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Enhancing English Language Skills in Higher Education through AI: A Systematic Review of EFL Contexts

Potenciando las habilidades del idioma inglés en la educación superior a través de la IA: Una revisión sistemática en contextos EFL

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ABSTRACT

This study analyzes the integration of Artificial Intelligence (AI) tools in English as a Foreign Language (EFL) teaching within higher education contexts from 2020 to 2025. A systematic literature review was conducted following the PRISMA 2020 protocol. Data were retrieved from the Scopus database, resulting in the selection of 26 empirical studies that met strict inclusion criteria regarding currency, peer review, and pedagogical application. The synthesis reveals a predominance of Generative AI (e.g., ChatGPT) and Automated Writing Evaluation systems (e.g., Grammarly). Findings indicate significant improvements in linguistic competence, particularly in speaking fluency and writing accuracy, alongside positive affective outcomes such

as reduced anxiety and increased engagement. However, a paradox of autonomy was identified, highlighting the risk of cognitive offloading where learners may over-rely on AI assistance. The study concludes that AI represents a fundamental shift in pedagogy rather than a mere technological trend. To ensure effectiveness, its implementation requires an approach that emphasizes active teacher mediation, focusing on AI literacy, critical thinking, and process-oriented assessment to foster genuine language acquisition.

Keywords: artificial intelligence, English as a foreign language, higher education, language skills, motivation

RESUMEN

Este estudio analiza la integración de herramientas de Inteligencia Artificial (IA) en la enseñanza del inglés como Lengua Extranjera (ILE) en contextos de educación superior entre 2020 y 2025.: Se realizó una revisión sistemática de la literatura siguiendo el protocolo PRISMA 2020. Los datos fueron recuperados de la base de datos Scopus, seleccionando 26 estudios empíricos que cumplieron con estrictos criterios de inclusión sobre actualidad, revisión por pares y aplicación pedagógica. La síntesis revela un predominio de la IA generativa (p. ej., ChatGPT) y sistemas de evaluación automatizada de escritura (p. ej., Grammarly). Los hallazgos indican mejoras significativas en la competencia lingüística, particularmente en la fluidez oral y la precisión escrita, junto con resultados afectivos positivos como la reducción de la ansiedad y un mayor compromiso. Sin embargo, se identificó una paradoja de autonomía, resaltando el riesgo de descarga cognitiva donde los estudiantes pueden depender excesivamente de la asistencia de la IA. El estudio concluye que la IA representa un cambio pedagógico fundamental más que una mera tendencia tecnológica. Para garantizar su efectividad, su implementación requiere un enfoque de mediación docente activa, enfatizando la alfabetización en IA, el pensamiento crítico y una evaluación orientada al proceso para fomentar una adquisición genuina del idioma.

Palabras clave: inteligencia artificial, inglés como lengua extranjera, habilidades lingüísticas, educación superior, motivación

INTRODUCTION

The rapid development of artificial intelligence (AI) has deeply reshaped numerous sectors of modern society, including education. In recent years, AI has evolved from a solely technological advancement to become a pedagogical ally able to transform teaching and learning processes. In the area of English as a Foreign Language (ELF), the integration of AI marks a significant step toward modernizing teaching practices, as it enables the creation of adaptive, interactive, and student-centered approaches. Zawacki-Richter et al. (2019) point out that artificial intelligence is no longer just a technological breakthrough, but has evolved into an essential tool in education. It allows for the creation of more interactive and personalized learning experiences, which are better aligned with the individual needs and paces of students.

In the context of English as a Foreign Language (EFL) teaching, these AI tools help tailor the learning process to each student, offering a modern approach that enhances teaching practices and better meets the demands of today's learners. AI-based applications such as intelligent tutoring systems, automated writing assessment, conversational agents, and speech recognition technologies have shown their potential to customize learning experiences, provide instant feedback, and encourage learner autonomy. AI-based tools have led to significant improvements in reading comprehension, oral expression, vocabulary, and integrated language skills, in many cases surpassing traditional methods (Kundu & Bej, 2025). Although research on AI in English language teaching is still in its early stages, the growing interest in this area highlights the need to keep exploring how teachers actually use these tools. Because teachers play a central role in the classroom, their perceptions and attitudes greatly influence whether AI technologies can be successfully implemented (Üretmen Karoğlu & Doğan, 2025).

