

Artificial Intelligence in English Language Teaching for Undergraduate University Students Opportunities Challenges and Pedagogical Implications

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Systematic Review

Keywords: Artificial Intelligence, English Language Teaching, Higher Education, Computer-Assisted Language Learning (CALL), Generative AI, AI Literacy, Personalized Learning, Undergraduate Education, Language Learning, AI Tools

Posted Date: October 15th, 2026

DOI: <https://doi.org/10.21203/rs.3.rs-10886848/v1>

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Additional Declarations: No competing interests reported.

Abstract

The fast progress of Artificial Intelligence (AI) has brought about a revolution in English Language Teaching (ELT) at higher educational institutions in relation to developing intelligent systems that enable personalization of teaching and learning, adaptive instruction, automatic assessment, and learning autonomy. Despite the proliferation of the usage of AI-based technologies in language classes in universities, academic literature seems quite diverse concerning the pedagogical value, implementation difficulties, and curricular implications associated with such technologies. Therefore, the purpose of this paper is to critically evaluate the role of AI in the field of English language education for undergraduates based on the existing studies on teaching and learning with AI. The framework for this critical analysis will be provided by the principles of CALL, SLA, SRL, and AI literacy. Based on the empirical and theoretical studies that are related to the use of conversational AI, intelligent tutoring systems, speech-recognition technologies, adaptive learning systems, automated writing assistants, and generative AI tools, it is possible to conclude that AI considerably improves language skills of students in speaking, writing, reading, listening, vocabulary acquisition, motivation, engagement, and learning autonomy. On the other hand, the review points out a number of challenges that might stand in the way of the effective implementation of the technology. These challenges include ethical issues, academic dishonesty, algorithmic bias, data protection issues, unequal access to digital technologies, lack of teacher preparedness and the need for curricular reform. In addition, the review sheds light on the changing role of teachers as facilitators, mentors and ethically responsible persons in the context of AI-powered learning. Thus, it is argued that AI should be seen as a supplement and not a substitute for human teaching and learning, and its effective implementation should be based on proper pedagogical design, teacher training and professional development, institutional support, governance and AI literacy of teachers and students.

1. Introduction

Artificial Intelligence (AI) has become one of the most innovative technologies of the twenty-first century that revolutionizes different fields, namely healthcare, businesses, engineering, and education (Russell & Norvig, 2021; Holmes et al., 2019; Luckin, 2018). Within higher education, AI has proven its importance as an innovator that facilitates the enhancement of the quality of teaching, improves student engagement and motivation, promotes personalized learning and makes education data-driven (Zawacki-Richter et al., 2019; Huang et al., 2021). The swift growth of the technologies of machine learning, natural language processing, learning analytics and generative AI has made the educational process move from the teacher-centered environment towards being more intelligent, adaptive and learner-centered (Xu & Ouyang, 2022; Yang & Wang, 2024). The appearance of various generative AI tools such as ChatGPT and other LLMs has contributed greatly to this change because of the possibility of generating lessons plans, instructional material, assessments, classroom activities, and personalized feedback in a couple of seconds (Li, 2023; Yang & Wang, 2024). Contrary to previous educational technologies that were mainly used as databases of learning materials, generative AI tools assist with instruction design and development. Thus, artificial intelligence has changed from an additional tool in

education to an intelligent instructional assistant that can help both the teacher and the learner during the educational process (Holmes et al., 2019; Luckin, 2018). In the realm of English Language Teaching (ELT), AI has greatly impacted classroom practices by fostering language learning, promoting learner autonomy, and developing communicative competence due to adaptive learning technologies and intelligent tutoring systems (Huang et al., 2021; Xu & Ouyang, 2022). With the help of AI applications, English language teachers are able to produce authentic learning materials, design interactive class activities, offer differentiated instruction, and receive formative feedback on the learners' language abilities (Zhao, 2021; Luo, 2016). Moreover, AI-based chatbots, pronunciation assistants, grammar correction systems, and adaptive vocabulary applications give learners chances to practice English language outside the classroom with individualized assistance (Godwin-Jones, 2018; Kukulska-Hulme, 2020).

Lesson planning is arguably one of the most basic duties of English language teachers as it defines the objectives of the instruction, teaching approach, learning activities, classroom interaction, and assessment techniques. Proper lesson planning entails matching the curriculum objectives with learners' language needs and choosing the most suitable teaching approaches and educational materials (Richards & Rodgers, 2014; Harmer, 2007). Conventionally, lesson planning has been quite a labor-intensive activity involving significant pedagogical skills and creativity on the part of educators. Currently, AI technologies help a lot by developing automatically lesson objectives, lesson steps, classroom activities, worksheets, quizzes, and assessment rubrics, thus sparing teachers from excessive paperwork (Li, 2023; Yang & Wang, 2024). AI technologies have helped to apply the principles of learner-centered education in the process of lesson planning. The modern approach to learning emphasizes personalization, interactivity, and responsiveness to individual differences in the learner population (Vygotsky, 1978; Krashen, 1985). This can be achieved through using AI technologies that will allow identifying individual learners' needs and gaps in knowledge and provide recommendations for further instruction accordingly (Wang & Petrina, 2013; Siemens & Baker, 2012). It is especially beneficial for higher education institutions since English classrooms usually comprise various students from different linguistic, academic, and educational backgrounds.

One of the other significant benefits of AI technology is encouraging autonomous and collaborative learning. AI educational tools contribute to students' autonomous learning by providing immediate feedback, intelligent tutoring, adaptive practice, and recommendations (Reinders & White, 2016; Kukulska-Hulme, 2020). At the same time, the increased usage of AI allows teachers to promote collaborative, creative, and communicative learning in classes through communicative language teaching, project-based learning, blended learning, and flipped classroom techniques (Richards & Rodgers, 2014; Stockwell, 2013). However, the usage of AI in educational settings faces many issues. For example, one of the crucial problems is the accuracy and reliability of AI-produced educational content. While modern generative AI algorithms produce complex learning materials for instruction, such content can be occasionally inaccurate, unsuitable, or culturally inappropriate for learning and therefore should be carefully reviewed by the teacher prior to classwork. Moreover, educators have also noted issues such as students' excessive dependence on AI-produced work, academic dishonesty, plagiarism,

and decreased critical thinking due to overdependence on technology (Holmes et al., 2019; Zhao, 2021). It is also important to discuss teacher readiness as another crucial factor in successful AI integration. Studies repeatedly prove that educators need to be professionally competent enough to integrate AI into their teaching (Zawacki-Richter et al., 2019; Huang et al., 2021). Otherwise, teachers can use AI improperly and produce low-quality lessons. Consequently, AI should be considered as an educational tool that will improve teachers' practice, but not as a replacement for humans and their creative potential and judgment (Luckin, 2018; Holmes et al., 2019).

Despite significant expansion in the number of studies that examine AI and education in recent years, most of the available literature focuses on adoption of AI, intelligent tutoring systems, learning analytics, and effects on students' learning outcomes (Zawacki-Richter et al., 2019; Huang et al., 2021). Fewer researchers address the role of AI in lesson planning and development of English teaching approaches from teachers' viewpoint. In addition to this, there have emerged several educational possibilities due to the fast advancement of generative AI technologies that still require further investigation within the current scientific discourse.

In this regard, the present research considers the importance of Artificial Intelligence in lesson planning and the development of English teaching techniques through teachers' perception. More specifically, the research focuses on exploring how AI assists in designing instructions, delivering personalized instruction, developing curriculum, innovating the classroom and assessing the language, at the same time considering the problems connected with it. Thus, the research aims to contribute to the scientific discourse on AI-supported English language teaching by analyzing the latest literature and making practical suggestions for educators.

2. Study Objectives

This paper attempts to:

1. Analyze the role played by artificial intelligence technology in the teaching of English among undergraduate students in universities.
2. Analyze the common AI technologies applied in the teaching of the English language.
3. Point out the advantages of artificial intelligence technology in language teaching and learning.
4. Point out the challenges that are faced in applying artificial intelligence technology in the teaching of English.
5. Propose pedagogical considerations in the use of AI technology.

3. Study Questions

The research questions for this paper are:

1. What is the function of AI in English language teaching at higher education institutions?
2. What are the advantages of AI technology to university English language learners?

3. What are the difficulties associated with the adoption of AI technology by the teachers and students of English language?
4. In what ways can AI applications make English university classes better?

4. Literature Review

4.1 Artificial Intelligence in Education

Artificial Intelligence (AI) is described as creating computer systems that can execute cognitive activities traditionally performed by humans, such as learning, reasoning, solving problems, making decisions, processing natural languages, and creating knowledge representations (Russell & Norvig, 2021). New developments in machine learning, deep learning, natural language processing (NLP), and generative AI have contributed to the broadening the possibilities of intelligent technologies, which has allowed AI to be used to perform sophisticated educational activities well beyond mere automation (Holmes et al., 2019; Luckin, 2018). AI has transformed into an intelligent educational technology that can improve teaching efficacy, enhance learning results, and make decisions based on evidence in education by continuous analysis of learners' performance and educational processes according to Zawacki-Richter et al. (2019). There have been many developments related to the integration of AI in education over the last decade, especially since the advent of generative AI applications such as ChatGPT, Google Gemini, Microsoft Copilot, and Claude. AI has revolutionized the field of education in terms of helping the instructors to create lesson plans, develop course materials, design tests, and provide instantaneous feedback to the students (Kasneci et al., 2023; Kohnke et al., 2024). While initially used just as digital assistants in educational settings, modern-day AI systems operate more as intelligent assistants to the instructors for the development of instruction process, personalization of learning, development of curricula, and classroom management (Crompton et al., 2024).

Among the major benefits of AI, one can highlight the role played by the use of artificial intelligence technologies for personalized learning purposes. Traditional educational programs use rather standardized ways of instruction which cannot take into account the learners' diverse backgrounds, abilities, and ways of learning. Meanwhile, artificial intelligence-based adaptive learning systems constantly collect data about learners' performance, detect their weaknesses, predict challenges faced during learning, and provide recommendations on personalized learning strategies for each particular student (Luckin, 2018; Huang et al., 2024). As mentioned by Chen and Zhang (2024), artificial intelligence technology is helpful for improving the learning outcomes, motivation, and engagement of students due to customized instruction and formative feedback. In turn, Tlili et al. (2025) stressed that personalized learning is among the most impactful uses of AI in higher education as it allows universities to offer learner-centered instruction to students with different levels of academic readiness. In addition to personalization, AI has made significant improvements in educational assessment and learning analytics. Smart assessment systems can automatically assess the work done by students, assess their progress, find out if there are any misunderstandings on their part, and give feedback that will help both the teacher and the learner (Wang & Petrina, 2013; Holmes et al., 2019). The combination of learning

analytics and AI also helps teachers predict the performance of students, identify those who are at risk of failing, and take early action in order to ensure better retention rates (Siemens & Baker, 2012). According to Ellis et al. (2025), recent studies have proven that AI-assisted analytics can be useful for understanding how students learn.

The relevance of AI to education became especially clear during the time of the COVID-19 pandemic, when universities around the world were forced to quickly adapt their learning process from face-to-face to online and hybrid settings. At that time, AI-driven tools were extremely important for preserving the continuity of education as they were involved in virtual teaching, automated evaluation, intelligent tutoring, adaptive learning, and online engagement of students (Bozkurt et al., 2021). Huang et al. (2024) noted that the pandemic accelerated the digitalization of higher education and, therefore, led to the use of AI-driven educational tools on an unprecedented scale. Similarly, Crompton et al. (2024) stated that the introduction of generative AI after the pandemic has permanently transformed higher education by promoting the usage of intelligent technologies. While such significant educational advantages exist, studies have highlighted the importance of AI being supplementary to the professional expertise of the educators. In this regard, Holmes et al. (2019) maintained that the successful integration of AI technology in education demands a human-in-the-loop method whereby educators will be required to make pedagogical decisions and exercise ethical judgment in the course of learner support. Similarly, Kasneci et al. (2023) observed that while AI greatly enhances the efficiency of instruction, educators need to carefully assess AI generated outputs since large language models are prone to producing misleading information, false citations, algorithmic biases, and culturally inappropriate content. Thus, the success of AI integration in education depends on technological innovation, the digital literacy of the educators, and the development of comprehensive guidelines for responsible use of AI in education (UNESCO, 2023; Tlili et al., 2025).

