THE INTEGRATION OF ARTIFICIAL INTELLIGENCE IN LANGUAGE LEARNING: A REVIEW OF CURRENT STUDIES

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Abstract

The advancement of Artificial Intelligence (AI) has introduced transformative changes in language learning. This paper presents a literature-based analysis of AI integration in language education, focusing on recent scholarly works published in the last three years. The author analyzed peer-reviewed articles that were published and indexed in well-known scientific publication databases to identify trends, benefits, and challenges. The publications show that there was an increase in the studies on AI in language learning. The applications include chatbots, intelligent tutoring systems, and adaptive platforms to personalize learning and enhance language skills. AI for language learning gives several benefits, such as increased engagement, motivation, real-time feedback, and support for autonomous learning. However, the use of AI in language learning triggers some issues, including accessibility issues, teacher readiness, data privacy, algorithmic bias, overdependence, and plagiarism. In conclusion, AI facilitates transformative language education, but it requires training, ethical standards, and a balanced approach between technology and human interaction.

Keywords: artificial intelligence, education, language learning, technology

INTRODUCTION

The development of technology has lead people into digital era that is more computerized. It shows the raise of several fields including Natural Language Processing (NLP), Machine Learning (ML), Deep Learning (DL), and Speech Recognition (SR). Those fields are interrelated and form the foundation of modern AI technology. Rahman et al. (2024) found that there was rapid development in 2017 up to 2023 about AI in language learning through their bibliometric study. Specifically, Prayogo et al. (2025) found that the integration of AI in English language learning gives more adaptable, personal, and interactive approach. This finding strengthens the statement that computerized ways of working unify the foundation of AI technology (i.e. NLP, ML, DL, and SR) as the pillar of language learning system.

LITERARY REVIEWS

AI imitates human intelligence such as comprehending languages, recognizing patterns, selecting decisions, and learning from data. Based on those abilities, AI is suitable for foreign language learning (Rahman et al., 2024; Zhu & Wang, 2025). Current research shows that the involvement of AI consistently in language learning indicates positive impact on language skills such as reading, writing, listening, speaking, and acquisiting vocabularies in moderate up to high influence. Several applications have adapted AI into their practices, such as Duolingo, ELSA Speak, Grammarly, and so on. Those applications are able to gain accuracy in using linguistic units, language fluency, and learning engangement, although they remain requiring teachers to handle bariers in cultural context and infrastructure (Syuhra et al., 2025).

The explanations above highlight the development of AI and its potential uses in foreign language learning. However, the practices of AI in language learning are not always smooth. Along with the utilization of AI in the contaext of language education, there issues the need of understanding how the relevant researches develop, the benefits are offered, and the obstacles are encountered. Efficient, interactive, and adaptive learning may be experienced by students. On the other hand, some researches discussed ethics, data privacy, and limitation of teachers and students in adapting AI-based technology (Syuhra et al., 2025; Zhu & Wang, 2025). Directed and systematic literature study is important to map how AI is utilized in foreign language learning. Through publication trend, this paper observes research development and technology that support the practices. Identifying the benefits enables people in understanding real contribution of AI in reaching language competencies, while the discussions of the challenges give critical perspective towards the obstacles and risks that may happen. Thus, this paper focuses on exploring the trends, benefits, and challenges of AI in foreign language learning using literature-based analysis as the effort of bringing comprehensive overview of transformational role of AI in language education.

RESEARCH METHOD

This study applies literature review approach that is structured to reflect current research related to the selected topics. Journal articles are the data of this paper. The process started by formulating problem statements and inclusion and exclusion criteria.

Then, the process was continued by finding related literature from the global trusted research publication databases as the data source (*see* Lau & Kuziemsky, 2016).