Currently, the use of artificial intelligence (AI) in teaching English as a foreign language (EFL) has established itself as a global and emerging trend in education. Internationally, many studies conclude that the use of AI-based tools such as intelligent tutoring systems, natural language processing, and interactive environments has led to significant improvements in reading comprehension, oral expression, vocabulary, and integrated language skills, in many cases surpassing traditional methods (Kundu & Bej, 2025).

Furthermore, although AI tools such as chatbots, automated writing assessment, and speech recognition software are increasingly being used, there is still a need for empirical research on their actual impact on language skills development, motivation, and classroom interaction. AI integration in EFL classrooms shows both potential and risks, as it can support learning in areas such as grammar and speaking, but also raises challenges related to teachers' roles, pedagogical design, and the authenticity of language use (Sumakul, Hamied, & Sukyadi, 2022).

Thus, examining the role of AI in EFL contexts is essential, particularly concerning its potential to contribute to the development of the four language skills. Various AI tools are now

used to support listening comprehension, speaking, reading comprehension, and writing. Jiang (2022) points out that artificial intelligence has strengthened EFL teaching and learning in six major ways, including automated writing evaluation, conversational chatbots, speech recognition tools, intelligent tutoring systems, adaptive learning platforms, and data-driven learning analytics.

In this sense, addressing the topic is relevant because it allows not only to understand the current state of research, but also to identify strengths, limitations, and opportunities for improvement in the integration of AI in the EFL classroom. A well-founded systematic review will contribute to guiding both teachers and researchers in the responsible and effective implementation of these technologies, providing evidence for pedagogical decision-making and the design of future lines of research in language education.

Within this framework, this study seeks to analyze and synthesize recent scientific literature (2020–2025) that explores how artificial intelligence (AI) tools and techniques are being used to enhance English language learning in EFL contexts. Following the PRISMA 2020 protocol (Page et al., 2021), the review aims to identify current trends in the integration of AI within English teaching, the types of tools most commonly applied, and the language skills they tend to develop. It also examines the pedagogical benefits, limitations, and challenges described in recent research. Ultimately, this study aspires to build a clear and organized understanding of how AI is shaping English language education, providing a foundation for future research, inclusive.

Theoretical framework

Generative AI

Generative Artificial Intelligence, particularly in its recent developments such as GPT-4 and GPT-4o, refers to advanced computational systems capable of producing human-like text and generating multimodal outputs, including images and voice, through large-scale language modelling. These models integrate sophisticated architectures and extensive training data to generate coherent and contextually appropriate responses, which expands their potential applications across educational, professional, and research contexts.

Lo et al. (2024) explain that Generative AI tools like ChatGPT are increasingly shaping EFL education due to their ability to generate human-like language and provide personalised support, although concerns persist regarding accuracy, privacy, and academic integrity. Existing studies focus mainly on writing, leaving significant gaps in understanding their impact on other skills. As multimodal models such as GPT-4 and GPT-4o advance, their potential in language learning expands, but their effectiveness ultimately depends on careful, ethical, and well-structured pedagogical use.

Adaptive AI

Delgado et al. (2020) state that AI-powered adaptive learning tools “offer the possibility of personalizing the student’s journey with unique feedback to each online interaction” (p. 3). In practical terms, this means that adaptive AI does far more than handle routine tasks. It observes

how students work, responds to their progress, and adjusts instruction as they move through different activities. By tailoring the level of challenge, the type of tasks, and the feedback they receive, the technology acts as a supportive learning companion rather than a simple automated program. From a pedagogical perspective, this approach strengthens inclusion, helps identify learning gaps with greater clarity, and encourages students to take a more active and independent role in their own learning. In EFL settings, where attending to diverse needs can be demanding, adaptive AI offers a concrete way to create personalized learning paths that sustain engagement and promote steady, meaningful language development at each student's pace.

Conversational Chatbots

According to Guillermo Morales and Carcausto Calla (2025), chatbots can be understood as AI-powered tools that enrich academic interaction by providing ongoing and personalised practice that strengthens learners' linguistic skills (p. 5). Rather than simply producing automated responses, these systems operate as conversational partners that adapt to each learner's pace, needs, and proficiency level. This adaptability creates more opportunities for meaningful engagement, which are often limited in traditional EFL classrooms. From this perspective, chatbots serve as pedagogical mediators that broaden students' exposure to the target language, deliver immediate feedback, and foster greater learner autonomy. Because of these qualities, they have become valuable resources for supporting language acquisition in face-to-face, hybrid, and online learning environments.

