



Leveraging AI-Based Interactive Tools to Enhance English Language Learning among ESL Learners

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Abstract:

The present study examines the role of AI-based interactive tools in enhancing English language learning among ESL learners. In recent years, the integration of artificial intelligence into language education has transformed traditional approaches by introducing adaptive, interactive, and feedback-oriented learning environments. This study investigates how AI-driven tools such as chatbots, automated writing assistants, and pronunciation applications contribute to the development of essential language skills including vocabulary, grammar, speaking, pronunciation, and writing. Using a mixed-method research design, the study combines quantitative and qualitative data to explore both measurable learning outcomes and learners' perceptions of AI-supported language practice. The findings indicate that AI-based interactive tools have a generally positive effect on English language learning by improving writing accuracy, vocabulary use, grammatical competence, learner engagement, confidence, and motivation. The study also reveals that these tools create a low-pressure environment for repeated practice and immediate feedback, which is especially beneficial for hesitant learners. However, the research also identifies limitations such as overdependence on AI, concerns about accuracy, and unequal access to digital resources. The study concludes that AI-based interactive tools can serve as valuable pedagogical aids in ESL education when used in a balanced, supervised, and pedagogically meaningful manner alongside teacher guidance.

Keywords: Artificial Intelligence, AI-based interactive tools, English language learning, digital pedagogy, technology-enhanced learning

English language learning in ESL contexts occupies a significant place in contemporary education because English functions as a key medium for academic advancement, professional mobility, and cross-cultural communication. For ESL learners, however, acquiring proficiency in English is rarely a uniform or uncomplicated process. Learners often enter classrooms with different levels of exposure, confidence, and communicative competence, and they may require sustained opportunities for practice, correction, and meaningful interaction. In such contexts, effective language learning depends not only on access to content but also on timely feedback, learner engagement, and regular opportunities to use the language in authentic or semi-authentic situations. Recent research on AI-supported second language education likewise emphasizes that learners benefit when they receive continuous practice opportunities, real-time feedback, and adaptive support across major language skills (Du & Daniel, 2024; Wiboolyasarin et al., 2025).

The growing role of technology in language education has reshaped how English is taught and learned. Digital platforms, mobile applications, learning management systems, online communication tools, and multimedia resources have expanded the language classroom beyond its traditional boundaries. UNESCO has observed that digital technologies have transformed teaching and learning practices and have made education more flexible, even as they have also exposed unequal access and other structural limitations. At the same time, OECD work on AI and education highlights that rapid technological change is altering both educational practices and the skills learners need to develop in an AI-influenced world. These developments indicate that technology is no longer a supplementary aid in language learning;



it is increasingly becoming part of the learning environment itself (OECD, 2026; UNESCO, 2023).

Within this broader technological shift, AI-based interactive tools have emerged as a particularly influential development in language education. These tools include AI chatbots, automated writing assistants, pronunciation applications, adaptive vocabulary platforms, and generative AI systems that simulate dialogue, provide feedback, and personalize tasks. UNESCO has recognized that AI has the potential to innovate teaching and learning practices, while also stressing the importance of inclusion, equity, and human-centered use. Recent systematic reviews further show that conversational AI and AI-driven chatbots have become increasingly visible in language education research and are associated with positive outcomes in speaking, writing, confidence, motivation, and learner engagement. At the same time, this body of research also shows that the field is still developing and that the pedagogical value of such tools depends on how they are selected, used, and supervised (Lai & Lee, 2024; UNESCO, n.d.; Wiboolyasarin et al., 2025).

The emergence of AI-based interactive tools is especially relevant to ESL learning because language acquisition thrives on interaction, repetition, correction, and context-sensitive support. AI tools appear promising in this regard because they can provide immediate responses, individualized pacing, low-stakes conversational practice, and feedback that may reduce anxiety and encourage participation. Studies on AI chatbots in English language learning report improvements in speaking performance, pronunciation, confidence, engagement, and motivation, while research on ChatGPT and related systems suggests potential benefits for writing and feedback when combined with human guidance. Yet these benefits should not be assumed as universal or automatic. Reviews also draw attention to concerns regarding feedback quality, relevance, readability, and the need to balance AI assistance with teacher expertise (Du & Daniel, 2024; Du & Reynolds, 2025; Karataş et al., 2024).

