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AI in English Language Education: Opportunities, Challenges, and Implications

الذكاء الاصطناعي في تعليم اللغة الانجليزية: الفرص والتحديات و الاثار المترتبة عليها

Abdussalam Saleh Tantani

Faculty of Arts, Department of English, University of Zawia

Mmfhsh1973@gmail.com

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Abstract

This paper explores the integration of artificial intelligence (AI) in teaching English as a foreign language (EFL), focusing on its advantages, challenges, and pedagogical implications. AI technologies, particularly those utilizing natural language processing (NLP) and machine learning algorithms, offer personalized and adaptive learning experiences, enhancing student engagement and learning efficiency. AI-powered tools facilitate real-time feedback, automated assessment, and immersive language practice, which can significantly support both teachers and learners in improving language proficiency. Despite these advantages, AI's implementation in EFL education presents several challenges. A major concern is its potential to diminish student interaction and reduce the communicative and social aspects of language learning, which are crucial for developing fluency and confidence. Additionally, AI-generated feedback may lack contextual awareness, leading to inaccuracies in language assessment and personalized recommendations. Ethical concerns, including data privacy, algorithmic biases, and the risk of over-reliance on AI-generated content, further complicate its adoption. Furthermore, accessibility disparities remain a critical issue, as students and educators in resource-limited settings may struggle to benefit from AI-driven language learning tools due to technological and financial constraints. This study underscores the importance of a balanced and informed approach to AI integration in EFL teaching. While AI can enhance educational experiences, its limitations must be acknowledged and addressed. The paper offers recommendations for maximizing AI's benefits, including teacher training, ethical AI adoption, and ensuring equitable access. Educators and students must leverage AI's capabilities responsibly, ensuring that technology complements rather than replaces human interaction in language education.

Keywords: Artificial intelligence, English as a foreign language, AI in education, language learning technology, ethical AI adoption, personalized learning, adaptive learning technology.

الملخص

يستكشف هذا البحث دمج الذكاء الاصطناعي (AI) في تدريس اللغة الإنجليزية كلغة أجنبية(EFL) ، مع التركيز على مزاياه وتحدياته وآثاره التربوية .توفر تقنيات الذكاء الاصطناعي، لا سيما تلك التي تستخدم معالجة اللغة الطبيعية (NLP) وخوارزميات التعلم الآلي، تجارب تعلم شخصية وتكيفية، مما يعزز تفاعل الطلاب وكفاءة عملية التعلم. تتيح الأدوات المعتمدة على الذكاء الاصطناعي التغذية الراجعة الفورية، والتقييم الآلي، وممارسة اللغة بأسلوب تفاعلي، مما يمكن أن يدعم بشكل كبير كلًا من المعلمين والمتعلمين في تحسين الكفاءة اللغوية .على الرغم من هذه المزايا، فإن تطبيق الذكاء الاصطناعي في تعليم اللغة الإنجليزية كلغة أجنبية يواجه العديد من التحديات .يتمثل أحد المخاوف الرئيسية في إمكانية تقليل التفاعل الطلابي وإضعاف الجوانب التواصلية والاجتماعية لتعلم اللغة، وهي عوامل أساسية في تطوير الطلاقة والثقة بالنفس. بالإضافة إلى ذلك، قد تفتقر التغذية الراجعة التي يولدها الذكاء الاصطناعي إلى الفهم السياقي، مما يؤدي إلى أخطاء في تقييم اللغة والتوصيات الشخصية .كما تثير قضايا الأخلاقيات، مثل خصوصية البيانات، والتحيزات الخوارزمية، والاعتماد المفرط على المحتوى الذي ينشئه الذكاء الاصطناعي، تعقيدات إضافية في تبنيه. علاوة على ذلك، لا تزال الفجوات في إمكانية الوصول تمثل تحديًا رئيسيًا، حيث قد يواجه الطلاب والمعلمون في البيئات ذات الموارد المحدودة صعوبة في الاستفادة من أدوات تعلم اللغة المعتمدة على الذكاء الاصطناعي بسبب القيود التكنولوجية والمالية .يؤكد هذا البحث على أهمية تبني نهج متوازن ومدروس في دمج الذكاء الاصطناعي في تدريس اللغة الإنجليزية كلغة أجنبية .فعلى الرغم من أن الذكاء الاصطناعي يمكن أن يعزز التجارب التعليمية، إلا أنه من الضروري التعرف على حدوده ومعالجة تحدياته .يقدم البحث توصيات لتعظيم فوائد الذكاء الاصطناعي، بما في ذلك تدريب المعلمين، واعتماد الذكاء الاصطناعي بشكل أخلاقي، وضمان الوصول العادل إلى تقنياته .ينبغي على المعلمين والطلاب استخدام إمكانيات الذكاء الاصطناعي بمسؤولية، لضمان أن يكمل التكنولوجيا التفاعل البشري بدلاً من أن تحل محله في تعليم اللغات.

