# A Conceptual Exploration of AI-Generated Tools in English Language Teaching and Learning

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## ABSTRACT

The rapid uptake of Artificial intelligence (AI) in language education has outpaced systematic reflection on its pedagogical, ethical, and human implications. This paper examines the transformative potential of AI-generated tools in English language education, aiming to clarify their pedagogical roles and to identify ways these technologies can be strategically leveraged to enhance teaching effectiveness and learning outcomes. Rather than reporting empirical findings, this conceptual paper synthesises contemporary literature to develop an integrated conceptual perspective on AI-enabled instruction, assessment, and learner support. It critically explores current trends and practices, including personalised learning systems, natural language processing-based tools, interactive chatbots, and automated assessment and feedback mechanisms. In advancing potential applications of AI, it delves into hyper-personalised learning platforms and immersive multimodal simulation and predictive co-teaching aids, while also addressing persistent challenges related to overreliance, privacy risks, and ethical concerns. The discussion foregrounds the necessity of comprehensive AI literacy training for educators, the establishment of robust and adaptive policy frameworks, and the development of ethically grounded guidelines that are sensitive to cultural and contextual diversity. Emphasis is also placed on interdisciplinary collaboration between academic institutions and AI developers, as well as teacher-student readiness and ethical integration within classroom environments. Central to the paper's argument is a balanced model of human-AI collaboration, in which AI tools are viewed as cognitive and pedagogical partners that augment, rather than replace professional judgement and relational dimensions of teaching. Framed through the concepts of collaborative intelligence and a paradox mindset, the paper argues that tensions between automation and human expertise can be productively harnessed to support meaningful learning. Finally, the paper underscores the need for future research to move beyond conceptual promise by prioritising rigorous empirical inquiry that evaluates the effectiveness, trustworthiness, and ethical implications of AI-generated tools across diverse educational contexts.

**Keywords:** Artificial Intelligence, English Language, Teaching and Learning, AI-generated tools.

## INTRODUCTION

### Overview of the Significance of English Language Proficiency in the Modern World

English as a language has become "World English" as it is widely spoken, understood, and accepted throughout the world (Prajapati, 2022). Sirohi (2022) documented that among all languages spoken, English is the only language which is predominantly spoken and officially approved by 31 sovereign states of 54 nations. In order to maintain international relationships in science, technology, business, education, travel, and tourism, English serves the purpose as a common language and a global language (Inamjanovna & Jordánová, 2023). At the same time, globalisation has made English proficiency increasingly important across all fields, including those influenced by digital transformation and artificial intelligence. According to Statista (2025, October 28), approximately 1.53 billion people worldwide spoke English as either a first or second language, a figure

consistently reported in earlier research (Mohamad Sahidan et al., 2025). This is slightly more than the 1.18 billion Mandarin Chinese speakers reported at the time of the survey (Statista, 2025), highlighting English's prominence as a global language. This global prevalence highlights the necessity of equipping learners with strong English proficiency, particularly as AI-generated tools create new opportunities and reshape the future of English language teaching and learning.

## The Concept of AI-generated Tools for Language Teaching and Learning

Artificial Intelligence (AI) is seen to have developed at rapid speed in the last few years. In line with the previous statement, Rusmiyanto et al. (2023) reinforce that AI, which is known for its capability to emulate human intelligence, has significantly impacted numerous areas of society. The primary goal of AI is to develop a machine that can think like human behaviours including perceiving, reasoning, planning, predicting, and most importantly learning (Xu et al., 2021). Umar (2024) documented that AI encompasses various subfields, including machine learning, natural language processing, computer vision, and robotics.

Looking deeper into the applications of AI in the education aspect, Umar (2024) highlights that AI-powered technologies are increasingly being applied in English Language Teaching (ELT) to enhance teaching and learning experiences. Recent advances in generative AI technology have further sparked scholarly interest in its potential to transform language education, particularly as the global demand for English proficiency consistently grows. In response, educators and researchers are steadily investigating innovative, AI-integrated pedagogical approaches to enhance learning outcomes (Creely, 2024; Rusmiyanto et al., 2023).

## Purpose of the Study

The main purpose of this conceptual paper is to explore and recognise the role of AI-generated tools in education, with particular emphasis on English language teaching and learning. While AI has rapidly developed and gained importance across educational contexts, research specifically examining its integration into English language teaching remains limited. Existing review studies on the general AI in Education (AIED) field primarily focus on articles published before 2019 (Wang et al., 2024). However, the COVID-19 pandemic has accelerated both the adoption of AI and related research, highlighting the need to review more recent studies and aggregate their insights.

Despite the growing importance of AI in education, theoretical frameworks explaining its dynamics and practical use in language-related courses are still lacking (Aljuaid, 2024). Moreover, although feedback is well-established as a key component of effective teaching, the application of AI-generated feedback, particularly from language models like ChatGPT, remains underexplored in translation and language education (Xu et al., 2025). Similarly, while the technical abilities of AI-generated tools such as ChatGPT are well documented, their integration into English language teaching practices continues to be understudied (Dilzhan, 2024).

This conceptual paper seeks to highlight ways in which technological advancements, particularly AI, can be fully leveraged and utilised to enhance English language teaching and learning. It argues that integrating AI-generated tools into language education presents significant opportunities to improve teaching practices and learning outcomes. Specifically, the paper examines current usage of AI-generated tools in education, explores challenges and limitations, discusses strategies for AI integration, and considers future directions for AI in English language teaching.

