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Generative artificial intelligence tools in university English language education: A systematic review

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The integration of generative artificial intelligence (GenAI) into university-level English language education has accelerated in recent years, prompting a surge in empirical research. This study systematically reviews 20 peer-reviewed articles to explore the types of GenAI tools used, their pedagogical applications, and their impacts on teaching and learning in English language classrooms. Findings reveal that chatbots and large language models (LLMs) are the most commonly used GenAI tools, followed by mobile applications and chatterbot avatars. GenAI tools are primarily applied to academic writing, grammar, speaking and vocabulary, and reading comprehension. Teachers use GenAI for grading and feedback, while students engage with it for writing, speaking practice, and comprehension tasks. The study highlights the need for broader guidelines for effective and ethical GenAI use in university settings.

Keywords: generative artificial intelligence (GenAI), language pedagogy, English language education, university education, personalized learning

Introduction

The integration of generative artificial intelligence (GenAI) – a subset of artificial intelligence that uses large language models (LLMs) to generate new content such as texts, images, or audio based on patterns learned from vast datasets (e.g., Artha et al.,

2024; Feuerriegel et al., 2024) – has become increasingly popular in university-level English language learning and teaching (ELT). The growing popularity of GenAI in education, particularly in higher education, has prompted a surge in research investigating its implications for university English language teaching and learning (e.g., Altukruni et al., 2025; Pan et al., 2025). For instance, Alghannam (2025) found that while ChatGPT offers generally consistent and credible corrective feedback, it lacks depth in communicative and affective dimensions. Likewise, Dinh (2025) observed that EFL students valued ChatGPT for improving translation accuracy, vocabulary, and fluency, while also enhancing motivation, confidence, and collaborative learning. Systematic reviews synthesizing prior findings on AI-assisted university English language education have also been conducted (e.g., Hurajová & Chmelíková, 2025; Pérez et al., 2025).

Despite the valuable insights from these reviews, most studies often focus on specific AI tools and/or usage contexts, leaving gaps in understanding how GenAI technologies are integrated across diverse university English language education settings. The present paper therefore aims to address three key research questions: (1) Which GenAI tools are used in university English language classrooms? (2) How are they implemented in teaching and learning practices? (3) What impacts do they have on teachers and students?

Method

Data selection procedures

Relevant studies of AI-assisted English language education in university settings were identified using Google Scholar and ProQuest Research Library. Search terms included “generative artificial intelligence”, “English language learning”, “English language teaching”, “language pedagogy”, and “university education”. Various combinations of search terms and Boolean operators were used to allow for different focuses and terminology relevant to the review. The initial search yielded 34 articles, which were further screened based on the following criteria: (1) focus on the use of GenAI technologies in university-level English language education, (2) reporting on empirical findings, and (3) publication in English. A total of 20 articles were deemed appropriate for analysis.

Data analysis

Each article was analyzed and coded in accordance with the research questions. First, GenAI tool categories were identified (RQ1). Next, the pedagogical purposes and implementation strategies for these tools were examined (RQ2). Lastly, the reported impacts of the tools on teachers and students were evaluated (RQ3).

To ensure coding reliability, one author conducted the initial round of coding, with another later reviewing the codes independently to establish inter-rater reliability. Any discrepancies were discussed and resolved through consensus.

Results

Data overview

Among the 20 articles, 19 were published from 2023 onwards, with only one article published in 2009 (see Figure 1).

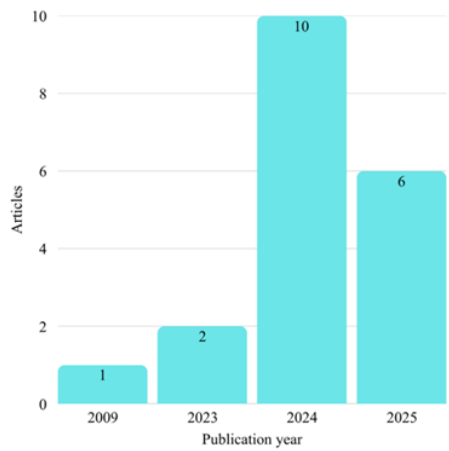


Figure 1. Articles reviewed by publication year (N = 20)

Most of the articles originated from East Asia ($n = 11$, 55%), followed by Eastern Europe ($n = 3$, 15%), the Middle East ($n = 3$, 15%), and South and Southeast Asia ($n = 2$, 10%) (see Figure 2).

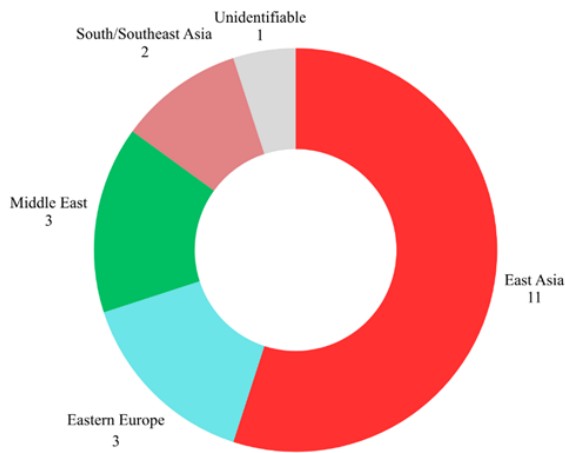


Figure 2. Articles reviewed by geographical region of research conduct (N = 20)

Categories of GenAI tools used

Figure 3 illustrates the GenAI tool categories identified in the articles. The most dominant category is chatbots and their associated LLMs ($n = 15$, 44.12%), followed by mobile applications ($n = 7$, 20.59%) and chatterbot avatars ($n = 3$, 8.82%) (Sha, 2009).