4.2 Artificial Intelligence (AI) in English Language Teaching (ELT)

Use of AI technology in ELT has been the subject of many scholarly researches during the past decade after the fast development of generative AI and LLMs. The use of AI has changed from being just a facilitator for language learning to being an essential element in design of instructions, language testing, learning assistance and curriculum design (Holmes et al., 2019; Zawacki-Richter et al., 2019). From recent systematic studies, English language education has emerged as one of the disciplines whose education has been most influenced by the use of AI technology because language learning requires constant engagement, feedback and individualization, all of which are easily facilitated by AI technology (Crompton et al., 2024; Huang et al., 2024). Thus, AI technology has become a pedagogical partner to the teacher in enhancing their instruction skills. One of the key factors behind the rising trend of using AI in English Language Teaching (ELT) lies in its potential ability to facilitate the development of the basic language skills, namely listening, speaking, reading, and writing, through intelligent and adaptive systems of instruction. Contrary to conventional learning platforms which offer standardized content of

instruction, AI-based programs constantly evaluate the learners' performance and adapt the content of the lesson according to the specific needs of the learners, their rate of learning and the level of language proficiency (Luckin, 2018; Tlili et al., 2025). As Huang et al. (2024) suggested, adaptive AI technologies are a major turning point towards learner-centered approach because they allow for personalized learning experience while minimizing the constraints of conventional methods of teaching. Similar results were obtained by Crompton et al. (2024) who conducted a systematic review of AI application in ELT. The development of new technologies in Natural Language Processing (NLP) has greatly increased the impact of AI on language teaching by allowing computers to process human language more efficiently (Russell & Norvig, 2021). NLP technology provides AI with the ability to assess the learners' written and oral speech, detect their grammatical and lexical mistakes, give context-specific recommendations, and suggest corrections instantly. As Kasneci et al. (2023) claim, recent large language models have greatly increased the quality of explanations provided by AI, which makes it possible for the learners to get instant help in matters of grammar, vocabulary, sentence structure, and academic writing. Similarly, as was reported by Kohnke et al. (2024), English language teachers use more and more often NLP-driven generative AI solutions to prepare class material, reading texts, discussion questions, and activities of different difficulty levels for diverse learners.

The use of AI has been found to be quite effective in enhancing listening and speaking abilities. Specifically, the use of speech recognition technology has proved to be very effective in assessing and correcting pronunciation, fluency, intonation, and stress of learners while giving instant feedback that allows students to improve their oral abilities on their own (Godwin-Jones, 2018). In addition, there are many conversational AI programs that help learners to communicate with intelligent agents in realistic conversation situations. In contrast to normal classrooms where the number of chances to speak is limited due to the class size and limited time, AI chatbots give unlimited opportunities to learners to communicate with the virtual agents without any anxiety at all. Research conducted recently has revealed that interaction with conversational agents equipped with artificial intelligence increases the confidence, pronunciation accuracy, communicative competence, and willingness to communicate in English of the learners (Al-Khresheh, 2024; Crompton et al., 2024). Comprehension reading has similarly seen improvements through the application of AI-based instructional technologies. Intelligent reading applications assess learners' comprehension skills, detect problem areas, suggest suitable reading resources, and offer explanations about vocabulary based on learners' proficiency levels. As argued by Huang et al. (2024), adaptive reading technologies enable differentiated instruction by offering learners reading materials that fit their reading proficiency level, while at the same time progressively increasing linguistic complexities. Additionally, AI-based annotation tools assist learners in comprehending complex vocabulary, grammatical constructions, and cultural information contained in authentic English readings.

Out of the four language skills, writing has undergone probably the greatest transformation after the appearance of generative AI since writing assistants based on artificial intelligence technology offer instant feedback regarding grammar, vocabulary, coherence, cohesion, organization, citation format, and other aspects of academic writing (Kasneci et al., 2023). Moreover, generative AI tools like ChatGPT,

Microsoft Copilot, Google Gemini, and Claude can produce outlines, prompts, samples of texts, and explanations of linguistic phenomena (Li, 2023; Yang & Wang, 2024). According to Kohnke et al. (2024), the use of generative AI in writing teaching is especially helpful for English teachers because of its ability to give instant feedback and allow learners to try out new vocabulary and sentence patterns. Still, the researchers point out that it is important not to confuse the use of AI writing as a scaffolding tool with an approach that substitutes for learners' thinking and writing abilities.

In addition to enhancing the linguistic skills of individuals, the use of AI technology in ELT has led to the transformation of lesson planning and instructional design processes. Many teachers currently use generative AI technology to design lesson aims, classroom activities, formative assessments, role-playing activities, reading texts, vocabulary exercises, and differentiated instruction materials within minutes (Crompton et al., 2024). According to Ellis et al. (2025), the role of AI technology in lesson planning is seen by teachers as very effective due to the fact that it cuts down on the burden of administration work but also motivates creativity. In a similar fashion, Kohnke et al. (2024) found out that through the help of AI technology in lesson planning, teachers can spend more time engaging in class discussions, supporting learners, and reflective teaching practices, rather than preparing materials for classes. Even though these benefits have been highlighted, scholars note that the incorporation of AI technology in English language learning would only be possible when done responsibly and with proper pedagogical decisions made in such a way. For instance, Kasneci et al. (2023) pointed out that sometimes the use of AI technology may cause the creation of incorrect facts, invented sources, and inappropriate language samples, which the teacher needs to verify. Likewise, UNESCO (2023) noted that when incorporating AI technology, teachers must be able to critically assess what they get from it without compromising the privacy of their students and ensuring academic integrity. Additionally, according to Tlili et al. (2025), teachers need to undertake extensive training in AI literacy, prompt engineering, ethical decision-making, and evaluating AI outputs.

4.3 Theoretical Foundations

4.3.1 Computer-Assisted Language Learning (CALL) Theory and Artificial Intelligence

Computer-assisted Language Learning (CALL) has been used as one of the primary theoretical models to explain how technology can be integrated into language learning. The history of CALL dates back to the 1960s when the approach began as a collection of computer-based drills and practice programs, but developed into more advanced forms, which promote communication, collaboration, learner autonomy, and authentic language use (Levy, 1997; Warschauer & Healey, 1998). Unlike the notion that technology substitutes for teachers, the model treats digital devices as pedagogical tools for improving language learning through meaningful learning and increased interactivity. According to Beatty (2013), CALL refers to any procedure where learners learn languages using computers either independently or under

instruction. The development of CALL mirrors more general shifts in language pedagogical methods and educational technology trends. Early developments in CALL were primarily informed by the behavioristic theory of learning, focusing on grammar and vocabulary drills offering immediate feedback to learners (Ahmad et al., 1985). As communicative language pedagogy grew more popular, CALL evolved towards more interactive and learner-centered instructional practices, facilitating authentic communication and collaboration among students (Warschauer & Healey, 1998). According to Bax (2003), CALL reached a point of "normalization," where technology becomes an invisible and natural part of language instruction rather than an innovation. Such an approach is still relevant today in the context of increasing integration of AI into classroom instruction.

The recent developments in Artificial Intelligence can be seen as the natural progression of CALL in that they go beyond the scope of computer-assisted instruction and develop the idea of intelligent, adaptable and personalized learning environments. Contrary to previous CALL systems that used predefined instructional materials, AI-based technologies provide continuous analysis of students' progress, identification of their linguistic problems, predictions of their learning needs, and the development of personalized instructional materials in real-time (Holmes et al., 2019; Luckin, 2018). According to Zawacki-Richter et al. (2019), AI is a revolution in the field of educational technologies since intelligent technologies can not only assist in instructional decision-making but also adapt to the cognitive, linguistic and behavioral characteristics of each learner. The main feature of modern CALL is that it promotes learner autonomy, which is defined as learners' ability to take control over planning, monitoring, and evaluating their learning process (Reinders & White, 2016). Modern technologies such as artificial intelligence make this feature more advanced because learners can always have an opportunity to use intelligent tutoring systems, adaptive learning platforms, writing assistants, and conversation AI applications that will help them practice languages independently without being in the classroom environment. As Kukulska-Hulme (2020) mentions, mobile learning and learning with the help of artificial intelligence motivate learners to conduct autonomous language learning because they get immediate feedback and personalized instructions irrespective of time and place. The same idea is expressed by Huang et al. (2024): AI-supported personalized learning increases learner autonomy because they can control their learning pace and receive personalized instruction.

The other fundamental concept of CALL is Communicative Language Learning, which stresses the importance of meaningful interaction in second language acquisition (Chapelle, 2001). AI technology can help achieve this objective by providing NLP, speech recognition, and conversation bots able to simulate interaction. New studies show that artificial intelligence-driven chatbots give unlimited possibilities of practicing speaking, building vocabulary, and pragmatic language skills in non-threatening environments (Kohnke et al., 2024; Al-Khresheh, 2024). In contrast to traditional classroom interaction, which can be limited by the time or size of classes, conversational AI allows constant interaction and getting instant feedback on pronunciation, grammar, vocabulary, and fluency. As found out by Crompton et al. (2024), the use of conversational AI significantly improves communicative skills of learners and increases their confidence. According to CALL theory, collaboration is another key aspect in learning, since language acquisition takes place through social interactions, knowledge construction,

and collaborative problem solving (Egbert, 2005). Collaborative teaching can be facilitated using AI technologies by allowing for peer collaboration, collaborative writing, project-based learning, and discussions through intelligent computer technologies. As noticed by Ellis et al. (2025), English language instructors often use generative AI in collaborative classes, where they encourage students to collaborate and work on improving AI-generated texts. AI does not eliminate but adds to the possibilities for negotiation, sharing views, and critical awareness of language in interactions between peers and intelligent computer systems.

The advent of generative AI and the development of large language models such as ChatGPT, Google Gemini, Microsoft Copilot, and Claude signify the biggest revolution in the history of CALL. Generative AI continues the evolution of CALL technologies in that it provides students with the ability to compose dialogues, get personalized grammar tips, write essays, summarize scholarly works, and participate in interactive discussions on problems using natural language (Kasneci et al., 2023). Kohnke et al. (2024) reported that more and more English language educators now use generative AI to organize communicative activities in class, create individualized teaching materials, and help students with their academic writing. Likewise, Tlili et al. (2025) noted that generative AI constitutes a new era of CALL technologies because it combines personalization, interactivity, adaptability, and instant feedback within one intelligent system for learning. Yet, all of these scholars agree that teachers have to be critical towards AI-generated material in order to ensure its pedagogical appropriateness, factual correctness, and cultural sensitivity. Nevertheless, experts have warned that AI should not be seen as a replacement for human communication in the field of language learning. According to Chapelle (2001), the success of CALL is based on its pedagogical implementation and not technology itself. In recent years, this view has been echoed by Holmes et al. (2019) and UNESCO (2023), stating that AI technologies should help teachers leverage their professional skills and not replace human decision-making, empathy, creativity, and intercultural skills. Kasneci et al. (2023) went even further to warn that generative AI could sometimes give wrong explanations or fabricate references and culturally biased language samples.

4.4 Second Language Acquisition (SLA) Theory and Artificial Intelligence

Second Language Acquisition (SLA) theory is one of the most crucial theoretical frameworks through which we can understand how AI technology can be used to facilitate learning of English language. The main emphasis of Second Language Acquisition theory is on the various mental and linguistic aspects involved in the process of acquiring a new language where effective input, real communication, prompt feedback, learner involvement, and production of language are some of the factors which play a key role in language acquisition process (Krashen, 1985; Ellis, 2008). Although initially Second Language Acquisition theory was developed without taking into consideration any intelligent technologies for learning, however due to recent developments in AI technology, the application of SLA theory has been facilitated in many ways. Therefore, it can be said that AI technology is not only consistent with the SLA theory but is also an expansion of its basic principles.

One of the most prominent perspectives on SLA is the Input Hypothesis by Krashen, which states that language acquisition occurs because of the exposure to comprehensible input at a higher level of linguistic competence compared to the current one (Krashen, 1985). According to Krashen, the best way for language acquisition is the provision of instructional materials of the appropriate degree of difficulty allowing for learners' progress but still understandable to promote comprehension. Modern AI tools greatly improve this approach, allowing for constant evaluation of the learners' linguistic competencies and the automatic generation of the corresponding texts for reading, listening practice, vocabulary, and grammatical exercises (Luckin, 2018). According to Huang et al. (2024), AI-powered adaptive learning environment offers personalized materials based on $i + 1$ concept by Krashen allowing for progression along the individual paths of learning, not standardized instruction sequences. Likewise, Crompton et al. (2024) noted that generative AI tools allow for differentiated instruction by developing personalized materials for learners of various linguistic competencies.