This article focuses on the tree main issues. They are the research trends, benefits, and challenges in using AI for language learning. To get relevant literatures, the author followed the inclusion criteria:

a. The literatures are taken from journal articles that are published in the last three years (2022-2025),
b. The articles are taken from the publications that have active DOI (Digital Object Identifier) so that they are recognized by scientific database.
c. The articles are resulted from searching of the keywords: artificial intelligence, education, language learning, technology that are harmonious with the idea *The Integration of Artificial Intelligence in Language Learning* as the title of this article.

The results of research publication that were not suitable with the criteria above were excluded and do not be used in the discussion. The criteria above were analysed qualitatively to discuss the three main issues.

RESULTS AND DISCUSSION

Findings

The development of language education raise significantly in recent years, especially after the presence of Generative AI (GenAI). People use AI as the tool for helping them in carrying out their tasks. Its ability in saving time, cutting costs, and making smarter decisions makes those who are involved in education sector start to utilise AI for language learning. Their consideration refers to personalized learning and 21st century skill.

The Trends and Benefits

The integration of AI in language learning is practiced in some essential points. Current researches indicate AI as learning partner, education 4.0, immersive learning that

include in language learning. The trends and benefits cannot be separated because AI in language learning is done by considering the practices using its features.

Nguyen and Hoang (2025) view GenAI as virtual tutor, automatic feedback provider, and learning material generator. They observed them in English as a Foreign Language (EFL) in higher education. Sangkala and Mardonovna (2024) add the function of AI in increasing engagement and expand access. Corrective feedback is used in writing skill by EFL students. AI enables Automated Writing Evaluation (AWE). The integration of AI in language learning has been practiced in classroom. Students find helpful features while they have AI as virtual tutor and automatic feedback in their writing tasks. AWE helps them in correcting grammar, vocabulary, and sentence structure in real-time. This way activates students' linguistic awareness. After their writing correction, students optimize their linguistic resources with complex practice (Yang et al., 2024).

Education 4.0 attracts people to experience learning with more interactive, contextual, and realistic. It is also applicable for language education. Almelhes (2023) study the role of AI in second language learning to support the trend that starts directing to Education 4.0 concept in order to encounter Industrial Revolution 4.0. AI adapted in language learning facilitate students to learn anywhere and anytime. Language learning facilitated by algorithm machine learning embedded in AI through chatbot, smart tutoring system, gamification, up to mobile-assisted features help students for experiencing personalized learning (Jaleniauskienė et al., 2023; Liu & Fu, 2024). This adaptive learning practice reflects significant education technology.

AI enables immersive learning to support Education 4.0 that prioritize gaining motivation and involvement by presenting experiental, personal, and collaborative learning that is able to handle physical limitation and to train practical skills. Immersive technology like Augmented Reality (AR) and Virtual Reality (VR) become the trend to integrate with AI. The interactive learning materials, like audio-visual contents, creates authentic language learning practice and simulates real scenario with active interaction (Belaid et al., 2024; Srivastava & Verma, 2023) so that it shows high involvement and better ability in memorizing more information. Those situated learning presents when

language learning is applied in an environment that resembles the real world. The integration of AI into immersive learning impacts on the multisensoric experience of adaptive learning, real-time evaluation and personalized feedback that encourage inclusivity and collaboration to learn anywhere and anytime (Eslit, 2024).

Challenges

Along with its features, AI implies some challenges because of its efforts in imitating human intelligence. Utilising all benefits from AI cannot be done without support from related digital infrastructure like internet connection, computational device, and operation system. This condition is not always fulfilled by all institutions (Ilbay Pilataxi, 2025). The infrastructure requires costs as well.

Although most people think that AI offers self-learning and exploration with the contents that lead to deeper learning, some researches worried the use of AI in reducing student autonomy and critical thinking skills because they may rely on AI-generated responses rather than developing their own ideas (Sardi et al., 2025; Zhou et al., 2024).