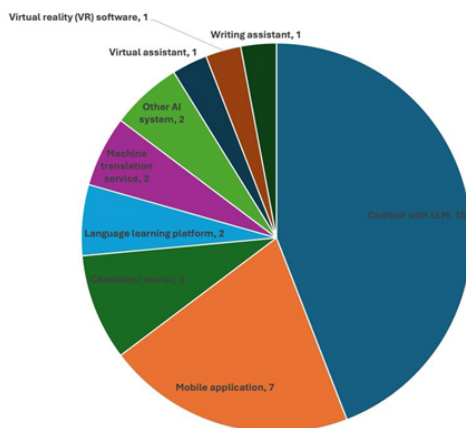


Figure 3. Categories of GenAI tools used in ELT (N = 34)

Pedagogical purposes and applications of GenAI tools

Table 1 presents the pedagogical purposes of using GenAI tools. As shown below, GenAI tools are most commonly used for academic writing (30%), followed by grammar, speaking and pronunciation, vocabulary (20%), and reading comprehension (15%) respectively.

Table 1. Pedagogical purposes of using GenAI Tools in ELT

Language skill	Frequency (%)
Academic writing	6 (30%)
Grammar; speaking and pronunciation; vocabulary	4 (20%)
Reading comprehension	3 (15%)

The articles reveal a diverse range of GenAI applications. In terms of academic writing, students in Japan, Taiwan, and China used AI chatbots and LLMs for tasks like expository essays (Wang, 2024), autobiographies (Tseng & Lin, 2024), IELTS writing practice (Kim et al., 2024), and writing refinement (Shahsavari et al., 2024). Teachers used GenAI tools for grading writing tests, as well as providing feedback on content and structure (Li et al., 2024). In terms of speaking and pronunciation, Chinese students used publicly available mobile applications like Liulishuo and WeChat (Ma et al., 2025; Zou et al., 2023), as well as purpose-built AI systems incorporating features such as advanced natural language processing algorithms or speech recognition technology (Feng, 2025), to engage in interactive speaking exercises. Teachers used mobile applications for providing tailored instruction, giving personalized feedback, and developing speaking sub-skills (Ma et al., 2025). For reading, using GenAI-powered apps like Meta-AI via WhatsApp and ChatGPT reportedly improved students' reading comprehension through generated texts and quizzes (Allehyani et al., 2025), as well as assisting teachers in creating adaptive reading assessments (Feng, 2025).

GenAI tools have significantly impacted English language teaching by automating routine instructional tasks, reducing workload and enabling teachers to concentrate on addressing students' learning needs (Măduța, 2024; O, 2024; Zhou & Hou, 2025). They can also facilitate the procurement and creation of authentic teaching materials, such as reading comprehension libraries and case-based textual resources (Kim et al., 2024). More importantly, AI chatbots can serve as “more capable peers” or training partners in various learning environments (Wang, 2024) to assist students in completing tasks, or even teachable agents that enable learning-by-teaching tasks to build students' problem-solving skills (Kim et al., 2024). Lastly, the technological advances offered by GenAI can encourage new teaching methodologies such as blended learning (Feng, 2025).

In English language learning, GenAI tools can provide access to context-specific content like subject-specific vocabulary (Algraini, 2024; Mezei, 2024) and adaptive feedback (Feng, 2025), enhancing students' knowledge understanding and skill retention (Allehyani et al., 2025; Songsiengchai, 2025). They can also help students manage their cognitive load by guiding them to concentrate on areas of improvement without having to review all knowledge (Allehyani et al., 2025; Feng, 2025), foster self-regulated learning strategies, and forming dynamic partnerships with GenAI tools (Kim et al., 2024; Pitura et al., 2025; Tseng & Lin, 2024; Wang, 2024; Zou et al., 2023).

Despite these benefits, challenges remain in adopting GenAI in university English language classrooms. Quality control remains the predominant concern, as inaccurate responses or hallucinations from AI-generated texts can challenge students and teachers lacking AI literacy skills (Algraini, 2024; Mezei, 2024; Yuan et al., 2024). AI readiness and attitudes also pose additional obstacles, with a lack of technical training and prior engagement with GenAI tools among instructors influencing their deployment in classrooms (Liang et al., 2024; Măduța, 2024; Zhou & Hou, 2025). Lastly, some studies have reiterated the need for adequate technological infrastructure, including Internet and smartphone access, to support AI-assisted language learning (Măduța, 2024; Moulieswaran & Prasantha Kumar, 2023).

Conclusion

The paper examined AI-assisted university-level ELT by reviewing GenAI tool types, their purposes and applications, and impacts on teachers and students. GenAI integration in university-level ELT has transformed teaching practices and learning experiences. Tools like chatbots and LLMs help instructors scaffold writing tasks, streamline feedback, and improve efficiency, while other GenAI tools support students' personalized learning, learning autonomy, and learning engagement through adaptive, interactive tasks. The findings highlight the need for broader pedagogical frameworks to guide effective and ethical GenAI use in diverse university settings. Moreover, the review of only 20 articles may not fully capture the diversity of GenAI practices in university-level ELT. Future research should include large samples to scale for generalizability.

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