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AN INVESTIGATION INTO THE IMPACT OF AI-ASSISTED LANGUAGE LEARNING ON ENGLISH LANGUAGE PROFICIENCY AMONG UNIVERSITY STUDENTS

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Abstract

Artificial intelligence (AI) has transformed language education by providing personalized instruction, automated feedback, interactive communication, and opportunities for independent practice. Nevertheless, the extent to which AI-assisted language learning contributes to comprehensive English language proficiency remains a significant educational concern. This study examines the potential influence of AI-assisted learning on university students' grammar, vocabulary, reading, writing, listening, and speaking skills through an analysis-based research design. Drawing on established theories of second-language acquisition and contemporary research on educational technology, the study evaluates how AI tools facilitate language practice, learner autonomy, corrective feedback, and meaningful interaction. The theoretical framework incorporates Vygotsky's sociocultural theory, Krashen's input hypothesis, Swain's output hypothesis, Long's interaction hypothesis, and Zimmerman's model of self-regulated learning. A qualitative, literature-based analytical approach is employed to synthesize relevant theoretical contributions and recent research findings without generating artificial survey data. The analysis suggests that AI-assisted learning can support language development through immediate feedback, adaptive explanations, repeated practice, and individualized learning opportunities. However, its effectiveness depends on instructional design, students' AI literacy, the accuracy of generated feedback, and the extent to which learners actively evaluate and apply suggestions. Overreliance on automated assistance may weaken independent writing, critical thinking, and opportunities for authentic human interaction. The study concludes that AI is most beneficial when integrated into teacher-guided, communicative, and learner-centered instruction. Its findings offer practical implications for university language teachers, curriculum developers, and educational policymakers seeking to improve English language proficiency through responsible technological integration.

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INTRODUCTION

The ability to speak English is still a vital aspect of university studies as it helps students to read and interpret academic journals, communicate with colleagues, share their own research, and communicate with scholars from around the world. Students at university are often asked to be competent in reading, writing, speaking, listening, grammar and vocabulary. However, classroom instruction of the English language may not always be adequate for individualized practice, prompt corrective feedback, and for extended interactions outside the classroom. The restrictions have inspired teachers to look for technology related methods that augment traditional instructional practices.

This has led to the rise of AI as a notable advancement. AI-based language learning is the application of smart digital systems, such as language learning software, to facilitate language learning.AI-based language learning is defined as the use of intelligent digital systems with automated assessment, conversational practice and instruction of words, grammatical explanations, pronunciation feedback and writing assistance. In the modern world, they are used in conversational chatbots, automated writing assessment systems, speech recognition software, adaptive learning platforms, and in generative AI tools like ChatGPT. These tools can answer queries raised by learners, present examples, explain linguistic structures and offer more practice according to each learner's needs.

The real power of AI in education lies not merely in its ability to generate content, but in its potential to make language learning more accessible, personalized, and responsive to learners' needs. A student who has difficulty with academic writing may ask for explanations about sentence structure, look at other possible ways to express a sentence and rewrite a paragraph with feedback. Likewise, the learner who is not confident in English can practise their conversation with an AI chatbot before joining the classroom discussion. These activities can provide further opportunities for language input and output.

However, this is not to say that technological availability equals proficiency. Automated answers might be grammatically incorrect, contain false explanations, unnatural language or culturally insensitive examples. Students can also become reliant on the automatic system for doing their tasks and not gain the linguistic knowledge to perform them independently. Thus, the educational value of AI needs to be analyzed with reference to existing theories of language learning, quality of instructional support, and learner's active participation.

The past few years have shown an increasing appetite for research on the relationship between generative AI and language education.The last couple of years have clearly reflected a desire for research on the connection between generative AI and language learning. In the systematic review of empirical research conducted by Li et al. (2023–2024), writing, feedback, learner perceptions, and language skills development are all emphasized as key areas of investigation. Yet, the areas of speaking, listening, and long-term learning outcomes are relatively less researched (Li et al.). Classroom-based research has also examined AI as a feedback provider, tutor, interaction facilitator, and conversation partner, and has found that there are still persistent concerns about content quality, overreliance and integrity (Lee et al.). The study results suggest a need to include a comprehensive evaluation of the learning approaches and tools facilitated by AI, encompassing both educational benefits and pedagogical constraints.

This study examines theoretical frameworks and findings in recent empirical studies that underscore the potential for English language learning using AI assisted language learning approaches among university learners. It does not claim to be original student data, but rather collates and draws out available research, and formulates an analytical approach to understanding the learning contribution of AI assisted learning.

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Problem Statement

Although there has been an increasing number of AI-based educational applications, there is no certainty in the contribution of AI applications to the overall achievement of English language proficiency among university students. The digital tools can correct grammatical mistakes, create vocabulary exercises, make conversational simulations and offer recommendations for revision. The capacity to carry out these activities, however, does not always confirm that learners have acquired the linguistic competence of a robust knowledge and can apply English independently in real academic and professional contexts.