Automated Writing Evaluation AWE

According to Wei, Wang, and Dong (2023), automated writing evaluation (AWE) refers to AI-based systems that rely on natural language processing to analyse written texts and provide feedback on grammar, vocabulary use, coherence, and overall organization (p. 2). This perspective highlights that AWE tools extend far beyond identifying surface-level errors; they function as sophisticated evaluative systems capable of examining multiple dimensions of writing quality. Pedagogically, this means that learners can receive immediate and personalised feedback, something that is often difficult for teachers to deliver consistently in EFL settings. By detecting recurring patterns in students' writing, AWE helps learners develop greater grammatical accuracy, refine their vocabulary choices, and strengthen the flow of their ideas. As a result, these systems offer meaningful support for writing development, complementing teacher feedback while fostering a more independent and iterative writing process.

MATERIALS AND METHODOLOGY

This study adopts a qualitative, exploratory approach to the most current literature regarding AI applications in English as a Foreign Language (EFL) contexts within higher education. The objective is to explore the impact of implementing AI-based tools and on the

development and enhancement of the four language macro-skills. Accordingly, empirical contributions published between 2020 and 2025 were systematically examined.

This systematic literature review was conducted following the PRISMA 2020 guidelines (Page et al., 2021), which establish a standardized protocol to ensure transparency and comprehensiveness in the identification, selection, evaluation, and synthesis of scientific studies. The process consisted of four key phases: identification, selection, eligibility assessment, and inclusion.

The bibliographic search was conducted using the Scopus database, selected for its extensive international coverage and the rigorous academic and peer-review standards required for journal indexing. The search strategy employed a Boolean string structured around three core conceptual clusters: (1) Artificial Intelligence tools (e.g., 'artificial intelligence', 'chatbot', 'intelligent tutoring system'), (2) the EFL context (e.g., 'English as a foreign language', 'foreign language education'), and (3) targeted learning outcomes (e.g., 'language skills', 'communicative competence', 'proficiency').

The query was configured to scan the Title, Abstract, and Keywords (TITLE-ABS-KEY) fields. To ensure currency and methodological rigor, filters were applied to include only records published after 2019 (2020–present) and strictly limited to peer-reviewed journal articles, excluding conference proceedings and book chapters. The exact search string employed was:

Table 1

Search string

Database	Search equation
Scopus	TITLE-ABS-KEY("artificial intelligence" OR AI OR chatbot* OR "intelligent tutoring system*") AND TITLE-ABS-KEY(EFL OR "English as a foreign language" OR "language learning" OR "foreign language education") AND TITLE-ABS-KEY("language skills" OR "communicative competence" OR "learner autonomy" OR "language proficiency") AND PUBYEAR > 2020 AND DOCTYPE(ar)

Selection process

A total of 218 records were retrieved during the initial search. Subsequently, inclusion and exclusion criteria were applied to filter out articles unrelated to the study's scope. This process resulted in the exclusion of 192 records, leaving a final total of 26 articles that fully met the inclusion requirements. The detailed criteria are presented below in Table 2.

Table 2

Inclusion and Exclusion criteria

Inclusion	Exclusion
Journal papers published between 2020 and 2025	Conference proceedings
Peer-reviewed journal papers	Technologies not involving AI
Primary research	Review articles, theoretical studies without practical application.
English as a Foreign Language setting	Paper written in other languages
Intervention with tertiary education students	Studies with no full-text availability (No Open Access).
Uses AI tools or platforms in English learning/teaching	Studies not involving the EFL context (Teaching other languages or English in non-EFL settings)
Involves the development of at least one of the four core skills	
Journal papers written in English	

