education.

Technology advancement has influenced education. That is to say, it has brought us the challenges of new paths in the field of education. Additionally, teachers can apply the technology into their teaching process (Hussin, 2018). AI has been widely used in the setting of education because teachers and learners are able to take advantage of the effective utilization of AI with their own convenience and appropriate time (Ghafar et al., 2023).

Although AI has taken a role in teaching and learning English, some aspects of AI are under-explored (Boonchom et al., 2024). Therefore, this article focuses on AI's role in EFL classrooms by providing its definition and brief background. Additionally, the paper delves into great understandings of AI in forming the surroundings of education and its integration in language teaching and learning in different aspects. Specifically, previous studies of AI applications conducted in Thai EFL settings are discussed in order to address local relevance and challenges regarding AI use as well as to identify research gaps. This paper would offer valuable insights into AI's impact as well as provide solutions and cautions leading to successful AI integration in EFL educational contexts.

## **2. AI in Language Learning and Teaching**

The rapid growth of AI technology in the 21st century is reshaping teaching and learning, especially in English as a Foreign Language settings. AI serves as a remodeling tool, personalizing paths that improve engagement, comprehension, and learning outcomes (Hartono et al., 2023; Moybeka et al., 2023). Adaptive AI platforms tailor content to individual learners' needs, skills, and preferences, fostering more effective and customized learning experiences (Li, 2020; Shikun et al., 2024).

While AI provides valuable resources, human teachers play an essential role in English language learning by offering guidance, fostering interaction, and effectively incorporating AI tools into the learning environment. Teachers leverage AI to enhance instructional methods and create dynamic, student-centered classrooms where learners feel supported and motivated (Fitria, 2021; Hartono et al., 2023; Moybeka et al., 2023; Shin, 2018). The cooperative interaction between human expertise and AI technologies ensures a balanced and enriched learning experience that blends innovative tools with the critical human element.

AI technologies like Intelligent Tutoring Systems (ITS), Natural Language Processing (NLP), Computer-Assisted Language Learning (CALL), and Mobile-Assisted Language Learning (MALL) significantly enhance language instruction (Almelhes, 2023). ITS adapts learning content to individual capabilities, offering personalized guidance that simulates human teaching (Jirasatjanukul & Wannapiroon, 2017; Yathongchai & Angskun, 2013). NLP allows systems to interact with human language, facilitating tools like chatbots for language practice and conversation in varied scenarios (Schmidt & Strasser, 2022).

CALL improves teaching efficiency, particularly in writing skills, while MALL supports learning through mobile devices, catering to diverse learning styles and providing accessible and flexible resources (Fazal et al., 2024). Applications like Duolingo, ELSA Speak, and Rosetta Stone integrate personalized feedback, gamified content, and interactive exercises to enhance motivation and skill development (Font de la Vall & Araya, 2023).

AI-driven platforms also enable real-time data analysis, refining curricula and providing immediate feedback through tools like speech recognition for pronunciation and grammar, which boost learner proficiency (Wei, 2023). Furthermore, AI fosters creativity, motivation, and comprehension, creating dynamic learning contexts customized to varied needs (Sumakul et al., 2022). By blending adaptive technologies with human-centered strategies, teachers focus on the personalized challenges and individual learner goals, ensuring a more inclusive and productive educational experience.

In summary, AI significantly enhances EFL teaching and learning by supplying incorporated, adaptive content, fostering motivation, and enabling innovative methods for skill development. However, the centric role of human teachers ensures that AI's potential is maximized through thoughtful integration, guidance, and support, creating an inclusive, engaging, and efficient educational environment.

### 3. AI in Developing Language Skills

English listening, speaking, reading, and writing are essential for EFL students. How can their integration contribute to comprehensive language acquisition? Categorized as productive (speaking, writing) and receptive (reading, listening), these skills each play distinct roles in communication and academic success. Verbal interaction is enabled by speaking, while the organization and expression of ideas in text are emphasized in writing (Jamoom, 2021). Receptive skills, including reading and listening, involve analyzing written content and interpreting spoken language, respectively.