One of the main issues is the distinction between means to technology and actual learning. If an AI application corrects an essay written by a student, the corrected essay might be more accurate, but the student may not gain the ability to write independently. Similarly, a chatbot can be used to carry on a conversation, but the learner might not get enough of the communicative complexity, contextual variation, and interpersonal negotiation seen in human interaction.

Another is the fact that language skills are not equally acquired. While integrated language proficiency has gained significant research interest with the aid of AI, the process of acquiring listening comprehension, spontaneous speaking, pragmatic competence, and integrated language proficiency is still under-explored. Another area of variation in the existing research is the methods used, the duration of interventions, assessment techniques, and theories used. Qiao et al.'s (2016) review of AI-supported language learning pinpoints two main methodological concerns in the literature: the methodological shortcomings and lack of educational theory's application.

In addition, students can have varying proficiency levels in generating good prompts, assessing the AI-generated explanations, recognizing wrong feedback, and developing independent learning strategies. These disparities imply that the impact of AI is intertwined with learner attributes and instructional contexts.

Thus, the research problem is not about enhancing the students' language products in the short term but about how artificial intelligence for language learning can be used to ensure meaningful English language development. This issue demands a theoretically grounded investigation into the mechanisms of learning, educational outcomes, and the circumstances in which AI support can yield educational benefits.

Research Objectives

The study pursues the following objectives:

1. To examine the potential contribution of AI-assisted language learning to university students' English language proficiency.
2. To analyze the usefulness of AI tools for developing grammar, vocabulary, reading, writing, listening, and speaking skills.
3. To interpret AI-assisted language learning through established theories of second-language acquisition and educational psychology.
4. To identify the pedagogical, technological, and ethical challenges associated with AI-supported English language education.
5. To develop recommendations for integrating AI into university English language instruction in ways that promote independent learning and measurable language development.

Research Questions

The study addresses five questions:

1. How can AI-assisted language learning support English language proficiency among university students?
2. What opportunities do AI tools provide for developing individual language skills?

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3. How do established theories of language acquisition explain the potential educational value of AI-assisted learning?
4. What limitations may reduce the effectiveness of AI-assisted language learning?
5. How can university teachers integrate AI tools into English language instruction while maintaining academic integrity and learner autonomy?

Significance of the Study

This study contributes to the discussion of technology-enhanced language education by connecting AI applications with established theories of learning. Its significance lies in moving beyond general claims about the usefulness of artificial intelligence to examine the processes through which digital assistance may support language development.

For university students, the study identifies ways to use AI for additional practice, targeted feedback, vocabulary development, and independent revision. For teachers, it offers a framework for incorporating AI into communicative activities without replacing instructional judgment or authentic interaction. For curriculum developers, it emphasizes the need to align AI-assisted activities with explicit learning outcomes and reliable assessment practices.

The study is also relevant to higher education institutions where students have unequal access to language-learning resources and opportunities for individualized instruction. AI applications may provide supplementary practice where teacher time and learning resources are limited. Nevertheless, equitable access, data privacy, language variation, and digital literacy must be considered when introducing these technologies.

By synthesizing established theoretical perspectives and contemporary research, the study provides a foundation for future empirical investigations into the relationship between AI use and independently demonstrated English language proficiency.

Literature Review

Computer-assisted language learning has developed from relatively simple grammar exercises and vocabulary programs into interactive systems capable of processing natural language and generating conversational responses. Earlier computer-assisted learning environments primarily offered predetermined exercises, automated scoring, and structured feedback. Contemporary AI systems can produce explanations, adapt examples to learner requests, simulate dialogues, and assist with extended writing tasks.

This development expands the possible functions of educational technology. AI can operate as a practice partner, explanatory resource, feedback provider, writing assistant, and source of supplementary learning materials. However, these functions should not be treated as equivalent. A system that provides accurate grammar corrections may not necessarily support spontaneous speaking, pragmatic awareness, or independent composition.

Qiao et al.'s systematic review examines AI-assisted language learning research conducted between 2014 and 2023. The authors identify intelligent tutoring and assessment systems as prominent applications while noting that research on peer interaction, personalization, and theoretically grounded instructional design remains comparatively limited (Qiao et al.). Their findings support the need to evaluate AI according to its pedagogical function rather than its technological sophistication.

More recent research has expanded the discussion to generative AI. Li et al. analyze 144 peer-reviewed studies published between 2023 and 2024, reporting a rapid expansion of research on learner perceptions, psychological factors, instructional strategies, writing feedback, and language-skill development. Their

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review also identifies a concentration on writing and the need for more longitudinal research and greater attention to underexplored language skills (Li et al.).

Together, these reviews suggest that AI-assisted language learning is a developing research field. Its educational contribution depends on the relationship between technological capabilities, learner engagement, instructional objectives, and the assessment of actual language development.

