

Artificial Intelligence and English Learning: A Narrative Review

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Abstract

English language learning is undergoing a profound transformation with the advent of digital technology and Artificial Intelligence. This research, that conduct by narrative review method, will aim to address these gaps by synthesizing findings from the last decade of research and providing a comprehensive understanding of the current trends, challenges, and future directions in the use of AI for English language learning. Most existing studies focus on the efficacy of specific AI tools, with limited attention given to long-term effects on learners' language proficiency, retention, and socio-cultural competence. Additionally, much of the research to date has concentrated on English as a foreign language, with less emphasis on how AI can support multilingualism or the learning of English as a second language in diverse sociocultural contexts. Furthermore, there is a lack of studies that explore the ethical, cultural, and pedagogical implications of widespread AI adoption in language education, particularly in non-Western contexts. This study contributes valuable insights into the evolving landscape of the use of AI in English learning, highlighting both the promising potential and the challenges of integrating GenAI technologies. Suggestions for further research are to conduct empirical research on the concepts in this study.

Keywords: English language learning; students; teachers; narrative review.

1. Introduction

Artificial Intelligence (AI) is revolutionizing English language learning by offering personalized, adaptive, and interactive experiences. AI-driven tools like chatbots, intelligent tutoring systems, and language learning apps cater to individual needs, provide real-time feedback, and foster engagement through gamification (Ulfa, 2023; Anh, 2024). These technologies enhance student proficiency, autonomy, and learning outcomes while improving teacher efficiency (Umar, 2024). However, concerns exist regarding data privacy, algorithmic bias, and the potential loss of natural human interaction in language learning (Viktorivna et al., 2022; Umar, 2024). A survey of Ukrainian university students revealed high levels of understanding and apprehension about AI in language learning, particularly regarding cyber-attacks and the lack of spontaneity (Viktorivna et al., 2022). To address these challenges and harness AI's full potential in English language teaching, collaborative efforts among educators, policymakers, researchers, and technology developers are necessary to ensure responsible and equitable implementation (Umar, 2024).

English language learning is undergoing a profound transformation with the advent of digital technology and AI (Wang et al., 2022). With its capacity to simulate human intelligence and adapt to individual learning needs (Wu et al., 2020), AI has emerged as a potent force that could reshape the pedagogical landscape (Sun et al., 2022). Generative AI (GenAI), a subset of AI that involves the creation of content by machines, has the potential to play a pivotal role in providing personalized and contextually relevant language learning opportunities, such as those in out-of-class learning environments (Nagender & Patil, 2017). The utilization of AI in these environments is a trend and a strategic response to the evolving needs of language learners in a digitally interconnected world (Godwin-Jones, 2019). According to research, the integration of AI tools in language learning applications has shown significant improvements in learners' engagement (Huang et al., 2023), motivation (Ebadi & Amini, 2022), and language proficiency (Tai, 2022). The ability of GenAI to provide instant feedback, adaptive learning pathways, and real-time language practice contributes to a more dynamic and engaging language learning experience (Ai, 2017).

The integration of AI in education has transformed traditional learning paradigms, particularly in the context of language acquisition. Among the various applications of AI in education, its role in English language learning has gained significant attention due to the global importance of English as a lingua franca. AI-powered tools and platforms—ranging from intelligent tutoring systems to language learning apps—offer promising opportunities to personalize instruction, enhance engagement, and optimize learning outcomes. However, while the potential of AI in this domain is widely recognized, its actual impact and efficacy in improving language skills remain subjects of ongoing debate.

This narrative review aims to provide a comprehensive synthesis of the current literature on the use of AI in English language learning, identifying key trends, challenges, and the potential for future developments. As the field continues to evolve rapidly, there is a pressing need to examine the evidence base surrounding AI's contributions to language acquisition, its pedagogical implications, and its ethical considerations. By consolidating findings from various studies conducted over the last decade, this review seeks to highlight existing gaps in the literature and provide insights that can inform both academic research and practical applications for educators and learners worldwide.

The importance of this research lies not only in the rapid growth of AI tools within educational contexts but also in the potential to bridge gaps in language proficiency across diverse learner populations. Understanding how AI can be harnessed effectively for English language learning has significant implications for curriculum design, teacher training, and learner autonomy. Furthermore, as AI technologies become increasingly embedded in daily life, understanding their role in language learning is crucial for preparing learners to engage with digital tools in meaningful ways.