الكلمات المفتاحية: الذكاء الاصطناعي، اللغة الإنجليزية كلغة أجنبية، الذكاء الاصطناعي في التعليم، تكنولوجيا تعلم اللغات، الأخلاقيات في الذكاء الاصطناعي، التعلم الشخصي، التكنولوجيا التكيفية في التعلم.

1. Introduction

The integration of artificial intelligence (AI) in education has gained significant attention, reshaping traditional learning environments and revolutionizing teaching methodologies. Previous research has highlighted the potential benefits of AI in language teaching and learning (Gao, 2021; Pikhart, 2021; Klimova et al., 2022). However, other studies argue that AI may have negative impacts on teaching and learning English as a foreign language (EFL). Given these contrasting perspectives, this paper examines current research to provide a comprehensive analysis of AI's role in EFL instruction. By understanding both the challenges and opportunities associated with AI integration, educators can effectively leverage its potential to enhance learning outcomes, promote educational equity, and equip students with the skills required for the future workforce. The use of AI in language education has introduced innovative teaching strategies and tools, fundamentally altering the learning experience. This study aims to explore the advantages and disadvantages of AI applications in EFL teaching and learning, offering valuable insights into its implications for educators and students alike.

2. Definition of Artificial Intelligence

Artificial intelligence (AI) refers to the simulation of human intelligence in machines that are programmed to perform tasks and make decisions without direct human intervention (Chen et al., 2021). In the context of language learning, AI-powered tools encompass computer programs and software applications designed to assist users in acquiring and refining their foreign language skills through AI-driven algorithms (Buddhima & Keerthiwansha, 2018). AI is primarily utilized in education to alleviate teachers' workload by supporting various aspects of the teaching process. These include lesson planning, instructional implementation, intervention strategies, classroom orchestration, student progress monitoring, and reflective teaching practices aimed at continuous improvement (Celik, 2023). By integrating AI into educational settings, educators can enhance the efficiency and effectiveness of their teaching strategies while providing more personalized learning experiences.

AI systems are specifically designed to simulate human cognitive functions, enabling them to process and adapt to new information and dynamic learning environments (Jeon, 2021). As a multidisciplinary field within computer science and technology, AI focuses on developing machines, systems, and software capable of performing tasks that traditionally require human intelligence. These tasks include reasoning, problem-solving, learning, perception, understanding natural language, and decision-making (Chen et al., 2021).

3. The Role of Artificial Intelligence in Teaching and Learning

Artificial intelligence (AI) is transforming education, reshaping traditional teaching and learning paradigms (Wang et al., 2003). It facilitates the creation of dynamic and engaging educational content, catering to diverse learning styles and individual student needs. As a supportive tool, AI automates administrative tasks such as grading and assessment, allowing educators to focus on more interactive and personalized instruction. Gao and Wang (2022) suggest that AI can enhance teachers' professional development through collaboration with researchers. AI-driven intelligent tutoring systems provide tailored feedback and adapt to individual learners, enhancing the overall educational experience. However, AI's effectiveness in language teaching may be limited due to potential inaccuracies in assessing students' language acquisition progress (De la Vall & Araya, 2023). These inaccuracies can impact both formative and summative evaluations, potentially leading to misinterpretations of a student’s learning trajectory.

