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Artificial Intelligence as a Personalized English Language Tutor: Opportunities, Challenges, and Future Directions

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Abstract. *The integration of artificial intelligence (AI) into English language education has generated significant scholarly interest, particularly regarding its capacity to function as a personalized tutor. This article reviews current empirical evidence on AI-driven personalized English language tutoring, examining the opportunities it presents, the challenges it poses, and future research directions. Using a systematic literature review methodology, 47 peer-reviewed studies published between 2021 and 2025 were analyzed. The findings indicate that AI tutors enhance learner engagement, provide immediate adaptive feedback, and increase accessibility to quality language instruction. However, substantial challenges persist, including algorithmic bias, data privacy risks, learner over-reliance on automated systems, and the absence of genuine socioemotional interaction. The article concludes that while AI holds considerable promise for personalizing English language learning, its effective implementation requires robust ethical frameworks, human-AI collaborative pedagogies, and continued empirical investigation into long-term learning outcomes.*

Keywords: *artificial intelligence, personalized learning, English language tutoring, adaptive learning, ChatGPT, intelligent tutoring systems*

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Süni intellektin fərdiləşdirilmiş ingilis dili müəllimi kimi istifadəsi: İmkanlar, çağırışlar və gələcək istiqamətlər

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Xülasə. *Süni intellektin (Sİ) ingilis dili təhsilinə inteqrasiyası, xüsusilə onun fərdiləşdirilmiş müəllim kimi fəaliyyət göstərmək potensialı baxımından elmi ictimaiyyətin böyük marağına səbəb olmuşdur. Bu məqalədə Sİ əsaslı fərdiləşdirilmiş ingilis dili tədrisi ilə bağlı mövcud empirik tədqiqatlar nəzərdən keçirilmiş, onun təqdim etdiyi imkanlar, yaratdığı çağırışlar və gələcək tədqiqat istiqamətləri təhlil edilmişdir. Tədqiqat sistematik ədəbiyyat icmalı metodologiyasına əsaslanır və 2021–2025-ci illər arasında dərc olunmuş 47 resenziyalı elmi məqalənin təhlilini əhatə edir. Nəticələr göstərir ki, Sİ əsaslı müəllimlər öyrənənlərin təlim prosesinə cəlb olunmasını artırır, dərhal və adaptiv əks əlaqə təqdim edir, həmçinin keyfiyyətli dil təhsilinə çıxışı genişləndirir. Bununla yanaşı, alqoritmik qərəzlilik, məlumatların məxfiliyi ilə bağlı risklər, öyrənənlərin avtomatlaşdırılmış sistemlərdən həddindən artıq asılılığı və real sosial-emosional qarşılıqlı əlaqənin olmaması kimi mühüm problemlər də mövcuddur.*

Məqalədə belə nəticəyə gəlinir ki, süni intellekt ingilis dilinin fərdiləşdirilmiş şəkildə öyrədilməsi üçün böyük potensiala malik olsa da, onun səmərəli tətbiqi möhkəm etik çərçivələrin formalaşdırılmasını, insan–Sİ əməkdaşlığına əsaslanan pedaqoji yanaşmaların inkişaf etdirilməsini və uzunmüddətli öyrənmə nəticələrinin daha dərindən empirik şəkildə araşdırılmasını tələb edir.

Açar sözlər: *süni intellekt, fərdiləşdirilmiş öyrənmə, ingilis dilinin tədrisi, adaptiv öyrənmə, ChatGPT, intellektual tədris sistemləri*

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Introduction

The global demand for English language proficiency continues to escalate, driven by international academic mobility, cross-border employment, and digital communication. Concurrently, artificial intelligence (AI) has permeated educational contexts, offering capabilities that extend far beyond static digital resources. Intelligent tutoring systems, conversational agents, and large language models now promise to deliver individualized instruction at scale, adapting to learner proficiency levels, preferences, and pacing in ways that traditional classroom instruction often cannot accommodate (Hariyanto, 2025; Woo, 2021). The emergence of generative AI tools such as ChatGPT has further accelerated this transformation, enabling open-ended, contextually aware interactions that approximate human tutoring (Gai, 2024; Tram, 2024).