While the Input Hypothesis proposes that language acquisition is the result of receiving comprehensible input in language learning, the Output Hypothesis developed by Swain emphasizes the need for language production as a part of language learning processes (Swain, 1985). The Output Hypothesis suggests that language production helps learners detect linguistic gaps, test grammatical hypotheses, and develop communication skills through constant practices and feedbacks. AI tools offer unparalleled possibilities for the implementation of the theoretical postulate since learners can communicate with conversational agents, produce written texts and obtain feedbacks without being limited by classroom instruction. According to Kohnke et al. (2024), English language teachers actively use generative AI applications such as ChatGPT in order to motivate students to practice academic writing, summarize texts, generate argumentative essays and revise their papers using feedbacks. Kasneci et al. (2023) claimed that large language models contribute to the development of active language production by participating in authentic conversations and providing detailed feedbacks concerning grammar, vocabulary, coherence, and language accuracy. The value of interaction in second language acquisition becomes even more apparent with regard to communicative approaches to language learning, according to which communication helps people develop linguistically because it allows learners to negotiate their meanings, clear up misunderstandings, and get feedback from others (Ellis, 2008). Conversational agents and intelligent chatbots based on artificial intelligence help make this aspect of language learning much stronger, providing learners with endless opportunities to communicate. In contrast to classrooms, where interaction may be limited due to the number of students in the class or time constraints, conversational AI allows learners to have interactions any time and get feedback concerning their pronunciation, grammar, vocabulary, and fluency. It has recently been proven that conversational training powered by AI contributes to the improvement of learners' confidence in speaking, their communicative competence, and willingness to speak English (Al-Khresheh, 2024; Crompton et al., 2024).

Another principle of SLA is the need for corrective feedback to enhance language development. Instantaneous feedback allows the learners to detect errors in language, rectify them and perfect their grammar by practicing them. In traditional classrooms, the teacher's ability to give instant and

customized feedback is restricted due to lack of time and bigger number of students (Ellis, 2008). AI helps solve this problem since it gives instant and customized feedback for all four skills in language. The intelligent tutoring system automatically analyzes the grammar used, vocabulary, pronunciation, reading comprehension and writing organization and offers strategies for improvement (Holmes et al., 2019). According to Tlili et al. (2025), instant feedback given by AI systems promotes self-regulated learning because the learners get an opportunity to revise the content on a continuous basis without waiting for the feedback from the teacher. Likewise, Huang et al. (2024) found that adaptive AI systems increase the engagement of the learners since it encourages the learners to be responsible for themselves. Moreover, the other significant contribution of AI to SLA is related to the encouragement of learner autonomy, which has been becoming an increasingly accepted phenomenon in contemporary language teaching and learning. Autonomous learners plan, monitor, and assess their learning independently as well as select strategies in accordance with personal aims and needs (Reinders & White, 2016). The technologies of artificial intelligence enable autonomous learning through the provision of opportunities for learners to use intelligent tutoring systems, adaptive learning platforms, AI writing assistants, pronunciation applications, and conversational agents independently from class hours and places. Thus, Kukulska-Hulme (2020) stated that mobile and AI-enabled learning spaces changed the field of language teaching by giving learners the ability to learn flexibly and independently in any time and place. Ellis et al. (2025) noted that teachers in higher education encourage students to use AI-based generative tools as additional learning resources, but this usage should be associated with reflection on responsible practices. The implementation of AI in SLA is tightly connected to the development of CALL systems. Traditional CALL technologies mainly offered exercises related to grammar and vocabulary training as well as different types of multimedia resources for learning (Levy, 1997; Beatty, 2013). Modern AI tools add such features as adaptive instruction, conversations, predictions, and intelligent feedback to the existing CALL system. As per Zawacki-Richter et al. (2019), AI is the next step in evolution of educational technology because intelligent systems continuously tailor instruction to learners' cognitive and behavioral data. Likewise, Crompton et al. (2024) believe that through AI, CALL shifts from being just a technology-assisted instruction system into an intelligent language learning ecosystem.

While all these benefits have been highlighted in pedagogy through AI, some scholars have also warned about the need for AI not to supplant the existing principles of SLA pedagogy. Kasneci et al. (2023) pointed out that the application of AI may result in the generation of inaccurate explanations, false citations, and inappropriate linguistic examples, meaning that teachers will still have to evaluate the output of AI before using it in language instruction. UNESCO (2023) stressed that the appropriate implementation of AI in educational settings is dependent on clear governance, ethical decisions, data protection, and ensuring that AI preserves human agency. Holmes et al. (2019) also stated that while AI increases efficiency in language instruction, teachers are irreplaceable in their capacity to provide emotional support, pedagogic knowledge, intercultural competence, and contextual awareness.

5. AI Tools Used in Teaching English

Numerous AI-powered tools are currently used in undergraduate English education. These tools differ according to their functions and instructional purposes.

AI Tool	Main Function	Language Skill Supported
ChatGPT	Conversational practice, writing support, explanations	Speaking, Writing
Grammarly	Grammar and writing correction	Writing
Duolingo	Adaptive language learning	Vocabulary, Grammar
Google Translate	Translation and comprehension support	Reading, Vocabulary
Speech Recognition Apps	Pronunciation analysis	Speaking
QuillBot	Paraphrasing and summarizing	Writing
Elsa Speak	Pronunciation improvement	Speaking
Kahoot AI Features	Interactive quizzes and assessment	Vocabulary, Grammar
AI Chatbots	Simulated conversation practice	Speaking
Automated Essay Scoring Systems	Writing evaluation	Writing

These tools support both classroom instruction and self-directed learning outside the classroom.

6. Benefits of AI in Teaching English

6.1 Benefits of Artificial Intelligence in English Language Teaching

Integrating AI in Higher Education has brought about several pedagogical advantages which have greatly improved English language learning. AI technology in education allows for learner-centered pedagogy because of the provision of personalized learning, interaction opportunities, instant formative feedback, and flexibility in learning environments (Holmes et al., 2019; Zawacki-Richter et al., 2019). In contrast to traditional teacher-centered pedagogy, AI constantly analyzes learners' performance and provides them with instructional materials based on their competence level, speed of learning, and preferences. AI helps teachers shift from rigid pedagogies to adaptive and inclusive approaches that cater to heterogeneous linguistic background learners who populate university English classes (Huang et al., 2024). Among the many benefits offered by the application of AI in English language teaching is its potential to promote personalized learning. By making use of machine learning algorithms and learning analytics, AI systems can detect the weaknesses, strengths, and learning gaps of individual students, and instructional content and activities can then be customized accordingly (Luckin, 2018). Huang et al.

(2024) found that adaptive AI systems enhance learner engagement and performance through individualized learning processes and customized instruction. In a similar study on the use of AI in language education, Crompton et al. (2024) found that personalized AI-based instruction not only enhances learner motivation but also allows individual learners to learn at their own pace without being limited by the rest of the class. AI further boosts students' engagement and practice of the language due to the creation of interactive learning environments that promote constant communication and independent learning. The use of generative AI tools and conversational agents allows learners to practice their speaking, writing, reading, and vocabulary skills outside class time and receive immediate feedback about their language proficiency (Kasneci et al., 2023). According to Kohnke et al. (2024), English language teachers view AI as a beneficial teaching assistant since it motivates students to engage actively and promotes collaboration among them via authentic language activities. This kind of constant practice is especially useful in universities since there is little time during class lessons for using the target language.

Another important advantage relates to the ability to receive instantaneous formative feedback, which has been acknowledged as an essential element in effective acquisition of a second language. This is made possible through intelligent tutoring systems and AI-based writing assistants, as these tools are capable of analyzing grammatical structures, vocabulary, pronunciation, coherence, and sentence structuring, helping learners make corrections on the spot instead of having to wait for their performance to be evaluated by teachers (Ellis, 2008; Holmes et al., 2019). According to Tlili et al. (2025), AI-based instant feedback fosters self-regulated learning and helps learners develop into independent language learners. In addition to that, AI facilitates greater instructional efficiency and quality by decreasing the amount of teachers' administration duties and helping them with planning lessons, designing assessments, and managing classrooms. In particular, according to Ellis et al. (2025), higher education teachers widely use generative AI in order to come up with lesson plans, prepare differentiating materials, and create formative assessments. However, recent research shows that it is important to bear in mind that AI should be used as an instructional assistance tool instead of a substitution for teachers' professional judgment. Kasneci et al. (2023) and UNESCO (2023) point out that AI can only contribute to the development of education when it is used responsibly and evaluated critically.

6.2 Personalized Learning

One of the most crucial roles played by Artificial Intelligence (AI) in higher education is providing personalized learning which has become one of the key principles of modern-day educational practices. Personalized learning can be defined as adjusting the teaching content, methods used for delivering lessons, learning rate, and assessment procedures based on particular features of a particular student, including his or her previous experience, language skills, cognition, preferences and aims at studying (Luckin, 2018). Contrary to the traditional teacher-centered approach when the same teaching materials and methods are applied to each of the students irrespective of their needs, personalized educational technologies powered by AI constantly assess the performance of the learners and offer personalized

instruction (Holmes et al., 2019). Such an approach is consistent with modern pedagogical theories that focus on individualized learning. Innovations in machine learning, learning analytics, and adaptive education systems have greatly enhanced the ability of AI to personalize English language education. AI-based systems continuously gather and analyze interaction, assessment, and behavioral data of learners to recognize their knowledge deficiencies, monitor their learning progress, and anticipate future learning requirements (Zawacki-Richter et al., 2019). According to these findings, intelligent systems are able to automatically suggest appropriate instructional materials, adjust the difficulty level of tasks, and build customized learning paths that match the learners' competence levels. Huang et al. (2024) have stated that adaptive AI systems greatly facilitate the process of learning since they offer learners learning material that is not too easy or too difficult, which ensures an optimal level of cognitive challenge. Likewise, Chen and Zhang (2024) have demonstrated that AI-enabled personalized learning environments enhance learners' motivation, engagement, and learning outcomes by adjusting learning activities to learners' individual features. Personalization becomes extremely important in English language teaching due to the fact that university classes consist of students who have various linguistic backgrounds, differ in their English language skills and have different learning goals. Traditional methods of teaching usually find it difficult to cater to all these factors which make the instructor give standard lessons that may fail to help both the most capable and less skillful students. This problem is solved by the use of AI technologies as they always monitor the knowledge of vocabulary, grammar, reading comprehension, pronunciation, and communication of learners and suggest personalized learning activities to improve these skills (Crompton et al., 2024). For instance, the students having problems with grammar will get further explanations and activities while the skilled ones will be provided with challenging authentic reading and writing tasks as well as communicative activities. As it was noted by Kohnke et al. (2024), English language teachers see the ability of adaptation as one of the major benefits of generative AI.

Another critical element of personalized learning is the availability of continuous formative assessment and personalized feedback. As opposed to traditional assessments that provide feedback once the assignment is done, AI offers immediate feedback that helps learners make necessary corrections. Intelligent Tutoring Systems and AI-based writing assistants assess the students' grammar, vocabulary, sentence structures, pronunciation, and writing cohesiveness while offering advice on how they can improve their skills (Kasneci et al., 2023). According to Tlili et al. (2025), personalized immediate feedback facilitates self-regulation among learners as it promotes the habit of self-reflection, self-revision, and independent monitoring of one's progress. In line with Tlili et al. (2025), Ellis et al. (2025) found that the use of AI feedback was viewed positively by university educators as an additional source of feedback besides teachers' feedback. Personalized learning also makes great contributions to achieving educational equality and inclusion in an environment where the student population is linguistically and culturally diverse, such as in higher education. Adaptive learning facilitated by the use of AI decreases barriers to learning since the progress of each student can be made based on their own pace and not according to the predetermined pace of instruction. According to Huang et al. (2024), adaptive learning systems are useful especially for students coming from various educational

backgrounds as they allow for individualized scaffolding that helps both weak and strong students. Similarly, Crompton et al. (2024) argued that personalized AI systems create inclusive teaching practices by acknowledging learner diversity. However, despite these significant benefits, it is important to note that researchers have warned against using personalized learning purely based on algorithmic decision-making. According to Holmes et al. (2019), the effectiveness of personalized learning should be a result of a good balance between algorithms and teaching professionals, since only teachers would have to interpret learning analytics, confirm AI suggestions, and take the right pedagogical decision. In turn, UNESCO (2023) stressed out the necessity of transparency, privacy protection, and non-bias in adaptive AI systems. Thus, although the use of artificial intelligence gives numerous possibilities for implementing personalized learning, its efficiency is dependent on its proper implementation and teachers' professional skills.

