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THE ROLE OF ARTIFICIAL INTELLIGENCE IN ENHANCING LANGUAGE TEACHING AND LEARNING

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ABSTRACT. The rapid advancement of Artificial Intelligence (AI) has introduced significant transformations in modern education, particularly in language teaching and learning. AI-powered technologies have created new opportunities for improving instructional effectiveness, personalizing educational experiences, and supporting the development of learners' communicative competencies. This study investigates the role of artificial intelligence in enhancing language teaching and learning, focusing on its contribution to listening, speaking, reading, and writing skills. The research employs a qualitative analytical approach based on the examination of contemporary academic literature, theoretical perspectives, and recent empirical studies concerning AI integration in language education. The findings indicate that AI-supported applications can facilitate personalized learning, provide immediate feedback, improve pronunciation, support vocabulary acquisition, and encourage learner autonomy.

Furthermore, intelligent tutoring systems and generative AI applications can assist teachers in designing instructional materials, developing assessment activities, and implementing differentiated teaching strategies. Nevertheless, the integration of AI also presents challenges related to information accuracy, academic integrity, digital inequality, data privacy, and excessive technological dependence. The study concludes that artificial intelligence should be integrated into language education as a complementary pedagogical instrument rather than a replacement for human teachers. Effective implementation requires a balanced combination of technological innovation, professional teacher guidance, critical thinking, and learner-centered instructional practices.

Keywords: artificial intelligence, language teaching, language learning, educational technology, generative AI, personalized learning, communicative competence, digital pedagogy, language acquisition, intelligent tutoring systems.

INTRODUCTION

By the second quarter of the 21st century, the process of learning foreign languages has changed significantly. A few years ago, language learning relied mainly on textbooks, dictionaries, and classroom exercises, but now digital tools have become one of the central elements of this process. In particular, the development of artificial intelligence technologies is affecting the form and content of language learning. These changes are not only technical updates, but also give rise to a new look at teaching methodologies.

Attention to teaching foreign languages in Uzbekistan has increased significantly in recent years. Since 2021, state programs aimed at popularizing foreign languages, the establishment of new language centers, and the practice of teaching English from an early stage in schools have expanded. According to statistics, as of 2026, English is taught as a compulsory subject in the vast majority of secondary schools in the country, and students' interest in international certificates is growing. At the same time, the need for technological solutions to increase the effectiveness of language learning is growing.

The popularity of artificial intelligence tools is growing rapidly, especially among young people. Now mobile applications, virtual assistants, automatic translation systems, pronunciation checking platforms and adaptive learning systems have entered everyday use. If earlier the teacher was considered the main source of information in language learning, today the student uses several digital sources at the same time. This makes the learning process more flexible.

The importance of artificial intelligence tools in learning English is explained by several factors. Firstly, an individual approach is formed. The level of knowledge, mistakes and pace of development of each user are analyzed by the system. Secondly, the time factor is reduced. The student can practice anywhere and at any time. Thirdly, instant feedback is formed. The ability to immediately indicate errors, especially in pronunciation and grammar, increases efficiency.

Language education represents one of the areas in which artificial intelligence demonstrates considerable potential. Learning a foreign language requires continuous practice, meaningful communication, vocabulary development, grammatical competence, and the ability to understand and produce spoken and written texts. Traditional educational approaches may not always provide sufficient opportunities for individualized instruction and continuous feedback, particularly in classrooms with large numbers of students.