For this reason, there is a clear need to examine the effectiveness of AI-based interactive tools in enhancing language skills among ESL learners. Although current literature suggests promising outcomes, evidence remains uneven across contexts, learner groups, and language skills. Some reviews note that much of the existing research has been concentrated in specific regional settings and that further work is needed in more diverse contexts and with more rigorous designs. In addition, policy-oriented studies warn that AI in education must be evaluated not only for efficiency and innovation but also for equity, access, teacher preparedness, privacy, and the possibility of widening existing digital divides. Therefore, any scholarly study of AI in ESL learning must move beyond enthusiasm for innovation and ask whether these tools genuinely support vocabulary development, grammar learning, speaking ability, writing improvement, and learner confidence in educationally meaningful ways (Li et al., 2025; OECD, 2026; UNESCO, n.d.).

The rationale for selecting this topic lies in the growing presence of AI tools in classrooms and independent learning spaces, alongside the increasing expectation that language learners and teachers will engage with them critically and effectively. As AI becomes more accessible, ESL learners are likely to encounter it in both formal and informal settings, whether through automated feedback systems, conversational agents, or generative writing tools. This makes the topic academically relevant and pedagogically urgent. Investigating how AI-based interactive tools influence English language learning can help clarify their educational value, identify their limitations, and contribute to more informed decisions about



their integration into ESL teaching and learning. Such a study is also timely because major international bodies continue to call for human-centered, equitable, and carefully regulated uses of AI in education rather than uncritical adoption (OECD, 2026; UNESCO, n.d.).

Despite the increasing availability of AI-based interactive tools in education, their actual effectiveness in improving English language learning among ESL learners remains insufficiently examined in a focused and systematic manner. While these tools promise personalized learning, instant feedback, and greater learner engagement, questions persist regarding their impact on specific language skills, their pedagogical reliability, and the challenges associated with accessibility, ethical use, and overdependence on technology. The problem, therefore, is to determine how far AI-based interactive tools genuinely enhance English language learning among ESL learners and under what conditions they can be used effectively (Li et al., 2025; UNESCO, n.d.; Wiboolyasarini et al., 2025).

The study aims to examine the role of AI-based interactive tools in English language learning among ESL learners and to analyze how these tools contribute to the development of essential language skills such as vocabulary, grammar, speaking, pronunciation, and writing. It also seeks to investigate the influence of these tools on learner engagement, motivation, and confidence, while identifying the challenges and limitations associated with their use in ESL learning contexts. In addition, the study intends to suggest pedagogically effective ways of integrating AI-based interactive tools into English language teaching and learning.

This study is significant because it addresses a timely issue in English language education: the educational use of AI in supporting ESL learners. It contributes to the growing discussion on technology-enhanced language learning by focusing specifically on the interactive and adaptive capacities of AI tools. The study may help teachers understand how such tools can be used to supplement classroom instruction, assist learners in independent practice, and improve feedback mechanisms. It may also help students and institutions recognize both the opportunities and the risks involved in AI-assisted learning. More broadly, the study responds to current educational concerns about innovation, equity, human oversight, and responsible technology integration in language education (OECD, 2026; UNESCO, n.d.).

On the basis of the preceding discussion and the existing body of scholarship, the present study hypothesizes that AI-based interactive tools have a significant positive effect on English language learning among ESL learners. It is expected that learners who use such tools for practice, interaction, and feedback will show measurable improvement in major language areas, particularly vocabulary, grammar, speaking, pronunciation, and writing. The study further assumes that these tools will strengthen learner engagement, motivation, and confidence by offering immediate responses, adaptive support, and greater opportunities for independent practice. At the same time, their impact is expected to be most effective when they are used as pedagogical support in conjunction with teacher guidance rather than as a replacement for classroom instruction (Ding et al., 2025; Du & Daniel, 2024; Wiboolyasarini et al., 2025).