Comprehension of pronunciation, intonation, and vocabulary is built through listening, crucial for conversations, lectures, and media (Sharma & Puri, 2021). Idea-sharing and discussions are facilitated by speaking, which requires practice in supportive environments to build confidence and improve through mistakes. Vocabulary, comprehension, and critical thinking are enhanced through reading, which engages students with diverse texts and cultural perspectives. Writing, by developing clear, persuasive communication skills, reinforces comprehension and aids memory retention through reflective expression. Thus, reading and writing together form a holistic approach to language learning. Speaking, listening, reading, and writing are crucial for efficient communication and language mastery. While speaking and listening enable interaction and comprehension, reading and writing expand vocabulary, critical thinking, and expression. These skills together form the foundation for academic success and meaningful engagement.

AI is revolutionizing language instruction by proposing individual and efficient learning experiences in listening, speaking, reading, and writing. Interactive exercises, gamified elements, and tailored feedback help enhance pronunciation, grammar, and vocabulary, adapting to individual goals (Doghonadze & Kintsurashvili, 2024). Dynamic and customized instruction can be delivered by educators, equipping learners with essential skills for academic, professional, and everyday contexts.

AI has significant potential to enhance communication skills in language learners. AI platforms, which utilize natural language processing (NLP) and interactive features, provide dynamic environments for practicing these skills. Real-time feedback is offered, improving pronunciation, fluency, and conversational abilities, benefiting learners through targeted exercises (Liu, 2023). Virtual tutors and chatbots simulate real-life interactions,

allowing students to refine their speaking in a supportive setting, while speech recognition aids listening comprehension by exposing learners to native speakers' sounds and intonations. Authentic spoken materials, such as podcasts and interviews, are provided by AI platforms, enhancing listening comprehension and familiarity with accents. Low-stress environments for practice are created by chatbots (Kuhail et al., 2023). AI's ability to imitate authentic dialogues and offer instant feedback on speaking and listening is transformative. As AI technology continues to evolve, it brings exciting possibilities for improving language learning outcomes.

EFL learners often face challenges with reading comprehension, such as struggling with vocabulary, complex grammar, and culturally embedded references in texts, which hinder their fluency and understanding of longer passages (Hidayat, 2024). Implicit meanings, inferences, and idiomatic expressions, which may not translate directly from their native languages, are also difficult for many learners (Nezami, 2012). Additionally, a lack of strategic reading skills, like identifying main ideas and making predictions, impacts comprehension and academic performance. These challenges limit students' academic opportunities and earning potential, making effective reading strategies essential. Personalized learning methods, enhanced by technology, can significantly improve comprehension (Fisher & Frey, 2020). Advancements in AI and NLP have enabled the evolution of personalized learning platforms that conform to individual needs. Performance is assessed by using machine learning, and tailored reading materials are provided to improve comprehension.

AI is transforming writing instruction by offering personalized feedback, grammar correction, and stylistic suggestions, which help learners improve over time (Alzahrani & Alotaibi, 2024; Song & Song, 2023). Proficiency is boosted through real-time grammar feedback, allowing quick error correction (Marzuki et al., 2023). However, AI tools should be complemented by traditional methods to foster critical thinking and authentic expression, ensuring a comprehensive approach to writing instruction.

#### **4. AI and Translation**

With the recent advancements in technology, there is a paradigm shift from human-produced translation to machine translation. (Ali et al., 2023; Kenny, 2022; Liang, 2024). Therefore, large numbers of software applications and online services have been

designed to promote efficiency and accuracy of translation (Puchala-Ladzinska, 2016). Examples of AI-based translation programs available now include Google Translate, DeepL Translator, Bing, Microsoft Translator, Reverso, Systran Translate, and Amazon Translate.

The revolution of these automated translation tools brings about what can be seen these days, that is, a majority of people use smartphone and online machine translation to overcome language barriers as well as bridge the gap between cultures and linguistic systems. Moreover, Moneus and Sahari (2024) assert that AI used in translation plays an essential role in various sectors, e.g. academia, industry, media, and politics. In the same vein, Dorst et al. (2022) insist that machine translation is fast, free, and available to handle translation of numerous texts related to business, industry, and government.