One of the most important advantages of artificial intelligence is its ability to provide personalized learning. While in traditional classes, all students are given the same level and content of materials and tasks, artificial intelligence technologies can provide an individual approach, taking into account the interests, learning speed and level of knowledge of each learner. As a result, students can search for and study more deeply and more difficult topics, and quickly complete easy topics. For example, in learning English, ChatGPT, Duolingo Max and other similar artificial intelligence platforms pave the way for a more effective and successful learning process by answering users' questions appropriately, providing additional examples, and expressing grammatical rules in a simple and understandable way.[1]

Another useful aspect of artificial intelligence in learning and teaching English is that it can provide students with instant and continuous feedback. While in traditional learning processes, checking students' tasks, guiding them in the right direction, and highlighting their shortcomings and achievements takes a certain amount of time, all this can be done in a matter of seconds through artificial intelligence-based platforms. This gives learners the opportunity to understand, analyze, reflect on mistakes faster and avoid repeating them. For example, artificial intelligence tools such as ChatGPT and Grammarly not only identify grammatical, stylistic, and spelling errors in essays, articles, letters, and other similar types of written work, but also explain how to correct

them. Such instant responses also help students gradually develop their writing skills and increase the effectiveness of the independent learning process. Kasneci and his supporters argue that systems that help facilitate language learning have the potential to provide individualized recommendations to students and improve written work. However, the authors also emphasize the need to critically evaluate the answers provided by artificial intelligence and check them with reliable sources.

Artificial intelligence tools can also be an effective tool for expanding vocabulary and strengthening grammatical knowledge in English learning. Learners can quickly learn the meaning of new words, synonyms, antonyms, and their use in different contexts from artificial intelligence platforms. In addition, artificial intelligence can also create sentences, exercises, and short texts appropriate to a particular language level. This, in turn, allows new lexical units to be mastered and used not only as individual words, but also in real contexts. In learning grammar, artificial intelligence tools can also help students by explaining rules in an easy-to-understand language, identifying errors, and creating additional examples. Therefore, artificial intelligence can serve as an additional educational tool for independently practicing the lexical and grammatical aspects of the English language.

LITERATURE REVIEW

The relationship between artificial intelligence and language education has evolved significantly with the development of computer-assisted language learning, natural language processing, machine learning, and generative AI.

Early AI-supported educational applications primarily focused on automated exercises, grammar correction, vocabulary testing, and language assessment. Contemporary AI technologies provide more advanced opportunities, including contextualized communication, adaptive learning, automated writing feedback, and interactive dialogue generation.

AI was used by Suryana et al., (2020) to improve yet a further essential skill.[2] Their study looked into how students felt about using mobile Al applications to enhance their listening comprehension of English. It was qualitative research conducted via a WhatsApp online interview. Five students made up the sample, including two male and three female psychology majors. They looked at how participants felt about various artificial intelligence mobile applications, including TuneIn-NFL Radio, Free Music, Sports & Podcasts, Netflix, Joox Music, and VOA Learning English Listening every day, that can be used to develop listening abilities.

The study's findings revealed that many students believed Netflix to be the most useful and effective artificial intelligence mobile application for enhancing their English listening abilities.

Arini et al., (2022) worked on the same line two years later with a mobile learning application that is being developed to ensure that all learners have the opportunity to be autonomous and to advance collaborative learning.[3] It was a quasi-experimental study examining whether the use of artificial intelligence based in the form of NovoLearning can elevate EFL students' competence. NovoLearning is an artificial intelligence-based mobile application available in the Play Store and App Store which assists the English as a Foreign Language teaching and learning process.

Zawacki-Richter et al. (2019) identified several important applications of AI in higher education, including assessment, prediction, intelligent tutoring systems, and student support. Their research also emphasized the importance of involving educators in the development and implementation of AI-supported educational systems.[4]

To understand the impact of AI applications on language learning processes, it is necessary to first examine the complex nature of language learning. Language learning is not limited to learning vocabulary and grammar rules, but also includes elements such as cultural context, communication skills, and social interaction (Van Patten & Williams, 2015).[5] Therefore, it is important to develop a customized learning process that takes into account the needs, learning styles, and motivations of language learners. Artificial intelligence has the potential to make language learning more effective and accessible by meeting these needs (Warschauer, 2004).[6]

The combination of virtual reality (VR) and augmented reality (AR) technologies with artificial intelligence offers language learners the opportunity to practice language in a real-world context. Chiu, Liou, and Yeh (2016) showed that AI-powered VR applications increased students' language learning motivation and success rates. In such environments, students can practice their language skills within virtual scenarios.[7] VR and AR technologies enable language learners to practice and experience learning. Students can improve their language skills in natural contexts by virtually navigating a restaurant or a tourist attraction.