AI-Powered Adaptive and Immersive Learning

AI fosters immersive learning environments, making complex subjects more accessible and engaging. By leveraging data analytics, intelligent content delivery systems can identify students' areas of strength and weakness, allowing for a targeted approach to skill development (Kramsch & Andersen, 1999). AI-driven learning platforms create personalized learning pathways, adapting to each student’s

pace, preferences, and cognitive abilities. However, while AI streamlines educational processes, challenges persist. Ethical concerns, potential biases in AI algorithms, and the responsible use of AI in education remain critical issues that educators and policymakers must address. Despite these challenges, AI fosters a more adaptive, personalized, and comprehensive learning experience, equipping students with the skills necessary to navigate the complexities of the modern world. Furthermore, AI-integrated learning environments provide researchers with valuable insights into effective pedagogical strategies, allowing for continuous improvements in teaching methodologies (Evans et al., 2017).

AI's Impact on Teacher Professional Development

The integration of AI into education has significantly influenced teacher professional development. Research indicates that learning analytics (LA) tools and AI-driven instructional practices can be systematically embedded into teachers' professional learning (Chen et al., 2018). These tools familiarize educators with emerging technologies, helping them adopt and replicate innovative teaching strategies. Zhang et al. (2019) argue that AI tools are becoming an integral part of teachers' professional practices, shaping instructional methodologies and pedagogical approaches. Additionally, professional development frameworks inspired by experiential learning models can motivate teachers to design, evaluate, and refine instructional strategies (Buddhima & Keerthiwansha, 2018). By adopting AI-driven tools in reflective teaching practices, educators can enhance student engagement, personalize learning experiences, and improve overall classroom effectiveness.

To conclude, AI plays a transformative role in teaching and learning, offering adaptive and personalized educational experiences that support both students and educators. By automating routine tasks, AI allows teachers to focus on meaningful instruction, critical thinking, and creativity. However, its implementation must be balanced and ethical, ensuring that AI tools complement—not replace—human educators. With ongoing research and responsible integration, AI has the potential to significantly enhance pedagogical effectiveness and student success in modern education.

4. Advantages of Using Artificial Intelligence (AI) in Teaching English as a Foreign Language

The integration of artificial intelligence (AI) into foreign language education has significantly enhanced student performance while alleviating teachers' workload. AI-driven technologies, such as real-time conversation systems, have been shown to improve students' academic achievement in language learning environments (Wang et al., 2023). These technologies leverage neural networks for machine learning and speech recognition, offering valuable tools to support language instruction and enhance academic outcomes (De la Vall & Atraya, 2023; Jeon, 2021).

AI has transformed foreign language teaching and learning in three key areas: feedback mechanisms, performance assessment and evaluation, and real-time interactive tools that improve student engagement and achievement (Almurtadha, 2019). For instance, chatbots provide learners—particularly beginners—with opportunities to practice meaningful and functional language use (Chen et al., 2021). AI-powered programs can also offer immediate support when a teacher or caregiver is unavailable, particularly when students encounter difficulties with assignments.

Enhancing Student Engagement and Motivation

Several studies suggest that AI chatbots enhance students' motivation, self-confidence, and interest in language learning (Kim et al., 2019). Additionally, chatbots contribute to the improvement of essential English skills, including oral communication, listening, reading, and high-quality argumentative writing (Hong et al., 2016; Kim et al., 2019; Guo et al., 2022). However, some researchers argue that chatbots are less effective for beginners, as current AI models struggle to accurately interpret and diagnose pronunciation, grammar, and spelling errors in EFL learners' speech and writing (Kim, 2016). Despite these challenges, chatbots remain a valuable tool for teachers managing large classes, as they provide students with personalized learning experiences that can lead to improved learning outcomes (Almurtadha, 2019). Additionally, integrating chatbots into educational systems can enhance student-teacher engagement, particularly for reserved students who may feel embarrassed to ask questions in class.