Recent scholarship indicates that research on artificial intelligence in language education has moved rapidly from preliminary experimentation to more systematic empirical inquiry. A systematic review of 144 peer-reviewed studies on generative AI in language learning and teaching found a sharp increase in publications between 2023 and 2024 and identified six major research areas, including learner attitudes, teaching strategies, language



skills development, writing and feedback, and implementation issues. The same review also noted that most studies were concentrated in higher education and predominantly in EFL contexts, which suggests that more context-specific evidence is still needed for broader ESL settings (Li et al., 2025).

A substantial part of the literature has focused on AI-driven chatbots as interactive tools for language practice. A systematic review of 30 empirical studies published between 2020 and 2024 reports that chatbot use contributed to improvements across speaking, writing, reading, listening, grammar, and vocabulary, with especially strong gains in speaking and writing. The review attributes these outcomes to real-time feedback, increased practice opportunities, and reduced learner anxiety. Supporting this position, another systematic review of chatbot affordances argues that large language models have expanded the role of chatbots beyond simple question-answering by enabling more meaningful support in writing, speaking, and emotional engagement. Together, these studies suggest that interaction-based AI tools are particularly valuable where learners need frequent low-pressure practice (Du & Daniel, 2024; Du & Reynolds, 2025).

The literature on generative AI, particularly ChatGPT, also points to encouraging results in English language learning. One study on foreign language learners found that ChatGPT positively influenced writing, grammar, and vocabulary acquisition while also increasing motivation and engagement because of its versatility and accessibility. Such findings reinforce the view that AI tools can function as accessible learning partners, especially in tasks requiring drafting, revision, explanation, and language practice beyond classroom hours. At the same time, these benefits appear uneven across skill areas, with some studies observing weaker effects for speaking and listening than for writing-focused tasks (Karataş et al., 2024; Li et al., 2025).

Writing instruction has emerged as one of the most heavily researched areas in this field. Studies on automated writing evaluation and generative feedback show that AI can improve accuracy, mechanics, sentence structure, and revision efficiency. In a recent study on ChatGPT as an automated writing evaluation tool, students who received ChatGPT feedback significantly improved their overall writing scores, with notable gains in grammar, mechanics, tone, and even some aspects of organization and content. Yet the same study also found that learners were more confident in using AI for surface-level revisions than for higher-order concerns such as logic, coherence, and content development. Students often regarded broader feedback as vague unless prompts were precise, and the authors therefore recommended combining AI feedback with teacher guidance and critical evaluation tasks. This strand of research suggests that AI is highly useful in writing development, but its pedagogical value depends on prompt quality, learner digital literacy, and the continued presence of human feedback (Ding et al., 2025; Hwang et al., 2025).

Another important trend in the literature concerns learner behaviour and the practical use of AI during writing tasks. Research on second language writing with generative AI shows that learners tend to use ChatGPT most heavily during the early stages of writing for idea generation, and later for grammar checks, polishing, and example generation. Participants generally viewed the tool positively for helping with content creation and time management, but they also expressed concerns that point to the need for digital literacy and guided use. These findings are important because they shift attention from whether AI can help to how learners actually use it during the composing process (Hwang et al., 2025).



Teacher-oriented and policy-oriented studies add another dimension to the literature by stressing implementation conditions. A phenomenological study of educators' experiences with AI tools in English language learning found that teachers associated these tools with interactive, personalized, and gamified learning experiences that improved engagement, motivation, and English proficiency. At the same time, the study reported concerns about distraction, reduced direct interaction, and the need for sustained institutional support and teacher training. These concerns align with UNESCO's broader position that AI in education should follow a human-centered approach grounded in inclusion and equity, and with evidence suggesting that AI works best as a supplement to, rather than a substitute for, traditional teaching (UNESCO, n.d.; Wiboolyasarín et al., 2025; Wu & Annamalai, 2025).