## Background of Study

Albukbak and Msimeer (2021) stated that it may be challenging to assert that any single teaching method or approach is the optimal choice for adoption in English classes. This is a direct impact of evolution of linguistic theories, pedagogical philosophies, and educational contexts, where language teaching methods have gone through significant transformations over the years (Keo & Lan, 2024). Ultimately, Beshiri (2024) documented that as the world becomes increasingly interconnected, the demand for language proficiency has grown, encouraging educators to adopt and explore a variety of teaching methodologies.

## Grammar Translation Method

In the 18th and 19th centuries, language training was primarily based on the Grammar-Translation Method. Grammar Translation Method also known as GT Method is a traditional method of learning a language (Kumar, 2022). Richards & Schmidt (2002), as cited by Albukbak & Msimeer (2021), state that this approach to teaching second language (L2) emphasises the importance of translation and grammar study as the main activities in the teaching and learning process. Naghiyeva (2025), also stated that it focuses on grammatical accuracy and translation-based activities which has made it an appealing choice for educators across the globe. As a result, this approach focused on cultivating proficiency in reading and writing, frequently at the detriment of spoken communication and auditory comprehension.

The pervious statement align with what stated in a study by Albukbak & Msimeer (2021), in which the writers documented that the main focus of Grammar-Translation Method is to attain mastery in reading and writing, placing very little emphasis on listening and speaking, which implies mastery of grammar rules yet an inability to apply them in verbal utterances. For instance, students studying English literature might translate passages from Shakespeare's Hamlet into their mother tongue, allowing them to analyse the meanings of complex phrases such as "To be, or not to be" (Naghiyeva, 2025). However, Naghiyeva (2025) also affirmed that a major criticism of the Grammar-Translation Method is its limited capacity to foster communicative competence.

## Direct Method

Conversely, the Direct Method gained traction in the early 20th century, emphasising oral communication and minimising the use of translation (Beshiri, 2024). The term "direct" refers to establishing an immediate connection between the target language and its meaning, without relying on translation into the learners' native language (Abas & Zainurrahman, 2022). Beshiri (2024) included in a study stating that this approach prioritises speaking and listening skills over grammar rules and memorisation. As highlighted by Berlitz (2004, as cited in Beshiri, 2024), the core principle of the Direct Method is the exclusive use of the target language in the classroom.

Abas and Zainurrahman (2022) note, "The direct method focuses on the direct learning of the target language phonemes or words and its meaning and therefore focuses more on the pragmatic understanding of language and increase in the fluency" (p. 21). For example, in a French class, all instruction would be conducted entirely in French (Beshiri, 2024). Additionally, the method fosters a collaborative classroom environment in which students are encouraged to participate actively. Activities such as the use of realia, pictures, and pantomime further engage learners while reducing reliance on translation (Djauhar, 2021). This affirms that Direct Method cultivates a more natural and holistic acquisition of the target language by integrating meaning, interaction, and direct exposure. Unlike the former Grammar-Translation Method, which was core-focused on writing and reading, the Direct Method emphasised on speaking and inductive teaching methods (Albukbak & Msimeer, 2021).

## Audio-Lingual Method

Post-World War II, the emergence of the Audio-Lingual Method highlighted habit formation through pattern drills and repetition (Beshiri, 2024). This method focused on cyclical exercises and mimicry to effectively teach language patterns, which is considered most effective for beginners or students struggling with speaking as it promotes active participation and minimises the fear of making mistakes (Hermansyah & Mothe, 2025).

Richards & Schmidt (2002), as cited by Albukbak & Msimeer (2021), stated that this method is also called aural-oral which emphasises the teaching of speaking and listening prior to the reading and writing processes, utilising dialogues and drills in teaching these skills. Furthermore, the Audio-lingual Method focus was on acquiring structures and patterns in everyday dialogue rather than understanding individual words and these patterns are practiced recurrently until the students' responses in the foreign language become automatic (Kakunta & Kamanga, 2020). In line with that, Hermansyah and Mothe (2025) believed that the repetitive nature of the Audio-lingual Method helps students in reinforcing their memory and activate schemata, gradually developing fluency and confidence in using the language.

However, despite this approach being seen as successful in establishing habitual behaviour, it frequently led to learners capable of producing grammatically correct language that was not always meaningful or contextually appropriate (Albukbak & Msimeer, 2021). This statement is further discussed by Al-Mutawa & Kailani (2003), as cited by Albukbak & Msimeer (2021), in which it was highlighted that Audio-Lingual Method takes no account of the creative use of language and higher-order cognitive processes.

**Communicative Language Teaching**

Until the 1970s, language teaching methods focused on grammatical competence, but the development of Communicative Language Teaching (CLT) emerged from dissatisfaction with the grammar-translation and audio-lingual methods, shifting language pedagogy (Xu, 2023; Yang, 2024). According to Xu (2023), the development of Communicative Language Teaching (CLT) can be understood in three main stages. Its theoretical foundations emerged in the early 1970s, followed by significant advancements in communication theory during the late 1970s. After the 1980s, CLT entered a stage of refinement and further improvement.