More recently, research has focused on generative AI and its influence on language acquisition. Generative AI systems can produce texts, explain linguistic concepts, simulate authentic communication, and provide recommendations for improving learners' language performance.

A systematic review by Li et al. (2025) identified six major research directions in generative AI-supported language education: learner perceptions, psychological and cognitive factors, instructional strategies, language skill development, writing and feedback, and educational implementation.[8] The review also indicated that writing received particularly substantial research attention, while other language skills require further investigation.

These studies demonstrate that artificial intelligence is becoming an increasingly important component of contemporary language education. However, its effectiveness depends on the appropriate combination of technological resources, instructional strategies, and human guidance.

METHODOLOGY

This research employs a qualitative analytical methodology based on the examination and synthesis of academic literature concerning artificial intelligence in language teaching and learning.

The study focuses on identifying major applications of AI, evaluating its educational contributions, and analyzing pedagogical challenges associated with its implementation.

A literature-based analytical research design was adopted to examine the relationship between AI technologies and language education.

The analysis was organized around four principal dimensions:

1. Technological dimension: generative AI, intelligent tutoring systems, speech recognition, automated translation, and adaptive learning platforms.

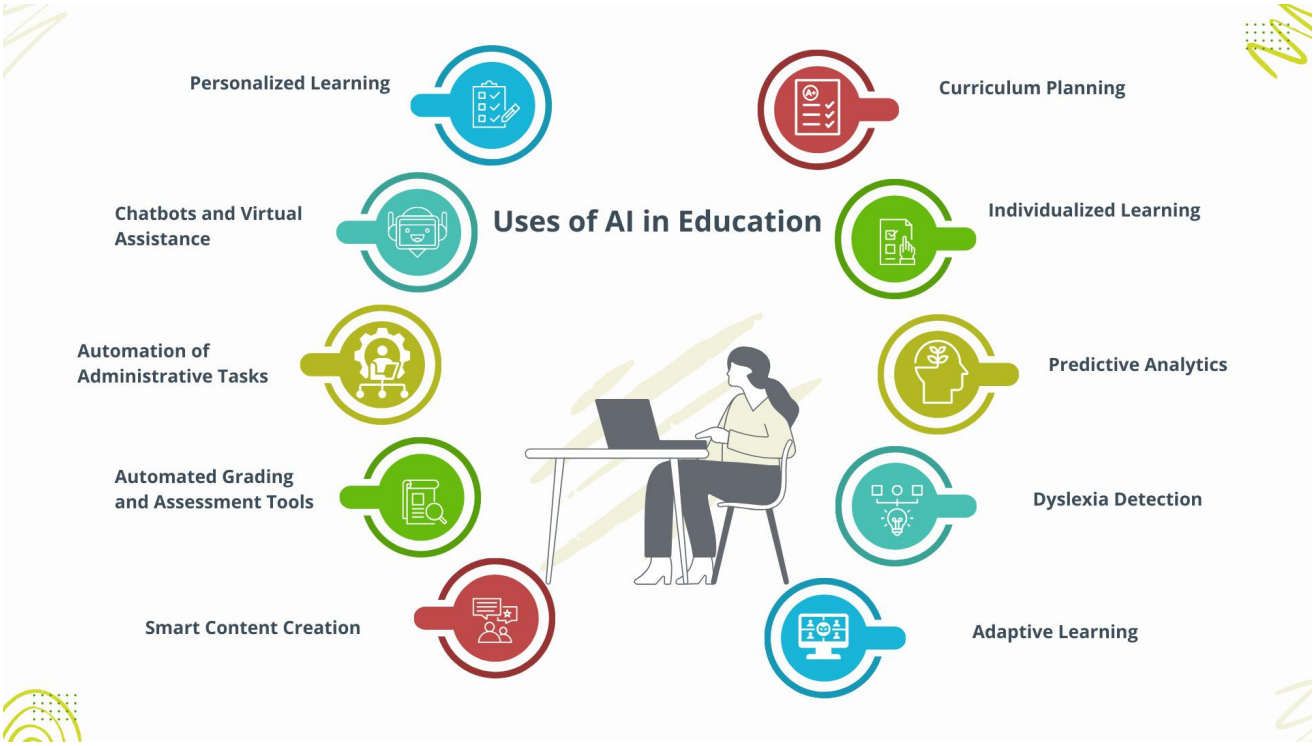
2. Linguistic dimension: listening, speaking, reading, writing, grammar, pronunciation, and vocabulary development.