English language proficiency is a multidimensional construct involving linguistic knowledge, comprehension, production, and the ability to use language appropriately in different contexts. Grammar and vocabulary provide essential foundations, but proficiency also includes fluency, pronunciation, discourse organization, listening comprehension, and pragmatic competence.

AI tools may support these dimensions through different forms of assistance. Grammar checkers can identify possible errors, while conversational systems can generate examples and provide opportunities for dialogue. Automated writing evaluation can help learners examine sentence structure and organization. Speech-enabled applications can support pronunciation practice and listening activities.

However, improvements in one dimension do not automatically indicate equivalent improvements in all others. A student may learn to correct subject–verb agreement while continuing to experience difficulty in organizing an academic argument. Similarly, a learner may recognize vocabulary in written passages but struggle to retrieve and use it during spontaneous conversation.

A useful distinction must therefore be made between supported performance and independent proficiency. Supported performance refers to language production completed with substantial technological assistance. Independent proficiency refers to the learner's ability to understand and produce appropriate English without relying on automated correction or content generation. Effective language instruction should use the former to develop the latter.

The relationship between these dimensions is central to evaluating AI-assisted learning. Research that measures only students' attitudes or the quality of AI-supported assignments cannot fully establish whether language competence has improved. Reliable evaluation requires independent assessments, repeated performance measures, and evidence of skill retention.

Lev Vygotsky's sociocultural theory provides an important framework for understanding how learners develop linguistic competence through social interaction and guided assistance. Vygotsky argues that higher mental functions develop through socially mediated activity and the use of cultural tools. In educational settings, the concept of the zone of proximal development distinguishes what learners can accomplish independently from what they can achieve with appropriate guidance (Vygotsky 86).

The theory has important implications for AI-assisted language learning. An AI system can provide examples, explanations, prompts, and corrective suggestions that help students complete tasks beyond their current independent ability. For example, a learner who struggles to write a coherent paragraph may receive guidance on topic sentences, supporting evidence, transitions, and concluding statements.

Such assistance resembles scaffolding when it responds to the learner's current needs and gradually supports independent performance. A student might initially examine an AI-generated model, then revise a paragraph using targeted feedback, and finally write a comparable paragraph without assistance.

Nevertheless, AI should not automatically be regarded as an equivalent substitute for a teacher or human conversational partner. Sociocultural learning involves cultural context, shared purposes, interpersonal relationships, and the interpretation of meaning. AI-generated assistance can contribute to mediated learning, but its effectiveness depends on the learner's engagement with the guidance and the relevance of that guidance to the learning task.

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Vygotsky's theory therefore supports a conditional interpretation: AI can facilitate language learning when it provides appropriate, comprehensible, and gradually reduced assistance. Persistent dependence on automated explanations may limit opportunities for independent problem-solving and self-regulation.

Stephen Krashen's theory of second-language acquisition emphasizes the importance of comprehensible input in language development. In *Principles and Practice in Second Language Acquisition*, Krashen argues that learners acquire language when they encounter input they can understand while extending their existing linguistic knowledge (Krashen).

AI-assisted systems may increase access to such input by generating reading passages, dialogues, explanations, and examples at different levels of complexity. A learner studying academic vocabulary, for instance, can request definitions, contextual sentences, synonyms, and short reading passages that illustrate the words in use.

This adaptability may be especially useful for students who require additional explanation beyond the classroom. Learners can revisit difficult concepts, request simpler descriptions, and gradually engage with more demanding material. AI can also support extensive reading by generating supplementary questions and explanations that help students understand unfamiliar language.

However, comprehensibility must not be confused with simplicity alone. Language learning also requires exposure to varied structures, meaningful contexts, and authentic communicative purposes. If students rely exclusively on simplified, predictable, or AI-generated texts, they may receive insufficient exposure to the complexity of real academic discourse.

Krashen's account of the affective filter also provides a useful perspective. Anxiety, low confidence, and fear of negative evaluation may interfere with learners' willingness to engage with language input. Private practice with an AI conversation partner may reduce some of these barriers. Nevertheless, the extent to which this benefit translates into greater confidence during human interaction requires empirical assessment.

The implication is that AI can broaden access to comprehensible input, but input quality, contextual variety, and opportunities to apply newly encountered language remain essential.

Merrill Swain's output hypothesis complements input-oriented explanations by emphasizing the importance of producing language. In her discussion of comprehensible output, Swain argues that language production can encourage learners to notice gaps in their linguistic knowledge, test hypotheses about language use, and reflect on form (Swain).

AI-assisted learning can create opportunities for repeated production. Students can write summaries, formulate arguments, answer questions, rehearse presentations, and participate in simulated conversations. When a system identifies a grammatical problem or offers an alternative expression, learners can compare their original output with the revised version.