Unlike the earlier teaching methods that focused heavily on grammar practices and memorisation, CLT acknowledges that language learning involves much more than simply knowing its forms and structures. Instead, it emphasises on helping learners communicate meaningfully through real-life, authentic interactions (Cui, 2022; Yang, 2024). This is further supported by Richards & Rodgers (2000), as cited by Nuepane (2024), that CLT is guided by three principles: communication, tasks, and meaningfulness. In the classroom, students do more of the talking and performance while the teacher observes and facilitates activities as in this method, the priority is student-centeredness (Albukbak & Msimeer, 2021). For instance, CLT is implemented through a wide range of interactive and task-based activities like roleplays, group discussions, problem-solving tasks, debate and project-based work (Orujlu, 2025). Additionally, Orujlu (2025) mentioned that the teacher's role undergoes a fundamental shift from being the transmitter of knowledge to a facilitator of communication.

The student-centered nature of CLT empowers learners to actively participate in the learning process, fostering autonomy and confidence in using the target language in diverse contexts (Cui, 2022). However, despite its advantages, this communication-focused approach is not without challenges. Educators often face difficulties in designing appropriate communicative activities, assessing students' performance effectively and managing a huge number of students in a classroom where attention to individuals is limited (Xu, 2023; Yang, 2024). These limitations highlight the continuing need for innovative approaches in language teaching, paving the way for modern solutions explored in subsequent discussions.

**Overview of AI in English Language Teaching**

Artificial intelligence (AI) has emerged as a defining technology of the Fourth Industrial Revolution (4IR), maximising automation, data, and efficiency through technologies. Through AI-based modeling, automated and intelligent systems can be developed to meet contemporary demands across various sectors, including education. To address complex real-world challenges, multiple forms of AI such as analytical, functional, interactive, textual, and visual AI can be employed to enhance the intelligence and performance of digital applications (Sarker, 2022). Across multiple forms, AI learning algorithms generally fall into four key categories: supervised learning, where models adjust parameters by comparing predicted and actual outputs; unsupervised learning, which identifies hidden patterns by clustering similar data; semi-supervised learning, which leverages limited labeled data to improve predictions on larger unlabeled datasets; and reinforcement learning, where systems learn optimal actions by maximising reward signals through environmental interaction (Krishna et al., 2024). In the education domain, the potential of AI is particularly notable. For instance, Intelligent Tutoring Systems (ITS) offer personalised and adaptive learning experiences far beyond traditional instruction, with AI enabling real-time feedback, dynamic adaptation, and improved learning outcomes. Gomes (2024) highlights that while ITS brings significant pedagogical advantages, ethical concerns such as data privacy and algorithmic bias remain critical considerations. Overall, machine learning applications continue to demonstrate substantial promise in transforming educational processes and learner support systems.

A growing body of research consistently demonstrates that AI-assisted tools enhance students' productivity and support language development. Applications such as QuillBot, AI Writer, and Typeset help users rephrase text

by modifying sentence structures or substituting appropriate synonyms, while Wordtune provides multilingual translation features that benefit non-native English speakers (Nazari et al., 2021). Text-generation tools including ChatGPT, Trinka AI, and Writesonic further streamline the writing process by enabling efficient production of text-based content (Bhatia, 2023; Cheong et al., 2023). Additionally, tools such as Grammarly, Jasper, and Consensus have been shown to improve users' writing accuracy and clarity (Teng & Wang, 2023; Zhao et al., 2023), with some studies suggesting that comparing one's original draft to AI-enhanced revisions may contribute to deeper academic writing proficiency.

**Current Trends and Practices in English Language Teaching**

The rapid advancement of AI has reshaped contemporary English language education, giving rise to a range of innovation tools and pedagogical approaches. Recent research highlights three major areas in which AI integration is most prominent: personalised learning systems that tailor instruction to individual learner needs, NLP-driven tools and interactive chatbots that facilitate meaningful language interaction, and automated assessment and feedback mechanisms that enhance instructional efficiency and diagnostic precision. Together, these trends illustrate how AI is transforming both the delivery and experience of language learning, offering new opportunities for adaptivity, accessibility, and data-informed decision-making.

**Personalised Learning Systems**

Personalised learning systems increasingly leverage AI to adapt instruction to the diverse needs of learners. There is a clear consensus of the literature that AI-driven personalised learning systems have transformative potential, yet each work offers different dimensions of how personalisation should operate.

Krishna et al. (2024) foreground the structural and theoretical foundations of AI-enabled personalisation, situating personalised learning within broader learning theories such as behaviourism, cognitivism, and the Zone of Proximal Development (ZPD). They argue that personalised platforms function effectively when their design aligns with established theories of how learners acquire and process information, emphasising that AI systems which are often trained by supervised learning, should scaffold, individualise and adapt instruction in ways that remain pedagogically grounded. In contrast, Tan et al. (2025) focus more on the learner experience within personalised environments, highlighting how personalisation can reduce cognitive load, support differentiated progression, and mitigate learner stress by ensuring that educational tasks remain within a manageable range of difficulty.