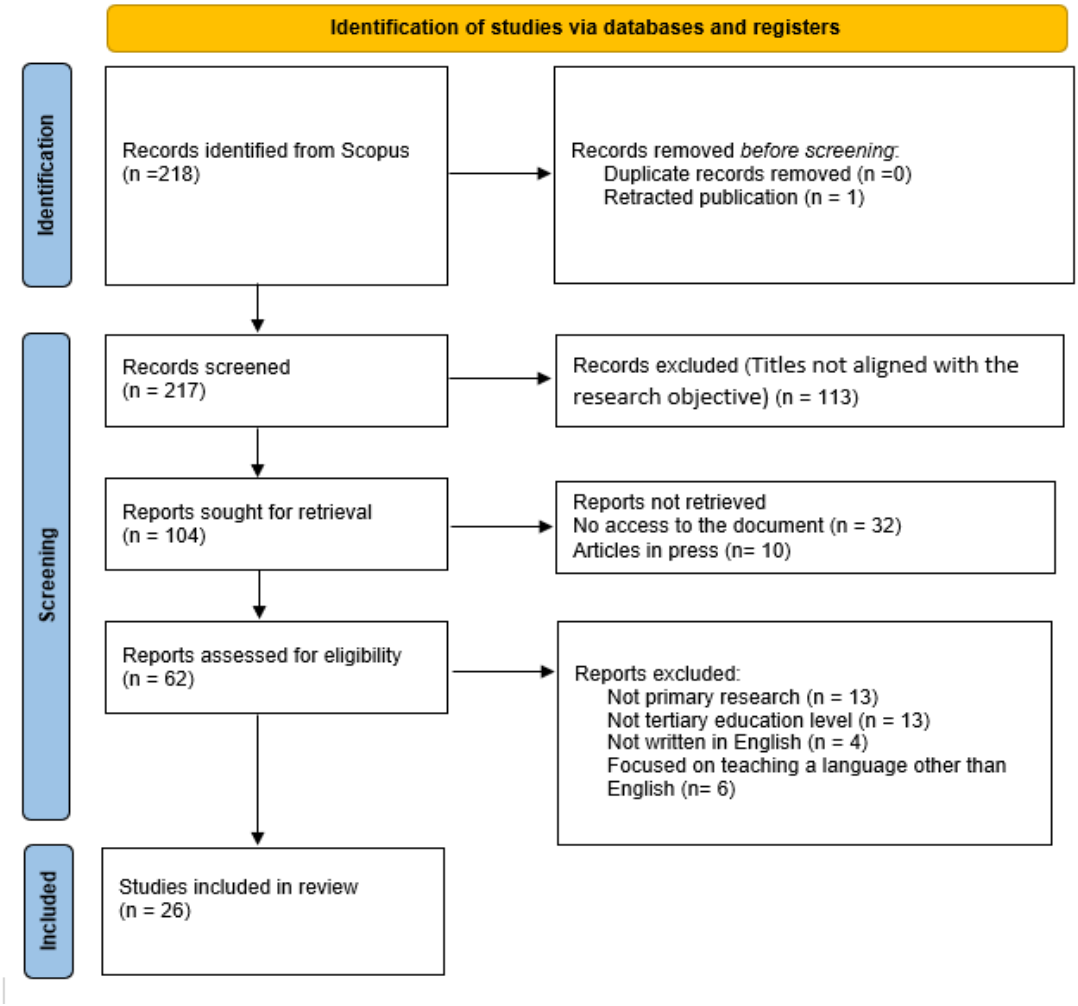
Applying these criteria resulted in the selection of 26 articles suitable for analysis, as detailed in Table 3. A data extraction matrix was designed covering the following variables: authors and publication year, type of AI tool applied, targeted language skill, and main findings.

Furthermore, a qualitative thematic synthesis approach was adopted for the analysis. This process aimed to gain an in-depth understanding of the nature, characteristics and impact of AI tools integrated into EFL teaching and learning processes in higher education. Consequently, the analysis focused on identifying the types of artificial intelligence and the skills addressed and interpreting the educational implications reported in the selected literature.

Figure 1 illustrates the PRISMA flow diagram, detailing the selection process and the application of criteria used to identify studies relevant to the research objective.

Figure 1

Prisma flow diagram



RESULTS

This systematic literature review is based on 26 empirical studies published between 2020 and 2025 that investigated the use of artificial intelligence in English as a Foreign Language (EFL) learning within higher education settings, including colleges and universities. Only studies that fulfilled the established inclusion criteria were incorporated into the analysis.