The educational benefit, however, depends on what students do with the feedback. If they simply copy a corrected paragraph, they may complete the assignment without engaging in the cognitive processes required for language development. If they examine the correction, explain the underlying rule, revise their own writing, and apply the rule in a new task, the activity is more likely to support learning.

For example, a student who repeatedly confuses past and present verb forms could be asked to identify the error, explain why the tense is inappropriate, revise the sentence, and construct new examples. AI feedback can initiate this process, but active learner engagement remains indispensable.

Swain's perspective thus suggests that AI is most useful when it encourages meaningful language production, reflection, and revision rather than replacing the learner's contribution.

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Michael Long's interaction hypothesis highlights the role of interaction and negotiated meaning in second-language acquisition. Communication becomes especially valuable when learners encounter difficulty understanding a message and must clarify, confirm, or reformulate what they mean.

Conversational AI can provide opportunities for interaction that may be difficult to arrange in conventional classrooms. Students can practise interviews, discussions, role-plays, and everyday exchanges at different levels of complexity. They can request clarification, repeat a conversation, or explore alternative ways of expressing an idea.

Such practice may help learners develop conversational routines and increase their willingness to produce English. For instance, students preparing for an academic presentation can simulate questions from an audience and practise responding to them.

Yet AI interaction has limitations. Human communication involves unpredictable responses, emotional nuance, social expectations, cultural differences, and non-verbal cues. A chatbot may simulate certain aspects of conversation without reproducing the full complexity of interpersonal communication.

Long's hypothesis therefore supports the use of conversational AI as a supplementary practice environment, not as a complete replacement for peer discussion, classroom interaction, and authentic communicative experiences.

Barry Zimmerman's model of self-regulated learning explains how learners establish goals, select strategies, monitor progress, and evaluate outcomes. Self-regulated learning is particularly relevant to AI-assisted education because digital tools make it possible for students to organize practice beyond scheduled classroom activities.

A student may establish a goal of improving academic vocabulary, use an AI tool to practise unfamiliar words, review errors, and assess progress through independent exercises. This process can support learner autonomy when the student remains responsible for selecting goals, evaluating feedback, and deciding which strategies are effective.

Chang and Sun's systematic review examines the relationship between AI and self-regulated language learning, highlighting the potential role of AI as a cognitive tool within a cyclical learning process (Chang and Sun). Their analysis suggests that technological support should be understood in relation to learners' strategic decisions rather than treated as an independent source of improvement.

The danger arises when students allow AI to determine every stage of learning. Excessive dependence on automated explanations, generated answers, and rewritten assignments may weaken monitoring and evaluation skills. Zimmerman's perspective therefore emphasizes that learners should use AI to support planning and reflection while retaining responsibility for their own progress.

Theoretical Framework

The present study adopts an integrated theoretical framework combining five complementary perspectives.

First, Vygotsky's sociocultural theory explains how guided assistance can help learners perform tasks beyond their current independent capabilities. AI may provide such assistance through examples, prompts, and explanations.

Second, Krashen's input hypothesis explains the potential value of accessible and comprehensible language materials. AI can expand learners' exposure to vocabulary, grammatical structures, and contextualized language.

Third, Swain's output hypothesis emphasizes language production and reflection. AI-assisted writing and conversation can create opportunities for learners to test their knowledge, identify linguistic gaps, and revise their output.

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Fourth, Long's interaction hypothesis explains how conversational exchanges and clarification can support language development. AI dialogue may provide supplementary practice, although authentic human interaction remains important.

Finally, Zimmerman's model explains how planning, monitoring, and reflection can turn technological access into purposeful learning activity.

These perspectives are complementary rather than interchangeable. Input provides opportunities to encounter language; output encourages learners to produce it; interaction supports the negotiation of meaning; scaffolding offers guidance; and self-regulation helps learners manage their development.

The integrated framework proposes that AI-assisted learning is most likely to support proficiency when learners receive comprehensible input, produce language actively, engage with meaningful feedback, practise interaction, and gradually become less dependent on automated support.

Research Methodology

Research Design

This study employs an analysis-based, literature-oriented research design. It does not claim to have conducted a student survey, classroom experiment, interview study, or original statistical analysis. Instead, it examines established theories and published research to develop an interpretive account of the potential relationship between AI-assisted language learning and university students' English proficiency.

The design is appropriate because the central purpose is to explain the educational mechanisms through which AI may support language development and identify conditions that may restrict its effectiveness. The approach emphasizes theoretical interpretation, comparison of scholarly findings, and the development of pedagogical implications.

The study is analytical rather than a formally registered systematic review. Accordingly, it does not claim exhaustive coverage of every publication on AI-assisted language learning.

Sources of Literature

The analysis draws on foundational works in second-language acquisition and educational psychology, including Vygotsky's *Mind in Society*, Krashen's *Principles and Practice in Second Language Acquisition*, Swain's research on comprehensible output, Long's work on interaction, and Zimmerman's scholarship on self-regulated learning.