Their perspective complements, but slightly diverges from Krishna et al. (2024) by centring the emotional and motivational dimensions of personalisation, rather than its theoretical underpinnings. Meanwhile, Liu et al. (2025) approach a more pragmatic and system-level view, stressing the need for personalised learning systems to enhance learner agency and maintain a balance between automated guidance and student autonomy. Unlike Tan et al. (2025), who emphasises support and stress reduction, Liu et al. (2025) cautions that excessive reliance on automated systems may reduce learner ownership if not carefully designed, arguing instead for environments where students actively participate in shaping their learning trajectory. This concept can be aligned to reinforcement learning approaches by AI learning algorithms that adapt in response to student choices and actions.

Therefore, personalised learning systems are most effective when they incorporate theoretical grounding, the learner-centred support, and the autonomy-oriented balance. Together, these articles reinforce that personalisation is not simply about delivering differentiated content, but about creating learning ecosystems that are pedagogically informed, emotionally supportive, and respectful of learner agency.

**Natural Language Processing (NLP) and Interactive Chatbots**

As AI becomes more deeply embedded in modern language education, NLP technologies and conversational chatbots have emerged as pivotal tools for mediating how learners interact with English in digital spaces. Across the three articles reviewed, authors converge on the view that NLP enhances both the quality and accessibility of language learning, though each emphasises different dimensions of its impact.

Alshater (2022) positions NLP-based chatbots such as ChatGPT primarily as tools that enhance academic performance by generating human-like responses, supporting idea development and reducing cognitive barriers for learners. His perspective focuses on the practical utility of supervised learning models that enable these tools to produce coherent language outputs. Umar (2024) expands this view by emphasising the pedagogical dimension: he highlights how NLP algorithms support translation, speech recognition, sentiment analysis, and text summarisation, making them integral to interactive language learning environments that provide real-time feedback and adaptive practice opportunities. This aligns with semi-supervised and unsupervised approaches, which allow systems to refine language understanding from large quantities of learner-generated text.

Lin et al. (2024) shift the discussion towards learning analytics, demonstrating how NLP can decode the "DNA of learning behaviours" by converting natural-language learning descriptions into numerical representations using models such as Google Gemini and OpenAI text embeddings. Subsequently, the unsupervised k-means clustering algorithm is analysed to identify distinct behavioural patterns across learners. The resulting sequences of cluster labels form a behavioural "DNA" that captures each student's learning trajectory. This representation is then used to classify interaction patterns and predict learning performance, thereby extending the role of NLP beyond language generation into deeper diagnostic and performance-predictive insight. This approach contrasts with Alshater's focus on output generation and Umar's perspective on instructional affordances, instead highlighting how NLP facilitates deeper insights into learner behaviour analytics.

To summarise, NLP-enhanced chatbots are most impactful when they integrate all three dimensions: providing accurate language generation, facilitating meaningful interaction, and analysing learner behaviour to inform adaptive support. Although not the central focus of these studies, reinforcement learning also plays a subtle role as chatbots refine conversational relevance through ongoing user feedback.

**Automated Assessment and Feedback Mechanisms**

Automated assessment and AI-generated feedback have become integral components of contemporary language-learning technologies, reshaping how learners receive evaluation and support. There is transparent convergence of these pieces on the pedagogical benefits of these systems, particularly their capacity to enhance scalability, accelerate formative feedback cycles, and provide more nuanced and data-informed learner diagnostics.

Yesilyurt (2023) provides case studies accompanying examples of AI implementation: personalised writing feedback in school systems through automated writing evaluation (AWE) programmes, automated speech recognition for pronunciation practice through automated speech recognition (ASR) systems, adaptive language learning apps and platforms through Duolingo that use algorithms to adjust the difficulty and content of lessons according to individual performance. These instances reflect on how automated scoring and targeted feedback tools can accelerate writing revision cycles, support adaptive practice, and yield formative analytics that teachers can act upon. His discussion implicitly reflects the supervised learning foundations of most automated scoring systems, which depend on a large corpora of human-rated samples to ensure construct validity and alignment with language assessment principles.

Gomes (2024) offers a broader systems perspective by tracing technical and design advances in Intelligent Tutoring Systems (ITS), in which she highlights how ITS integrate diagnostic models, scaffolding strategies, and multimodal feedback to approximate one-to-one tutoring at scale, emphasising system architecture, pedagogical models, and rigorous evaluation of learning gains. By contrast, Tlili et al. (2023) adopt a more critical and reflective stance by examining ChatGPT as a case study. While acknowledging its potential to reduce teacher workload and provide immediate assistance, they caution that overreliance on generative feedback tools may compromise assessment integrity or mask learners' actual competencies if not guided by clear pedagogical oversight.

In essence, existing work on automated assessment and feedback highlights three complementary emphases: the need to preserve assessment validity and contextual classroom alignment, the instructional potential of mature, well-designed intelligent tutoring architectures and the socio-ethical and reliability constraints that arise when large conversational models are deployed for assessment or corrective feedback.

## Potential Applications of AI in English Language Teaching

AI offers transformative potential for English Language Teaching (ELT) by extending current trends in personalised learning systems, NLP chatbots, and automated assessment. Next-generation AI tools can deliver adaptive, immersive, and predictive learning experiences tailored to individual learners' needs. Emerging platforms will dynamically adjust instruction, personalise learning paths, and enhance engagement through advanced data analytics, multimodal NLP, and real-time feedback (Hariyanto et al., 2025). These innovations promise richer ELT environments that support both learners and educators in achieving higher English proficiency not only in academic aspect, but also professional, and social contexts.