3. Pedagogical dimension: personalized instruction, learner autonomy, assessment, teacher support, and communicative learning.

4. Ethical dimension: academic integrity, data protection, information reliability, and equal access to technology.

RESULTS

The analysis of academic literature reveals that artificial intelligence contributes to language education through several interconnected mechanisms. These include personalized learning, interactive communication, automated feedback, language assessment, and instructional support for teachers.



Picture 1. Uses of AI in education [9]

AI tools help generate dynamic learning content like interactive quizzes, multimedia presentations, and custom content for various learning styles. Content creation further helps educators reduce time spent on manual material preparation.

Educators can also use an AI presentation maker to quickly create engaging and visually appealing lesson materials for classrooms and virtual learning environments.

The principal findings are presented in the following sections.

1. Enhancing the Development of Four Language Skills

One of the most significant contributions of AI to language education is its ability to support the development of the four fundamental language skills: listening, speaking, reading, and writing.

Each skill requires specific learning activities and instructional methods. AI applications can provide additional practice opportunities and adapt educational content to learners' individual needs.

Listening skills. AI-powered listening applications can generate audio materials, provide different pronunciation models, and create listening comprehension exercises. Learners can listen to conversations, identify unfamiliar expressions, and receive explanations of difficult vocabulary. Such activities allow students to practice listening beyond the classroom.

Speaking skills. Conversational AI applications provide opportunities for interactive communication. Students can simulate everyday conversations, participate in virtual interviews, discuss academic topics, and practice pronunciation. These activities are particularly useful for learners who have limited opportunities to communicate with proficient English speakers.

Reading skills. AI systems can adapt reading passages to different proficiency levels, explain unfamiliar vocabulary, identify the main ideas of texts, and generate comprehension questions. These functions support students in developing reading strategies and understanding complex materials.

Writing skills. AI writing assistants can identify grammatical inaccuracies, suggest vocabulary alternatives, and provide feedback on sentence structure and text organization. However, students should remain responsible for the content and final quality of their written assignments.

2. Personalized Learning and Adaptive Instruction

Personalized learning is one of the most important advantages of artificial intelligence in contemporary education.

In traditional language classrooms, students often demonstrate different levels of proficiency, learning speeds, interests, and educational needs. Providing individual attention to every student may be difficult for teachers, especially in large groups. AI-based educational platforms can partially address this challenge by adapting learning materials to students' abilities and performance. For example, beginner-level students may receive simplified reading passages and basic grammar exercises, while advanced learners can work with academic texts, complex sentence structures, and specialized vocabulary.

Adaptive learning technologies can also provide additional exercises in areas where students experience difficulties. This approach supports differentiated instruction and allows learners to progress according to their individual educational needs.

3. Immediate Feedback and Continuous Assessment

Feedback plays an essential role in successful language acquisition. Students need to identify their mistakes, understand the reasons behind them, and develop strategies for improving their performance.