Table 3 summarises the core features of the selected studies, detailing the authors and year of publication, the AI tools and systems employed, the language skills addressed, and the principal outcomes reported. The table is intended to provide an organised overview of the evidence rather than a complete interpretation. The analysis presented in the following sections builds on this overview by examining shared tendencies and recurring findings across the studies.

Table 3
Data extraction matrix

Author(s) & year	Design and sample	AI tool / platform	AI category	Skill(s) addressed	Main outcomes
Zakarneh et al. (2025)	Quantitative study (survey-based)/ 398 undergraduate English students	ChatGPT	Generative AI chatbot	Speaking, writing, vocabulary, grammar, reading	Improved perceived language development, motivation, and autonomy
Xodabande et al. (2025)	Randomized Controlled Trial (RCT)/60 intermediate EFL learners	ChatGPT	Generative AI chatbot	Pronunciation (speaking)	Significant gains in pronunciation accuracy and retention
Jalambo et al. (2025)	Quasi-experimental design /187 EFL learners (93 Control, 94 Experimental)	AI chatbot	Generative AI chatbot	Vocabulary, collocations	Improved vocabulary learning, reduced boredom, higher autonomy
Zheldibayeva (2025)	Quasi-experimental design/ 93 undergraduate students (48 Exp, 45 Comp)	ChatGPT, Gemini	Generative AI chatbot	Listening, writing	Significant improvement in listening and writing performance
Duong & Suppasetseree (2024)	Quasi-experimental design (8 weeks) /30 undergraduate students	AI voice chatbot	Generative AI chatbot	Speaking	Improved fluency, accuracy, and confidence
Polakova & Klimova (2024)	Pilot experimental study /58 university students (B2 and C1 levels)	ChatGPT	Generative AI chatbot	Writing, grammar, vocabulary	Positive perceptions and gains in language accuracy
Hajihasankhansary & Gilanlioglu (2025)	Exploratory sequential mixed-methods design /107 graduate students	AI-generated corpus	Intelligent AI system	Grammar, lexical bundles	Significant gains and increased willingness to write

Lu (2025)	Quasi-experimental study (repeated measures)/80 EFL students	AI-generated corpus	Intelligent AI system	Grammar, vocabulary	Sustained improvements and higher engagement
Wangdi & Shimray (2025)	Mixed-methods research /54 EFL undergraduate students	ReadTheory	Adaptive AI platform	Reading	Improved comprehension and reading enjoyment
Liu (2025)	Empirical experiment /262 learners	AI-enhanced learning system	Intelligent AI system	Listening, speaking, reading, writing	Large gains across all skills and intercultural competence
Ma & Chen (2025)	Longitudinal quasi-experimental mixed-methods150 intermediate EFL learners	LinguaQuest AI	Adaptive AI platform	Integrated skills	Strongest gains when combined with teacher scaffolding
Qiao & Zhao (2023)	Experimental design /93 EFL learners	Duolingo	Adaptive AI application	Speaking	Improved speaking performance and self-regulation
Phanwiriyarat et al. (2025)	Mixed-methods design48 first-year undergraduate students	Duolingo	Adaptive AI application	Speaking	Improved oral performance and confidence
Asmar et al. (2025)	Exploratory mixed-methods case study/189 students	Duolingo	Adaptive AI application	Integrated skills	Higher engagement and perceived skill improvement
Khlaisang & Sukavatee (2024)	Mixed-methods (Quant. & Qual.)546 higher education learners	MALLIE chatbot system	Adaptive AI application	Integrated skills	Enhanced communication skills
Zhou et al. (2025)	Quasi-experimental mixed-methods	ChatGPT-4	Generative AI chatbot	Listening	Large gains in listening comprehension