### Hyper-Personalised Adaptive Platforms

ITS are believed to evolve the existing adaptive platforms by offering instruction customised to each learner's linguistic profile. AI algorithms can analyse performance data to adjust content difficulty, pacing, and feedback in real time (Akhter, 2025; Sharda, 2024). Research indicates that such systems enhance comprehension, motivation, and learner autonomy by aligning with diverse learning styles (Hariyanto et al., 2025). In ELT contexts, hyper-personalised platforms can provide targeted support for grammar mastery, vocabulary acquisition, and speaking fluency, fostering autonomous learning in diverse classroom settings, including Malaysian classrooms. These systems encourage learners to progress at their own pace whilst addressing individual strengths and weaknesses, promoting more effective and learner-centred language acquisition.

### Immersive Multimodal Simulations and Predictive Co-Teaching Aids

AI integration with Virtual Reality (VR) and Augmented Reality (AR) can create immersive environments that simulate authentic language use, such as business negotiations, debates, or cross-cultural interactions (Huang et al., 2021; Yan et al., 2025). AI-XR systems improve linguistic skills by arousing learners' interest and inducing further exploration of language content. In line with that, Huang et al. (2021) stated that students were motivated to learn and highly engaged in the learning activities, resulting in positive effects on their learning. In addition, studies show that AI-XR systems improve linguistic skills, learner motivation, and pragmatic competence by providing instant feedback on pronunciation, idiomatic expressions, and cultural nuances (Yan et al., 2025).

On the other hand, predictive analytics, using unsupervised clustering of learner interactions, can generate co-teaching aids such as tailored group tasks or bias-checked assessments. These tools empower educators with dynamic instructional adjustments based on real-time learner data (Verghis et al., 2025). Such immersive and predictive applications enrich ELT by combining authentic language experiences with personalised guidance and real-time pedagogical support.

In conclusion, the potential applications of AI in English Language Teaching which range from hyper-personalised Intelligent Tutoring Systems to immersive VR/AR simulations and predictive co-teaching aids, signal a paradigm shift in how language learning is designed and delivered. Building on existing ELT trends, these technologies enable more adaptive, engaging, and equitable learning environments (Hariyanto et al., 2025; Huang et al., 2021). These innovations have the capacity to address persistent ELT challenges, including diverse learner needs in classrooms, speaking anxiety, and gaps in pragmatic competence, thereby supporting the development of autonomous language proficiency across academic, professional, and social contexts (Yan et al., 2025; Verghis et al., 2025). However, effective impact ultimately depends on responsible integration within pedagogically grounded ELT practices.

## Challenges for Integration of AI in English Language Teaching

Despite the growing potential of Artificial Intelligence (AI) to enhance English Language Teaching (ELT), its implementation presents several challenges that must be critically examined to ensure responsible, ethical, and pedagogically sound use. Among the most pressing challenges are overreliance on AI and concerns related to job displacement, privacy and data security risks, and unethical practices involving bias, fairness, and academic integrity.

**Overreliance on AI and Job Displacement**

One major concern associated with AI integration in ELT is the risk of overreliance on AI-generated tools. While AI technologies support personalised learning, automated feedback, and instructional efficiency, excessive dependence on these tools may reduce learners' engagement in critical thinking and independent problem-solving (Umar, 2024). When learners rely heavily on AI-generated outputs, they may become passive recipients of information rather than active participants in the learning process. Not only that, relying too much on AI kills creativity (Almegren et al., 2025). Furthermore, Jones et al. (2023) noted that overreliance on AI may limit creative autonomy and critical thinking if not implemented thoughtfully, as cited by Sangeetha (2025).

In addition, Avsheniuk et al. (2025) argued that excessive reliance on AI-generated tools, especially in writing, denies learners opportunities to immerse themselves in content by skipping critical stages such as drafting, revising, and critically analysing their work. These processes are fundamental to the development of language proficiency and subject-matter mastery, particularly in ELT contexts where writing plays a central role in fostering accuracy, fluency, and metalinguistic awareness. Apart from that, Avsheniuk et al. (2025) raised an interesting concern regarding the gradual decline of pen-and-paper skills, suggesting that reduced engagement with traditional writing practices may negatively impact the development of critical thinking and appropriate language use in academic and professional environments, indicating that traditional writing methods could potentially help prevent overreliance on AI tools. While this is a valid point, it remains speculative, and there is little empirical evidence to indicate that limiting technology use is the most effective way to enhance writing proficiency or critical thinking in academic and professional contexts.

Beyond learner dependency, concerns regarding job displacement and the evolving role of educators have also emerged alongside the increasing integration of AI in educational contexts. Klimova and Pikhart (2025) noted that overdependence on AI systems may negatively impact interpersonal skills and emotional intelligence, potentially leading to social isolation and heightened anxiety, while simultaneously raising concerns related to job displacement as AI technologies become more embedded in educational environments. Similarly, Amini et al. (2024) highlighted that AI is rapidly expanding across both technical and non-technical professions, resulting in significant workforce transformation and potential job displacement. Although Amini et al. (2024) addresses the broader labour market, its implications extend to education, where AI-generated tools increasingly perform tasks traditionally associated with teachers, such as content generation, feedback provision, and tutoring.