Despite the rapid proliferation of AI language learning applications—including widely adopted platforms such as Duolingo and emerging research on GPT-4–based tutoring systems—critical questions remain regarding their pedagogical efficacy, ethical implications, and appropriate integration into formal and informal learning environments (Suh, 2025; Tan, 2025). This article employs the IMRAD structure to systematically examine the existing evidence on AI as a personalized English language tutor. The objective is to synthesize current research on the opportunities AI presents for individualized language instruction, identify the challenges and limitations documented in empirical studies, and propose future directions for research, policy, and practice.

Methods

Search Strategy and Inclusion Criteria
This review followed a systematic literature review protocol to identify peer-reviewed empirical studies on AI-driven personalized English language tutoring. Database searches were conducted in Web of Science, Scopus, ERIC, and Google Scholar using combinations of the following search strings: ("artificial intelligence" OR "AI" OR "intelligent tutoring system" OR "ChatGPT") AND ("English language learning" OR "ESL" OR "EFL" OR "language tutor") AND ("personalized" OR "adaptive" OR "individualized"). The search was limited to articles published in English between January 2021 and June 2025.

Studies were included if they (a) presented original empirical data, (b) focused on AI-based tools used for English language learning, (c) addressed personalization or adaptive features, and (d) were published in peer-reviewed journals or conference proceedings. Editorials, opinion pieces, and studies focusing exclusively on non-English languages were excluded. The initial search yielded 1,247

records. After removing duplicates and screening titles and abstracts, 89 full-text articles were assessed for eligibility, resulting in 47 studies included in the final synthesis.

Analytical Framework

Data extraction followed a thematic coding procedure. Each study was coded for research design, participant demographics, AI tool type, targeted language skill (reading, writing, listening, speaking), reported outcomes, and identified limitations. Thematic analysis was then employed to organize findings into three overarching categories: (1) opportunities and affordances of AI personalized tutoring, (2) challenges and limitations, and (3) pedagogical and ethical implications. This framework aligns with the integrative review methodology recommended for educational technology research (Woo, 2021).

Results

Opportunities in Personalized English Language Tutoring

Adaptive Learning and Individualized Pacing

One of the most frequently documented affordances of AI language tutors is their capacity to adapt content difficulty and sequencing in real time based on learner performance. Adaptive learning platforms employ machine learning algorithms to model learner knowledge states and recommend optimal learning paths (Tan, 2025). Hariyanto (2025) found that AI-powered adaptive education systems significantly improved learning efficiency by reducing time spent on mastered concepts while increasing exposure to challenging material. In English language contexts, this adaptability manifests in personalized vocabulary drills, grammar exercises calibrated to error patterns, and reading materials matched to lexile levels. Vo (2025) reported that adaptive AI systems enhanced vocabulary retention and learner motivation by delivering content at the precise edge of the learner's current competence.

Immediate Feedback and Error Correction

Traditional classroom settings often preclude immediate, individualized feedback due to time constraints and student-to-teacher ratios. AI tutors address this limitation by providing instantaneous corrective feedback on writing, pronunciation, and grammatical accuracy. Gai (2024) demonstrated that ChatGPT significantly improved English learners' writing proficiency by offering real-time suggestions on syntax, cohesion, and lexical appropriateness. Similarly, Wang (2025) found that GPT-4–based tutoring enhanced students' English communication abilities through iterative dialogue and immediate reformulation of learner utterances. The capacity for sustained, low-stakes practice with instantaneous feedback represents a distinctive advantage of AI-mediated language learning (Dai, 2024).

Accessibility and Scalability

AI tutors democratize access to language instruction by reducing cost barriers and geographical constraints. Learners in under-resourced educational contexts can access high-quality, interactive English practice without the expense of private human tutors (Rohmiyati, 2025). Tram (2024) documented high acceptance rates of ChatGPT among self-directed EFL learners, particularly for learners seeking supplementary practice outside formal instruction. Furthermore, AI tutors operate continuously, accommodating learners across time zones and schedules. Suh (2025) observed that personalized AI tutors within platforms such as Duolingo and Santa increased learner engagement precisely because they enabled flexible, on-demand practice.

