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Transforming English Language Education through Artificial Intelligence: Pedagogical Innovations, Learner Autonomy, and Ethical Challenges in Higher Education.

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Abstract
Artificial Intelligence (AI) is reshaping English language education through adaptive learning environments, conversational systems, automated feedback, speech technologies, and generative AI applications. These developments create opportunities for more individualized language instruction and expanded opportunities for practice beyond the classroom. They also raise questions about learner agency, the reliability of AI-generated feedback, linguistic representation, privacy, academic integrity, and unequal access. This paper examines the implications of AI for English language education in Indian higher education, with particular attention to pedagogical innovation, learner autonomy, and ethical challenges. It adopts a qualitative conceptual-integrative review approach, drawing on peer-reviewed research on AI in English language teaching, ChatGPT in ESL/EFL education, and AI applications in higher education. The analysis is organized around personalized learning, academic writing, speaking and listening practice, formative assessment, self-regulated learning, and responsible institutional governance. The literature indicates that AI can extend language-learning opportunities and support formative feedback, but its educational value depends on task design, teacher mediation, critical verification, and equitable access (Crompton et al., 2024; Jiang, 2022; Lo et al., 2024; Mahapatra, 2024). In the Indian context, AI integration should be multilingual and culturally responsive, recognizing the diverse linguistic repertoires and technological circumstances of university learners. The paper argues for a human-centred model in which AI supplements rather than replaces teachers, and in which learner autonomy is developed through reflection, evaluation, and responsible use rather than technological dependence.

Keywords: Artificial intelligence; English language education; higher education; generative AI; learner autonomy; pedagogical innovation; academic integrity; India.

1. Introduction

English language competence is important in Indian higher education for academic participation, research communication, professional mobility, and access to international knowledge networks. Yet students enter universities with varied levels of proficiency and different opportunities to use English beyond the classroom. Conventional instruction can find it difficult to provide every learner with individualized practice and timely feedback. AI-supported tools offer additional ways to practise language skills, obtain explanations, revise texts, and engage in simulated communication (Jiang, 2022; Crompton et al., 2024).

AI in language education is not a single technology. It includes automated evaluation systems, neural machine translation, intelligent tutoring systems, conversational agents, speech recognition, and generative language models. These systems can serve learner-facing functions, such as practice

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and feedback, as well as teacher-facing functions, such as material preparation and formative assessment (Jiang, 2022). Research in higher education has also identified adaptive systems, assessment, profiling, and intelligent tutoring as prominent application areas, while emphasizing the need for stronger pedagogical and ethical engagement (Zawacki-Richter et al., 2019).

The arrival of generative AI has made the issue more immediate. Large language models can produce explanations, dialogues, summaries, and draft texts, and can respond to learners in natural language. In ESL/EFL settings, empirical research has increasingly examined writing support and learner interaction, although evidence across speaking, listening, reading, and long-term language development remains less extensive (Lo et al., 2024; Kasneci et al., 2023).

For Indian universities, the question is not simply whether AI should be adopted, but under what pedagogical and ethical conditions it can improve learning. A responsible approach must take account of multilingual classrooms, variation in digital access, the role of teachers, and the need to protect students' personal and academic data. The National Education Policy 2020 places emphasis on technology-enabled education, equitable access, and multilingualism; AI integration in English teaching should be considered in relation to these broader commitments (Ministry of Education, Government of India, 2020).

2. Statement of the Research Problem

Although AI applications are increasingly available to university students, their use does not automatically lead to improved language proficiency. Students may use generative systems to obtain explanations and feedback, but they may also accept inaccurate outputs, submit generated text without meaningful revision, or become dependent on automated assistance. Reviews of ChatGPT in ESL/EFL education identify opportunities such as personalized learning and teacher support, alongside risks including incorrect information, privacy leakage, and academic dishonesty (Lo et al., 2024).