Informal Digital Learning of English

Benson's (2011) out-of-class learning framework, which elaborates on "formality," "location," "pedagogy," and "locus of control," is the foundation for Informal Digital Learning of English (IDLE) practices, which are defined as self-directed, informal digital English learning independent of formal contexts (Lee & Dressman, 2018). This framework characterizes out-of-class learning as a domain of self-directed language learning activities that extends beyond traditional classrooms. Building on this framework, Reinders (2020) expands the dimensions and presents a more complex identification of IDLE, classifying them into "extramural IDLE," which is defined by a lack of connections to teacher-based formal instruction and/or standardized tests, and "extra-curricular IDLE," which is associated with formal education (e.g., using digital dictionaries for vocabulary learning). The diverse connections between IDLE activities and educational environments are recognized by this sophisticated classification. In addition to the aforementioned division, Lee and Dražati (2019) have divided IDLE activities into two categories: "receptive" and "productive." The former describes activities where students use digital inputs to learn English on their own, while the latter concentrates on students creating digital content in English. This dual classification offers a sophisticated perspective on how students participate in IDLE activities. Lee (2019) adds a dichotomy to IDLE activities—"synchronicity," "flexibility," "setting," and "grouping"—to the matrix in an effort to enhance these dimensions and provide a more detailed description of IDLE practices. "Grouping," "setting," "flexibility," and "synchronicity" to the matrix for a more detailed identification of IDLE practices.

GenAI for English learning

GenAI is defined as a system that can communicate with human users by using the huge language model after being trained on big data. AI chatbots are the most common kind of autonomous, self-directed GenAI usage, which is a responsive and productive IDLE activity (Yang, et al., 2022). GenAI is a prompt-based interaction system that needs EFL students to produce written or spoken prompts (the producing side) and read or listen to the generated contents (the receptive side) during human-machine interaction, whether or not chatbots are used (Pack & Maloney, 2023). The encounters may take place with or without formal schooling integration (Zhang, 2022). For instance, it has been discovered that students use GenAI to write English compositions for extracurricular activities that are connected to teacher-instructed formal education (Barrett & Pack, 2023; Rad et al., 2023). Additionally, students use GenAI to facilitate cross-cultural communication for socialization (Mahboob et al., 2024). The latter, in particular, is considered extra mural activities since it has no clear connection to instructional objectives (Lee & Sylven, 2021). Thus, research like Barrett & Pack (2023) has demonstrated that GenAI usage could also become an extracurricular activity used for educational purposes, despite some research like Liu & Ma (2023) suggesting that it might be "self-motivated autonomous English learning activities in the broader extramural digitalized learning ecology" (Liu & Ma, 2023).

Artificial Intelligence in Education

Artificial Intelligence (AI) is increasingly being integrated into educational settings, offering both transformative possibilities and significant challenges. In the context of language learning, AI technologies—such as natural language processing (NLP), machine learning, speech recognition, and adaptive learning systems—have been deployed to create personalized learning environments. These tools can analyze learner data to tailor content, provide real-time feedback, and simulate interactions that mimic real-world language use (Liu & Zhang, 2019). AI's capacity to process vast amounts of data and adapt learning experiences based on individual needs has positioned it as a promising technology for enhancing language education globally.

AI-Powered Tools for English Language Learning

Several AI-based tools and platforms have emerged as central players in the landscape of English language learning. Popular platforms like Duolingo and HelloTalk use AI algorithms to personalize learning paths, recommend lessons based on user progress, and offer instant feedback on pronunciation and grammar. Similarly, speech recognition technologies, such as Google's Assistant and Apple's Siri, have become instrumental in supporting learners with pronunciation and listening skills by providing immediate corrective feedback.

Adaptive learning platforms, such as the ones developed by Pearson and other educational technology companies, leverage AI to adjust lesson difficulty and content delivery based on individual learner needs. Furthermore, AI-powered chatbots and virtual tutors—such as those built into language learning apps and websites—facilitate conversational practice, offering learners the chance to engage in meaningful dialogues outside of formal classroom settings.

Benefits of AI in Language Learning

The integration of AI into English language learning offers several key benefits. First, AI can enhance learner engagement and motivation by providing interactive, personalized, and adaptive learning experiences. By offering immediate feedback and fostering a sense of progression, AI tools keep learners invested in the learning process. Second, AI-based systems help bridge the gap between learners and teachers, especially in environments where access to skilled language instructors is limited. Third, AI tools can facilitate language practice beyond the classroom by providing on-demand, 24/7 opportunities for practice, which is especially valuable for self-directed learners and those studying English in non-English-speaking environments.