Contemporary research includes systematic reviews, meta-analyses, and empirical studies concerning generative AI, automated writing feedback, conversational chatbots, and technology-supported language learning. Particular attention is given to research published in 2024–2025 to reflect developments following the widespread introduction of generative AI applications.

The literature is selected for its relevance to language proficiency, theoretical explanation, learning processes, instructional practice, and methodological limitations. This combination allows the analysis to connect established educational principles with emerging AI applications.

Analytical Procedure

The literature is examined through thematic analysis and theory-informed interpretation. Five major themes organize the discussion:

1. Language input, vocabulary acquisition, and grammatical development.
2. Language production, automated feedback, and writing improvement.
3. Conversational practice, interaction, and oral proficiency.

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4. Learner autonomy, self-regulation, and motivation.
5. Technological limitations, academic integrity, and responsible implementation.

Within each theme, the analysis identifies the educational function of AI, connects that function to relevant theoretical explanations, and examines limitations reported in contemporary scholarship. The resulting synthesis distinguishes between potential benefits supported by existing research and claims that require additional empirical investigation.

Analytical Criteria

Four criteria guide interpretation.

Theoretical alignment: Whether the proposed educational benefit can be explained through established learning theories.

Language-skill relevance: Whether the AI application supports a specific dimension of English proficiency or contributes to broader communicative competence.

Evidence quality: Whether conclusions derive from empirical studies, research syntheses, theoretical arguments, or plausible pedagogical interpretations.

Learner independence: Whether the activity supports students' ability to use English without continuous technological assistance.

These criteria help prevent the assumption that greater AI use necessarily produces greater proficiency.

Research Ethics and Limitations

Because the study uses published literature rather than human participants, it does not report participant recruitment, consent procedures, or original survey results. All empirical claims should be attributed to the studies that produced them.

The analysis has several limitations. First, the literature on generative AI is developing rapidly, and current findings may not represent the long-term effects of sustained classroom use. Second, different studies use different AI applications, proficiency measures, and instructional designs, making direct comparisons difficult. Third, findings from particular educational settings may not transfer equally to all university populations.

Finally, the study does not independently measure changes in students' proficiency. Its conclusions therefore concern the interpretation of existing evidence and the educational conditions under which AI-assisted learning may be effective, rather than a demonstrated causal effect among a newly recruited student sample.

Analysis and Discussion

Grammar is an important dimension of English language proficiency because it helps learners construct meaningful and comprehensible sentences. AI-powered grammar checkers and conversational systems can identify possible errors in verb tense, agreement, articles, punctuation, sentence structure, and word choice. They can also explain grammatical rules and generate additional examples.

From a Vygotskian perspective, such feedback may function as a form of instructional mediation. A student who cannot independently identify a sentence-level error may learn to recognize it with targeted guidance. If

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the support is gradually reduced, the learner may become capable of correcting similar errors independently.

Krashen's emphasis on meaningful exposure also helps explain why grammar instruction can benefit from contextualized examples. Rather than memorizing isolated rules, students can examine how grammatical structures operate in paragraphs, conversations, and academic texts.

However, the availability of immediate correction raises an important distinction. Error-free writing produced with AI assistance does not necessarily indicate improved grammatical competence. A student may accept every correction without understanding the reason for the change. Furthermore, AI systems can misinterpret context, recommend unnecessary revisions, or incorrectly classify acceptable language as erroneous.

Consequently, effective grammar instruction should require students to examine corrections and explain their reasoning. Teachers can ask learners to maintain error logs, classify recurring mistakes, and complete follow-up exercises without technological assistance. This approach transforms automated correction into a learning activity.

The analysis suggests that AI can support grammatical development when feedback is accurate, explanations are understandable, and learners actively process the corrections. Its contribution is less certain when the technology merely edits students' work without encouraging reflection.

Vocabulary knowledge supports reading comprehension, writing quality, listening, and oral communication. AI systems can provide definitions, synonyms, antonyms, contextual examples, collocations, word-family information, and practice questions. These functions allow learners to explore unfamiliar words in relation to their academic or personal interests.

From Krashen's perspective, AI-generated reading materials may increase access to comprehensible input. Students can request explanations of difficult passages and explore alternative examples before returning to more demanding texts. Such flexibility may be useful for learners whose proficiency differs from the general level of a class.

Vygotsky's concept of guided assistance also provides a theoretical explanation. A learner may initially need a definition and contextual example to understand an unfamiliar word. With repeated exposure and appropriate practice, the learner may begin to recognize and use the word without assistance.

Nevertheless, knowing a definition is not equivalent to possessing usable vocabulary. Durable vocabulary development requires repeated encounters, attention to context, retrieval practice, and opportunities to use words productively. AI-generated definitions may also omit important connotations, register differences, or culturally specific meanings.

An effective learning sequence might therefore ask students to identify unfamiliar words in a reading passage, request explanations, construct original sentences, and later use the vocabulary in a short written response or oral presentation. Teachers can assess retention through delayed quizzes or independent writing tasks.