Machine translation (MT) is a model of artificial intelligence allowing computers to automatically translate source-language text to a target-language text without any human involvement and restores the meaning of original content in the translated version (Dorst et al., 2022; Kenny, 2022). The process of translation can be divided into metaphor and paraphrase level (Tripathi & Sarkhel, 2010). The former is word-to-word translation that sometimes conveys the exact meaning of the source while the latter refers to translating text by maintaining the main idea of the original text meaning but possibly changing the syntactic word order.

There are three core perspectives on machine translation. The first approach is dictionary-based machine translation (DBMT) which is based on dictionary entries. To elaborate, the words will be translated as they appear in a dictionary. The second approach is rule-based machine translation (RBMT), also known as knowledge-based machine translation (KBMT). It relies on linguistic knowledge and the connections between the source and the target languages to perform the translation task. The third approach is corpus-based machine translation (CBMT), which refers to a massive data source and texts from both the source and the target languages. The parallel collected corpus is employed for the objective of the translation. This approach is most widely used because of its higher accuracy when compared to other approaches (Tripathi & Sarkhel, 2010).

Research has shown that machine translation is applied to improve English language learning. Lee (2023) demonstrated that machine translation has gained

popularity among EFL students inside the classroom. In her study, 87 studies on machine translation in EFL teaching and learning contexts published between 2000 and 2019 were investigated by systematic review and meta-analysis approaches. Most studies reported the positive impacts of using machine translation in EFL learning on writing competency. Also, Benites et al. (2021) confirmed the usefulness of machine translation in EFL education. The online survey of Swiss university students and teachers revealed that a huge majority of both groups have normally used machine translation in their academic work, non-academic work, leisure activities, and private life. They reported that machine translation was regularly used for all documents within the university. In a similar way, Dorst et al. (2022) found that almost 97 percent of the students in Humanities, such as Law, Social Sciences, and Behavioral Sciences reported that they frequently adopted machine translation for educational purposes, followed by individual communication and social media, and assignments, respectively. This is due to the language used in academic papers being more complex, abstract, and formal. Hence, the students need to consult machine translation regarding word meanings and grammatical structures more often.

Although scholars have affirmed the benefits of machine translation in EFL education settings, some serious concerns should be noted. First, translation is a creative, challenging, and difficult process in which a translator not only needs linguistic skills but also knowledge about the world and culture. As Sharma (2017) states, translation is a production process of conveying meaning and information from the source language into the target language by using linguistic knowledge and subject knowledge, as well as social and cultural background knowledge of a translator. But the question is “Is it possible to have all aforementioned skills and knowledge uploaded into machine translation software?” In this case, Puchala-Ladzinska (2016) argues that a human translator now seems to outperform machine translation because AI does not understand and translate our complicated language. According to Vinall and Hellmich (2022), AI often fails to translate messages related to cultural differences and gender sensitive meanings. Moreover, machine translation still has limitations in translating cultural concepts and leaves the reader wondering what they are.

Second, machine translation can be a threat to professional translators because it replaces humans. Human translators may be responsible for predominantly editing machine-translated texts. As Puchala-Ladzinska (2016) states, as future machine

translation is becoming more and more advanced, human translators might change their role to be editors whose job is to correct the texts translated by machines. Tavares et al. (2023) state that this situation might happen because machine translation is becoming increasingly accurate and prevalent. From this perspective, Gordon (2024) suggests that language translation should be a hybrid model that incorporates AI technology and human translators. Finally, teachers must be aware of its limitations and provide adequate guidance to students when applying machine translation in their language classroom (Lee, 2020). Besides, educational institutions also should raise awareness of the need to offer a training course aiming to provide knowledge on machine translation applications to the students and promote their digital literacy (Dorst et al., 2022).

## **5. AI Applications in Thai EFL Classrooms**

AI technology influences the current Thai educational context with a variety of purposes (Ministry of ICT, 2009). The issue of integrating AI in teaching and learning has always been discussed and debated because of its potential to enhance students' language learning performance (Deerajviset, 2014). Recently, many educational institutions in Thailand have been using AI as a major or supplementary tool to enhance classroom instruction as evidenced by numerous AI studies over the past decade.