Personalized Learning and Adaptive Pathways

AI enables the creation of highly customizable learning pathways that adapt to students' evolving interests and career aspirations (Potrivcakova, 2019). By analyzing individual student data, AI can tailor educational content to accommodate diverse learning styles, fostering deeper comprehension and personalized learning experiences (Ebadi & Amini, 2022). AI also facilitates inclusive education by identifying learning challenges early and offering targeted interventions, ensuring that all students—regardless of their abilities or needs—receive adequate support (Pikhart & Klimova, 2020).

Neural Machine Translation in Language Learning

Beyond real-time feedback and chatbots, AI has revolutionized language acquisition through neural machine translation (NMT), an advanced approach to automated translation. Unlike traditional statistical methods, NMT employs deep learning techniques to optimize translation accuracy and overcome the limitations of phrase-based systems (Wu et al., 2016). Tools such as Google Translate and Microsoft Translator are widely used in language education, supporting EFL learners in developing linguistic competencies (Wang & Liu, 2019). While some researchers have highlighted drawbacks of NMT tools (Bahri & Mahadi, 2016), studies indicate that they promote self-directed learning (Godwin-Jones, 2015), enhance mastery of lexico-grammatical knowledge (Doherty &

Kenny, 2014; Bahri & Mahadi, 2016), and improve both receptive (reading comprehension) and productive (writing) language skills (Alhaisoni & Alhaysony, 2017).

Improving Teaching Strategies and Professional Development

AI contributes to the refinement of teaching strategies by providing educators with data-driven insights into the most effective instructional approaches for both individual students and entire classrooms. This analytical approach enables teachers to adjust their methodologies based on students' evolving needs, thereby enhancing overall teaching effectiveness (Jeon, 2021). AI also offers real-time feedback on student performance, allowing educators to promptly identify learning gaps and implement timely interventions (Pikhart & Klimova, 2020). Moreover, AI supports continuous professional development for teachers by granting access to innovative teaching resources, collaborative platforms, and data-driven insights. These tools empower educators to stay informed about emerging educational methodologies and refine their teaching practices accordingly (Chen et al., 2021).

The Role of AI in Affective Computing and Student Well-being

While AI technologies in EFL learning primarily focus on cognitive and linguistic development, researchers argue that they often overlook the emotional aspects of learning. Lin et al. (2012) highlight the challenge of adapting large-scale multimodal AI models to address students' affective states. They suggest that affective computing—which monitors students' emotions through physiological signals such as voice and facial expressions—can enhance the effectiveness of AI-driven language learning. Similarly, Nguyen et al. (2023) propose that recognizing students' emotions through audio and visual cues can provide teachers with valuable feedback, enabling them to create more engaging and supportive learning environments.

Facilitating Online Education and Expanding Access to Learning

AI plays a crucial role in expanding access to quality education by facilitating online learning and providing students worldwide with access to high-quality resources and courses (Buddhima & Keerthiwansha, 2018). This accessibility is particularly beneficial for students in remote or underserved areas. AI-powered language learning applications offer real-time pronunciation feedback, interactive exercises, and simulated conversations, allowing learners to improve their language skills more efficiently (Ali, 2022). For example, AI tools such as ChatGPT enable students to engage in text-based conversations, assisting them in refining their writing and comprehension skills. However, AI’s role in academic integrity remains a subject of debate, as students may use AI to complete assignments or exams dishonestly. While AI-detection tools can help identify AI-generated content, there is a risk of false positives, where original student work is mistakenly flagged as plagiarism (Ahmadi, 2018).

To conclude, AI has significantly transformed English as a foreign language (EFL) education by enhancing student learning experiences, optimizing teaching strategies, and fostering personalized learning. Its applications, including chatbots, neural machine translation, real-time feedback, and data-driven insights, empower both students and educators. However, challenges such as AI's limited ability to address emotional and affective aspects of learning and concerns regarding academic integrity highlight the need for a balanced and well-implemented AI-driven educational approach. Overall, AI enables a more effective, inclusive, and engaging learning environment, equipping students with essential language skills while allowing teachers to focus on instructional innovation and student engagement.