The role of educators remains indispensable in the integration of GenAI within language learning. Despite its potential, GenAI raises concerns regarding the accuracy of generated content as well as issues of intellectual property (Zhang, 2025). Beyond AWE, the ease of access and convenience offered by AI also heighten the risks to academic integrity, particularly in relation to plagiarism (Pan, 2024). Furthermore, careful ethical consideration is required when interpreting cultural contexts to ensure that AI-assisted learning does not misrepresent or oversimplify cultural nuances (Artha et al., 2024).

Discussion

1. Innovation Trends and Benefits: From Virtual Tutors to Immersive Learning

a. The Evolution of VR/AR in Language Learning

Several recent studies confirm that immersive technology applications such as AR and VR, powered by AI, enhance language learning, particularly in terms of engagement

and vocabulary retention. This statement relates to Jwai‹ed et al. (2024) finding that the use of VR and AR significantly gains vocabulary acquisition and memory by students than traditional method. AR and VR enable students to get situational learning. Moreover, the simulation generated by AR and VR presents contextual language learning.

b. AI as a Support for Personal and Interactive Learning

Although the participation of educator is required, AI impacts on the student involvement. It offers easiness, interactivity, personalization, and social presence. Immersive language learning appears through real-time interaction like speech-to-text and text-to-scpeech. It practices language experience immersively. Therefore, training in using AI is essential to ensure the practice of AI in language learning is done correctly. This way is also important in applying save and affective use.

2. Practical Challenges: Infrastructure, Equality, and Wisdom

a. Infrastructure Gaps and Implementation Costs

Some structural challenges; such as limited internet access, adequate hardware, to the operating system; can inhibit AI adoption in language learning, especially in institutions with limited resources. The implementation of modern language learning by adapting AI requires supports from multiple parties.

b. Intellectual Property, Plagiarism, and Ethical Issues

The ability of AI in gathering information requires ethical awareness from students and education to result works that does not violate intellectual property and plagiarism issues. In order to apply digital life, educators should be skilful to encounter their students in utilising AI, especially in writing task. Kovari (2025) encourages educators in using AI-detection technology and precise citation practice. The study also motivates educators in designing assessment that requires originality and critical thinking so that it is more difficult for students to rely solely on AI-generated content. The regulation in the transparency of AI and plagiarism policy remains essential.

Ethical training is also required. All of these steps are important to keep academic integrity and critical thinking. This idea refers to the easiness of people in spreading digital contents where language facilitates their ideas. In developing countries, it is a crucial challenge to handle the use of AI wisely. Abisheva et al. (2024) identifies the main six competencies for educators including AI literacy, pedagogical and technical competencies, and professional ethics, which are essential for navigating the complexities of AI in language education. These efforts are finally concluded in providing guidelines and best practices for educators to balance the advantages of AI and ethical consideration (Zainuddin et al., 2024).

CONCLUSIONS

The integration of AI into language learning demonstrates a transformative trend that aligns with the vision of Education 4.0. AI contributes significantly as a virtual tutor, automatic feedback provider, and immersive learning tool through AR, VR, chatbots, and AWE. These features encourage engagement, personalization, and authentic language practice, while also fostering 21st century skills. However, challenges remain in terms of digital infrastructure gaps, high implementation costs, risks of reducing learner autonomy, and ethical issues related to accuracy, plagiarism, and cultural sensitivity.

To maximize its benefits, several recommendations should be considered. First, educators need to play an active role as facilitators who guide students in critically and responsibly using AI tools, ensuring that human judgment and creativity remain central in the learning process. Second, institutions should strengthen digital infrastructure and provide equitable access so that all learners can benefit from AI integration, not only those with sufficient resources. Third, ethical training and clear policies regarding transparency, plagiarism, and intellectual property should be embedded in the curriculum to cultivate digital responsibility. Finally, future research and development should focus on pedagogically grounded AI applications that are culturally adaptive and inclusive. With these efforts, AI can be optimized as an innovative yet accountable partner in advancing language education.

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