Additionally, overreliance on AI may also lead to the unquestioned acceptance of AI-generated outputs. Zhai et al. (2024) noted that such dependence can result in flawed decision-making due to users' difficulties in evaluating the reliability and pedagogical appropriateness of AI-generated recommendations. In response to these concerns, Amini et al. (2024) emphasised the importance of human–AI collaboration rather than replacement, arguing that professionals should adapt alongside AI through enhanced AI literacy and sustained human oversight. This perspective aligns with Rusmiyanto et al. (2023), who stressed that teachers remain essential in mediating, contextualising, and guiding AI-supported language learning, particularly in environments where interaction and social presence are pedagogically important. In summary, while AI can enhance language learning, its effectiveness depends on active human oversight, collaboration, and critical evaluation rather than blind reliance.

**Privacy, Security and Personal Data Concerns**

Another critical challenge in the implementation of AI in English language education relates to privacy, security, and the protection of personal data. AI-powered ELT tools frequently require learners to submit written texts, spoken responses, interaction logs, and personal information,which heightens the risk of data misuse and privacy infringements within language learning contexts. As cited by Zhai et al. (2024), Dempere et al. (2023) identified several risks associated with AI dialogue systems, including privacy violations, illegal data usage, unethical data collection, misinformation, and reduced human interaction. These risks are especially concerning in ELT contexts, where learner-generated language data often reflect personal experiences, identities, and academic performance.

Similarly, Kamalov et al. (2023) highlighted that violations of individual privacy rights and insufficient data protection mechanisms represent major obstacles in the implementation of AI-supported education. Inadequate security measures may expose sensitive learner data to breaches or unauthorised access, thereby undermining trust in AI-based educational systems. Such risks are compounded when learners and educators lack transparency regarding how data are stored, processed, or repurposed by AI platforms.

From a technical and safety perspective, Amini et al. (2024) further emphasised that AI adoption introduces substantial security vulnerabilities, particularly when user inputs and prompts are incorporated into training datasets. This practice increases the likelihood of data leakage. The authors also highlighted potential risks such as adversarial attacks and intentional data poisoning, which complicate the safe and ethical deployment of AI systems. In ELT contexts, such risks may discourage learner participation, limit authentic language use, and raise concerns about the confidentiality of student's own work.

Beyond technical risks, these privacy and security concerns have direct pedagogical implications. Umar (2024) noted that technical issues, usability problems, and algorithmic errors may disrupt learning experiences and reduce confidence in AI-driven platforms, reinforcing the need for stronger data governance and ethical safeguards. When learners perceive AI systems as insecure or unreliable, their willingness to engage meaningfully with AI-mediated language tasks may be significantly reduced. As cited by Wang et al. (2025), Zhang et al. (2024) emphasised that students who lack trust in AI may be less motivated to use it even when supporting resources are available because they focus solely on its limitations and hazards.

The concept of trust is crucial across various domains involving interaction between humans and other parties, whether they are other individuals, technologies, or automated systems (Wang et al., 2025). This is aligned with a narrative review by Herdiani and Rosmansyah (2024), where the authors identify security, consistency, and transparency as key factors for trust, emphasising that addressing these aspects is essential to reduce perceived risks and foster user reliance and adoption. Consequently, addressing privacy and data protection concerns is not only a technical necessity, but a pedagogical imperative for sustaining trust, participation, and ethical practice in AI-enhanced ELT.

**Ethical Challenges: Bias, Fairness and Academic Integrity**

Ethical concerns remain central to discussions of AI integration in English language education, particularly regarding the algorithmic bias, fairness, and academic integrity. In ELT contexts, AI-generated tools are increasingly influencing learning materials, feedback, and assessment practices, raising questions on whether these systems operate in equitable and pedagogically responsible ways. Rusmiyanto et al. (2023) cautioned that algorithmic bias embedded within AI systems may unintentionally perpetuate social, linguistic, and educational inequalities, disadvantaging certain learner groups. Such biases are especially problematic in language education, where learners' accents, cultural backgrounds, and language varieties may be underrepresented in training datasets.

These concerns are not merely theoretical. OpenAI has faced extensive scrutiny due to biased outputs produced by ChatGPT, including content reflecting political ideologies and ethnic stereotypes (Allam et al., 2025). Beyond bias, concerns related to academic integrity and ethical use of AI-generated outputs have gained prominence. Aljuaid (2024) identified several ethical challenges associated with AI use in higher education, including plagiarism, authorship ambiguity, and lack of transparency. Similarly, Dilzhan (2024) reported that teachers express concerns about students' unethical use of AI tools to complete assignments, raising issues of academic misuse, cheating, and plagiarism that may undermine the educational process. In ELT settings, the uncritical use of AI tools for writing, translation, or assessment tasks may blur the boundaries between legitimate learning support and academic misconduct, particularly when learners submit AI-generated content as their own work. As a result, this raises concerns not only about fairness in assessment but also about learners' opportunities to develop authentic language skills.

Moreover, the opacity of many AI systems further complicates ethical implementation. Zhai et al. (2024) noted that users often struggle to evaluate the reliability, accuracy, and pedagogical appropriateness of AI-generated outputs, which may lead to the unquestioned acceptance of flawed or biased information. When such outputs are

used in instructional or evaluative contexts without sufficient human oversight, ethical risks are amplified, potentially undermining trust in AI-supported language learning environments.