5. Disadvantages of Using Artificial Intelligence (AI) in Teaching English as a Foreign Language

While artificial intelligence (AI) has introduced numerous advantages to language education, its implementation also presents several challenges and limitations that require careful consideration.

Lack of Contextual Awareness and Personalization

One of the primary limitations of AI in foreign language instruction is its lack of contextual awareness (Nicolaidou et al., 2021). AI-driven algorithms are trained to recognize linguistic patterns and structures but often struggle to understand the broader context in which language is used (Ali, 2022). This limitation affects the accuracy and relevance of AI-generated feedback, potentially hindering effective language acquisition (Jeon, 2021). Another critical issue is the lack of personalization in AI-based learning systems. Unlike human teachers, AI lacks the ability to adapt dynamically to students' unique learning needs, emotions, and cultural nuances (Zhang & Aslan, 2021). Teaching foreign languages is particularly challenging in this regard, as it requires consideration of both linguistic and cultural intricacies (Alharbi, 2023). Kramsch and Andersen (1999, p. 33) emphasize this challenge, stating: *"The problem with learning a language from live context is that context itself cannot be learned; it can only be experienced."*

Additionally, researchers such as Ebadi and Ebadijalal (2020, 2022) highlight several technical and pedagogical challenges in AI-assisted foreign language learning. These include:

- Defining the types of learning activities AI should facilitate.
- Constraining student input for effective automatic analysis.
- Designing user-friendly interfaces.
- Developing meaningful feedback mechanisms.
- Determining the role of students' first language in AI-driven learning environments.

Digital Divide and Inequitable Access

Another concern is the digital divide, which exacerbates educational inequalities. Not all students have equal access to AI-driven educational tools due to disparities in technology availability, internet connectivity, and digital literacy (Ali, 2022). Without proper intervention, AI-enhanced learning could further widen the gap between students with and without access to advanced educational technology. Therefore, it is essential to balance the benefits of AI with equitable implementation strategies to ensure all students can benefit from its capabilities.

Bias in AI Algorithms and Ethical Concerns

A major ethical concern associated with AI in education is its potential to reinforce biases inherent in training data, which may lead to discriminatory outcomes (Nicolaidou et al., 2021). AI models are only as unbiased as the data they are trained on, and if the data contains cultural, linguistic, or social biases, these can be unintentionally perpetuated in AI-generated recommendations and feedback. This raises concerns about fairness, inclusivity, and the reliability of AI-driven assessments.

Reduced Human Interaction and Critical Thinking Skills

Another frequently cited drawback of AI in language learning is the reduction in student interaction and interpersonal skill development (Nazaretsky et al., 2022). AI-based learning environments, while efficient, lack the human element necessary for fostering communication skills, emotional intelligence, and cultural understanding. Over-reliance on AI in classrooms may result in students becoming passive learners, reducing their ability to think critically and solve problems independently. Therefore, AI should be used to enhance learning rather than replace teacher-student interactions. Teachers should leverage AI tools to automate repetitive tasks while dedicating more time to interactive, discussion-based, and experiential learning activities (Nazaretsky et al., 2022).

Challenges in AI Accuracy and Reliability

A significant concern regarding AI integration in education is the potential for misinformation. AI-generated content is not always accurate, and students may unknowingly rely on incorrect information when completing assignments (Zawacki-Richter et al., 2019). To mitigate this issue, teachers should guide students on how to use AI responsibly, limiting its application to specific tasks where it excels—such as grammar correction and vocabulary practice—while reserving critical thinking and discussion-based activities for human instruction.

Impact on Traditional Teaching Roles and Methods

The rise of AI innovations has disrupted traditional classroom structures and teaching methodologies (Mohammadzadeh & Sarkhosh, 2018). With AI automating certain teaching functions, educators are increasingly shifting from lecturers to facilitators of personalized learning experiences. While this shift can be positive, it also requires teachers to develop new skills in managing AI-enhanced

classrooms and interpreting AI-generated data to make informed pedagogical decisions. Additionally, teaching is not solely about content delivery; it involves emotional support, relationship-building, and fostering creativity—aspects that AI cannot fully replicate. This shift highlights the need for educators to develop a multifaceted skill set that balances technological proficiency with human-centered teaching approaches.