6.3 Immediate Feedback

The ability of artificial intelligence to offer instantaneous and individualized feedback is one of the most valuable contributions it makes to the English language education process. Feedback has been identified as one of the most important variables influencing language learning because it helps learners identify mistakes, monitor their development, and improve language skills through constant revision (Hattie & Timperley, 2007; Ellis, 2008). Contrary to traditional classroom situations when students have to wait for days or even weeks to get any comments on the tasks they have completed, the AI-enabled educational system instantly evaluates the performance of each student and offers individualized suggestions (Holmes et al., 2019). As a result, AI-assisted feedback turns the assessment into the continuous learning process. What makes feedback generated by AI effective is its ability to measure several dimensions of language proficiency at once. Due to NLP, machine learning, and speech recognition technology, educational platforms powered by artificial intelligence can assess grammar, vocabulary, sentence structure, cohesion, pronunciation, fluency, and writing organization while offering specific suggestions on how to improve one's skills (Russell & Norvig, 2021). According to Kasneci et al. (2023), the latest developments in language models have enabled AI to generate not just a list of mistakes but context-based explanations of linguistic problems. Huang et al. (2024) also noted that AI-powered formative assessment systems help enhance students' learning experiences since immediate feedback enables them to fix mistakes at early stages of language development.

In teaching English, AI-powered writing assistants have been particularly useful in helping students acquire writing skills. Software programs like Grammarly, ChatGPT, Microsoft Copilot, and Google Gemini scan texts while they are being written and make recommendations on grammar, punctuation, vocabulary, sentence clarity, cohesiveness, and academic writing style (Kohnke et al., 2024). Instead of merely pointing out errors, today's AI-powered writing assistants give an explanation about why certain corrections need to be made, as well as suggest alternative phrases which increase the students' lexicon. According to Crompton et al. (2024), intelligent writing assistants promote iterative learning by allowing students to continuously improve their writing through multiple edits with the help of immediate feedback on their writing process. Similarly, Ellis et al. (2025) discovered that teachers at universities

found AI-written feedback a good addition to feedback provided by teachers since it encouraged autonomous revisions and boosted students' self-confidence in academic writing. Immediate feedback is also very critical in the acquisition of speaking and pronunciation skills. AI-based technologies help assess learners' pronunciation, stress, intonation, fluency, and articulation in oral communication activities as they give feedback in real-time. As opposed to traditional pronunciation lessons, which have limited individualized feedback in terms of time and availability of teachers, the intelligent pronunciation system allows learners to practice speaking on their own whenever they want (Godwin-Jones, 2018). The recent research shows that AI-based pronunciation applications improve fluency and pronunciation accuracy in learners because of the continuous feedback that enables students to identify and correct their mistakes in pronunciation instantly (Al-Khresheh, 2024). Moreover, Kohnke et al. (2024) noticed that conversational AI applications motivate learners to participate in spoken interactions through real-time feedback.

One of the other advantages of automated feedback is the positive impact on self-regulated and autonomous learning. Feedback is provided instantly, helping the students to keep track of their progress, determine their strong and weak points and change them without being totally dependent on teachers' help. As mentioned by Tlili et al. (2025), continuous formative feedback helps the students acquire meta-cognitive skills as it encourages them to reflect, make assessments of themselves and engage in strategic learning. In a similar way, according to Holmes et al. (2019), intelligent tutoring systems contribute to autonomy of the learners through making feedback process an interaction aimed at improvement rather than assessment of the result. Apart from improving academic results, instant feedback offered by AI is also psychologically beneficial. The typical language learning class can be associated with stress, since students may be worried about making errors in the presence of other students or getting delayed evaluation by teachers. AI-based learning allows students to practice, make errors and receive corrective feedback in a non-threatening environment. According to Crompton et al. (2024), learners feel less threatened when getting feedback from AI compared to teacher evaluation. As a result, students are more likely to engage in language practice and become more confident in their use of English. Similarly, according to Huang et al. (2024), instant AI-supported feedback helps to increase learner motivation, since they get constant feedback on their progress. However, scholars have warned that AI-generated feedback needs to be utilized along with teacher feedback. Though AI systems are highly adept at detecting linguistic mistakes and offering immediate suggestions for correction, they fall short in assessing creativity, cultural appropriateness, critical thinking skills, and overall communicative efficiency of the learners' language usage (Kasneci et al., 2023). As a result, UNESCO (2023) suggests keeping the human-in-the-loop model where teachers evaluate the AI-generated feedback, offer more pedagogical advice, and deal with high-level aspects of language acquisition that can only be managed by humans. Likewise, Holmes et al. (2019) stressed that the best results can be obtained if AI-generated feedback is combined with the teachers' professional opinion.

6.4 Enhancement of Speaking Skills

The development of oral communication skills has been seen as one of the major hurdles for learners of English as a Foreign Language (EFL), especially at university level. This is because speaking demands the use of linguistic knowledge, accurate pronunciation, vocabulary, grammar, fluency, and pragmatics at the same time, making it one of the most cognitively challenging skills in second language acquisition (Ellis, 2008). Speaking anxiety, fear of making grammar and pronunciation mistakes, lack of vocabulary, inability to communicate authentically, and low self-confidence are some of the barriers faced by many undergraduates when communicating in English through speaking during class discussion or presentations (Krashen, 1985). This has often led to the unwillingness to communicate on the part of the learners, hence making it difficult to provide enough language practice needed for communicative competence. The developments in Artificial Intelligence (AI) have resulted in the emergence of unique pedagogical solutions that have addressed most of the above-mentioned barriers through the creation of interactive, adaptive, and non-anxious speaking environment (Holmes et al., 2019; Huang et al., 2024). Among the major contributions of artificial intelligence in speaking training is the opportunity of practicing authentic conversation through intelligent chatbots, virtual conversational agents, and dialogue systems powered by LLMs. Contrary to a typical classroom setting in which the number of speaking opportunities is limited either due to time spent on teaching or the size of classes, AI-based conversational agents allow unlimited access to speaking exercises anytime and anywhere (Kohnke et al., 2024). Conversations are simulated through role plays, interviews, debates, problem-solving activities, customer service scenarios, and everyday dialogues enabling the practice of spoken English in a real-life situation. As emphasized by Crompton et al. (2024), conversational AI greatly expands speaking opportunities of students providing personalized interactions that supplement communication in the classroom delivered by the teacher. Likewise, Huang et al. (2024) found out that artificial intelligence helps enhance communicative competence of learners because it motivates them to use English actively instead of learning grammar only. Latest advances in the area of generative AI have contributed significantly to improving speaking skills through conducting natural and context-driven conversations between the learner and the intelligent system. Software products like ChatGPT, Microsoft Copilot, Google Gemini, and AI-based language learning applications are capable of conducting long conversations, posing follow-up questions, explaining vocabulary in context, and changing the level of conversation difficulty depending on the language proficiency of the learners (Kasneci et al., 2023). According to Kohnke et al. (2024), more and more English language teachers use these technological tools in their speaking lessons due to the authentic communicative experience and personalized learning. Contrary to other language learning programs, which offer only preprogrammed conversations, AI allows for negotiating meaning, formulating spontaneous answers, and communicating interactively.

The other great strength of AI pertains to the application of speech recognition technology, which helps enhance pronunciation and fluency. Pronunciation accuracy continues to be a difficult task for most EFL learners because of insufficient individual pronunciation corrections within the classroom setting. The AI-based speech recognition tool helps the learner identify and correct their pronunciation, stresses, rhythm, intonation, articulation, and fluency through an analysis conducted in real time. As such, AI makes it possible to receive immediate feedback on any mistakes made in the process of speaking

(Godwin-Jones, 2018). According to Al-Khresheh (2024), AI-assisted pronunciation tools help learners pronounce English words more accurately and make their speech more intelligible due to repeated practices with individual feedback. Similarly, Huang et al. (2024) suggest that the intelligent pronunciation system increases speaking confidence in the students because they practice independently without being afraid of any possible negative assessment. The possibility of providing immediate formative feedback is another feature that sets apart AI-enhanced speaking instructions from other forms of language learning. In regular classrooms, the teacher might not have enough time to give personal feedback to each student concerning their speaking skills, especially in large groups. AI technologies solve this problem by constantly assessing the learners' oral output and offering them recommendations about their pronunciation, lexical choices, grammatical correctness, fluency, and communicative efficiency (Holmes et al., 2019). As stated by Tlili et al. (2025), constant feedback provided by AI creates opportunities for self-regulated learning since it motivates the learners to self-reflect on their speaking performance and correct themselves right away. In a similar way, Kasneci et al. (2023) stated that intelligent feedback systems turn the process of speaking assessment into a learning process.

The use of AI-assisted conversational contexts is another factor that is extremely important in reducing the foreign language anxiety that is well-known as one of the biggest barriers in the development of oral communication skills. Many students in universities are reluctant to take part in the discussion sessions due to such fears as the fear of making mistakes, the fear of being evaluated negatively, or the fear of embarrassment while speaking English among their peers. The use of AI-based conversational systems creates a comfortable non-threatening learning environment where learners can try out their language skills, repeat speaking exercises, and get feedback on them in a private setting (Crompton et al., 2024). The lack of performance anxiety leads to more willingness to communicate, which is a necessary precondition of second language acquisition. Apart from speaking practice, AI-based technology also improves the process of listening comprehension, which is an integral part of oral communication. AI conversational applications provide learners with exposure to different accents, speech speed, vocabulary, and various communicative situations similar to those in English language communication. Adaptive AI applications gradually make the content of listening more complicated as per the learners' proficiency level along with vocabulary explanations, comprehension questions, and pronunciation (Huang et al., 2024). This results in the development of listening comprehension, conversation skills, and pragmatic communication by the learners through interacting repeatedly with such intelligent applications. According to Holmes et al. (2019), combining speaking and listening in the process of language learning through AI-based environments becomes more realistic and authentic. However, researchers have pointed out that artificial intelligence ought to be an aid to, not a replacement for, human contact in speaking classes. Although AI technologies offer endless possibilities for practicing speaking skills and getting immediate corrections, they do not fully duplicate the emotional support, cultural sensitivity, impromptu class activity, and authentic communication that is possible through interaction with a competent language teacher (UNESCO, 2023). Moreover, Kasneci et al. (2023) warned about linguistic mistakes or culturally insensitive comments that sometimes occur in the AI-generated

conversations, thus underscoring the necessity for teacher moderation and critical analysis of AI-produced dialogues.

6.5 Improvement of Writing Skills

The use of AI in developing the skill of academic writing has become one of the most important applications of AI technology in higher education, especially in ELT settings. Academic writing is known to be one of the most complicated language skills because it involves using grammatical correctness, lexis, coherence, cohesion, critical thinking, argumentation, and academic conventions specific to the discipline (Hyland, 2019). Writing organized academic papers can be challenging for EFL learners because of poor vocabulary knowledge, grammar mistakes, lack of awareness of academic discourse, and lack of individualized feedback (Ellis, 2008). The recent advances in the area of generative AI and intelligent writing assistants provide additional tools for helping students during their writing activities. AI writing software utilizes the developments in natural language processing (NLP), machine learning, and large language models to conduct analyses of texts and give feedback on various aspects of good writing. In contrast to the previous grammars checkers, modern AI technologies assess grammar, vocabulary, punctuation, sentence construction, coherence, cohesion, readability, tone, and academic style while making context-specific recommendations for improvement (Russell & Norvig, 2021). As mentioned by Kasneci et al. (2023), the development of large language models has made AI not only an error-checker technology but also an intelligent writing assistant that can explain grammatical rules, suggest alternative vocabulary, and assist in rephrasing sentences. In addition, as indicated by Huang et al. (2024), AI-assisted writing technologies have been proved to enhance students' writing skills due to continuous formative feedback.