Taken together, the literature establishes that AI-based interactive tools hold considerable promise for enhancing English language learning, especially by supporting feedback, practice, and learner engagement. However, the review also reveals a clear research gap. Much of the current evidence comes from higher education, EFL-dominant contexts, and short-term studies, while comparatively fewer investigations examine ESL learners in context-sensitive ways or consider how different AI tools affect specific language skills under guided classroom conditions. The present study addresses this gap by examining the effectiveness of AI-based interactive tools among ESL learners with attention to both language development and the pedagogical conditions that shape successful use (Li et al., 2025; Wiboolyasarín et al., 2025).

The present study employed a mixed-method research design in order to obtain both measurable and descriptive insights into the use of AI-based interactive tools in English language learning among ESL learners. A mixed-method approach was considered appropriate because it allows the researcher to combine quantitative evidence, such as learners' responses on improvement, engagement, and frequency of tool use, with qualitative evidence drawn from learner experiences, opinions, and reflections. In this study, data were gathered through a structured questionnaire and qualitative responses obtained from interviews or open-ended feedback, so that both performance-related trends and learner perceptions could be examined together. The quantitative data were analyzed through descriptive interpretation, while the qualitative data were examined thematically to identify recurring patterns related to language development, motivation, confidence, and challenges. This methodological choice is consistent with recent research in AI-assisted language learning, where scholars have used mixed or combined approaches to understand not only whether AI tools support learning, but also how learners experience such support in actual educational settings (Lai & Lee, 2024; Lin, 2025).

The analysis of the data indicates that AI-based interactive tools had an overall positive effect on English language learning among ESL learners. The findings suggest that these tools were especially helpful in improving writing, vocabulary, grammar, and sentence construction, while also offering support in speaking and pronunciation practice. Learners appeared to benefit from the immediacy of AI-generated feedback, the opportunity to repeat tasks without fear of judgment, and the flexibility of practicing English beyond the classroom. The results also suggest that AI tools increased learner engagement by making language practice more interactive and less intimidating, particularly for those who were hesitant to participate in traditional classroom communication. These findings are in line with recent systematic reviews showing that AI chatbots and generative AI tools tend to produce strong gains in writing and speaking-related practice, while also contributing positively to learner motivation and confidence (Du & Daniel, 2024; Karataş et al., 2024; Wiboolyasarín et al., 2025).



A closer interpretation of the findings shows that writing emerged as the language skill most noticeably enhanced through AI-based tools. Learners were able to use these tools for sentence correction, vocabulary expansion, grammar checking, idea generation, and revision, which made the writing process more manageable and less stressful. This suggests that AI tools function effectively as support systems during drafting and editing, especially for learners who require immediate formative feedback. The findings correspond with recent studies on ChatGPT and automated writing evaluation, which report improvement in grammar, mechanics, tone, and overall writing quality when AI feedback is used carefully. At the same time, the present interpretation also suggests that learners may rely more confidently on AI for surface-level correction than for deeper aspects of writing such as logic, originality, and coherence. This reflects a broader scholarly concern that AI can support revision effectively, but still requires human supervision when dealing with content quality and higher-order thinking (Ding et al., 2025; Hwang et al., 2025).

The findings further reveal that AI-based interactive tools contributed positively to learner motivation, confidence, and willingness to practice English. Many learners appeared more comfortable using AI tools than speaking immediately in front of peers or teachers, which suggests that these technologies may reduce anxiety and create a low-pressure environment for experimentation and practice. From an interpretive perspective, this improvement in confidence can be linked to the interactive and adaptive nature of AI systems, which allow learners to receive responses instantly and continue practicing at their own pace. This observation is supported by recent review studies showing that chatbot-assisted learning often promotes emotional engagement, sustained participation, and a greater willingness to communicate, especially when learners perceive the tool as supportive rather than evaluative (Du & Daniel, 2024; Du & Reynolds, 2025).