	study/ 67 students				
Dizon & Gold (2023)	Quasi-experimental design /58 EFL students in academic writing courses	Grammarly	AWE	Writing (affective focus)	Reduced writing anxiety
Murtisari et al. (2025)	Mixed-method multiple case study	Grammarly	AWE	Writing	Effects mediated by proficiency level
Shen et al. (2023)	Mixed-methods (Process & product-based)/ 42 EFL learners	Pigai	AWE	Writing	Differential gains in accuracy and lexical complexity
Xu & Jumaat (2024)	Mixed-methods approach/ 60 university juniors	ChatGPT	Generative AI (writing support)	Academic writing	Improved writing strategies and confidence
Robillos (2024)	Sequential mixed-methods design /30 university EFL students	GPT chatbot	Generative AI (writing support)	Writing	Improved writing quality and reflection
Moussa & Belhiah (2024)	Quasi-experimental study /62 students	AI-assisted writing tools	AWE / GenAI	Writing	Improved linguistic competence and creativity
Sayed et al. (2024)	Concurrent mixed-methods design /28 upper-intermediate EFL learners	AI-supported oral testing	AI-supported assessment	Speaking	Improved speaking, autonomy, academic buoyancy
Abdellatif et al. (2024)	Experimental design /57 EFL students	AI-supported listening exams	AI-supported assessment	Listening	Improved listening performance and resilience
Zyouda et al. (2023)	Qualitative case study/ 25 undergraduate students	Multiple AI chatbots	Generative AI chatbot	Multiple skills	Increased autonomy and perceived competence

Generative AI and conversational systems

The majority of the studies included in this review focused on generative artificial intelligence, particularly conversational systems, with ChatGPT standing out as the most frequently examined tool. In several investigations, ChatGPT was used independently as a conversational partner, whereas other studies embedded it within structured instructional tasks or combined it with voice-based interaction to facilitate oral practice. A smaller number of studies also explored alternative generative tools, such as Gemini or AI-driven voice chatbots specifically designed to support spoken interaction.

Across the reviewed literature, generative AI chatbots were mainly employed to enhance speaking-related skills, including oral fluency, pronunciation, vocabulary development, and listening comprehension. The findings consistently pointed to improvements in learners' spoken performance, especially in terms of fluency and pronunciation accuracy. Beyond linguistic gains, many studies highlighted notable increases in learners' motivation, confidence, and willingness to communicate. These positive effects were often attributed to the low-anxiety nature of chatbot interactions, which allowed students to practise repeatedly, experiment with language, and receive immediate feedback without the pressure typically associated with classroom participation.

AI-assisted writing and automated writing evaluation systems

A considerable portion of the reviewed studies concentrated on AI-assisted writing tools and automated writing evaluation (AWE) systems, most commonly Grammarly and Pigai. These tools were primarily implemented in academic writing contexts, where they provided automated feedback during drafting and revision processes, focusing on aspects such as grammatical accuracy, vocabulary choice, coherence, and overall text organisation.

The findings across these studies suggest that the use of Grammarly and Pigai contributed to measurable improvements in writing accuracy and overall text quality. In addition, several studies reported reductions in writing-related anxiety, particularly among learners who perceived automated feedback as less intimidating than teacher correction. However, the results also revealed important differences linked to learners' proficiency levels. Lower-proficiency learners tended to focus mainly on surface-level corrections, while more advanced learners engaged more critically with the feedback and used it to refine content and structure. As a result, multiple studies emphasised the need for pedagogical guidance to ensure that AWE tools support meaningful learning rather than encouraging mechanical error correction.

Adaptive systems and application-based AI platforms

A smaller yet relevant set of studies examined adaptive and application-based AI platforms, with Duolingo and ReadTheory receiving the most attention. Duolingo was frequently analysed in relation to vocabulary acquisition, speaking development, and learner engagement, often within gamified or flipped classroom approaches. The findings generally indicated

improvements in oral performance, increased confidence, and high levels of engagement, particularly among learners at beginner and intermediate proficiency levels.

ReadTheory, an AI-driven adaptive reading platform, was associated with gains in reading comprehension and increased learner enjoyment of reading tasks. Other mobile and web-based platforms combined features such as chatbot interaction, speech recognition, and adaptive feedback to support self-paced learning. While these tools demonstrated positive outcomes, several studies noted limitations related to content depth and their suitability for more advanced learners, suggesting that their effectiveness may vary depending on instructional goals and learner profiles.

English language skills addressed

An examination of the targeted language skills revealed that writing was by far the most frequently investigated area, followed by speaking and listening, whereas reading received comparatively limited attention. Studies focusing on speaking commonly reported improvements in fluency, pronunciation, confidence, and willingness to communicate, particularly when tools such as ChatGPT, AI voice chatbots, or Duolingo were employed.