A further problem concerns equity and linguistic representation. Students differ in access to reliable internet, devices, paid applications, and institutional support. AI systems may also privilege dominant language varieties and standardized forms, potentially marginalizing local accents and multilingual practices. Crompton et al. (2024) identify concerns about standardization and limitations in AI capabilities in English language teaching. The research problem, therefore, is how Indian higher education institutions can integrate AI in ways that enhance language learning while preserving learner autonomy, academic integrity, linguistic inclusion, and teacher agency.

3. Research Objectives

1. To examine the role of Artificial Intelligence in transforming English language education in Indian higher education institutions.
2. To identify major AI-enabled pedagogical innovations in the teaching and learning of English.
3. To analyse how AI-supported learning environments may promote learner autonomy and self-regulated language learning.
4. To examine the applications of generative AI and intelligent systems in academic writing, speaking, listening, reading, and formative assessment.
5. To critically analyse ethical challenges associated with AI use, including academic integrity, data privacy, algorithmic bias, technological dependency, and unequal digital access.

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6. To explore the changing roles and professional responsibilities of English language teachers in AI-supported classrooms.
7. To propose an inclusive, teacher-mediated, and ethically responsible framework for integrating AI into English language education in Indian higher education.

4. Review of Related Literature

4.1 AI applications in higher education

Zawacki-Richter et al. (2019), in a systematic review of AI applications in higher education, identified assessment and evaluation, adaptive systems and personalization, profiling and prediction, and intelligent tutoring systems as major areas of application. They also observed limited engagement with educators and insufficient reflection on pedagogical theory and ethical risks. This finding is relevant to English language education because technological adoption must be linked to explicit learning goals and instructional design. Bond et al. (2024) similarly call for stronger ethical, collaborative, and methodologically rigorous research in AI-supported higher education.

4.2 AI in English language teaching and learning

Jiang (2022) reviewed AI applications in the EFL context and identified automated evaluation, neural machine translation, intelligent tutoring, AI chatbots, intelligent virtual environments, and affective computing. The review suggests that AI can support both learner-facing and teacher-facing functions, but also highlights technical limitations and the need for further research into pedagogical and ethical implications. More recent reviews also identify conversational AI, automated feedback, and generative systems as major strands of language-learning research (Du & Daniel, 2024; Koç & Savaş, 2025; Li et al., 2025).

Crompton et al. (2024) conducted a systematic review of AI in English language teaching and learning. Their synthesis identified affordances in speaking, writing, reading, pedagogy, and self-regulation. It also reported challenges including technical breakdowns, limited capabilities, user concerns, and the standardization of language. These findings support the need for careful selection of tools and attention to world Englishes and linguistic diversity. Evidence from later reviews reinforces the importance of teacher mediation, classroom-based evaluation, and attention to learner autonomy (Deng & Jamaludin, 2026; Uygun & Demir, 2026).

4.3 Generative AI and ESL/EFL education

Lo et al. (2024) reviewed 70 empirical studies of ChatGPT in ESL/EFL education. Their synthesis found that research had concentrated substantially on writing, while other language skills and long-term outcomes remained less thoroughly investigated. The review also identified opportunities for personalized learning and teacher support, together with risks relating to inaccurate information, privacy, and academic dishonesty. Related reviews of generative-AI writing instruction further document the predominance of writing-focused research and the need for broader skill coverage (Xiao et al., 2025; Li et al., 2025).

Mahapatra (2024) investigated ChatGPT as a formative feedback tool for undergraduate ESL students' academic writing through a mixed-methods intervention. The study is particularly relevant to higher education because it considers how generative AI can be incorporated into writing development rather than treated simply as a text-generation shortcut. Its pedagogical implication is that feedback should support student revision and learning, with students retaining responsibility

for the final text. Other intervention and perception studies report both benefits and limitations of ChatGPT feedback in EFL writing (Polakova & Ivenz, 2024; Meniado et al., 2024; Slamet, 2024).