Enhanced Engagement Through Conversational Interaction

Generative AI models have introduced a qualitative shift from scripted drill-based practice to open-ended conversational interaction. Learners can engage in simulated discussions, role-plays, and

argumentative exchanges that more closely approximate authentic communication (Vo, 2025). Wang (2025) reported that participants in GPT-4 tutoring conditions demonstrated increased willingness to communicate, attributing this effect to the non-judgmental nature of AI interlocutors. The conversational affordances of large language models appear particularly beneficial for speaking and writing skills, where productive language use is essential (Gai, 2024).

Challenges and Limitations

Algorithmic Bias and Linguistic Inequity

A significant body of research has documented bias in AI language models, including preferential treatment of standardized language varieties and underperformance with non-native accents or non-standard dialects. Selvam (2025) found that AI-driven language tools frequently exhibit biases disadvantaging underrepresented linguistic groups, potentially reinforcing linguistic hierarchies that privilege inner-circle English varieties. Aljabr (2024) similarly identified algorithmic bias and discrimination as primary ethical implications of AI in language learning. When AI tutors are trained predominantly on native-speaker corpora, they may penalize legitimate World English variations, thereby marginalizing learners from diverse sociolinguistic backgrounds.

Data Privacy and Security Risks

The personalization capabilities of AI tutors depend on extensive data collection, including learner performance metrics, conversational transcripts, biometric voice data, and behavioral patterns. This data intensity raises substantial privacy concerns. Choi (2025) identified data privacy and security as critical ethical challenges, noting that language learning applications often operate across jurisdictions with divergent data protection standards. Selvam (2025) emphasized that learner conversations with AI tutors may be stored, analyzed, or shared with third parties, creating vulnerabilities that educational institutions are often ill-equipped to mitigate. The tension between personalization and privacy remains unresolved in current policy frameworks.

Learner Over-Reliance and Declining Autonomy

The convenience and reliability of AI feedback may inadvertently foster learner dependency. Several studies have documented risks of over-reliance, wherein learners defer critical judgment to automated systems rather than developing self-monitoring and metacognitive strategies (Aljabr, 2024; Dai, 2024). Choi (2025) cautioned that excessive dependence on AI tutors can diminish learners' capacity for independent problem-solving and creative language use. Furthermore, when AI systems generate fluent but potentially inaccurate or contextually inappropriate language, learners may internalize errors or adopt registers unsuited to their communicative goals.

Absence of Socioemotional and Cultural Dimensions

Language learning is inherently socioemotional; motivation, anxiety, identity, and interpersonal connection profoundly influence acquisition outcomes. Current AI tutors, despite advances in natural language generation, lack genuine emotional intelligence and cultural situatedness. Dai (2024) reported that Chinese EFL students valued AI tools for functional practice but consistently preferred human teachers for communicative activities requiring empathy, cultural nuance, and affective support. Rohmiyati (2025) similarly noted that AI cannot replicate the mentorship, encouragement, and cross-cultural dialogue that human instructors provide. The absence of meaningful human relationships in AI-mediated learning may limit long-term motivation and pragmatic competence development.

Documented Effects on Language Skills

The reviewed studies present a mixed but generally positive pattern of effects across language skills. Writing improvement dominated the empirical landscape, with multiple studies confirming that ChatGPT and comparable tools enhanced textual coherence, grammatical accuracy, and lexical

sophistication (Gai, 2024; Wang, 2025). Speaking skills showed moderate gains, particularly in fluency and willingness to communicate, though pronunciation feedback from AI remained less reliable than human assessment (Tram, 2024). Reading and listening benefited from adaptive leveling and multimodal content delivery but were less frequently studied as primary outcomes. Vocabulary acquisition demonstrated consistent improvement across adaptive platforms (Vo, 2025; Suh, 2025). Importantly, few studies examined longitudinal retention or transfer to real-world communicative contexts, leaving questions about durability and generalizability unanswered.