Previous research reported that students have positive attitudes on the use of AI. Thedpitak and Somphong (2021) investigated that the attitudes of 175 Thai EFL first-year university students majoring in Business Administration employ mobile applications for language learning. The results from the questionnaire revealed positive attitudes on mobile applications used to support and develop their listening, reading, vocabulary, translation, pronunciation, writing, and grammar. Moreover, there were no attitude differences on mobile applications use between students with different language proficiency levels. It is recommended that the teachers who employ AI in their classroom should provide suggestions on how to use applications properly and efficiently to promote the students' self-directed learning. To this end, they are supposed to apply AI tools by themselves prior to recommending them to students. For this aspect, teacher training in AI applications is essential.

Similarly, Jeanjaroonsri (2023) employed a questionnaire to explore 305 Thai EFL university learners' perceptions of mobile technologies for English writing. It can be seen

that most of the learners required the assistance of various applications for improving their English writing such as mobile dictionaries, machine translation, and language checker applications. The students reported that they could take advantage of mobile technologies in terms of enhancing writing performance and confidence, as well as providing quick and convenient access to linguistic assistance. On the other hand, they felt that mobile technologies take them far away from the real process of writing. Moreover, they were concerned about over-reliance on technologies in their writing. Also, they need more teacher guidance in this technology.

Thangthong et al. (2024) reported that 10 Thai non-English-major undergraduates underlined AI as writing assistance in promoting their writing quality via grammar and spelling checks, transition words, paraphrasing, and vocabulary suggestions. Also, their confidence was boosted when they used AI to support their writing. Plus, AI tools were convenient for students when they encountered writing difficulties. However, the students were concerned about technology over-reliance, academic malpractice, as well as application ineffectiveness.

The research also revealed the positive attitudes of teachers on AI integration in their teaching. Kalra (2024) investigated English instructors' perceptions of the benefits and challenges in relation to the use of AI in an English classroom at an international university in Thailand. Two-hundred and eight English teachers completed the survey. Only twenty teachers participated in semi-structured interviews. The findings showed that AI-powered tools are widely used among the instructors. The majority of the teachers employ AI technology to improve their English knowledge and skills, receive feedback to improve their English, help with English assignments, and create lesson plans, respectively. The teachers also reported some challenges to be recognized including ethical concerns, accessibility, and the shifts in teacher roles. Another study dealing with the EFL teachers' perceptions on AI technology was conducted by Boonmoh et al. (2021). This study examined the perceptions and technology used in the classrooms of 126 secondary school teachers. The findings from a questionnaire signified that the technological knowledge was integrated by teachers in the classes. They indicated that the factor of facilities in classrooms, learners' readiness, preparation time, skills, interests, confidence and beliefs of the teachers affect the use of technology in classrooms.

Apart from that, existing literature indicates the success of AI technology on Thai EFL learners' language abilities. For example, Suthiwartnarueput and Nutayangkul

(2022) explored the outcome of the instruction with Line Application to foster English-oral proficiency of 95 Thai EFL undergraduate students by using pre-tests, post-tests, and interviews. From the study, the students' English-speaking ability was improved after the speaking instruction using the LINE App. Moreover, the students had more motivation, confidence, convenience, and less anxiety. So, the study recommended language teachers to emphasize these elements.

Pitukwong and Saraiwang (2024) examined the effectiveness of writing tools called Paragraph Punch and ProWritingAid on 53 Thai EFL university students' writing. Pre-tests and post-tests revealed that the students' writing ability was enhanced after the digital writing intervention. Moreover, according to the interviews, the students reported positive perceptions towards AI English writing tools. They helped increase learners' motivation and engagement in writing classes. In addition, they provided supportive guidance and real-time feedback to the students. Nevertheless, the over-reliance on automated grammar and spelling checks, technological barriers and accessibility issues were indicated to be challenges in the use of AI applications.

Evidently, the above research results discover the positive attitudes of learners toward AI applications in Thai EFL settings including AI effectiveness used in English language instruction. In brief, students and teachers reflected several benefits of AI tools regarding the students' learning performances development. Moreover, teachers reported that AI technology helped improve their English knowledge and proficiency, improved feedback, and helped design English assignments and lesson plans.