4.4 Opportunities and risks of large language models

Kasneci et al. (2023) discuss the potential of large language models to generate educational content, support interaction, and personalize learning. They also emphasize the need for AI literacy, fact-checking, human oversight, and strategies to address bias and misuse. In English language education, these concerns apply to grammar explanations, vocabulary suggestions, generated examples, and academic writing assistance. Research on AI literacy and critical thinking likewise emphasizes that learners must evaluate rather than simply accept generated outputs (Liu et al., 2025; Karataş et al., 2024).

Taken together, the literature suggests that AI is most educationally useful when it is embedded in a clearly designed learning activity. The teacher's role includes setting learning goals, selecting appropriate tools, helping students interrogate outputs, and evaluating learning beyond the text produced by an AI system (Crompton et al., 2024; Kasneci et al., 2023; Zawacki-Richter et al., 2019).

4.5 Indian higher education and multilingual EFL contexts

Research directly situated in India is particularly important for interpreting AI adoption in multilingual higher education. Khan et al. (2025), in a qualitative study of 43 Indian EFL learners, report perceived benefits for writing fluency, motivation, and revision-related confidence, while also identifying concerns about dependence on generated feedback, critical thinking, and academic integrity. The study offers context-specific evidence that AI use is shaped by learner practices and the quality of pedagogical guidance, rather than by tool availability alone. This supports the need for institutionally guided and culturally responsive implementation in Indian universities (Khan et al., 2025; Ministry of Education, Government of India, 2020).

5. Research Methodology

5.1 Research design

The paper adopts a qualitative conceptual-integrative review design. It synthesizes peer-reviewed literature and relevant policy material to develop an interpretive account of AI-enabled pedagogical innovation, learner autonomy, and ethical challenges in English language education. It is not presented as a primary empirical study or as a PRISMA-registered systematic review. The expanded bibliography comprises 30 peer-reviewed journal articles with DOI records, covering AI in higher education, EFL/ESL pedagogy, generative AI, automated writing evaluation, learner autonomy, speaking practice, and academic integrity.

5.2 Sources and scope

The review draws on scholarly studies concerning AI in higher education, AI in EFL/ESL teaching, generative AI in language learning, and AI-supported academic writing. The central focus is Indian higher education, while international studies are used to establish the conceptual and empirical context. The National Education Policy 2020 is considered as a relevant national policy framework (Ministry of Education, Government of India, 2020).

5.3 Analytical procedure

The literature is organized thematically under five analytical categories: (i) personalized and adaptive instruction; (ii) language-skill development and formative feedback; (iii) learner autonomy

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and self-regulation; (iv) teacher roles and institutional implementation; and (v) ethics, equity, and governance. The categories are used to compare the opportunities and limitations reported in the literature (Crompton et al., 2024; Jiang, 2022; Lo et al., 2024).

5.4 Limitations

Because the paper is based on a conceptual-integrative review, it does not report primary data, effect sizes, or statistical tests. The conclusions are interpretive and should not be read as causal claims about the impact of AI on Indian university students. Institution-specific empirical research is required to test the proposed framework.

6. AI-Enabled Pedagogical Innovations

6.1 Personalized and adaptive learning

AI-supported systems can offer practice activities and explanations that respond to a learner's immediate questions and perceived level of difficulty. In English language learning, this may include vocabulary practice, grammar exercises, reading comprehension prompts, and differentiated writing tasks. Adaptive support can make additional practice available outside scheduled classes, although the quality of personalization depends on the accuracy of the system and the relevance of the learning design (Jiang, 2022; Zawacki-Richter et al., 2019). Evidence from self-directed learning research also indicates that perceived usefulness, trust, and learner self-efficacy shape sustained use of conversational AI (Tram et al., 2024; Mohebbi, 2024).