The most utilized AI writing programs for academic writing are Grammarly, QuillBot, ChatGPT, Microsoft Copilot, and Google Gemini, each one helping in different areas of academic writing. Grammarly is a program that helps students detect errors in grammar, punctuation, inappropriate word choice, and stylistic inconsistency, offering better suggestions for correction. QuillBot is another program that helps with paraphrasing, summarizing, expanding vocabulary, and rewriting sentences in order to improve clarity and eliminate repetition. In addition, recently developed generative AI systems like ChatGPT and Gemini help in brainstorming, creating an essay outline, explaining difficult linguistic concepts, writing example paragraphs, and giving personalized assistance in writing process (Kohnke et al., 2024). According to Crompton et al. (2024), these AI writing programs significantly improved the process of writing teaching by decreasing the cognitive load related to the lower levels of language and thus enabling students to pay more attention to other elements of writing such as organization and analysis of the content. Among the greatest impacts that AI can have on education is its ability to facilitate the process approach to writing. The approach views writing as an ongoing endeavor characterized by steps like planning, drafting, revising, editing, and proofreading rather than one time only output (Hyland, 2019). AI technology fits perfectly well with this teaching strategy by offering instant formative feedback to students at all stages of writing. Rather than having to wait several days for a teacher's evaluation of their work, learners get instant feedback which allows them to discover any mistakes they might have

made in terms of grammar, vocabulary, and text organization. As Ellis et al. (2025) argue, university professors find AI feedback very helpful since it forces students to revise and reflect on their work several times resulting in better academic writing. Similarly, according to Tlili et al. (2025), constant AI feedback fosters metacognitive awareness by prompting students to assess their writing critically before submitting it.

Additionally, AI is instrumental in helping learners acquire academic language proficiency using proper vocabulary, writing styles, and academic language structures. EFL learners often fail to tell the difference between conversational English and academic language, which requires an entirely different writing style. Intelligent applications of generative AI offer models of academic language structures, transitions, citation language, and argumentation structures, and hence assist learners to understand academic language better (Kohnke et al., 2024). Moreover, writing assistants not only correct the mistakes made in writing but also explain why such corrections are needed, turning the process of error correction into a learning opportunity for the learner. As Holmes et al. (2019) argue, this kind of feedback facilitates language learning since the learners slowly learn grammar rules and vocabulary through interactions with intelligent systems. The other major benefit is the development of learner autonomy and confidence in writing skills. The use of AI technology allows students to get continuous personalized writing support regardless of class timing since they can practice writing autonomously without depending on teacher's feedback all the time. According to the results of Crompton et al. (2024), students who frequently applied the assistance of AI writing tools had higher levels of confidence in preparing and revising academic writings since immediate feedback minimized the level of uncertainty at this stage of writing process. Moreover, the use of AI writing environments stimulated learner motivation since students were able to assess their performance, identify their mistakes and see how they managed to improve their writing skills.

Nevertheless, there are many limitations associated with the inappropriate application of generative AI tools in writing and learning process. The main problem associated with the use of such technologies is the academic integrity issue since the students might be too much dependent on AI and fail to develop their critical thinking skills and writing techniques (Cotton et al., 2024). According to Kasneci et al. (2023), the technology in question is very efficient in providing the learners with the help in the brainstorming process, language revision and editing but it cannot substitute the initial ideas, analyses and the unique academic voice of the writer. Similarly, UNESCO (2023) suggested that educational institutions introduce the policy regarding the use of AI in writing and ensure the transparency and appropriate attribution in this regard. Modern research suggests using an approach to writing where AI is used to assist in performing lower-order writing processes and where the teachers should be focused on higher-order writing skills such as critical thinking, argumentation, creative thinking, knowledge, and rhetoric. According to Holmes et al., (2019), the highest educational impact is achieved when the AI-generated feedback helps enhance the professional competencies of the teachers. In a similar way, Ellis et al. (2025) stated that AI writing technologies work best in process-based pedagogical approaches involving revisions and collaboration under teacher guidance.

6.6 Increased Learner Motivation and Engagement

The key advantages of artificial intelligence in relation to the acquisition of second language learning include the possibility of motivating learners and engaging them in the process of learning that can be viewed as the two major factors in achieving success in learning second languages. The motivational factor influences the ability of the learners to get involved in the process of learning, deal with the obstacles in the learning process and become involved in the process of developing communicative competence (Dörnyei, 2005). The other factor is engagement, which includes behavioral, cognitive, affective and social involvement of the learners in the process of learning and that significantly influences the academic achievements of the learners (Fredricks et al., 2004).

The traditional English language classes are normally conducted using the learning approach that centers around teacher centrism, exercises from textbooks, and grammar lessons that may limit the learners' involvement and affect their communicative ability. However, introduction of AI into education involves the use of intelligent algorithms, multimedia, intelligent agents, simulations, and adaptive learning paths that convert the whole learning process into an interactive one (Luckin, 2018). Results of the systematic review conducted by Crompton et al. (2024) regarding AI use in the process of English language learning prove the efficiency of AI-assisted learning in raising the engagement of learners since the intelligent systems of AI always adjust learning activities according to the interests and level of learners. Personalization has been identified as one of the key methods used by artificial intelligence to engage learners. Intelligent learning systems use analysis of academic performance, learning practices, and preferences of learners in order to provide personalized educational materials to each learner individually (Zawacki-Richter et al., 2019). In addition to providing the same educational materials to everyone, the platforms make sure that the learners receive personalized vocabulary, reading, grammar practice, speaking, and writing activities, depending on their levels. According to Huang et al. (2024), adaptive personalization helps motivate the learners as the activities are never too difficult or impossible to be accomplished. It is particularly beneficial for English classes at universities due to the high variability of learners in regard to their language skills, education, and objectives. Gamification in AI-integrated learning systems contributes an extra layer to the motivation of the learners. Gamification refers to the integration of game-design mechanics like points, digital badges, levels of achievement, progress, rewards, and leader boards not in the context of games but in other scenarios to make the activities more exciting and persistent (Deterding et al., 2011). Integration of AI in gamification is possible by adjusting the level of difficulty of the game based on the performance of the learner and providing personalized rewards for engagement. Empirical studies have shown that gamification in AI-supported learning systems enhance the motivation and engagement of the learners significantly along with their enjoyment and time spent practicing English language skills (Chen & Zhang, 2024; Crompton et al., 2024).

Another major benefit offered by AI is that of creating interactive learning situations. Intelligent conversation agents, virtual tutors, and generative AI applications engage learners in undertaking language-related activities such as role plays, debates, interviews, simulation tasks, problem solving, and

other communicative activities through scenarios (Kohnke et al., 2024). The process enables the learners to apply their language skills instead of memorizing grammar rules and vocabulary. In their research on the attitudes of university instructors towards the use of AI, Ellis et al. (2025) said that they view AI-based interaction as an effective method of engaging students because there is no limit in terms of time, unlike in class lessons. AI technologies can facilitate increased engagement through multimedia-based learning environments. Language-learning software combines videos, podcasts, animations, virtual reality, visual storytelling, and multimedia in real life to deliver an engaging learning experience for different types of learners (Mayer, 2021). According to Huang et al. (2024), multimedia-based learning environment increases cognitive engagement as the result of a combination of audio, visual and linguistic cues while keeping the learners' attention in the process of educational interaction. Moreover, according to Holmes et al. (2019), multimedia-based learning increases the depth of understanding of language due to exposure of the language in the real-life communicative context and not through separate instructional tasks. The provision of immediate feedback is one more motivational aspect of AI technologies. Intelligent Tutoring Systems provide information on the learners' achievements in grammar, vocabulary, pronunciation, reading comprehension and writing skills (Kasneci et al., 2023). Immediate feedback allows the students to learn about their mistakes, make progress and remain confident in the process of learning. As Tlili et al. (2025) state, feedback from AI systems increases the self-efficacy of the learners due to continuous academic progress visible to them. The engagement in the language via AI technology does not limit itself to the classroom education, since it facilitates continuous language engagement outside the classroom learning process. It is possible because of the mobile apps, conversational AI, and adaptive learning platforms, which allow the learners to engage in English communication whenever it is convenient for them; therefore, increasing the amount and quality of the language exposure (Kukulska-Hulme, 2020). According to Crompton et al. (2024), leaving the borders of the classroom positively affects the engagement of the learners because of the active participation in the language development process, instead of passive reception of information from the teacher.

But, the authors highlighted that higher engagement cannot be based solely on the introduction of new technologies in the educational process. According to Holmes et al. (2019), for the sustained motivation of the learners, it is necessary to correctly implement the technology in pedagogy so that AI technologies will help achieve specific pedagogical goals, instead of being entertaining tools only. At the same time, according to UNESCO (2023), the engagement depends on the balanced usage of intelligent technology and collaboration, teacher's guidance, and human interaction.

6.7 Support for Autonomous Learning

The crucial role that Artificial Intelligence (AI) plays in higher education lies in its capacity to enhance learner autonomy that includes the process in which the learner manages his/her own planning, monitoring, evaluation and regulation of learning processes. Learner autonomy is one of the major outcomes of modern higher education since modern university learners have to acquire skills to be autonomous, reflective and involved in professional development throughout their lives (Holec, 1981;

Reinders & White, 2016). In case of English language learning, learner autonomy becomes even more significant since language learning presupposes regular practice outside classwork. Modern breakthroughs in the field of AI technology have made it possible to significantly improve the experience of self-directed learning due to various AI tools such as intelligent tutoring systems, adaptive learning systems, conversational agents and mobile applications for language learning (Holmes et al., 2019; Huang et al., 2024). Unlike traditional methods of educating whereby there is a concentration on the instructions from teachers, intelligent education involves creating an enabling environment that allows the learners to participate in the construction of their knowledge. The intelligent learning system is always in evaluation of the learners and provides personalized pathways that allow the learners to be educated on their own (Luckin, 2018). As observed by Tlili et al. (2025), the learners develop self-regulated learning through the use of artificial intelligence, whereby the learners are able to establish their own learning goals, evaluate their performances, identify weakness and improve on learning approaches through feedback. The implementation of AI enables students to practice all four language skills individually using intelligent educational technologies. Conversational AI technology helps with speaking practice individually; adaptive reading systems provide personalized reading practice; intelligent writing assistants assist with writing and editing; and AI listening systems recommend multimedia material according to students' competencies (Kohnke et al., 2024). Unlike traditional learning in the classroom where the amount of practice depends on the class schedule, intelligent technologies enable unlimited access to personal practice and, therefore, facilitate improving language skills through constant repetition. Crompton et al. (2024) note that constant practice with the use of intelligent technologies enhances language skills, confidence, language proficiency, and academic success of students due to individualized instruction provided by artificial intelligence.

Another advantage of autonomous learning with the use of AI technology is the access to personalized instructional materials. The intelligent tutoring system constantly evaluates students' competencies, weak areas, individual preferences, and previous performance and suggests exercises in vocabulary, grammar, pronunciation, writing, and communication (Zawacki-Richter et al., 2019). As Huang et al. (2024) explain, adaptive learning technology increases the effectiveness of the instruction process as it allows students to practice weak areas while consolidating previously learned information. One of the other important qualities of independent learning that can be achieved through AI technology is the constant self-monitoring. In current times, there are numerous dashboards that show the progress in learning, assessment scores, development of vocabulary, correct pronunciation, and the success in achieving learning objectives. These learning analytics enable students to evaluate their performance and manage their future learning activities (Siemens & Baker, 2012). As Holmes et al. (2019) note, self-monitoring is one of the key elements of self-regulated learning because it enables learners to make rational decisions regarding the choice of learning strategies and time management. Furthermore, AI facilitates flexibility and lifelong learning due to eliminating traditional barriers of time and place associated with classroom instruction. By means of mobile applications for learning, cloud-based educational platforms and conversational AI tools, learners may practice English at any convenient time, thereby constantly exposing themselves to the language during the day (Kukulska-Hulme, 2020). This

aspect becomes particularly helpful for university students who have to juggle studying with work, internships and family. As explained by Ellis et al. (2025), autonomous learning through the use of AI becomes simpler for learners to integrate English into their everyday lives, which not only improves language proficiency but fosters autonomous learning skills. In addition to language acquisition, autonomous learning facilitated by AI helps in developing such twenty-first century competencies as critical thinking, digital literacy, problem-solving skills, and skills for lifelong learning. UNESCO (2023) highlighted that the responsible use of AI involves a number of skills such as critical evaluation of AI information, understanding the limitations of algorithms, and using AI in an ethical manner.