Reading comprehension also involves inference, evaluation, and the integration of information. If students ask AI to summarize every reading assignment, they may lose opportunities to practise these processes. AI is therefore better used to clarify difficult material or generate guiding questions than to replace reading itself.

Writing is one of the most prominent areas of contemporary research on generative AI in language education. AI systems can support brainstorming, outlining, grammar revision, vocabulary selection, paragraph organization, and feedback on written arguments. These functions may help students recognize weaknesses and consider alternative ways of expressing their ideas.

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Swain's output hypothesis is especially relevant because writing requires learners to formulate language and examine the relationship between intended meaning and linguistic form. Feedback can help learners notice gaps in their knowledge, but improvement depends on how they respond to it.

Li et al.'s review identifies writing as the most frequently investigated language-skill area in the empirical generative AI literature they examined (Li et al.). Lee et al. likewise identify feedback and tutoring among the roles assigned to generative AI in language classrooms, while highlighting concerns about overreliance and academic integrity (Lee et al.).

These findings suggest that AI-assisted writing is educationally promising but requires careful instructional design. When students use AI to identify unclear sentences, examine grammatical explanations, and compare revisions, the tool may support their development. Conversely, when students ask AI to generate complete essays and submit them as their own work, the technology can obscure their actual writing ability.

A learning-centered approach should distinguish between assistance and substitution. Students may use AI to receive feedback on an initial draft, but they should remain responsible for the argument, evidence, organization, and final wording. Teachers can request draft histories, reflective explanations, and short supervised writing tasks to assess independent competence.

Writing assessment should also examine the learner's ability to transfer feedback to new tasks. If a student learns to improve sentence cohesion in one essay, the same principle should appear in subsequent independent writing. Such transfer offers stronger evidence of development than the quality of a single AI-assisted product.

Speaking proficiency requires more than grammatical knowledge. Learners must retrieve vocabulary quickly, organize ideas, pronounce words intelligibly, interpret responses, and maintain interaction. University students may experience anxiety when speaking English, particularly when they fear making mistakes in front of peers.

Conversational AI may provide a low-pressure environment for rehearsal. Students can practise introductions, interviews, presentations, academic discussions, and everyday conversations. They can repeat difficult exchanges, request clarification, and explore alternative expressions.

Long's interaction hypothesis provides a relevant theoretical explanation because dialogue may encourage learners to clarify meaning and reformulate their messages. However, the quality of this interaction depends on the extent to which learners must genuinely process and produce language rather than merely read generated responses.

A useful classroom activity would involve a simulated interview followed by a live peer interview on the same topic. The first activity allows rehearsal; the second tests whether students can transfer vocabulary, fluency, and communicative strategies to a human interaction.

Research on AI-powered chatbots for English-as-a-foreign-language speaking practice indicates that conversational AI has become an important area of investigation (see the systematic review published in Computers and Education: Artificial Intelligence in 2024). Nevertheless, the existence of speaking-oriented applications should not be interpreted as proof that all aspects of oral proficiency improve equally.

Pronunciation tools can provide useful feedback on particular sounds and speech features, but automated recognition may be affected by accent, background noise, and the diversity of English varieties. Moreover, effective communication does not require every learner to imitate a single native-speaker accent. Intelligibility, comprehensibility, and successful meaning-making are more appropriate instructional priorities.

supported speaking practice should therefore supplement classroom discussion, presentations, and collaborative activities. Its primary value lies in increasing practice opportunities, not eliminating the need for human communication.

Listening is a complex receptive skill involving the recognition of sounds, segmentation of speech, vocabulary knowledge, inference, and interpretation of context. Students may understand written English more easily than spoken English because spoken communication includes variable speech rates, connected speech, reductions, and unfamiliar accents.

AI-supported applications can provide dialogues, speech-to-text transcriptions, comprehension questions, and repeated listening activities. Learners may begin with short, clearly articulated recordings and gradually move toward more complex material. Transcripts can help students identify the relationship between spoken forms and written language.

Krashen's emphasis on comprehensible input supports the use of appropriately challenging listening materials. However, listening instruction should not remove every difficulty. Students also need exposure to varied speakers, natural speech, and situations in which meaning must be inferred without complete textual support.

AI tools may generate listening scripts and comprehension questions, but the quality and naturalness of synthesized speech can vary. Automatic transcripts may also contain errors, particularly when speakers have unfamiliar accents or use specialized vocabulary.

A balanced listening activity could involve listening to an audio passage without a transcript, answering comprehension questions, checking a transcript afterward, and identifying the words or expressions that caused difficulty. Students could then listen again without textual support.

Such activities connect input with reflection and independent performance. Their success should be evaluated through comprehension tasks rather than through the number of recordings completed or the frequency of AI use.