6.2 Academic writing and formative feedback

Generative AI and automated writing tools can help learners identify grammatical issues, explore vocabulary alternatives, examine paragraph organization, and revise drafts. Used formatively, such feedback can prompt learners to compare versions, explain their revisions, and recognize recurring errors. Mahapatra (2024) provides an empirical example of investigating ChatGPT as a formative feedback tool in undergraduate ESL writing. However, students should verify suggestions and retain authorship and responsibility for their arguments and final submissions (Kasneci et al., 2023; Lo et al., 2024). Studies of Grammarly and automated writing evaluation similarly show the value of feedback for revision, while noting limitations in contextual and higher-order writing support (Dizon & Gayed, 2024; Yang et al., 2024; Mekheimer, 2025).

6.3 Speaking and pronunciation practice

Conversational agents and speech technologies can provide simulated dialogues, interview practice, role-play, and pronunciation exercises. These applications may offer learners additional opportunities to rehearse communication, particularly where classroom time or opportunities for English interaction are limited. Nevertheless, simulated conversation cannot fully reproduce the social, pragmatic, and emotional complexity of communication with human interlocutors (Crompton et al., 2024; Jiang, 2022). Empirical work has also associated conversational AI with willingness to communicate, speaking confidence, and reduced language anxiety (Zhang et al., 2024; Wang et al., 2024; Zhang, Wu, & Fu, 2024; Tai & Chen, 2024).

6.4 Reading and listening support

AI can assist reading and listening through vocabulary explanations, question generation, text-to-speech, speech-to-text, and summaries. These features may help learners approach unfamiliar material and check comprehension. Teachers should ensure that simplified summaries do not

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replace sustained engagement with original academic texts, and that generated explanations are checked for accuracy (Jiang, 2022; Kasneci et al., 2023).

6.5 Assessment and feedback

Automated tools can support low-stakes formative assessment by identifying recurring language errors and generating practice tasks. Such systems may reduce delays between a student's attempt and feedback. They should not be treated as sole arbiters of language competence, because creativity, argument quality, context, rhetorical purpose, and intercultural communication require human judgment (Zawacki-Richter et al., 2019; Crompton et al., 2024).

7. Learner Autonomy and Self-Regulated Learning

Learner autonomy involves taking an active role in setting goals, selecting strategies, monitoring progress, and evaluating learning. AI can support these processes when students use it to identify learning needs, request explanations, practise language skills, and reflect on feedback. Crompton et al. (2024) identify self-regulation among the areas in which AI may offer affordances in English language teaching and learning. Recent studies further connect AI-supported language learning with self-regulation, independent learning behaviours, and learner agency (Hou & Zhou, 2025; Mohebbi, 2024; Tram et al., 2024).

AI-supported autonomy, however, is not equivalent to unrestricted dependence on a chatbot. Students need to compare AI suggestions with course materials, consult reliable sources, and explain why they accept or reject feedback. Large language models can produce plausible but inaccurate information, making critical verification an essential part of AI literacy (Kasneci et al., 2023).

Teachers can foster autonomy by asking students to submit initial drafts, document the feedback they received, explain revisions, and reflect on what they learned. Such practices make the learning process visible and discourage the substitution of generated content for independent intellectual work (Mahapatra, 2024; Lo et al., 2024).

8. Ethical Challenges and Risks

8.1 Academic integrity and authorship

Generative AI can produce text that resembles student writing, creating challenges for authorship, originality, and assessment. Institutions should clarify which uses are permitted, when disclosure is required, and how students remain accountable for submitted work. Assessment should emphasize process evidence, oral explanation, supervised tasks, and reflective documentation rather than relying exclusively on AI-detection software (Kasneci et al., 2023; Lo et al., 2024). Research with Indian EFL learners specifically reports a dual pattern of improved writing fluency and confidence alongside concerns about over-reliance and academic integrity (Khan et al., 2025).

8.2 Accuracy and fabricated information

AI-generated explanations, citations, and factual statements may be incomplete or incorrect. Students should be taught to verify references through publisher websites, DOI records, library databases, and original publications. AI output should be treated as a draft or prompt for inquiry, not as an authoritative source (Kasneci et al., 2023; Lo et al., 2024).