Even, despite all the advantages mentioned above, it is necessary to note that learner autonomy should not be viewed as the lack of teacher assistance. On the contrary, autonomous learning becomes effective when there is a partnership, in which artificial intelligence will give personalized instructional assistance and teachers will provide learning strategies, foster critical thinking and develop students' higher-level cognitive skills (Reinders & White, 2016; Holmes et al., 2019). Moreover, Kasneci et al. (2023) claimed that AI technologies should boost learner autonomy without fostering dependency on automated programs and human interactions.

6.8 Increased Learner Motivation and Engagement

The issues of motivation and learner engagement have long been acknowledged as some of the most important factors behind effective acquisition of a second language, especially in EFL settings where exposure and practice are critical components. In terms of the theory, one possible way to understand motivation is from the standpoint of Self-Determination Theory (SDT), which views autonomy, competence, and relatedness as key psychological needs which underlie the process of continuous learning (Deci & Ryan, 2000). At the same time, learner engagement is viewed as a multi-dimensional concept which involves participation in learning in a behavioral, cognitive, emotional, and social sense (Fredricks et al., 2004). Modern research in computer-assisted language learning has shown that AI tools play an increasingly important role in promoting both of the concepts mentioned due to redefinition of learning environments as adaptive and interactive ones (Holmes et al., 2019; Huang et al., 2024). The conventional methods of language teaching in the English class at the tertiary level often employ the use of fixed materials, teacher explanations, and practice exercises that may be uninteresting and lead to learners' de-motivation. The conventional model of instruction does not take into account the individual differences in the language learning proficiency levels, learning styles, and linguistic preferences, thus, leading to de-motivation of the university students (Dörnyei & Ushioda, 2021). On the other hand, AI-based learning systems leverage adaptive algorithms, natural language processing, and multimodal interaction tools in order to make learning active.

One way through which AI increases motivation is through adaptive personalization in which intelligent systems constantly analyze learner performance and adapt the task difficulty, task sequence, and instructions accordingly. Continuous adaptation is essential in order to keep the learner in the zone of proximal development and avoid the cases of boredom or cognitive overload that decrease the level of intrinsic motivation (Huang et al., 2024). There is some evidence that the use of AI-based adaptive

learning systems enhances learners' engagement and persistence in language learning tasks. Furthermore, AI systems apply gamification principles such as reward systems like points, badges, progress tracking dashboard, and levels of achievement that have been proven to contribute to increased motivational intensity and learning perseverance. From a psychological point of view, gamified system stimulates dopamine-reward cycle and thus promotes repetition and engagement with learning tasks (Deterding et al., 2011; Zawacki-Richter et al., 2019). Studies carried out using AI systems for English language learning prove that gamified environments promote motivation and time-on-task because of making learning process goal-oriented and interactive (Crompton et al., 2024).

Another important dimension of enhanced engagement in the era of AI technologies is multimodal interactive learning environments. AI systems combine videos, podcasts, simulations, virtual reality scenarios, and conversational agents to create an interactive learning environment close to the real world of communication (Mayer, 2021). Multimodal environments promote cognitive engagement and thus improve comprehension and retention of language input through activation of auditory, visual, and linguistic channels (Huang et al., 2024). Also, generative AI such as ChatGPT and other conversational agents promote dialogue, debate, and role-play exercises that are crucial for communicative engagement and language use (Kohnke et al., 2024). Another aspect addressed by recent research is the significance of instant feedback cycles provided by AI systems for sustaining motivation and engagement of the learners. Feedback on grammar, vocabulary, pronunciation, and writing performance provides learners with instant feedback which increases their motivation and self-efficacy (Kasneci et al., 2023; Tlili et al., 2025). According to self-determination theory, such kind of feedback contributes to the development of learners' perception of competence which is crucial for sustainable engagement in learning activities. It should be noted that AI allows going beyond the borders of the classroom by means of ubiquitous learning, especially via MALL platforms. Such platforms give learners an opportunity to work with the English language-related materials at any time and place they choose, thus increasing exposure time and providing learners with continuous practice (Kukulska-Hulme, 2020). The empirical studies show that those learners who work with MALL platforms equipped with AI tools have higher levels of motivation, language retention, and willingness to communicate in English. However, regardless of all these advantages, modern literature stresses that engagement cannot be considered an exclusively technological phenomenon. Excessive usage of gamification or automation might cause superficial engagement if there is no sound pedagogical background and clear learning goals (Holmes et al., 2019). Consequently, to implement AI efficiently, it is necessary to have a balanced pedagogical approach where teachers can control learning processes, create meaningful tasks, and supervise AI-based learning routes (UNESCO, 2023).

Thus, based on the above discussion of literature, it becomes evident that AI increases learner motivation and engagement through the creation of conditions for autonomy, personalization, interaction, and constant feedback. All of these aspects of using AI in teaching and learning correspond to modern motivational theories, while also changing the very process of learning English into a flexible and adaptive one (Holmes et al., 2019; Crompton et al., 2024; Huang et al., 2024; Tlili et al., 2025).

6.9 Support for Autonomous Learning

Autonomy is a crucial construct in SLA theories and higher education pedagogy in the current era. The concept of autonomy was first introduced by Holec (1981) to mean the capacity of the learner to regulate his or her learning process through setting goals, monitoring, evaluation, and regulation of learning behaviors. In recent times, autonomy has been connected closely with self-regulated learning (SRL), which means controlling learning processes through metacognitive, motivational, and behavioral aspects of learning (Zimmerman, 2002). Learner autonomy is especially relevant in ELT since language learning needs regular practice outside the classroom. Recent developments in Artificial Intelligence (AI) technologies have made significant contributions towards making autonomous learning possible through advanced and adaptive learning systems (Holmes et al., 2019; Huang et al., 2024). AI-assisted learning environments completely transform the learner's position from mere consumers of knowledge to proactive participants in their learning process. Learners' performance is constantly monitored through AI learning analytics algorithms, which generate personalized feedback to facilitate a self-directed learning trajectory (Zawacki-Richter et al., 2019). It allows learners to assess their learning gaps, choose suitable learning materials, and control their learning process independently (Siemens & Baker, 2012). Current research proves that the use of AI learning environments fosters self-regulated learning skills by promoting the ability of learners to monitor, evaluate, and modify their learning process (Tlili et al., 2025).

One way that AI can help enhance learner autonomy is through offering endless opportunities for learners to practice independently in all aspects of language learning. Conventional conversational AI allows learners to practice speaking skills without the presence of teachers, while adaptive reading AI suggests appropriate books for learners. Intelligent assistants can be used to develop writing skills, and listening platforms can be used to improve comprehension skills (Kohnke et al., 2024). Contrary to conventional learning where repetition may depend on class hours, AI systems allow learners to engage in as many repetitions as they can, which is necessary in language acquisition. According to Crompton et al. (2024), repetition using AI promotes learner autonomy and confidence and enhances language proficiency levels. One more important feature of AI-assisted autonomy is learning analytics dashboards used for monitoring the learner's progress through data visualization of the vocabulary knowledge, grammar skills, pronunciation development, and performance in tasks. Data visualization is crucial for developing metacognition because it allows the learners to analyze their achievements and take conscious decisions regarding future learning activity (Siemens & Baker, 2012). According to Holmes et al. (2019), such practice is vital for developing autonomous learners who are capable of self-improvement. In addition, AI helps develop lifelong learning skills due to the flexibility of learning. In the era of globalization and digitalization, mobile-based AI applications provide the learners with an opportunity to include English language learning in their daily routine, thus moving it outside the walls of academia (Kukulska-Hulme, 2020). It is especially useful for university students who have to combine academic, professional, and private life. According to recent empirical studies, learners working with mobile AI applications show better continuity and better retention of linguistic knowledge.

In terms of theory, AI-driven autonomy is very much in line with SRL theory and the ideas behind constructivism because learners construct their knowledge by interacting with intelligent systems and do not just receive instructions. Yet, as pointed out by researchers, autonomy does not mean isolation. For autonomous learning to be successful, scaffolding, ethical considerations, and mediation by teachers should be employed (Reinders & White, 2016). As noted by UNESCO (2023), there should be efforts made to teach learners to critically analyze information provided by intelligent systems. Finally, researchers warn about the dangers of an over-reliance on artificial intelligence as it might harm learners' critical thinking and decrease their independence when performing certain tasks if proper guidance is not applied (Kasneci et al., 2023). Consequently, a compromise approach called the "human-in-the-loop" is advised, where AI aids personalized learning and teachers strategically guide it.

9. The Evolving Role of Teachers in AI-Supported English Language Teaching

The fast incorporation of Artificial Intelligence (AI) technology into the higher education sphere has brought about changes in the professional competencies of English language teachers. Instead of displacing teachers, the role of teachers has changed in that, instead of being the key provider of knowledge, their role has become that of facilitator, designer, coach, mentor, and ethical decision maker (Holmes et al., 2019; UNESCO, 2023). These changes in the educational process result from learner-centered educational models where knowledge construction is achieved through interactive processes involving learners, teachers, and intelligent machines, as opposed to the transfer of knowledge (Luckin, 2018). Therefore, the success of AI integration depends on both advances in technology and the teachers' ability to orchestrate such interactive processes.

In traditional English language classrooms, instructors usually take up the tasks of introducing educational content, explaining grammatical structures, evaluating learners' performance, and giving feedback. While this approach is common in the field of language education, it does not leave much room for personalized learning and poses a heavy burden on the teachers, especially those working at universities (Richards & Rodgers, 2014). Modern technologies enable automation of many regular teaching tasks including creation of lesson plans, development of teaching materials, giving instant feedback, evaluation of grammar and vocabulary, and formative assessment (Kasneci et al., 2023; Ellis et al., 2025), which makes it possible for teachers to concentrate on more complex teaching-related tasks. According to recent findings, university instructors tend to view AI as a professional colleague that helps improve their efficiency rather than a replacement for humans (Kohnke et al., 2024).

9.1 Teacher as Facilitator of Learning

One of the most important pedagogical shifts implemented due to the development of AI is the transformation of teachers into facilitators of learning. Instead of being mere lecturers, instructors become facilitators helping learners choose proper AI programs, create effective learning strategies, understand the feedback provided by the technology, and use language knowledge in real

communicative situations (Holmes et al., 2019). The process is related to the implementation of constructivist learning theory, according to which learners build up their knowledge through communication, reflection, and collaboration (Vygotsky, 1978). With the help of AI-based platforms, learners receive instant explanations, examples, and language practice. Therefore, teachers start paying more attention to planning communication, facilitating collaborative learning and problem solving, and fostering higher-level cognitive skills instead of mere fact dissemination (Luckin, 2018). According to the findings of Huang et al. (2024), teachers using AI technologies in language teaching are more flexible in their approach since intelligent systems deal with repetitive learning tasks while teachers pay special attention to critical thinking, creativity, and communicative skills of learners. It is important that educators assist learners in navigating the growing number of educational apps powered by AI. With the variety of technologies, including conversational AI, intelligent tutoring systems, adaptive learning systems, automated writing assistants, and generative AI tools, it becomes necessary to have pedagogical assistance to choose relevant tools that will be helpful for achieving the set educational goals (Kohnke et al., 2024). In other words, educators act as technology mentors who help learners use AI-based educational technologies effectively.

9.2 Providing Emotional and Motivational Support

Even though artificial intelligence has made great progress, emotional intelligence still remains the essential trait of effective human teaching. Learning languages is inherently a social and emotional process that involves anxiety, self-confidence, motivation, identity development, and communication (Dörnyei & Ushioda, 2021). Undergraduate EFL learners often feel anxious, insecure, afraid of making mistakes and lack confidence during participation in English-language activities (Krashen, 1985). Even though the AI programs can give instant feedback and tailor instructions to individual students, it is still impossible for them to be empathic, encouraging, trustworthy or create positive interpersonal relations. Therefore, teachers are indispensable in creating positive classroom atmosphere that promotes risk-taking, resilience and engagement in language learning. According to Ellis et al. (2025), university-level instructors identified emotional support as one of the few pedagogical functions that AI could not fulfill. Moreover, Holmes et al. (2019) noted that meaningful learning requires supportive human relationships which help in building learners' confidence and intrinsic motivation. Being aware of learners' emotions, appreciating their successes and motivating them to persevere in difficult tasks, teachers will remain invaluable part of AI-assisted education.

9.3 Developing Critical Thinking and Reflective Learning

The wide availability of generative AI has led to worries about the overreliance of learners on automatically created information. While AI tools can quickly generate explanations, essays, lesson summaries, and linguistic examples, such information is not always correct, unbiased, or pedagogically appropriate (Kasneci et al., 2023). Thus, teachers are expected to teach learners critical thinking skills, information literacy, and reflective judgment. Not simply accepting AI-generated answers as the truth, learners need to analyze the credibility of information provided by AI tools, compare it with other sources of information, spot errors, uncover algorithmic bias, and develop their own academic judgment.