Writing-oriented studies, which predominantly used Grammarly, Pigai, and GPT-based writing assistants, documented gains in grammatical accuracy, lexical precision, coherence, and textual organisation. Listening skills were addressed mainly through generative chatbots with audio features, AI-supported listening tasks, and adaptive platforms, with findings indicating improvements in listening comprehension and learner confidence. Reading skills were examined less frequently and were mostly supported through adaptive applications like ReadTheory, which nonetheless showed positive effects on comprehension and engagement.

Affective and learner-related outcomes

Beyond language performance, a substantial number of studies reported positive effects on affective and learner-centred variables. Increased motivation, engagement, learner autonomy, and self-regulation were commonly linked to AI-supported learning environments. Several studies also noted reductions in speaking anxiety, writing anxiety, and learning-related boredom, particularly when learners benefited from immediate feedback and flexible opportunities for independent practice.

At the same time, the literature identified several challenges. These included learners' potential overreliance on automated feedback, differences in engagement across proficiency levels, and concerns about the depth and accuracy of AI-generated responses. Such findings underscore that the benefits of AI tools are closely tied to how they are integrated into instructional practices and supported through appropriate pedagogical design.

DISCUSSION

The findings of this systematic review reveal a significant transformation in English as a Foreign Language (EFL) education within higher education, driven by the integration of Artificial Intelligence (AI). The analysis of the selected empirical studies confirms that tools such as Generative AI (GenAI), conversational chatbots, and adaptive platforms not only enhance linguistic competence but also redefine learner autonomy and the affective landscape of learning. However, the evidence also underscores the critical need for pedagogical scaffolding to prevent passive dependency and foster higher-order cognitive skills.

Enhancement of Linguistic Competence and Long-Term Retention

A recurring theme in the reviewed literature is the superior efficacy of AI tools in fostering not just immediate performance, but also long-term skill retention compared to traditional methods. In the domain of pronunciation, the advantage of AI-driven practice lies in its interactivity and immediacy. While traditional tools provide static models, interfaces like ChatGPT allow for iterative cycles of production and feedback, which are crucial for phonological encoding (Xodabande et al., 2025). Empirical findings indicate that students who used ChatGPT for pronunciation practice performed better than those in the control group. These learners showed higher results immediately after the intervention, and their improvement was still evident in later assessments, suggesting that the learning achieved was retained over time (Xodabande et al., 2025).Similarly, the use of voice chatbots has been shown to significantly improve students' fluency, accuracy, and confidence in oral communication (Duong & Suppasetseree, 2024), a finding supported by systems specifically designed for this purpose, such as the MALLIE chatbot, which enhanced communicative skills in university settings (Khlaisang & Sukavatee, 2024).

In the acquisition of lexical competence, the role of AI extends beyond simple definitions to the mastery of complex collocations. Integrating chatbots into self-regulated learning (SRL) strategies has been shown to significantly improve incidental vocabulary learning and receptive knowledge of collocations (Jalambo et al., 2025). The mechanism behind this success appears to be the high-frequency exposure and contextualized input provided by chatbots, which mimic authentic dialogue more effectively than traditional exercises. Furthermore, the use of AI-generated corpora has proven effective for students to acquire "lexical bundles" and grammatical structures, outperforming instruction based solely on textbooks (Lu, 2025).

Redefining the Affective Domain: Anxiety, Boredom, and Resilience

Beyond cognitive gains, this review highlights the profound impact of AI on the affective dimensions of learning, specifically in mitigating boredom and anxiety. Traditional repetitive practice often leads to disengagement; however, the interactive and gamified nature of GenAI chatbots creates a flow state that significantly reduces boredom levels among students (Jalambo et al., 2025). Platforms like Duolingo, when implemented in higher education contexts, not only

improve oral performance but also foster greater engagement and self-regulation thanks to their gamified elements (Qiao & Zhao, 2023; Phanwiriyarat et al., 2025; Asmar et al., 2025).

Qualitative evidence reinforces that students perceive interactions with chatbots as safer and less intimidating environments than human interaction, providing a judgment-free zone that encourages experimentation and reduces the anxiety typically associated with making errors in front of peers (Taeza, 2025; Moussa & Belhiah, 2024). Lowering affective barriers plays an important role in language learning, as it encourages students to communicate more confidently and remain engaged with the language beyond the classroom (Taeza, 2025). In addition, research shows that when AI tools are used in oral and listening assessments, students tend to cope better with pressure. These tools help learners manage academic difficulties more effectively and feel less anxious during exams, especially in demanding assessment situations (Sayed et al., 2024; Abdellatif et al., 2024).