8.3 Data privacy and security

Students may enter personal information, unpublished assignments, research data, or institutional material into external AI systems. Universities should provide guidance on approved platforms,

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data minimization, consent, and the handling of confidential information. Privacy and governance considerations are central to responsible AI adoption in higher education (Zawacki-Richter et al., 2019; Kasneci et al., 2023).

8.4 Algorithmic bias and linguistic diversity

AI tools may privilege dominant varieties of English or provide feedback that treats legitimate linguistic variation as error. This is important in India, where learners use English in multilingual contexts and bring different accents and language resources to the classroom. Teachers should distinguish between errors that impede meaning and differences associated with accent, dialect, or multilingual identity (Crompton et al., 2024; Jiang, 2022).

8.5 Digital divide and unequal access

Access to devices, stable connectivity, digital literacy, and paid AI services is uneven. If universities assume that all students can access the same tools, AI integration may intensify existing inequalities. Institutional provision of accessible facilities and low-cost alternatives is therefore necessary for equitable implementation (Ministry of Education, Government of India, 2020; Kasneci et al., 2023).

8.6 Technological dependency

If learners routinely outsource drafting, translation, or problem-solving to AI, they may have fewer opportunities to practise independent language production. Course design should therefore require unaided performance at appropriate stages, encourage revision rather than replacement, and ask learners to justify language choices (Lo et al., 2024; Mahapatra, 2024).

9. Implications for Indian Higher Education

Indian universities can use AI to extend language-learning support beyond the classroom, particularly for students who have limited opportunities to practise English in their immediate environments. Multilingual explanations, scaffolded writing tasks, and conversational practice may help learners engage with English while drawing on their existing linguistic knowledge. Such use should support, rather than displace, the educational value of Indian languages and multilingual competence (Ministry of Education, Government of India, 2020; Jiang, 2022). The Indian context is also represented in recent empirical work on EFL learners' experiences of ChatGPT-supported academic writing (Khan et al., 2025).

Institutional adoption requires more than purchasing software. Universities should establish policies on acceptable use, student disclosure, data protection, assessment design, and accessibility. Faculty development should include practical AI literacy, prompt evaluation, bias awareness, and methods for designing tasks that require critical thinking and original student contribution (Zawacki-Richter et al., 2019; Kasneci et al., 2023).

English language departments should also evaluate AI tools against specific learning outcomes. A tool suitable for vocabulary practice may not be appropriate for assessing academic argumentation or intercultural communication. Selection should be based on demonstrated pedagogical value, transparency, accessibility, and fit with the course rather than novelty alone (Crompton et al., 2024; Lo et al., 2024).

10. Proposed Responsible AI-Integrated Pedagogical Framework

The review proposes a five-part framework for Indian higher education. First, technological integration should be aligned with explicit language-learning outcomes, such as writing

development, pronunciation practice, reading comprehension, and vocabulary acquisition. Second, teacher mediation should guide tool selection, task design, and evaluation of AI-generated feedback. Third, learner autonomy should be developed through goal-setting, self-assessment, reflective revision, and verification of information. Fourth, ethical governance should address academic integrity, transparency, privacy, and accountability. Fifth, inclusive implementation should recognize multilingual identities and differences in digital access. The framework synthesizes the pedagogical affordances and risks identified in research on AI in English language teaching and higher education (Crompton et al., 2024; Jiang, 2022; Kasneci et al., 2023; Zawacki-Richter et al., 2019).

11. Discussion

The literature indicates that AI can expand opportunities for language practice and provide rapid, individualized assistance. These affordances are particularly relevant to writing feedback, conversational practice, and adaptive learning. At the same time, the concentration of empirical work on writing and the limited evidence concerning long-term development across all language skills caution against broad claims that AI improves overall English proficiency in every context (Crompton et al., 2024; Lo et al., 2024). Evidence from experimental studies of AI-supported speaking and writing suggests that outcomes vary by tool, task, learner proficiency, and instructional design (Zhang et al., 2024; Tai & Chen, 2024; Mekheimer, 2025).