AI-supported educational applications can provide immediate feedback on written assignments, pronunciation, vocabulary usage, and grammatical structures. For example, when students prepare an English essay, an AI writing assistant can identify grammatical mistakes, suggest more appropriate vocabulary, and recommend improvements in coherence.

Similarly, speech recognition technologies can help learners identify pronunciation difficulties and practice particular sounds or words. Nevertheless, automated feedback should not be regarded as completely reliable. AI applications may misunderstand linguistic context, overlook stylistic differences, or provide inappropriate corrections. Therefore, teachers should verify important feedback and guide students in interpreting AI-generated recommendations.

4. Promoting Learner Autonomy and Motivation

Learner autonomy is an important principle of modern language education. It refers to students' ability to take responsibility for their learning, establish educational objectives, monitor progress, and evaluate their achievements.

Artificial intelligence can support this process by providing continuous access to learning resources and opportunities for independent practice.

Students can use AI applications to:

- Practice English conversations independently.
- Learn vocabulary through contextual examples.
- Request explanations of grammatical structures.
- Prepare academic presentations.
- Develop reading comprehension.
- Revise written assignments.
- Create individual learning plans.

The flexibility of AI-supported learning can encourage students to engage with language learning outside formal classroom hours.

However, the development of genuine learner autonomy requires more than access to technological tools. Students must also develop self-regulation, critical thinking, and the ability to evaluate information independently.

5. Supporting Teachers and Improving Instructional Efficiency

Artificial intelligence also provides opportunities to improve teachers' professional activities. Teachers can use AI applications to develop lesson plans, prepare educational materials, create exercises, generate discussion questions, and design assessment activities. For instance, when preparing a lesson on environmental protection, a teacher can use AI to develop reading passages, vocabulary exercises, grammar activities, and classroom discussion topics appropriate for different proficiency levels.

AI can also assist teachers in adapting materials to specific educational objectives and student needs.

Table 1. The Role of AI in Supporting Teachers' Professional Activities.

Teaching activity	Application of AI	Potential benefit
Lesson planning	Generating lesson structures and objectives	Reduces preparation time
Educational material development	Creating reading texts and exercises	Expands instructional resources

Assessment	Generating quizzes and feedback	Supports formative assessment
Professional development	Explaining teaching methodologies and digital tools	Supports continuous professional learning
Classroom interaction	Preparing discussion questions and role-play situations	Encourages communicative learning
Differentiated instruction	Adapting tasks to proficiency levels	Addresses individual learning needs

These applications demonstrate that AI can function as an instructional assistant, allowing teachers to devote more attention to classroom communication, student engagement, and individual educational needs.

Discussion

The findings suggest that artificial intelligence has considerable potential to enhance language teaching and learning. Nevertheless, its educational effectiveness depends on how technological applications are incorporated into instructional practices.

The discussion focuses on the pedagogical implications of AI integration, the changing responsibilities of teachers, and the challenges associated with technology-supported language education.

1. The Transformation of Traditional Language Teaching

Traditional language teaching has frequently emphasized teacher-led explanations, textbook-based exercises, and standardized assessment procedures.

Although these approaches remain important, AI-supported educational environments offer additional opportunities for interaction, independent practice, and individualized feedback.

The integration of artificial intelligence encourages a transition toward more flexible and learner-centered educational models.

In such environments, students become more actively involved in their learning process, while teachers increasingly perform the roles of facilitators, mentors, instructional designers, and evaluators.

The findings of Torres and Kahveci (2025) support the educational potential of this approach. Their meta-analysis demonstrated positive overall effects of AI-supported interventions on language learning, while also indicating that instructional context influences effectiveness.

This suggests that successful AI integration depends not simply on the availability of advanced technology but on the pedagogical quality of its implementation.

2. Major Challenges of AI Integration in Language Education

Despite its educational advantages, artificial intelligence introduces several challenges that require attention.