Challenges and Limitations

Despite these advantages, the application of AI in English language learning is not without its challenges. One major issue is the reliability and accuracy of AI-driven feedback. While AI tools have made significant strides in assessing language proficiency, errors in speech recognition or incorrect grammar corrections can lead to frustration and confusion for learners (Liu et al., 2021). Moreover, AI systems often lack the nuanced understanding that human instructors bring to language teaching, particularly when it comes to idiomatic expressions, cultural context, and the subtleties of tone and emotion in communication (Godwin-Jones, 2019).

Another key challenge is the equity of access to AI-based learning tools. While AI has the potential to democratize language learning, the availability of high-quality AI-powered tools is still heavily dependent on access to technology, such as smartphones, reliable internet connections, and advanced computing systems. Furthermore, privacy concerns regarding the data collected by AI systems—particularly in relation to student performance, language use, and personal information—remain an important issue that needs to be addressed.

Ethical and Pedagogical Implications

The widespread use of AI in English language learning also raises important ethical and pedagogical questions. One central concern is the potential for AI systems to replace human educators, reducing opportunities for teacher-student interaction, which is essential for fostering motivation, social learning, and emotional support (Winkler et al., 2020). Furthermore, the automation of certain aspects of language learning may inadvertently encourage learners to become overly reliant on technology rather than developing the skills to communicate independently and critically.

Gaps in the Literature

Despite the growing body of research on AI in language learning, several gaps remain. Most existing studies focus on the efficacy of specific AI tools, with limited attention given to long-term effects on learners' language proficiency, retention, and socio-cultural competence. Additionally, much of the research to date has concentrated on English as a foreign language, with less emphasis on how AI can support multilingualism or the learning of English as a second language in diverse sociocultural contexts. Furthermore, there is a lack of studies that explore the ethical, cultural, and pedagogical implications of widespread AI adoption in language education, particularly in non-Western contexts.

This narrative review will aim to address these gaps by synthesizing findings from the last decade of research and providing a comprehensive understanding of the current trends, challenges, and future directions in the use of AI for English language learning.

Research Gap

Despite the growing interest in Artificial Intelligence (AI) as a tool for English language learning, significant gaps persist in understanding the full scope of its impact, challenges, and potential for future development. While a substantial body of research has examined individual AI tools—such as language learning apps, intelligent tutoring systems, and speech recognition technologies—few studies have provided a comprehensive synthesis of how these technologies collectively contribute to English language acquisition. Additionally, much of the existing literature has focused on the effectiveness of AI in specific, isolated contexts, without considering broader pedagogical, ethical, and cultural implications.

One key gap is the lack of longitudinal studies examining the sustained impact of AI on learners' language proficiency over time. While many AI-based platforms report positive short-term improvements in vocabulary, grammar, and fluency, less is known about their long-term efficacy and whether these improvements translate into meaningful, real-world language use. Furthermore, much of the existing research on AI in language learning is concentrated in Western, high-income countries, leaving underexplored the potential benefits and limitations of these technologies in diverse, non-Western, and lower-resource settings.

Another critical gap is the insufficient exploration of the ethical and pedagogical concerns surrounding AI in education. Issues such as data privacy, algorithmic bias, and the potential for AI to replace human educators are often discussed in isolation but lack comprehensive exploration in the context of language learning. The pedagogical role of AI is also under-examined, particularly with respect to its integration into traditional classroom settings and its impact on learner autonomy, teacher-student relationships, and socio-cultural learning experiences.

This review seeks to address these gaps by offering a holistic, narrative synthesis of current AI applications in English language learning, with an emphasis on identifying both the opportunities and challenges presented by these technologies. In doing so, the review will provide a more nuanced understanding of the role of AI in language education, its limitations, and the potential future directions for research and practice.

Given the goals of the review, the following research questions will guide the analysis of the existing literature on the use of AI in English language learning:

- a. What are the key AI technologies and tools currently used in English language learning?
- b. How effective are AI-based tools in enhancing learners' English language proficiency?
- c. What are the pedagogical, ethical, and cultural implications of using AI in English language learning?
- d. What are the long-term effects of AI on language learners' retention and practical use of English?

2. Method

We conduct narrative review like used by Hadjipanayi et al. (2024), that examine the use of Artificial Intelligence (AI) in English language learning.