At a broader structural level, ethical concerns surrounding AI extend beyond classroom practices to issues of power, transparency, and control over algorithmic systems. Sadeghiani (2024) argued that generative AI technologies are largely governed by major technology corporations, with limited democratic or institutional oversight of their underlying algorithms. While this discussion is framed at a societal level, its implications are relevant to education. This raises ethical questions about whose linguistic varieties, cultural values, and communicative norms are prioritised within AI-generated materials, alongside the risk of subtle forms of misinformation, bias, or ideological influence shaping AI-supported learning environments.

Taken together, these issues highlight that ethical challenges in AI integration extend beyond individual misuse to structural concerns embedded in system design, data representation, and institutional practices. Without clear ethical guidelines, transparency mechanisms, and active teacher mediation, AI tools risk reinforcing bias, compromising academic integrity, and weakening fairness in ELT. These concerns underscore the need for ethically grounded AI integration strategies that prioritise human judgement, learner agency, and inclusive pedagogical values.

**Strategies for Integration of AI in English Language Teaching**

The effective integration of artificial intelligence in English language education requires strategic planning that extends beyond classroom-level adoption. Sustainable implementation depends on coordinated efforts across multiple layers of the educational ecosystem: policy development, institutional capacity building, teacher-student readiness, and ethically informed classroom practice.

**Policy Development and Professional Capacity Building**

Recent comparative analyses show that institutions worldwide employ widely differing approaches to AI, ranging from restrictive no-use policies to open encouragement, shaped by local cultural, regulatory, and pedagogical conditions within the educational context (Parker et al., 2025). This variability underscores the limitations of uniform or one-size-fits-all policies across institutions while the diversity highlights the necessity for a flexible overarching framework that establishes common principles while allowing contextual adaptation at the institutional level.

Effective AI integration begins at the policy and institutional level, where governments and educational authorities establish clear and future-ready frameworks for ethical, equitable, and pedagogically meaningful use of AI. Policies need to address data governance, infrastructure readiness, curriculum alignment, and academic integrity while also clarifying both *what* AI may be used for and *how* it should be embedded into teaching and learning in transparent and learner-centred ways (Chan, 2023). UNESCO's AI and Education: Guidance for Policy-Makers by Fengchun et al. (2021) similarly emphasises interdisciplinary planning, equitable and ethical AI use, the creation of national and institutional AI master plans, systematic pilot testing and monitoring, and the fostering of local innovations. Collectively, these recommendations reinforce the need for governments and institutions to adopt a structured, yet adaptable approach so that AI implementation remains contextually relevant and responsive to evolving technological landscapes, thus ensuring that AI integration strengthens rather than disrupts educational ecosystems.

Bridging policy and practice, recent paper features that institutional frameworks must be accompanied by deliberate professional capacity building. Sharma (2025) proclaims that AI integration in higher education requires comprehensive AI literacy training for educators, robust policy frameworks, and ethically grounded guidelines that are sensitive to cultural and contextual diversity, supported by interdisciplinary collaboration between academic institutions and AI developers. Within this broader policy architecture, educators require sustained professional development that goes beyond basic technical training. Teachers must understand how AI tools function, critically interpret AI-generated outputs, and integrate them in ways that support professional judgment (Tammets & Ley, 2023; Mouta et al., 2024). Professional development should cultivate AI literacy, ethical awareness, and pedagogical decision-making, ensuring that educators feel confident and competent when

integrating AI into instruction. Without such capacity building, AI adoption risks becoming fragmented, inequitable, and misaligned with sound pedagogical practice, regardless of the sophistication of the tools themselves (Kitcharoen et al., 2024).

**Classroom Readiness and Ethical Integration**

Effective AI integration at the classroom level depends fundamentally on teacher-student readiness, which encompasses digital literacy, pedagogical competence, and developmental appropriateness. When introducing AI tools without adequate preparation, it would escalate the risk of overwhelming learners while reinforcing surface-level engagement, particularly when cognitive readiness and learning progression are not carefully considered (Gao et al., 2024). At the same time, disparities in access to devices, infrastructure, and prior digital experience can exacerbate inequities specifically for marginalised communities if readiness is treated as uniform across learners (Funa & Gabay, 2025). Addressing these challenges requires moving beyond technological deployment towards pedagogically grounded integration, where educators are equipped to scaffold AI use and learners are supported in developing critical and reflective engagement with AI-mediated tasks.

Complementing this readiness perspective, recent authors highlight the importance of ethical and human-centred integration in daily classroom practice. Scholars converge on the view that AI tools can enhance diagnostic insight, targeted feedback, and instructional decision-making only when educators are adequately trained and learners are prepared to engage critically with AI outputs, supported by transparent data practices and ethical safeguards (Bianchi, 2024; Krsmanovic & Deek, 2025). Ethical integration, in this sense, entails positioning AI as a supportive pedagogical aid rather than an authoritative decision-maker and ensuring that accountability remains central to teaching and learning processes. Extending this argument, Nwachukwu et al. (2025) demonstrate that adaptive learning systems are most effective when guided by design thinking principles, which promote the thoughtful integration of technology by reflecting the realities of diverse classrooms and the demands of digital education. Their review culminates in the fusion of design thinking and adaptive learning to transform AI from detached technological solutions into pedagogically embedded resources that empower teachers and respect learner agency. Taken together, these studies suggest that ethical AI integration is inseparable from classroom readiness, as both require intentional design, educator mediation, and a consistent commitment to learner-centred practice.