Based on the review of previous research on AI carried out in EFL contexts, several gaps can be suggested for future studies. First, most studies revealed that AI application has been examined in EFL classrooms at a university level. More studies should investigate the use of AI at different educational levels to confirm AI efficiency with different levels of learners. Second, previous research is limited to selecting and intentionally implementing effective technologies. The long-term impact on language learning and inclusivity is underexplored, highlighting the need to evaluate whether these tools enhance or hinder educational equity. Moreover, researchers may conduct comparative studies in the different approaches to examine EFL proficiency levels among the learners customized with AI, the traditional teaching approach, and the balance between AI tools and the traditional approach. In addition, AI applications are often not customized to address local educational needs, especially in varied cultural contexts.

Research should discover the effectiveness of AI across different cultural backgrounds, ensuring their cultural awareness, and tailored to the diverse learners. Lastly, past studies revealed the effectiveness of AI on learners' linguistic and cognitive outcome, but they neglected the effects of AI on students' emotion or mood during the learning process. Therefore, further AI studies should also focus on the affective factor of the EFL learners.

## **6. Limitations and Challenges of AI**

Despite many AI advantages in assisting students' learning experiences and teachers' practices as shown by past studies, some limitations and challenges about integrating AI in EFL contexts have remained. These include the issues of over-reliance, accessibility in resource-limited areas, the need for teacher training, ethical concerns, and AI effectiveness.

A major drawback of AI integration in classrooms is over-reliance or the excessive dependence on AI tools. While AI facilitates learning and provides automatic tools and convenience, relying too heavily on AI tools could reduce essential human interaction (Thangthong et al. 2024), affect the cultural context and social dynamics (Dugosija, 2024), minimize students' ability to thoroughly understand their mistakes (Waluyo & Kusumastuti, 2024), and lead to passive learning experience (Elliott, 2023). Additionally, over-dependence on AI can reduce critical thinking and problem-solving abilities. To prevent the problem, teachers must guide students to apply AI as a supplementary aid to foster independent learning. Also, it is necessary to keep balance in the application of AI in instruction to ensure that learners can have the chance to develop various skills. The students should progress in critical thinking skills to assess the quality and trustworthiness of AI-generated content (Chan, 2023).

Inequity of AI access is a further challenge. Accessibility in technologically restricted areas is the critical issue when using AI in EFL settings. The infrastructure, including good internet connections and adequate hardware, is a key element of integrating AI technologies in an educational system. AI often requires internet access for optimal functionality to reach databases and online resources for real-time and latest information. (Darwin et al., 2023; Elliott, 2023; Mhlana, 2023; OECD, 2024). On the other hand, EFL learners who have technology limitations and restricted accessibility may encounter their

learning barriers. Therefore, it is important to have technological accessibility to promote educational equality in local areas. This issue is exacerbated by disparities in access to technology, which can widen the educational achievement gap among students from different socio-economic backgrounds.

Effectively integrating AI tools into classrooms requires teachers to acquire both technical and pedagogical skills. According to Kalra (2024), the teachers first need to learn and understand the importance and the affordances of AI. Studies emphasize that teachers need to cultivate specific competencies related to AI, including understanding the functionalities of AI tools, their pedagogical implications, and ethical considerations surrounding their use (Kasneci et al., 2023; Khalil & Alsenaidi, 2024; Kitcharoen et al., 2024).

Structured training programs are essential to build teachers' AI literacy (Tammets & Ley, 2023). The training programs can be seen as operating AI software and interpreting data, with practical applications like creating personalized learning plans and enhancing student feedback (Dugosija, 2024; Celik et al., 2022). Du et al. (2024) demonstrate that flexible training formats, including hands-on workshops and self-paced online modules, accommodate diverse teacher needs. AI training provides real-world insights, bridging the gap between theory and practice. Post-training support, e.g. mentorship programs and help desks, ensures sustained growth as teachers incorporate AI into their classrooms. AI training must consider ethical issues to ensure responsibility and fairness. Schools should invest in training to encourage teachers to use AI responsibly and effectively, enhancing learning outcomes and preparing teachers to maintain the human-centered essence of education.