1. Excessive Dependence on AI. Students may become overly dependent on AI-generated translations, explanations, and written assignments. Such dependence can reduce opportunities for independent language production and problem-solving.

2. Accuracy and Reliability. AI applications may generate incorrect grammatical explanations, unnatural expressions, or misleading information. Students with limited language proficiency may find it difficult to identify these errors.

3. Academic Integrity. The use of generative AI for producing essays, reports, and academic assignments creates questions concerning authorship, originality, and independent student performance.

4. Reduced Human Communication. Language acquisition involves social interaction, cultural awareness, emotional expression, and spontaneous communication. AI applications cannot completely replace authentic interaction between teachers and students or among learners.

5. Digital Inequality. Differences in internet access, technological infrastructure, and the availability of paid applications may create unequal educational opportunities.

6. Data Privacy and Security. Some AI applications process personal information, voice recordings, and written assignments. Educational institutions must therefore consider data protection, informed consent, and responsible technology use.

UNESCO (2023) emphasizes the importance of human-centered and ethically responsible approaches to generative AI in education, particularly concerning privacy, inclusion, and educational accountability.[10]

3. The Changing Role of the Language Teacher

The increasing use of AI does not eliminate the importance of professional language teachers. Instead, it transforms their responsibilities.

Teachers should develop the ability to select appropriate AI applications, evaluate the accuracy of generated content, design meaningful learning activities, and guide students in using technology responsibly.

The modern language teacher should function as:

- A facilitator of communicative learning;
- A designer of technology-supported instructional activities;
- A mentor for critical thinking and independent learning;
- An evaluator of students' actual language competencies;
- A guide for ethical and responsible AI use.

Professional development is therefore essential for ensuring that teachers can integrate technological innovations into their educational practices effectively.

Data-driven AI

Often referred to as machine learning, data-driven Al allows systems to learn from data. This is achieved by feeding the system large amounts of data and letting it identify patterns or make predictions. For example. in adaptive learning systems, we can use data-driven Al to figure out areas of improvement for learners based on the errors they made and recommend relevant activities.

Generative AI

Finally, although also a subtype of data-driven Al, there is generative Al (GenAI), which deserves its own mention. GenAl, as the name suggests, focuses on generating new content that did not exist before. Whether it is writing text, generating realistic images, composing music, or even

creating video content, GenAl can produce output that seems original based on the knowledge gained from analysing extensive data sets. Specifically, when it comes to text-based applications, GenAl uses sophisticated large language models (LLMs) equipped with millions of algorithmic parameters. This enables the production of text that closely mimics human writing styles, based on the linguistic patterns it has learned. A notable example of this technology in action are chatbots (such as OpenAl's ChatGPT, Google Gemini and Microsoft Copilot) which can simulate human conversations.

Language learners can choose from a variety of Al-powered tools that aim to support their language learning process, such as:

- vocabulary apps;
- spelling and grammar checks;
- increasingly sophisticated chatbot technology for conversational practice, and intelligent tutoring systems that claim to offer personalised instruction.

CONCLUSION

Artificial intelligence has become an important factor in the transformation of contemporary language teaching and learning. Its application provides new opportunities for improving educational quality, supporting individualized instruction, and developing learners' communicative competencies.

The use of artificial intelligence can save teachers' time, increase the objectivity of the assessment process, and improve the quality of education. At the same time, these technologies are also important in developing students' skills of independent work, critical thinking, and creative approach.

However, there are certain limitations in the use of artificial intelligence tools. In particular, the information provided by the system is not always completely reliable, the possibility of students becoming overly dependent on technology, and issues of academic integrity require constant monitoring. Therefore, the use of artificial intelligence should be organized under the supervision of teachers, purposefully and rationally.

In conclusion, the integration of artificial intelligence into language education represents an important opportunity for developing more flexible, interactive, and learner-centered instructional environments. Its long-term effectiveness will depend on responsible implementation, teachers' professional competencies, institutional support, and the continuous evaluation of educational outcomes.

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