A central pedagogical distinction is between using AI to support learning and using AI to bypass learning. In the first case, students interrogate suggestions, revise their own work, and develop awareness of language. In the second, students may submit generated text without developing the underlying competence. The distinction reinforces the need for teacher mediation, transparent institutional expectations, and assessment practices that value process as well as product (Mahapatra, 2024; Kasneci et al., 2023).

For India, responsible AI integration must also be attentive to multilingualism and unequal access. A uniform model of English that discounts regional accents or multilingual resources would be educationally restrictive. AI should be used to expand participation and language development, not to impose a narrow linguistic norm or create a new divide between students with and without access to advanced tools (Crompton et al., 2024; Ministry of Education, Government of India, 2020).

12. Conclusion

Artificial Intelligence offers significant possibilities for transforming English language education through personalized practice, writing feedback, conversational interaction, adaptive learning, and formative assessment. Research indicates that these applications can extend learning opportunities, but their value depends on pedagogical purpose, teacher involvement, student critical judgment, and responsible institutional practice (Crompton et al., 2024; Jiang, 2022; Lo et al., 2024).

In Indian higher education, AI integration should be inclusive, multilingual, and attentive to unequal digital access. It should strengthen learner autonomy by encouraging students to set goals, evaluate feedback, revise independently, and verify information. It should not replace teachers or allow generated text to stand in for learning. A sustainable model is therefore one in which AI functions as a supervised educational resource within a human-centred framework that protects

academic integrity, privacy, linguistic diversity, and educational equity (Kasneci et al., 2023; Ministry of Education, Government of India, 2020; Zawacki-Richter et al., 2019).

13. Recommendations

8. Universities should publish clear policies defining acceptable AI assistance, disclosure expectations, authorship responsibilities, and prohibited forms of academic substitution (Kasneci et al., 2023; Lo et al., 2024).
9. English language teachers should receive continuing professional development in AI literacy, prompt evaluation, bias recognition, and the design of learning-centred AI activities (Crompton et al., 2024; Zawacki-Richter et al., 2019).
10. Students should be taught to verify AI-generated facts, explanations, and references against original academic sources (Kasneci et al., 2023).
11. Assessment should include drafts, revision histories, oral explanation, supervised writing, presentations, and reflective learning records (Mahapatra, 2024; Lo et al., 2024).
12. Institutions should provide equitable access to devices, connectivity, accessible tools, and non-AI alternatives so that participation does not depend on students' ability to pay for commercial services (Ministry of Education, Government of India, 2020).
13. AI-supported language instruction should respect multilingual identities and distinguish genuine communication problems from accent or dialect variation (Crompton et al., 2024; Jiang, 2022).
14. Universities should periodically evaluate AI tools for accuracy, privacy, accessibility, and educational effectiveness rather than assuming that adoption itself constitutes innovation (Zawacki-Richter et al., 2019; Kasneci et al., 2023).

14. Limitations and Future Research

This paper is a conceptual-integrative review and does not include primary data from Indian students or teachers. It therefore cannot establish causal effects of AI on language proficiency, learner autonomy, or academic performance. Future research should use mixed-methods, quasi-experimental, and longitudinal designs across diverse Indian institutions. Studies should compare AI-supported and non-AI-supported learning, assess outcomes across all four language skills, and examine differences by region, institutional type, socioeconomic background, and prior English proficiency (Lo et al., 2024; Crompton et al., 2024).

Further research should also examine teachers' AI literacy, student disclosure practices, the effect of AI feedback on independent writing, and the extent to which learners retain language skills when AI support is withdrawn. These questions respond to gaps identified in reviews of AI-supported English language learning and generative AI in education (Jiang, 2022; Lo et al., 2024; Kasneci et al., 2023).