Recently, ethical concerns in using AI have been increasingly discussed. Issues like data reliability, breaches, and the lack of adequate protection laws further complicate AI's use in education. AI systems applied in pedagogical settings normally collect an enormous amount of learners' personal data which could be used for unintended purposes or be accessed by unauthorized individuals which can lead to students' privacy disclosure (Holmes et al., 2021). Thus, it is crucial to secure this data to guard students' privacy to maintain ethical standards (Memarian & Doleck, 2023). Moreover, the issue of academic dishonesty including plagiarism and cheating has long been a critical concern. Academic misconduct can occur when learners duplicate AI-generated content and then present it as their own. To promote academic integrity, the teachers can detect plagiarism or cheating to maintain standards and authenticity. Furthermore, the teachers

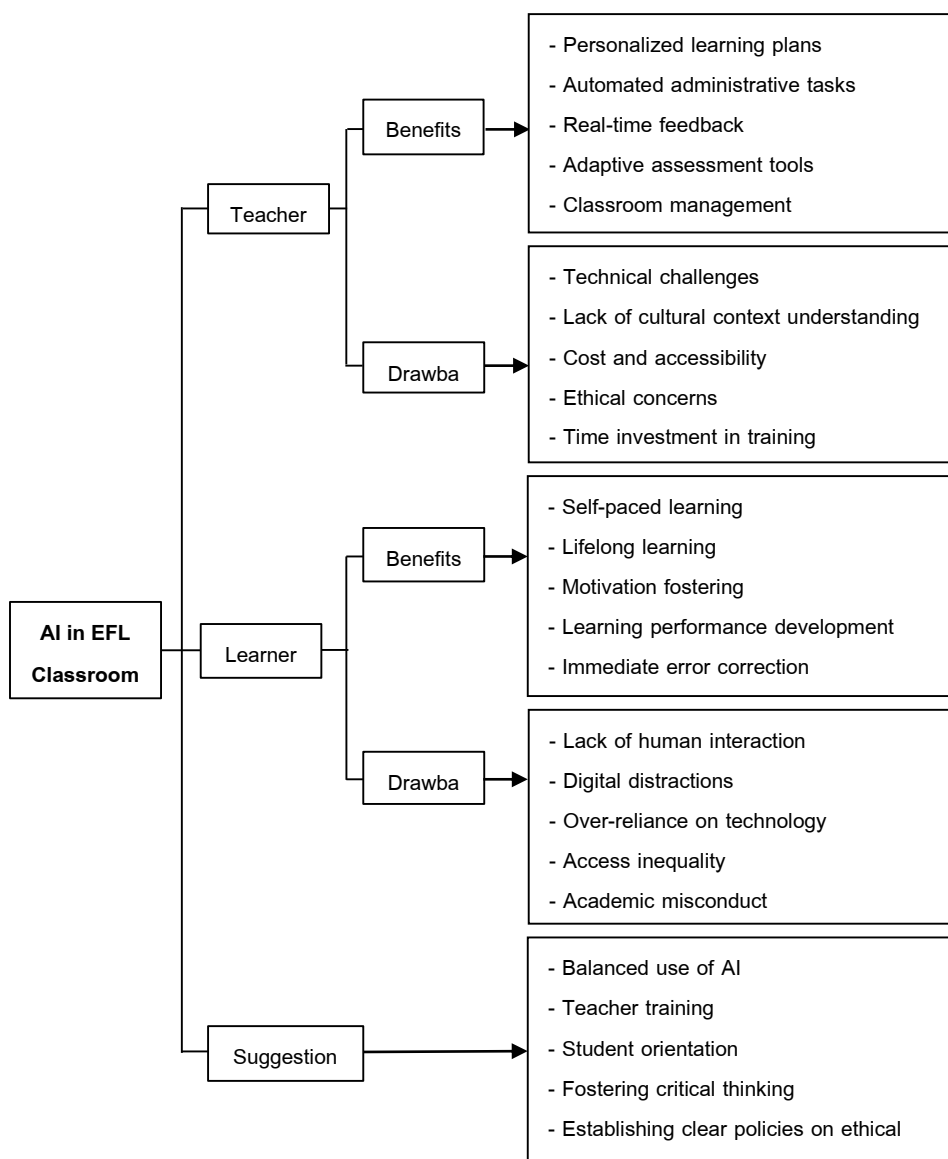
should implement strategies that foster a culture of honesty and ethical behavior (Mohammadkarimi, 2023).