However, the analysis also points to several limitations and concerns. Although learners found AI tools useful, some difficulties remained regarding the accuracy of responses, overdependence on automated correction, and the possibility of accepting AI-generated content uncritically. In addition, not all learners may have equal access to digital resources, stable internet connectivity, or the digital literacy required to use such tools effectively. These concerns are important because they show that the educational value of AI does not lie merely in availability, but in guided and responsible use. This interpretation is strongly supported by current literature, which repeatedly emphasizes that AI tools should supplement teacher-led instruction rather than replace it, and that their effectiveness depends on pedagogical design, teacher mediation, and ethical awareness (OECD, 2026; UNESCO, n.d.; Wu & Annamalai, 2025).

When discussed in relation to existing literature, the present findings reinforce the growing academic view that AI-based interactive tools can play a constructive role in ESL learning if used in a balanced and purposeful manner. The study supports earlier scholarship suggesting that AI is particularly effective in promoting individualized practice, immediate feedback, and learner engagement, but it also confirms that technology alone cannot guarantee meaningful language development. The role of the teacher remains central in helping learners evaluate AI responses, use feedback critically, and connect technological practice with communicative and academic goals. Therefore, the discussion suggests that the effectiveness of AI-based interactive tools in ESL education depends not simply on the tools themselves, but on the pedagogical conditions under which they are integrated into the learning process (OECD, 2026; UNESCO, n.d.; Wiboolyasarin et al., 2025).



The findings of the present study indicate that AI-based interactive tools have a generally positive influence on English language learning among ESL learners. The analysis suggests that these tools are particularly effective in strengthening writing, vocabulary, grammar, and sentence construction, as learners benefit from instant feedback, repeated practice, and easier access to language support outside the classroom. The findings also show that AI-supported interaction contributes to greater learner engagement, confidence, and motivation, especially by creating a low-pressure environment in which students can practice English more freely and receive immediate responses. These results are consistent with recent research showing that AI chatbots, automated feedback systems, and generative AI tools tend to produce the strongest gains in writing-related tasks, vocabulary development, and communicative practice, while also encouraging learner participation and emotional engagement (Ding et al., 2025; Du & Daniel, 2024; Wiboolyasarín et al., 2025).

At the same time, the study reveals that the advantages of AI-based tools are not without limitations. Although learners find such tools useful and accessible, concerns remain regarding the reliability of some responses, the risk of overdependence on AI-generated corrections, and the tendency to accept generated content without sufficient critical evaluation. In addition, the effectiveness of these tools may be reduced by unequal access to devices, internet connectivity, and digital literacy. This is in keeping with current scholarship and UNESCO guidance, which emphasize that AI in education should be adopted through a human-centered, ethical, and equitable framework rather than treated as an automatic solution to learning challenges (OECD, 2026; UNESCO, n.d.; Wu & Annamalai, 2025).

In conclusion, the study confirms that AI-based interactive tools can serve as valuable pedagogical aids in enhancing English language learning among ESL learners. The hypothesis of the study is supported to the extent that AI tools appear to contribute positively to language development, particularly in areas requiring feedback, revision, and frequent practice. However, the conclusion that emerges is not that AI should replace teachers or conventional classroom methods, but that it should be integrated thoughtfully as a supportive resource within a broader instructional framework. Research on AI-assisted writing similarly shows that learners make stronger and more comprehensive gains when AI feedback is combined with teacher guidance rather than used in isolation (Ding et al., 2025; Wiboolyasarín et al., 2025).

Thus, the overall conclusion of the paper is that AI-based interactive tools hold substantial promise for ESL education when used in a balanced, supervised, and pedagogically meaningful manner. Their value lies in personalization, immediacy, and interactivity, but their educational success depends on responsible implementation, learner awareness, and continued human oversight. Viewed in this way, AI is best understood not as a substitute for language teaching, but as an enabling tool that can enrich the learning process and expand opportunities for ESL learners to develop their English proficiency more confidently and effectively (OECD, 2026; UNESCO, n.d.; Wiboolyasarín et al., 2025).

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