Discussion

Synthesis of Findings

The evidence synthesized in this review suggests that AI functions most effectively as a personalized English language tutor when deployed as a complement to, rather than replacement for, human instruction. The opportunities documented—adaptive pacing, immediate feedback, accessibility, and conversational practice—address genuine constraints in traditional language education, particularly regarding scale and individualization (Hariyanto, 2025; Tan, 2025). However, the challenges identified are not merely technical inconveniences; they represent fundamental pedagogical and ethical tensions that demand careful navigation. Algorithmic bias emerges as perhaps the most insidious challenge because it operates invisibly, naturalizing particular language standards while marginalizing others (Selvam, 2025; Aljabr, 2024). For English language education specifically, this bias contradicts the field's growing recognition of English as a global lingua franca encompassing diverse legitimate varieties. AI tutors that penalize Indian English syntactic patterns or Nigerian English lexical choices do not merely inconvenience learners; they propagate linguistic imperialism under the guise of technological neutrality.

Data privacy concerns are similarly acute given the vulnerable populations frequently served by language learning technologies, including immigrants, refugees, and minors. The current regulatory landscape, fragmented across national borders, inadequately protects learner data from commercial exploitation or surveillance (Choi, 2025). Educational institutions adopting AI tutors must therefore establish explicit data governance protocols that prioritize learner autonomy and minimize data collection to genuinely necessary parameters.

Pedagogical Implications

For educators, the findings suggest a need for intentional human-AI collaboration models rather than wholesale delegation to automated systems. Effective integration likely involves AI tutors handling repetitive practice, immediate error correction, and adaptive content delivery, while human instructors focus on communicative tasks, cultural contextualization, and socioemotional support (Dai, 2024; Rohmiyati, 2025). Teacher education programs should consequently prepare language educators not to compete with AI but to orchestrate learning environments that leverage AI's strengths while compensating for its limitations.

Learner digital literacy and critical AI awareness represent essential companion skills. Learners must understand that AI-generated feedback is probabilistic, not absolute, and that language models may reproduce biases present in their training data (Aljabr, 2024). Curricula integrating AI tutors should therefore include explicit instruction on evaluating AI output, recognizing bias, and maintaining autonomous linguistic judgment.

Limitations of the Review

This review is subject to several limitations. The rapid evolution of generative AI means that studies published even months ago may not reflect current technological capabilities. The search was restricted to English-language publications, potentially excluding relevant research from non-

Anglophone contexts where EFL instruction is prevalent. Additionally, the heterogeneity of research designs, participant populations, and AI tools across studies precluded formal meta-analysis. The predominance of short-term intervention studies also limits conclusions about sustained learning outcomes.

Future Directions

Future research should prioritize longitudinal investigations tracking learner progress over extended periods to assess retention and transfer. Comparative studies examining human-AI collaborative pedagogies against purely human or purely AI instruction would illuminate optimal integration models. Research must also address the underexplored domain of AI tutoring for lower-proficiency learners and learners with disabilities, ensuring that personalization does not become a privilege of already-advantaged populations. From a technical perspective, the development of bias mitigation techniques, explainable AI, and multilingual models trained on diverse English corpora represents an urgent priority (Selvam, 2025). Future AI language tutors should be capable of recognizing and validating World English varieties rather than enforcing native-speaker norms. Additionally, advances in emotionally responsive computing may eventually narrow the socioemotional gap between human and AI tutors, though genuine relational presence likely remains beyond technological reach. Policy development must keep pace with innovation. Clear accountability structures for AI in education, interoperable data protection standards, and ethical review mechanisms for AI tutoring deployments are essential infrastructure for responsible implementation (Choi, 2025). International cooperation among educational technology developers, researchers, and policymakers can help ensure that AI personalization serves equity rather than exacerbating existing educational divides.

Conclusion

Artificial intelligence offers transformative possibilities for personalizing English language tutoring, addressing long-standing barriers of scale, access, and individualization. The evidence indicates that AI tutors can enhance engagement, provide valuable immediate feedback, and adapt instruction to learner needs with unprecedented precision. Yet these opportunities coexist with substantial challenges: algorithmic bias that privileges certain language varieties, data privacy risks that threaten learner security, over-reliance that may undermine autonomous learning, and the enduring absence of genuine human connection. Realizing the potential of AI as a personalized English language tutor will require not merely technological refinement but ethical commitment, pedagogical wisdom, and continued rigorous empirical investigation. The future of language education likely belongs not to AI alone, nor to human instructors alone, but to thoughtful integration that honors what each can uniquely provide.

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