Another controversial topic of AI tools implemented in EFL classrooms is its effectiveness compared to human instruction. AI-based learning tools can be utilized along with traditional methods. However, they cannot replace human teachers (Font de la Vall & Araya, 2023; Ghafar et al., 2023) because AI diminishes human creativity and critical thinking. Human teachers can reveal their knowledge, expertise and experiences to the learners. A significant drawback of AI is its inability to replicate emotional intelligence. In language learning contexts, interaction between learners and human teachers is a vital factor and fosters motivation and emotional support, which AI tools cannot provide. AI limitation risks creating a dehumanized learning experience that may negatively impact students' social and emotional improvement (Malik et al., 2023; Marzuki et al., 2023). While AI applications can simulate conversations, they are unable to capture the complexity of human interaction (Elliott, 2023).

Additionally, AI can limit students' critical thinking. AI lacks the ability to comprehend nuanced aspects of tone, contextual knowledge, irony, and emotional subtleties. This may lead to misinterpretations in language learning. (Darwin et al., 2023; Elliott, 2023). Learners who over-rely on AI become less engaged in the processes of learning, which weakens their essential learning skills and become passive learners. Despite the advancements in AI, learners continue to expect the personal care provided by human teachers.

Moreover, AI may fail to interpret the cultural concepts related to contextual meanings, leading to misunderstanding and miscommunication among the learners so that they may lack deep insights for language learning. In addition, AI may generate a homogenized form of language, diminishing the cultural and linguistic diversity, involving idiomatic expressions, slang, and pronunciation differences that are essential to EFL learners (Alshumaimeri & Alshememry, 2024). This limitation overlooks the emotional and cultural dimensions. It can be clearly seen that AI tools are unproductive role models for EFL learners when compared to human teachers.

The following diagram (Figure 1) shows a framework of AI used in EFL classrooms. The framework illustrates AI's benefits and drawbacks in the perspectives of teachers and learners. Moreover, suggestions for AI integration are also provided.

**Figure 1***Framework for AI Used in EFL Classrooms*

## **7. Practical Implications for Educators, Policymakers, and Researchers**

AI technology has influenced every area of society, including education. Apart from teachers and learners, exploring the implications of AI for educators, policymakers, and researchers is also needed.

To maximize AI's potential, educators need professional development programs offering technical training and pedagogical strategies. AI technology provides multiple opportunities in education for educators. AI tools create educational content, improve student engagement, interaction, and customize learning and teaching experiences (Hutson & Ceballos, 2023). Ayala-Pazmiño (2023) states that to minimize the risks of AI, educators should design tasks emphasizing creativity, social, critical thinking, and problem-solving skills that machines cannot imitate. Moreover, educators should align these skills with the course's learning objectives, assessments, and activities (Farrokhnia et al., 2023). In addition, they may design lessons aimed at cultivating the development of cognitive abilities. Educators must stay updated on AI advancements, integrate AI tools effectively, evaluate their impact, and address ethical concerns through proper training and informed teaching practices. Ifenthaler et al. (2024) suggest strategy framework for educators that can support large-scale implementation of AI in educational organizations including developing an engagement policy, analyzing the capability to effect changes, and establishing monitoring and learning opportunities. By doing this, educators should collaborate with policymakers to unlock AI's transformative potential while ensuring its ethical and equitable integration in education.

When AI is becoming increasingly dominant in education, policymakers also face the challenge of leading their communities (TeachAI, 2024). According to Clugston (2024), policymakers need to set clear goals, measurable objectives, and align them with the school's mission to ensure that AI implementation is purposeful and focused. Establishing AI taskforces to align implementation with educational goals and local needs is essential, along with incorporating AI literacy into curricula to prepare students as informed users and creators of technology. Policymakers should focus on developing personalized learning based on individual learner abilities by establishing an AI use framework. Consequently, policymakers should support teachers to incorporate AI into their instructional practices and set guidelines for AI use responsibly in educational environments. It is necessary to blend AI, serving as a supportive tool, with traditional