References

1. Bond, M., Khosravi, H., De Laat, M., Bergdahl, N., Negrea, V., Oxley, E., Pham, P., Chong, S. W., & Siemens, G. (2024). A meta systematic review of artificial intelligence in higher education: A call for increased ethics, collaboration, and rigour. International Journal of Educational Technology in Higher Education, 21, Article 4. https://doi.org/10.1186/s41239-023-00436-z
2. Crompton, H., Edmett, A., Ichaporia, N., & Burke, D. (2024). AI and English language teaching: Affordances and challenges. British Journal of Educational Technology, 55, 2503–2529. https://doi.org/10.1111/bjet.13460

3. Deng, L., & Jamaludin, K. A. (2026). Roles of generative artificial intelligence (GenAI) in English as a foreign language (EFL) instruction: A systematic literature review. SAGE Open. https://doi.org/10.1177/21582440261418315
4. Dizon, G., & Gayed, J. M. (2024). A systematic review of Grammarly in L2 English writing contexts. Cogent Education, 11(1), Article 2397882. https://doi.org/10.1080/2331186X.2024.2397882
5. Du, J., & Daniel, B. K. (2024). Transforming language education: A systematic review of AI-powered chatbots for English as a foreign language speaking practice. Computers and Education: Artificial Intelligence, 5, Article 100230. https://doi.org/10.1016/j.caeai.2024.100230
6. Fang, Y. (2026). The use of artificial intelligence in English language teaching and learning in higher education: A systematic literature review. Cogent Education. https://doi.org/10.1080/2331186X.2026.2696619
7. Hou, F., & Zhou, C. (2025). How AI shapes self-regulated learning in foreign language education. Discover Computing, 28, Article 344. https://doi.org/10.1007/s10791-025-09801-0
8. Jiang, R. (2022). How does artificial intelligence empower EFL teaching and learning nowadays? A review on artificial intelligence in the EFL context. Frontiers in Psychology, 13, Article 1049401. https://doi.org/10.3389/fpsyg.2022.1049401
9. Karataş, F., Abedi, F. Y., Ozek Gunyel, F., Karadeniz, D., & colleagues. (2024). Incorporating AI in foreign language education: An investigation into ChatGPT's effect on foreign language learners. Education and Information Technologies, 29, 19343–19366. https://doi.org/10.1007/s10639-024-12574-6
10. Kasneci, E., Sessler, K., Küchemann, S., Bannert, M., Dementieva, D., Fischer, F., Gasser, U., Groh, G., Günnemann, S., Hüllermeier, E., Krusche, S., Kutyniok, G., Michaeli, T., Nerdel, C., Pfeffer, J., Poquet, O., Sailer, M., Schmidt, A., Seidel, T., & Kasneci, G. (2023). ChatGPT for good? On opportunities and challenges of large language models for education. Learning and Individual Differences, 103, Article 102274. https://doi.org/10.1016/j.lindif.2023.102274
11. Khan, R., Qamar, M. T., Ansari, M. S., & Yasmeen, J. (2025). Enhancing or impairing? Exploring Indian EFL learners' academic writing narratives with ChatGPT. Cogent Education, 12(1), Article 2514329. https://doi.org/10.1080/2331186X.2025.2514329
12. Koç, F. Ş., & Savaş, P. (2025). The use of artificially intelligent chatbots in English language learning: A systematic meta-synthesis study of articles published between 2010 and 2024. ReCALL, 37(1), 4–21. https://doi.org/10.1017/S0958344024000168
13. Li, B., Tan, Y. L., Wang, C., & Lowell, V. (2025). Two years of innovation: A systematic review of empirical generative AI research in language learning and teaching. Computers and Education: Artificial Intelligence. https://doi.org/10.1016/j.caeai.2025.100445
14. Liu, J., Sihes, A. J. B., & Lu, Y. (2025). How do generative artificial intelligence (AI) tools and large language models (LLMs) influence language learners' critical thinking in EFL education? A systematic review. Smart Learning Environments, 12, Article 48. https://doi.org/10.1186/s40561-025-00406-0
15. Lo, C. K., Yu, P. L. H., Xu, S., Ng, D. T. K., & Jong, M. S. Y. (2024). Exploring the application of ChatGPT in ESL/EFL education and related research issues: A systematic review of empirical studies. Smart Learning Environments, 11, Article 50. https://doi.org/10.1186/s40561-024-00342-5
16. Mahapatra, S. (2024). Impact of ChatGPT on ESL students' academic writing skills: A mixed methods intervention study. Smart Learning Environments, 11, Article 9. https://doi.org/10.1186/s40561-024-00295-9
17. Mekheimer, M. (2025). Generative AI-assisted feedback and EFL writing: A study on proficiency, revision frequency and writing quality. Discover Education, 4, Article 170. https://doi.org/10.1007/s44217-025-00602-7