AI-assisted learning offers students greater control over the timing, pace, and content of their language practice. Learners can select topics, request additional explanations, repeat exercises, and receive feedback without waiting for the next classroom session.

Zimmerman's model of self-regulated learning explains how these opportunities can support independent development. Learners set goals, select strategies, monitor progress, and reflect on outcomes. AI can assist at each stage, but the learner must remain actively involved.

For example, a student may set a goal of improving academic vocabulary over four weeks. The student can use AI to practise word usage, record recurring errors, complete independent exercises, and assess whether performance improves. The important feature is not the technological tool itself but the purposeful cycle of planning, practice, monitoring, and evaluation.

Chang and Sun's review highlights the relationship between AI and self-regulated language learning, emphasizing the potential for AI to function as a cognitive tool within a structured learning process (Chang and Sun). This perspective supports the use of AI as a resource for learner agency rather than as an autonomous substitute for effort.

However, convenience may encourage superficial engagement. Students may repeatedly request simplified explanations without testing their understanding or may accept generated answers without evaluating their accuracy. Excessive dependence can also reduce opportunities to tolerate uncertainty and solve linguistic problems independently.

Teachers can address these concerns by requiring students to establish learning goals, justify their use of AI, reflect on feedback, and demonstrate progress through independent tasks. AI literacy should include the

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ability to formulate clear prompts, evaluate output quality, recognize uncertainty, and understand the limits of automated systems.

Recent research provides encouraging but qualified evidence concerning AI-assisted learning. A 2024 meta-analysis in *System* examined 40 empirical studies involving 3,290 participants and 55 effect sizes to assess AI's effectiveness in English language learning (see "The Effectiveness of Artificial Intelligence on English Language Learning Achievement"). The study provides a broader evidence base than individual classroom reports, although differences among technologies and instructional settings remain important when interpreting pooled findings.

Chen and Cheung's 2025 meta-analysis of generative AI in higher education also reports positive aggregate learning outcomes, including language-related outcomes, while identifying variation associated with learner characteristics, instructional context, and study design (Chen and Cheung). Such results support continued investigation but do not establish that every AI tool or teaching strategy will produce the same benefit.

The distinction between average effects and individual outcomes is particularly important. A tool may help students who already possess effective learning strategies while providing limited benefit to those who accept generated information uncritically. Similarly, an AI-supported activity may improve performance on a narrow task without producing equivalent gains in general proficiency.

Research designs must therefore measure more than student satisfaction or perceived usefulness. Independent proficiency assessments, appropriate comparison groups, delayed testing, and transparent reporting can help establish whether observed improvements are durable and attributable to the intervention.

The analysis indicates that AI-assisted learning is best understood as a potentially valuable instructional resource whose effectiveness depends on how it is used, the outcomes measured, and the quality of the supporting educational environment.

Several challenges may restrict the educational effectiveness of AI-assisted language learning.

First, generated content may contain factual, grammatical, or pragmatic errors. Students with limited proficiency may struggle to identify these inaccuracies. Teachers should therefore encourage verification through trusted dictionaries, course materials, and authoritative linguistic resources.

Second, excessive assistance may weaken independent language production. When students delegate drafting, translation, and revision to AI, the resulting work may overstate their actual proficiency. Clear institutional policies should distinguish acceptable learning support from undisclosed substitution.

Third, access to technology is unequal. Students may face limitations involving internet connectivity, device availability, subscription costs, or digital literacy. Universities should consider equitable access before making AI-based activities essential to assessment.

Fourth, data privacy and intellectual property require attention. Students should avoid entering sensitive personal information, confidential research material, or unpublished work into systems without understanding the relevant data policies.

Fifth, linguistic and cultural bias may affect generated explanations and examples. AI tools may privilege particular varieties of English or provide inadequate treatment of local contexts. Teachers should evaluate whether generated content supports inclusive and contextually appropriate language learning.

Finally, AI may not provide the emotional understanding, contextual judgment, and interpersonal responsiveness available through skilled human teaching. The appropriate objective is therefore not complete automation but a productive relationship between digital assistance and human instruction.

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Major Analytical Findings

The analysis produces five principal conclusions.

First, AI offers multiple routes to additional language practice. Conversational systems, writing assistants, and adaptive exercises can provide learners with explanations, examples, and repeated opportunities to use English. These functions are consistent with theories emphasizing comprehensible input, guided assistance, and language production.

Second, the educational contribution of AI differs across language skills. Writing and grammar activities are comparatively straightforward to integrate into many AI systems, while spontaneous speaking, authentic listening, pragmatic competence, and integrated communication require more complex forms of instruction and assessment.

Third, feedback produces educational value when learners actively process it. Automated correction is unlikely to establish independent competence if students simply accept revised answers. Reflection, revision, retrieval practice, and transfer to new tasks are essential components of meaningful learning.

Fourth, learner autonomy is both an opportunity and a challenge. AI can support self-directed learning, but its convenience may encourage dependence. Effective use requires goal setting, critical evaluation, and independent demonstrations of progress.