teaching approaches to promote durable skills (Hutson & Ceballos, 2023) which are vital for learners' future success. AI should be perceived in policymaking as an assistive tool in navigating complex decisions, predicting desirable futures, raising patterns in data, and assessing the risks and impacts of simulated policies (Pérez-Ortiz, 2024). Policymakers can leverage the study to find the ethical implications of using AI in classrooms through strategic research, tackling a significant yet underexplored issue. TeachAI (2024) recommends that policymakers and leaders in education can arrange future manpower by integrating basic policies to help perceive the advantages of AI in education and minimize its risks. These include cultivating leadership, promoting AI literacy, delivering guidance, assembling capacity, and supporting invention. Using these policies together can ensure that AI promotes students' learning outcomes and supports teachers in education.

For researchers, AI tools provide several benefits to enhance the quality of their writing and convey their ideas effectively. AI technology reshapes the research landscape by expediting data analysis, improving academic output, and detecting plagiarism. AI tools facilitate collaboration by generating ideas and research formats, developing content, constructing literature reviews, analyzing and synthesizing findings, interpreting findings, deriving meaningful conclusions, supporting ethical compliance in research dissemination, and fostering innovative outcomes (Howard, 2019). With AI innovation, AI can generate infographics that visually illustrate data trends and presentations into research material, simplifying complicated information and making it comprehensible to audiences (Khalifa & Albadawy, 2024). Moreover, AI technology reduces wages while conducting traditional research and allows researchers to focus on critical aspects in research procedures. AI also helps in continuous monitoring which keeps researchers updated on trends, ensuring relevance (Fadlelmula & Qadhi, 2024). However, the issue of dependency on these tools has been increasingly concerning because researchers may lose essential skills for manual data interpretation. Additionally, researchers must be transparent on AI in the writing process to avoid possible ethical breaches, involving the need to protect sensitive data. Bouchrika (2024) recommends that AI tools should be used as a complement to ensure the research aligns with academic standards while retaining the researchers' authentic voice. Balancing AI with

traditional research methods preserves critical thinking. This hybrid approach emphasizes a key principle, that is, AI should boost human efforts, not replace them.

## **8. Conclusion**

To sum up, this article is intended to highlight the implementation of AI technology in EFL teaching and learning. A literature review provides an inclusive exploration of the effectiveness and constraints of AI in developing English language learners.

AI technology has transformed the teaching and learning pathways in an interconnected world. The considerable importance of AI technology is enormously advanced and collaborative in English language education. The innovative strategy of using AI tools overcomes the barriers of teaching and learning in English contexts. AI integration enriches the goal of language skills in educational settings to improve learners' performance. With powerful AI tools, English teachers not only generate personalized content based on learners' different proficiencies and specific requirements but also boost learners' confidence to engage with English language experiences in a global society. Engaging with AI in language education contributes substantial advantages in enhancing language learning abilities. In addition, AI is used to retain an immersive English educational atmosphere. Moreover, AI is a supplement tool for language teachers in language contexts. Teachers utilize AI in monitoring each learner's English level performance, determining an individual's realm of skill improvements, and fostering proper personalized consideration.

AI is revolutionizing EFL language education by delivering tailored, engaging, and efficient learning experiences. Leveraging advancements in large amounts of data and natural language processing, AI proposes customized lesson plans, interactive tools, and real-time feedback to improve skills in speaking, writing, listening, and reading. It enhances practice through chatbots, speech recognition, and writing aids, promoting confidence and proficiency. AI translation technology has progressively developed. With AI assistance in translation, EFL students develop their vocabulary learning and grammatical knowledge. Moreover, machine translation can save time and increase students' self-confidence (Un-udom, 2023). Yuxiu (2024) also agrees that AI translation

applications have a positive effect on learners' translation levels and efficiency. Teachers can use machine translation software to translate unfamiliar words. Students can learn new vocabulary faster and machine translation helps extend their own vocabulary knowledge. Additionally, AI can be operated to evaluate translation tasks. However, while AI addresses diverse learning styles and bridges educational gaps, it has limitations, such as overlooking cultural nuances and fostering over-reliance. Educators must balance AI tools with traditional methods to ensure holistic skill development, fostering critical thinking, creativity, and authentic communication.

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