3. Findings and Discussion

The integration of Artificial Intelligence (AI) in English language learning holds transformative potential for both educators and learners, offering personalized, scalable, and data-driven solutions to enhance language acquisition. However, despite the rapid proliferation of AI technologies in educational contexts, there remains a need for a comprehensive and systematic review that synthesizes existing evidence and identifies both the opportunities and challenges these technologies present.

Newell and Simon's creation of the "thinking machine" program, which aimed to simulate human cognitive capacities to solve complex problems, symbolized the dawn of Artificial Intelligence (AI) in 1956, a turning point in technological history (McCarthy, 2007; Newell & Simon, 1956). The discipline of AI in Education (AIED), which aims to use AI technology to transform teaching, learning, and decision-making processes, emerged as a result of this discovery. AIED seeks to provide individualized educational experiences by developing intelligent tutoring systems, adaptive learning tools, and advanced advising platforms, which will increase the effectiveness of learning interventions (Chiu et al., 2023). These developments mark a paradigm change toward more inclusive, flexible, and responsive teaching methods rather than just technical breakthroughs. However, integrating AI into education calls for a rigorous analysis of data privacy, ethical issues, and the possibility of perpetuating current disparities. In order to guarantee that AI acts as a catalyst for revolutionary educational methods, it is imperative that the area of AIED develops with a dedication to equity, inclusion, and learner autonomy.

An academic investigation of how teachers and students adjust to and see this technical breakthrough has been sparked by the incorporation of GenAI into the field of English language instruction. Research by Moorhouse (2024) and Kohnke et al. (2023) explicitly looked into how prepared language professors at Hong Kong institutions were to employ GenAI tools in their teaching methods. These studies highlight a crucial connection between the challenges and concerns educators face during adoption efforts and their level of confidence and competency with GenAI technologies. The results highlight the urgent need for continued professional development and tailored institutional support to improve faculty proficiency with GAI, a support structure that is conspicuously lacking in the variety of international higher education institutions (Moorhouse et al., 2023). Research within Vietnamese and Saudi Arabian academic contexts has revealed a reluctance among faculty to integrate GenAI tools into their teaching, largely due to a lack of familiarity with these technologies and concerns over academic integrity (Alammari, 2024; Cong-Lem et al., 2024).

Prior research has explored a number of creative applications of GenAI, each suited to a certain facet of language acquisition. According to Wan and Moorhouse (2024), Call Annie is a tool that may be used to improve conversational practice by providing students with a virtual setting in which they can practice speaking through interactive dialogues. By offering real-time feedback and creating writing prompts that test students' language use, Wan and Moorhouse (2023) have used ChatGPT to improve students' written communicative skills and promote growth in written expression and understanding. By tailoring quizzes to each student's learning style and speed, Quizizz AI empowers students to take control of their education, according to Anggoro and Pratiwi (2023). Liu et al. (2024) looked into the use of AI-facilitated

digital multimodal compositions, which combine different types of media to improve cognitive engagement. This helps students understand language better and remember it longer. These diverse implementations not only highlight GenAI's versatility in adapting to educational needs, but also its potential to transform traditional learning paradigms by introducing more personalized, engaging, and responsive educational experiences in the realm of language learning.

Because GenAI encourages learners to analyse, evaluate, and synthesize material, it has the potential to help language learners develop critical thinking abilities, which are crucial to language instruction (Halim et al., 2023). By giving students challenging language problems that call on higher-order cognitive abilities, GAI tools help with this. For example, ChatGPT can offer writing prompts that test students' comprehension of complex linguistic concepts or questions that push them to participate in critical discussions (Tran & Tran, 2023). In addition to improving language skills, this ability gets pupils ready for communication situations in the real world when critical thinking is crucial. However, there are drawbacks to using GenAI in English language instruction, especially when it comes to student work originality and academic integrity. In his discussion of the effects of GenAI on research originality, Hutson (2024) makes the argument that students' capacity to produce genuine work may be compromised by their dependence on AI-generated content. Alasadi and Baiz (2023) share this worry, contending that although GenAI can help with learning, if students depend too much on it to create material, it could also result in a shallow interest in language activities. Teachers must thus strike a balance between making use of GenAI to assist students and making sure they are actively involved in the language learning process.

4. Conclusion

This study contributes valuable insights into the evolving landscape of the use of AI in English learning, highlighting both the promising potential and the challenges of integrating GenAI technologies. Suggestions for further research is to conduct empirical research on the concepts in this study.

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