Fifth, AI should complement rather than replace teachers and human interaction. Teachers provide contextual judgment, communicative guidance, ethical oversight, and individualized pedagogical decisions that automated systems cannot reliably reproduce in every situation.

These conclusions represent a synthesis of the theoretical and published evidence reviewed in this study. They should not be interpreted as the results of a newly conducted experiment or a statistical test of university students.

Educational Implications

Implications for University Teachers

Teachers should integrate AI into activities with clearly defined learning objectives. Rather than instructing students simply to use AI, they should explain which aspects of a task may benefit from technological support and which must be completed independently.

For writing, students can submit an initial draft, examine feedback, revise their work, and explain selected changes. For speaking, AI-based rehearsal can precede peer discussions and presentations. For reading, AI may clarify difficult vocabulary after students have attempted the text independently. For listening, transcripts can be introduced after an initial comprehension task rather than before it.

These practices preserve the learner's responsibility for language production while making additional support available.

Implications for Curriculum Developers

Curriculum developers should align AI-supported activities with measurable student learning outcomes. Each activity should identify the language skill being developed, the expected performance, the appropriate use of technology, and the method of assessment.

For example, a writing outcome might require students to produce a coherent academic paragraph with accurate grammar and appropriate transitions. AI could provide formative feedback, while the final assessment would examine whether students can apply these skills independently.

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Curricula should also include AI literacy, critical evaluation of generated content, digital ethics, and responsible information use. These competencies are increasingly important for students who use generative AI in academic settings.

Implications for University Administrators

Universities should establish transparent guidelines concerning acceptable AI use, privacy, attribution, and assessment. Teachers and students need practical guidance that distinguishes formative assistance from academic misconduct.

Institutions should also provide training in AI literacy and support students who have limited access to digital resources. Responsible implementation requires attention to accessibility, reliability, and the educational purpose of each application.

Implications for Assessment

Assessment practices should distinguish between work produced with substantial technological assistance and language produced independently. A combination of written assignments, supervised tasks, oral presentations, reflective explanations, and delayed assessments can provide a more complete picture of student proficiency.

Assessment should not focus exclusively on whether students have used AI. Instead, it should determine whether they can explain, apply, and transfer the language knowledge targeted by instruction.

Recommendations for Future Research

Future research should investigate the relationship between AI-assisted language learning and independently demonstrated English proficiency through carefully designed empirical studies.

First, longitudinal research could examine whether improvements in grammar, vocabulary, writing, speaking, and listening persist after students stop using AI assistance.

Second, experimental or quasi-experimental studies could compare structured AI-supported instruction with conventional instruction, using equivalent learning objectives and validated proficiency measures.

Third, research should examine whether the effectiveness of AI differs according to students' initial proficiency, AI literacy, learning motivation, and access to technology.

Fourth, researchers should investigate underexplored skills, including spontaneous speaking, pragmatic competence, listening comprehension, and the integration of multiple language skills.

Fifth, studies should examine how different forms of feedback influence learning. Comparisons among direct correction, explanatory feedback, guided questioning, and peer-supported AI activities could clarify which approaches encourage independent language development.

Sixth, research in multilingual and English-as-a-foreign-language settings should consider local educational conditions, students' first languages, and institutional resources.

Finally, future studies should report methods transparently, use appropriate comparison groups where feasible, protect participants' data, and distinguish clearly between self-reported improvement and measured proficiency gains.

Conclusion

AI-assisted language learning offers university students new opportunities to practise English, receive immediate feedback, explore vocabulary, revise writing, and rehearse conversations. Its educational potential can be explained through established theories of language acquisition and learning. Vygotsky's

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sociocultural theory highlights guided assistance, Krashen's input hypothesis emphasizes comprehensible language exposure, Swain's output hypothesis underscores active production, Long's interaction hypothesis explains the value of communicative exchange, and Zimmerman's model emphasizes self-regulated learning.

The analysis suggests that AI can contribute to English language development when it is integrated into purposeful, learner-centered instruction. Its effectiveness, however, cannot be inferred simply from the availability of technological tools, the quality of AI-assisted assignments, or students' positive attitudes. Meaningful development requires active engagement, reliable feedback, independent practice, and assessment of retained language competence.

The principal educational implication is that AI should function as a supplement to human teaching rather than as a substitute for it. Teachers remain essential in designing meaningful activities, evaluating generated content, supporting authentic interaction, and ensuring academic integrity. Students must likewise retain responsibility for their own linguistic development by questioning feedback, revising their work, and demonstrating proficiency without continuous technological assistance.

In conclusion, AI-assisted language learning represents a promising approach to university English education, but its success depends on pedagogical design, learner autonomy, equitable access, and evidence-based assessment. Further empirical research is required to determine which AI-supported practices produce lasting improvements across the full range of English language skills.

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