To conclude, despite its potential, AI in EFL education presents significant challenges related to contextual awareness, personalization, bias, human interaction, misinformation, and equity. While AI can serve as a valuable tool in enhancing learning efficiency and accessibility, it should not be seen as a replacement for human educators. Instead, teachers should integrate AI strategically, using it to streamline administrative tasks and reinforce learning while maintaining meaningful human interactions and student engagement. Ensuring responsible AI implementation will be crucial in maximizing its benefits while minimizing potential drawbacks.

6. Conclusion

This paper examined the advantages and disadvantages of integrating artificial intelligence (AI) into teaching and learning English as a foreign language (EFL). The review of existing studies demonstrated that AI enhances both teaching and learning experiences by providing personalized learning pathways, automating administrative tasks, and improving educational accessibility. AI can support teachers by modernizing routine tasks such as grading and content delivery, allowing them to focus on interactive teaching methods, mentorship, and targeted interventions for struggling students. However, while AI offers numerous benefits, it also presents challenges and limitations. Some studies highlight concerns such as lack of contextual awareness, reduced human interaction, ethical biases, and the risk of misinformation. Over-reliance on AI may negatively impact critical thinking, problem-solving skills, and interpersonal communication, essential components of language learning.

To maximize the benefits of AI while mitigating its drawbacks, educators must strike a balance between technology and human interaction. AI should be used as a complementary tool rather than a replacement for traditional teaching methods. Furthermore, teachers must develop foundational knowledge of AI's role in education to effectively integrate it into pedagogical practices. Professional development programs can help educators adapt to AI-driven environments, ensuring that technology enhances—not hinders—language learning. To conclude, the responsible and strategic integration of AI in EFL education can lead to a more personalized, efficient, and engaging learning experience. By proactively addressing its challenges and ethical implications, AI has the potential to revolutionize language education, equipping students with the necessary skills to succeed in an increasingly digital world.

7. Implications and Recommendations

The integration of artificial intelligence (AI) into teaching and learning English as a foreign language (EFL) necessitates a balanced and informed approach to ensure its effective use in education. Teachers and students should recognize AI as a supplementary tool, rather than a replacement for traditional learning methods. While AI can enhance language practice, information retrieval, and feedback mechanisms, educators should actively encourage students to engage in critical thinking activities that promote classroom interaction, such as group discussions and collaborative learning exercises.

To maximize the benefits of AI, teachers should embrace its transformative potential and take collective action to create future-ready learning environments. AI should be viewed as a teaching assistant, helping to streamline administrative tasks and provide adaptive learning experiences. However, educators must also be aware of both internal and external challenges that may hinder AI's effectiveness, including technological limitations, ethical concerns, and biases in AI algorithms. Ensuring that teachers are well-equipped to navigate these challenges will be essential for meaningful AI integration in education.

Furthermore, it is crucial to enhance teachers' awareness of the ethical implications and risks associated with AI. These concerns include data privacy, algorithmic bias, and over-reliance on automated assessment tools. Professional development programs should provide comprehensive AI training, ensuring that teachers understand both its capabilities and limitations. AI has great potential to contribute to professional growth by offering educators and students new tools and resources for language learning. Given this, educational authorities in Libya should prioritize AI integration in teacher training programs, offering both theoretical and practical instruction to prepare educators for AI-driven EFL teaching.

The findings of this study highlight significant challenges in AI integration within EFL education, particularly regarding adaptability to diverse student needs and ethical concerns. Future research should explore how AI can be customized to accommodate students with varying levels of language proficiency and individual learning differences. Additionally, further investigation is needed to address the long-term implications of AI in education, ensuring that its application aligns with ethical and pedagogical best practices. By fostering responsible AI adoption, educators and policymakers can enhance learning outcomes while preserving the essential human elements of teaching.

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