According to UNESCO (2023), higher education needs to raise responsible AI users who would critically analyze AI-generated information and not accept automatic responses. Similarly, Tlili et al. (2025) claimed that AI use should enhance higher order thinking through analysis and evaluation of information. This makes the teachers facilitators of inquiry, designing activities where students analyze the texts produced by AI, contrast different views, validate evidence, and back up their conclusions from trustworthy academic sources. These teaching strategies guarantee that AI is used to foster cognitive growth rather than superficial learning.

9.4 Promoting Cultural and Contextual Understanding

Language acquisition involves not only grammatical and lexical aspects but also culture, pragmatics, discourse rules, and intercultural communication. Thus, English language instruction implies providing learners with the ability not only to comprehend meaning but also to apply different forms of language in appropriate contexts based on their culture (Byram, 1997). While generative AI tools are able to explain the forms and provide contextually correct examples, they may lack the necessary subtlety and knowledge that human instructors have. Instructors must analyze cultural meaning, discuss pragmatic rules, and take into account sociolinguistic variation when teaching students to communicate effectively. In recent years, it was shown that human instructors were substantially better at developing intercultural competence in students due to their experience and ability to design meaningful communicative exercises (Huang et al., 2024). Therefore, AI should be used to enhance teachers' expertise.

9.5 Providing Ethical Leadership

One of the most crucial new responsibilities arising from the use of AI relates to ethics of leadership. The increased accessibility of generative AI means that university students face various ethical questions related to plagiarism, copyright infringement, misinformation, algorithmic bias, privacy, data security, transparency, and academic integrity (UNESCO, 2023). For this reason, teachers need to provide students with education regarding the proper use of AI along with teaching them about academic integrity and digital citizenship. It has been suggested in recent literature that AI literacy involves not only mastering certain skills but also making moral decisions (Long & Magerko, 2020). Therefore, teachers teach students how to draw a line between proper AI-assisted learning and unethical use of automatically generated materials. Cotton et al. (2024) suggested that universities needed to create clear pedagogical policies that would determine the ways to use AI properly for learning purposes. In other words, the work of English language teachers has been considerably more complex due to AI-based technology in the classroom. Besides helping students learn the language, teachers are expected to develop learning experiences using artificial intelligence, teach critical thinking, offer psychological assistance, nurture intercultural competence and ensure responsible use of artificial intelligence. Instead of making the teachers' jobs less significant from the professional point of view, artificial intelligence has broadened teachers' pedagogical tasks, turning them into learning designers (Holmes et al., 2019; Huang et al., 2024; Tlili et al., 2025).

9.6 Importance of AI Literacy in Higher Education

With the growing importance of Artificial Intelligence (AI) in higher education, workplaces, and social environments, AI literacy has become an essential competency for graduates, involving not only understanding the nature of AI systems but also engaging with them responsibly and ethically. AI literacy is understood as people's competence in recognizing AI capabilities and limitations, evaluating AI data critically, making well-informed decisions about using AI technology, and employing AI systems responsibly in different contexts (Long & Magerko, 2020). In higher education, AI literacy has become an important notion since there has been a proliferation of generative AI applications like ChatGPT, Microsoft Copilot, Google Gemini, and many other intelligent educational systems (UNESCO, 2023). Hence, universities have become more responsible for not only teaching students how to use AI effectively but also for understanding its implications socially, ethically, and educationally (Holmes et al., 2019; Huang et al., 2024). For the education of the English language, however, AI literacy goes beyond just gaining technological literacy into digital citizenship and informed academic practices. The use of AI-based tools by the students is common in order to create texts, polish grammar, translate content, provide summaries, and gain explanations of the linguistic phenomena. While such uses of AI have the potential of improving language learning, uncritical use of them can result in misinforming the students, plagiarism, dependency on AI-generated content, and lack of critical thinking skills (Kasneci et al., 2023). In other words, AI literacy allows for differentiation between the application of AI as an educational aid and the use of it as a replacement for the learner's independence. UNESCO (2023) made it clear that AI literacy needs to be an essential part of the curricula in higher education because the learners need to know how the AI works, its limitations, and reliability of its output.

According to the most recent findings, AI literacy is a critical factor in the formation of self-directed learning which is among the primary goals of modern higher education. Individuals with high AI literacy are better at choosing relevant AI instruments for particular learning tasks, developing useful prompts, evaluating AI responses, and incorporating intelligent systems in their learning methods without compromising academic integrity (Tlili et al., 2025). Instead of taking AI responses for granted, such learners critically analyze them, check the credibility of these responses with the help of several scholarly sources, and independently think about the results obtained from AI. Ellis et al. (2025) found that the students enrolled in universities who have high AI literacy showed better self-regulated learning due to the ability to control the learning process and analyze AI-assisted learning activities. AI literacy is also essential for fostering critical thinking, an attribute highly valued by graduates in the twenty-first century. Despite the ability of the generative AI system to provide coherent responses quickly, studies have revealed that the output generated by the systems could be riddled with errors of facts, fabrications, algorithmic biases, or culturally inappropriate information (Kasneci et al., 2023). In such situations, students need critical thinking skills to analyze the information provided by the technology, cross-reference different sources, detect any inconsistencies, and form an independent conclusion based on verifiable evidence. According to Long and Magerko (2020), AI literacy should not only enhance the students' abilities to operate intelligent technologies but also increase their critical understanding of the processes behind the system and its decision-making capabilities and potential impacts on human

thinking. Similarly, Huang et al. (2024) stressed that AI literacy helped students develop into reflective users of intelligent technologies who interrogated the AI-generated knowledge.

A further crucial aspect of AI literacy is the understanding of ethics. As AI becomes a common practice for academic testing and research, students need to develop an understanding of the various ethical dilemmas associated with plagiarism, copyright, intellectual property rights, data protection, algorithmic biases, transparency, and the appropriate use of AI (UNESCO, 2023). According to Cotton et al. (2024), because of the prevalence of generative AI, universities have to rethink their definition of academic integrity in order to teach students about how they can use AI to augment learning processes without compromising on the integrity of such learning process. Moreover, proficiency in AI literacy helps develop communication, collaboration, and employability skills that are gaining importance in digitally transformed workplaces. The modern business organizations need graduates to be able to work together with AI technologies, analyze AI-driven data critically, and make appropriate decisions based on intelligent technologies. According to the Organization for Economic Co-operation and Development (OECD, 2024), AI literacy has become an important skill of employability due to the growing necessity to use AI in problem-solving, communication, and decision-making processes for professionals in various fields. In terms of ELT, these competences include evaluation of AI-driven writing, effective communication via AI-driven systems, and responsible collaboration in digital environments (Kohnke et al., 2024). The development of AI literacy will require systematic integration into pedagogy instead of technology training alone. The teachers play a crucial role in creating learning experiences that facilitate critical analysis of AI-generated responses, comparing AI results with existing literature, analyzing ethical dilemmas, and teaching responsible prompt engineering skills (Holmes et al., 2019). Among the learning methods used to increase the AI literacy of university students are project-based learning, reflective writing, AI-assisted peer reviews, and discussions about AI ethics in class (Tlili et al., 2025). Although the implementation of AI technologies is associated with numerous advantages in education, scholars warn that AI literacy will need to stay an evolving skill due to the rapid development of these technologies. For this reason, continuous curriculum revision, faculty development, and the policies of the institutions will be necessary to make sure that AI literacy will remain relevant and dynamic (UNESCO, 2023; Huang et al., 2024). Institutions will also have to ensure equal access to AI technologies, as well as address issues of digital inequality and algorithmic transparency.

9.7 Curriculum Development for AI-Enhanced English Language Education

The rapid developments in Artificial Intelligence (AI) have resulted in universities around the world having to reconsider their approach to the creation of English language curriculums. English language curriculums traditionally have been characterized by text book learning, teacher-centered methods and standardized assessment that rarely allow learners to receive personalized experience, engage in authentic communication and develop digital competencies (Richards & Rodgers, 2014). But the advent of intelligent educational technologies has dramatically changed the way we perceive the process of language instruction by introducing the possibilities of adaptive learning, feedback, assessment and

pedagogies that put emphasis on the learner (Holmes et al., 2019; Huang et al., 2024). Therefore, the development of the curriculums for ELT should not be about integrating new technologies into traditional curriculums, but about creating new learning experiences. However, recent literature suggests that AI should be seen not as one more technology to add to the current curricula but as the tool to transform the whole curriculum comprehensively (UNESCO, 2023; OECD, 2024). Curricula supported by AI should combine language acquisition with such skills as digital literacy, AI literacy, critical thinking, ethics, collaboration, and lifelong learning skills that are necessary for modern education and workplace (Long & Magerko, 2020; Tlili et al., 2025). To achieve this kind of transformation, curriculum developers should make sure that AI-supported learning activities are aligned with specific learning outcomes without losing focus on communicative language teaching, intercultural competence, and learner autonomy (Richards, 2022). The second important point is that the process of AI implementation in curricula should be pedagogically driven rather than technologically driven. Technological tools are meant to facilitate the achievement of educational goals, not define them. As stated by Holmes et al. (2019), any curriculum innovation should start with educational goals and learner needs, not with the selection of technologies. In line with this view, Kasneci et al. (2023) argue that AI should support meaningful pedagogy without replacing human interaction and reflection. Curriculum designs that can react quickly to changes in AI technology have been identified as necessary in recent research (Ellis et al., 2025). As a result of the continued evolution of AI, curriculums should be developed in such a way that there is a provision for constant revision to enable universities to keep up with technological change. Curriculum development in AI should, therefore, be seen as a dynamic process (Huang et al., 2024).

9.8 Integration of AI into Oral Communication Courses

Oral speaking continues to be the most difficult part of learning the English language for undergraduates. Speaking skills become especially problematic for EFL students since real-life speaking opportunities may be absent in such settings. Artificial intelligence-driven conversation tools offer a range of new options for improving oral communication because they offer a speaking environment that allows practice without being concerned about judgment (Kohnke et al., 2024). Contemporary academic programs can employ AI conversational tools, intelligent dialog systems, voice recognition systems, and virtual speaking assistants in oral communication courses. This way, students will be able to engage in role-playing, interviews, debates, simulations, presentations, and free conversation while getting instant feedback about their pronunciation, fluency, stress, grammar usage, and lexical choices (Kasneci et al., 2023). In contrast to traditional classroom education, AI systems offer endless opportunities for speaking practice. But, current research stresses the need for such speaking exercises to be supplementary, not a substitute, for real human communication. The teacher continues to play the role of designer of communication exercises, mediator of peer interaction, assessor of pragmatic performance, and instructor of intercultural communication skills that AI cannot replace (Holmes et al., 2019; Huang et al., 2024).

9.9 Integration into Academic Writing Instruction

The inclusion of AI into academia is most significant in the field of academic writing since AI generators help with brainstorming, drafting, revising, editing, paraphrasing, and enhancing language proficiency (Cotton et al., 2024). In such a case, universities' writing curriculum should focus on educating students on the responsible use of AI throughout the writing process, not on prohibiting its implementation. Recently, AI writing tools including Grammarly, QuillBot, ChatGPT, and Microsoft Copilot have been proven to enhance the grammar of writing, vocabulary range, cohesion, and organization of written texts as well as promote process-oriented approach to teaching writing (Kohnke et al., 2024). Writing curriculum should foster not only evaluation of final products but also comparative analysis between students' writing and AI-generated suggestions, justification of changes made, reflection on AI-generated comments, and students' academic independence (Kasneci et al., 2023). Finally, AI integration into writing courses should promote ethical use of the tool, namely, educate students on proper citations and disclosure of assistance from AI (UNESCO, 2023).

9.10 Integration into Reading and Vocabulary Development

AI technologies have greatly increased the possibilities of offering an adaptive reading program, which offers personalized reading materials based on learners' skill levels, interests, vocabulary size, and reading performance (Huang et al., 2024). Intelligent recommendation systems dynamically change the level of difficulty of reading tasks while explaining vocabulary, providing comprehension, translation, and contextual language practice. The process of vocabulary acquisition is also enhanced with the use of AI-based spaced repetition systems, intelligent flashcards, semantic mapping, and adaptive lexicon training for optimal vocabulary learning (Nation, 2022). The results of recent research show that AI-based vocabulary programs are highly effective because intelligent systems keep identifying words to be repeated without extra repetitions (Crompton et al., 2024). Curricula should incorporate activities related to both reading and vocabulary development with the use of AI tools while promoting critical evaluation of reading materials and comparison of different sources of information with the help of acquired vocabulary.