**Future Directions**

Looking ahead, research on AI-generated tools in English language teaching points towards a future that is both collaborative and reflective, requiring not only technological fluency but also nuanced human-AI partnerships embedded in learner-centred pedagogies. A growing consensus emphasises that teacher preparedness should extend beyond episodic training to sustained, integrated professional development that builds deep AI literacy and pedagogical fluency, enabling educators to guide AI use in meaningful instructional design and decision-making (Hubbard & Schulze, 2025; Shukla & Pandey, 2025). Shukla and Pandey (2025) frame this shift within human-AI collaboration, advocating for holistic learner development in which emotional and social dimensions of teaching remain central while AI complemented instructional practice by supporting pattern recognition and automating administrative tasks.

Across professional and organisational contexts, scholars increasingly converge on the view that the effectiveness of human-AI collaboration is shaped less by technological sophistication than by human agency, trust, and adaptive mindsets (Akinnagbe, 2024; Marvi et al., 2025). In the various sectors such as healthcare, finance, transportation, and including education, Akinnagbe (2024) shows that AI enhances productivity and collective decision-making when AI is positioned as a capability-enhancing partner rather than a threat for human expertise. This perspective suggests that future educational research should similarly investigate how AI tools can be systematically leveraged to support cognitive and instructional tasks without undermining teacher autonomy or professional judgement. Adding empirical nuance, Marvi et al. (2025) show that the effectiveness of AI-human collaboration is strongly shaped by users' motivational orientations, particularly mastery goals and an emergent paradox mindset: the ability to engage productively with complexity and contradiction in AI-supported work. These individuals are more likely to benefit from sustained AI use, as they can transform potential friction into collaboration and interpret tensions as opportunities for innovation and growth.

Translating these insights into educational futures, Pushparani et al. (2025) advance a collaborative intelligence framework by conceptualising a pedagogical arrangement through co-design, transparency, and equitable participation as prerequisites for ethically robust AI applications. Building on this perspective, the present review underscores the importance of targeted human-centred design and active end-user participation in harnessing AI's potential effectively, as well as calls for future research that integrates insights from cognitive science to optimise human-AI teamwork in communicating and improving educational methods. Collectively, these contributions imply that future directions in AI-enhanced English teaching should move beyond short-term experimentation towards integrative ecosystems: longitudinal professional learning structures, principled co-constructed with teachers and learners, and empirical inquiry into the cognitive, socio-emotional, and ethical dimensions of human-AI collaboration across diverse educational contexts

## CONCLUSION

AI-generated tools are increasingly positioned to reshape English language teaching by enabling more personalised, adaptive, and immersive learning experiences that enhance learner engagement, motivation, and communicative competence. Through the strategic use of advanced AI technologies, educators can design interactive learning environments that respond to learners' cognitive and affective needs, deliver timely and targeted feedback, and support sustained language practice, while upholding pedagogical coherence and ethical responsibility. Importantly, these tools are best understood as complements to, rather than substitutes for, human expertise, allowing teachers to concentrate on nuanced instructional judgement, learner support, and the cultivation of higher-order language and critical thinking skills.

Achieving this potential depends on intentional pedagogical design, sustained professional development, and ongoing critical reflection on the nature of human-AI collaboration in educational contexts. Robust ethical safeguards, transparent data practices, and equitable access are essential to reduce risks related to bias, overreliance, and misuse, ensuring that AI strengthens rather than diminishes educational quality. If integrated thoughtfully, AI can contribute to more inclusive, engaging, and effective language learning environments. This undoubtedly helps in preparing learners for the communicative demands of an increasingly interconnected world while preserving the teacher's central role as mentor, facilitator, and pedagogical guide.

### The Limitations of This Study

A primary limitation of this study lies in its conceptual nature, which precludes empirical validation of the arguments and frameworks proposed. As the analysis is grounded in theoretical synthesis rather than primary data, the claims advanced cannot establish causal relationships, real-world effectiveness, or generalisability across educational contexts. Recent reviews of AI-in-education research have similarly noted that much of the existing literature remains conceptually rich, but empirically underdeveloped with limited classroom-based or longitudinal evidence to substantiate proposed benefits (Bond et al., 2024; Jambol et al., 2025). While conceptual work plays an important role in clarifying emerging issues and shaping research agendas, the absence of empirical testing means that the pedagogical impact and practical feasibility of the ideas discussed here remain inferential.

A further limitation relates to time and resource constraints, which necessarily shaped the scope and depth of the literature reviewed. Given the rapid expansion and interdisciplinary nature of AI-in-education research, it was not feasible to exhaustively examine all relevant databases, disciplines, and emerging studies within the timeframe of this conceptual inquiry. A recent review has noted that AI research in education is highly fragmented across fields such as computer science, learning sciences, linguistics, and ethics, making comprehensive synthesis particularly challenging (Leon et al., 2025). As a result, the analysis prioritised selected strands of literature most closely aligned with English language education and pedagogical practice. Future research could extend this work by incorporating a wider range of technical, policy-oriented, and cross-disciplinary sources to further refine and strengthen the proposed conceptual framework.

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