Balancing Learner Independence with the Imperative of Critical Evaluation

While the promotion of learner autonomy is a celebrated benefit of AI integration, a critical interpretation of the findings reveals a potential paradox: the risk of cognitive offloading and over-reliance. Although students report that AI tools satisfy their curiosity and improve time efficiency (Zakarneh et al., 2025), unmediated access can lead to superficial engagement where AI replaces, rather than supports, intellectual effort. Studies on automated writing evaluation (AWE) tools like Grammarly indicate that while they improve grammatical precision, students with lower linguistic proficiency may accept suggestions mechanically without deep cognitive engagement (Murtisari et al., 2025).

The literature suggests that uncritical reliance in AI outputs is a significant challenge, particularly for graduate students who may rely on these tools to compensate for linguistic weaknesses without critically evaluating the generated content (Hajihasankhansary & Gilanlioglu, 2025). Consequently, the integration of Critical Thinking (CT) into language instruction emerges not just as an option, but as a necessity in the AI era. Interventions that explicitly combine CT instruction with language learning have proven effective in transforming students from passive consumers of AI content into active evaluators (Hajihasankhansary & Gilanlioglu, 2025). Furthermore, the use of chatbots can foster reflective thinking, allowing students to improve the quality of their writing through technology-assisted critical revision of their own drafts (Robillos, 2024).

The Role of the Teacher and the Cultural Dimension

Despite technological sophistication, the evidence reaffirms the central role of the teacher. Comparative studies demonstrate that the use of AI platforms combined with teacher scaffolding produces significantly higher gains in integrated skills than the use of AI in isolation (Ma & Chen, 2025). AI can reduce cognitive load and offer immediate feedback, but it is

pedagogical guidance that ensures these tools are used for meaningful learning and not just for error correction (Ma & Chen, 2025; Shen et al., 2023).

Finally, the review indicates that the scope of AI in EFL is expanding from purely linguistic accuracy towards intercultural communicative competence. Advanced intelligent systems integrating deep learning with cultural context simulations can bridge the gap between linguistic correctness and cultural appropriateness (Liu, 2025). By processing multimodal data and providing real-time feedback on cultural nuances, these systems allow students to navigate complex intercultural scenarios, suggesting that AI has the potential to democratize access to immersive cultural training (Liu, 2025). Self-access platforms like ReadTheory also contribute to this, enhancing reading enjoyment and comprehension through a posthumanist approach that integrates technology and human agency (Wangdi & Shimray, 2025).

In summary, the integration of AI in higher education EFL contexts offers a robust pathway to enhance linguistic skills and emotional engagement. However, its sustainable implementation requires a pedagogical shift: moving from viewing AI as a simple shortcut for production to treating it as a sophisticated partner that requires self-regulation (Xu & Jumaat, 2024), critical oversight, and active learner engagement to be truly effective.

CONCLUSION

The systematic analysis of the selected literature confirms that the integration of Artificial Intelligence (AI) into higher education EFL contexts represents a fundamental pedagogical shift rather than a mere technological trend. The evidence suggests that generative AI, conversational chatbots, and automated writing evaluation (AWE) systems function as effective catalysts for linguistic development, particularly in enhancing speaking fluency, pronunciation accuracy, and writing mechanics. Beyond cognitive gains, these tools successfully address the affective dimensions of learning by lowering anxiety, mitigating boredom through gamification, and fostering a psychologically safe environment for practice and assessment.

However, this research is not without its limitations. First, the scope of this review was restricted to 26 articles selected from specific academic databases, which, while rigorous, may not capture the entirety of the rapidly expanding body of literature on AI in education. Second, the focus was exclusively on higher education settings; therefore, the positive outcomes reported here cannot be automatically generalized to K-12 contexts where learner autonomy and digital literacy levels differ significantly.

Future research must prioritize longitudinal designs that extend beyond a single semester. It is vital to determine if the linguistic gains and motivation provided by AI sustain themselves once the novelty diminishes or if they regress, as hinted by some follow-up data.

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