18. Meniado, J. C., Huyen, D. T. T., Panyadilokpong, N., & Lertkomolwit, P. (2024). Using ChatGPT for second language writing: Experiences and perceptions of EFL learners in Thailand and Vietnam. Computers and Education: Artificial Intelligence, 5, Article 100313. https://doi.org/10.1016/j.caeai.2024.100313
19. Mohebbi, A. (2024). Enabling learner independence and self-regulation in language education using AI tools: A systematic review. Cogent Education. https://doi.org/10.1080/2331186X.2024.2433814
20. Polakova, P., & Ivenz, P. (2024). The impact of ChatGPT feedback on the development of EFL students' writing skills. Cogent Education, 11(1), Article 2410101. https://doi.org/10.1080/2331186X.2024.2410101
21. Slamet, J. (2024). Potential of ChatGPT as a digital language learning assistant: EFL teachers' and students' perceptions. Discover Artificial Intelligence, 4, Article 46. https://doi.org/10.1007/s44163-024-00143-2
22. Tai, T.-Y., & Chen, H. H.-J. (2024). Improving elementary EFL speaking skills with generative AI chatbots: Exploring individual and paired interactions. Computers & Education, 208, Article 105112. https://doi.org/10.1016/j.compedu.2024.105112
23. Tram, N. H. M., Nguyen, T. T., & Tran, C. D. (2024). ChatGPT as a tool for self-learning English among EFL learners: A multi-methods study. System, 127, Article 103528. https://doi.org/10.1016/j.system.2024.103528
24. Uygun, E., & Demir, B. (2026). A PRISMA-based systematic review of artificial intelligence in English as a foreign and second language education (2023–2025). Discover Education, 5, Article 478. https://doi.org/10.1007/s44217-026-01504-y
25. Wang, C., Zou, B., Du, Y., & Wang, Z. (2024). The impact of different conversational generative AI chatbots on EFL learners: An analysis of willingness to communicate, foreign language speaking anxiety, and self-perceived communicative competence. System, 127, Article 103533. https://doi.org/10.1016/j.system.2024.103533
26. Xiao, F., Zhu, S., & Xin, W. (2025). Exploring the landscape of generative AI (ChatGPT)-powered writing instruction in English as a foreign language education: A scoping review. Chinese Journal of Applied Linguistics, 48(1). https://doi.org/10.1177/20965311241310881
27. Yang, H., Gao, C., & Shen, H.-Z. (2024). Learner interaction with, and response to, AI-programmed automated writing evaluation feedback in EFL writing: An exploratory study. Education and Information Technologies, 29, 3837–3858. https://doi.org/10.1007/s10639-023-11991-3
28. Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2019). Systematic review of research on artificial intelligence applications in higher education—Where are the educators? International Journal of Educational Technology in Higher Education, 16, Article 39. https://doi.org/10.1186/s41239-019-0171-0
29. Zhang, C., Meng, Y., & Ma, X. (2024). Artificial intelligence in EFL speaking: Impact on enjoyment, anxiety, and willingness to communicate. System, 121, Article 103259. https://doi.org/10.1016/j.system.2024.103259
30. Zhang, D., Wu, J. G., & Fu, Z. (2024). From shy to fly: Facilitating EFL learners' willingness to communicate with an AI chatbot and an intelligent tutoring system. System, 127, Article 103501. https://doi.org/10.1016/j.system.2024.103501