9.11 Integration into Listening Instruction

Listening comprehension is yet another field in which the integration of AI greatly facilitates language learning by means of personalized media sources, automated transcription, automatic captioning, pronunciation analysis, and listening assessment. Listening platforms powered by AI technology create personalized podcasts, conversations, news broadcasts, speeches, interviews, and other simulations according to learners' language levels. Also, speech recognition technologies enable learners to evaluate their speech production against an authentic model and detect their pronunciation problems. Thus, curriculum developers need to incorporate AI-based listening exercises that progress from simple to complex linguistically and expose students to various accents of English.

9.12 Integration into Assessment and Evaluation

The process of assessment has undergone major change thanks to the learning of analytics and intelligent assessments powered by AI technology. In addition to this, learning analytics allows teachers

to track students' progress over time, pinpoint learning issues, implement personalized interventions, and assess instruction (Siemens & Baker, 2012). However, it is constantly stressed by experts that any high-stakes assessment still needs to contain a large element of human decision making because AI-based assessment is vulnerable to bias, contextual ignorance, and insufficient assessment of critical and creative skills (UNESCO, 2023). Thus, the modern curriculum should be based on the balanced assessment system that incorporates both AI-powered formative assessment and teacher-led summative assessment(Xia et al., 2024).

9.13 Integration of AI Literacy and Digital Competencies

The most important innovation in curriculum design, in this case, may be the inclusion of literacy in artificial intelligence in English language education. Graduates need not only the ability to use language but also responsible use of AI, digital communication, prompt engineering, AI output evaluation, ethics, and algorithmic literacy (Long & Magerko, 2020).

Thus, curriculum design must involve learning outcomes about:

- Responsible use of AI in academic writing;
- Evaluation of information produced by AI;
- Misinformation and algorithmic bias detection;
- Prompt engineering for language learning;
- Digital citizenship and academic integrity;
- Copyright, privacy, and intellectual property;
- Responsible cooperation with intelligent systems.

Recently published reports of UNESCO (2023) and OECD (2024) advise including AI literacy throughout the curriculum instead of studying it as a technology due to increasing needs for such competences in any field of study(Xia et al., 2024).

9.14 Project-Based and Collaborative Learning

Project-based learning is a suitable educational approach that can help incorporate artificial intelligence in the teaching of the English language because of its focus on authentic communication, cooperation, and problem solving (Thomas, 2000). The use of AI in education promotes cooperative projects including academic research, digital storytelling, multimedia presentation, intercultural communication, and writing. Instead of developing the finished product, AI becomes a cooperative partner to the learner as it helps develop ideas, organize information, assess evidence, and enhance communication skills. Then teachers assist students in the critical assessment of AI generated material and its originality (Holmes et al., 2019).

9.15 Principles for Effective AI Curriculum Development

Several guidelines for curriculum design with the help of AI are stated in the latest research (Holmes et al., 2019; UNESCO, 2023; Huang et al., 2024):

- • AI must assist rather than dictate educational aims.
- • Human communication must play an essential role in language learning.
- • Activities of learning must foster creative collaboration and critical thinking.
- • Both AI literacy and digital citizenship must be included in all classes.
- • Evaluation should involve AI-assisted analytics as well as expert judgement of teachers.
- • Ethical guidelines including transparency, fairness, privacy, and academic honesty must be followed in AI usage.
- • Curriculum designs should be flexible and updated constantly due to advances in technology.
- • Professional training must be provided to facilitate the curriculum changes.

10. Discussion

From the above discussion, one can see that AI has been a major transformative element in ELT at the higher education level. Through the integration of different types of technologies, including intelligent tutoring systems, conversation bots, speech recognition apps, writing assistants, and adaptive learning platforms, English language education has gone away from the traditional teacher-centered approach to the learner-centered and personalized learning environment (Holmes et al., 2019; Zawacki-Richter et al., 2019; Kasneci et al., 2023; Huang et al., 2024). All these have been in line with the recent educational theories such as CALL, SLA, and SRL, which emphasize the importance of learner engagement in the learning process (Chapelle, 2001; Zimmerman, 2002; Beatty, 2013). One of the main conclusions drawn from this review is that AI greatly contributes to personalized learning, which can be considered one of the most important pedagogical benefits of intelligent educational technology. Contrary to traditional classroom teaching, when the same learning material is often used for all students irrespective of their level of competence or individual preferences, adaptive systems assess learners' skills and provide them with learning material according to their performance (Luckin, 2018; Huang et al., 2024). Adaptive systems offer students individualized grammar exercises, vocabulary practices, pronunciation training, and reading material, which enables differentiated instruction for learners of various linguistic backgrounds. Personalized instruction encourages the development of learner autonomy and self-regulated learning since students are encouraged to take an active role in their learning process (Zimmerman, 2002; Tlili et al., 2025). Personalized instruction has also been linked to increased motivation and better academic outcomes since it allows students to get help tailored to their individual needs (UNESCO, 2023).

This review also indicates that AI has a positive effect on the development of four basic language skills of English – listening, speaking, reading, and writing. Speech systems and speech recognition help students practice their skills of speaking English in authentic settings and get immediate feedback about their pronunciation, fluency, and lexicon (Kohnke et al., 2024). This ability is especially useful for

undergraduate students who tend to feel anxious about communicating in English (Krashen, 1985). Due to repeated exercises in such supportive digital environments, AI allows reducing language anxiety and increasing motivation to communicate (Ellis et al., 2025). In a similar fashion, AI-enabled writing software such as Grammarly, QuillBot, and Generative AI like ChatGPT has immensely aided academic writing education through helping learners learn grammar, improve vocabulary, structure sentences, cohesiveness, and revise (Cotton et al., 2024; Kohnke et al., 2024). Apart from the mere correction of language mistakes, these software programs have helped the process-oriented writing education process through encouraging iterative drafting and revision. If used in a proper manner, AI writing tools can help students become independent learners while enabling teachers to concentrate on advanced writing aspects such as reasoning and analysis (Kasneci et al., 2023).

Another key finding deals with the impact of AI on autonomous learning. Using AI-based educational systems, learners can benefit from self-paced learning opportunities, gain access to learning materials outside classroom hours, track their progress, and get personalized feedback anytime (Holmes et al., 2019). The benefits mentioned above coincide perfectly with the concept of self-regulated learning that highlights the capability of learners to organize and control their learning process (Zimmerman, 2002). Therefore, AI not only expands the scope of language learning activities beyond classroom setting but also promotes lifelong learning by means of using intelligent tutoring systems, mobile applications, and adaptive online environments (Reinders & White, 2016). However, apart from the significant educational advantages of implementing AI in universities, the literature review provides several barriers that should be taken into account. Ethical considerations continue to be among the most common problems related to AI in the context of higher education. The increasing availability of generative AI has brought about discussions concerning such issues as plagiarism, academic integrity, copyright, transparency, data privacy, algorithmic bias, and misinformation (UNESCO, 2023; Kasneci et al., 2023). Lacking sufficient AI literacy skills, students can easily rely on machine-generated content which will leave no room for critical thinking, creativity, and genuine communication skills. Therefore, universities have to create appropriate institution policies related to responsible AI use and include AI literacy and digital ethics in the curriculums for English language classes (Long & Magerko, 2020; Cotton et al., 2024). Technological inequality remains another obstacle to successful AI implementation. While most universities have well-developed digital systems, universities from developing countries often face difficulties related to lack of internet connection, insufficient technology and unequal access to AI-supported educational software (UNESCO, 2023; OECD, 2024). These technological disparities might lead to educational inequality if AI implementation goes without investing in technology infrastructure.

Another common theme is the changing role of teachers in AI-assisted learning contexts. Research results have always indicated that AI should be considered an assistant teacher, not a substitute for the actual educators (Holmes et al., 2019). Though intelligent systems can perform routine activities typical of teaching (e.g., grammar checking, assessment, planning lessons, and providing individual feedback), they are incapable of offering emotional support, intercultural knowledge, ethical judgments, pedagogical decisions, and human interaction offered by skilled teachers (Ellis et al., 2025). Teachers continue to play a pivotal part in AI-assisted education through facilitating learning, critically evaluating

the data generated by AI, using technology ethically, and organizing communicative learning. The paper also underscores the importance of teacher professional development and curriculum transformation. Proper implementation of AI in classrooms requires teachers to be technologically competent, pedagogically ready and confident using AI technology in language instruction (Kohnke et al., 2024). In turn, curriculum developers need to reconsider and transform curricula of English language programs to integrate AI literacy, digital citizenship, critical thinking skills, collaboration and ethics alongside language competencies (UNESCO, 2023; Tlili et al., 2025). Instead of integrating AI as a purely technological dimension, universities are encouraged to embrace comprehensive curriculum models which will prepare students for environments shaped by intelligent technologies. The findings present that AI has great potential to improve English language education provided its proper implementation in classrooms based on pedagogically valid, ethically sound and learner-centered strategies. It is crucial to strike the right balance between innovative technological applications, good instructional practices, human interaction and professional development to make AI work as a catalyst of educational innovations without ignoring humanistic qualities which are essential to language teaching.

11. Conclusion

Artificial Intelligence has become one of the key technological developments that have had a substantial impact on the English language education in higher education. The analysis shows that the technologies based on artificial intelligence are effective in terms of supporting personalized learning, adaptive instruction, immediate formative feedback, learner autonomy, communicative competence, development of academic writing skills and language testing and assessment. Thanks to conversational AI, intelligent tutoring systems, speech-recognition technologies, adaptive learning technologies, and other applications of generative AI, learners get individualized learning experience which leads to improved language skills, increased motivation and autonomy (Holmes et al., 2019; Kasneci et al., 2023; Huang et al., 2024). At the same time, the study findings prove that the use of AI does not only make the educational process more efficient but also changes the roles played by the participants of the process, including students, teachers and educational institutions. On the one hand, students can become autonomous learners who can interact with intelligent technologies critically, while, on the other hand, teachers should be prepared to perform new functions, such as being facilitators, mentors, instructional designers, and ethical leaders (UNESCO, 2023; Tlili et al., 2025). Yet, AI should not be seen as a replacement of human teachers. Though AI-powered tools efficiently facilitate repetitive instruction processes and individualize the learning experience, they are incapable of replacing such human skills as empathy, cultural sensitivity, ethics, critical thinking, and relations (Holmes et al., 2019; Ellis et al., 2025). Thus, sustainable incorporation of AI in language teaching requires preserving an appropriate balance in the relationship between technology and humans. Moreover, there is a number of issues discussed within the literature review that should be further considered, among them such problems as academic honesty, algorithm bias, privacy concerns, disparity of access to technologies, institutional preparedness, and teacher preparedness (Kasneci et al., 2023; UNESCO, 2023; OECD, 2024). Solving them involves

development of appropriate institution policies, ethical frameworks, teacher training, and equal access to AI technologies.

The focus of future studies needs to be shifted from the description of AI integration in education to analysis of the long-term effect of AI on learners' language proficiency, autonomy, critical thinking, teachers' identities, curriculum innovations, and assessment practices via longitudinal, experimental, and cross-cultural studies. Moreover, emerging technologies such as multimodal generative AI, VR/AR environments, emotionally intelligent tutors, and AI-based learning analytics need to be studied in relation to their potential pedagogical benefits in English language education. Thus, AI is not only a technological breakthrough but a transformative force in English language teaching that can help educators create more individualized, diverse, engaging, and effective learning experiences if guided by appropriate educational values and practices, governance, curricular design, and professional development. The future of English language education is associated with collaboration between humans and intelligent technologies, combining the efficiency of the latter with the empathy, creativity, and critical thinking unique to people. This approach will help higher education institutions prepare well-rounded graduates who are not only linguistically competent and digitally literate but ethically responsible as well.

Declarations

Ethics approval

Not applicable. This article is a review study and does not involve human participants, human data, animal subjects, or primary data collection. Therefore, ethics approval was not required.

Funding

Declaration

The author received **no financial** support for the research, authorship, and/or publication of this article.

Author Contribution

Azza, wrote the main manuscript text . And other authors reviewed and edited the manuscript.

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