

APPLICATION OF ARTIFICIAL INTELLIGENCE IN TEACHING FOREIGN
LANGUAGE AT THE HIGHER EDUCATION LEVEL

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Abstract

This article presents a theoretical and analytical review of the application of artificial intelligence (AI) in foreign language (on the example of English) learning at the higher education level. The author presents the analysis of modern AI tools used in language education, including intelligent tutoring systems, natural language processing technologies, automated writing and speech assessment systems, speech recognition for pronunciation training, as well as chatbots and generative models for conversational practice.

Keywords

artificial intelligence, English as a foreign language, foreign language learning, higher education, educational technology.

Introduction

Artificial intelligence (AI) has significant potential in foreign language learning, as demonstrated by the rapid growth of research and development in this area. In higher education, AI technologies are being actively integrated into foreign language teaching [2, 304–313]. In particular, the teaching of English as a foreign language is increasingly enriched by AI tools capable of transforming traditional methodologies. Research shows that AI systems such as personalized learning platforms and intelligent feedback systems make the educational process more interactive and adaptive. AI-based systems provide individualized feedback that not only corrects errors but also motivates learners, increasing their engagement with study materials [3, p. 149–160]. As a result, teachers gain a deeper understanding of each student's strengths and weaknesses and can adjust teaching strategies to individual needs. Thus, language teaching at the university level has become one of the educational areas most affected by AI progress, where new technologies create conditions for more flexible and efficient instruction.

At the same time, despite its many advantages, AI implementation also presents challenges. Scholars caution that excessive reliance on AI tools can undermine the development of critical thinking and creativity among students. Furthermore, insufficient technical training of teachers and learners limits full use of AI's capabilities. Some AI systems are also limited in producing truly engaging and interactive exercises, which can reduce learner motivation and fail to eliminate anxiety in language learning. Nevertheless, most studies agree that the potential of AI in language education is immense. Modern AI technologies can significantly increase student motivation and improve foreign language proficiency, especially when properly integrated into the higher education environment [3, 161–172].

Methods

Among the most common AI tools in language education are Intelligent Tutoring Systems (ITS). These systems simulate one-to-one tutoring using learner models, adaptive algorithms, and neural networks tailored to individual student needs. ITS monitor learner progress, select tasks of appropriate difficulty, provide step-by-step hints, and deliver feedback in dialogic form [4, 159–174]. As a result, learning becomes flexible: advanced students can progress faster, while those facing difficulties receive extra support. Studies confirm that AI-



based ITS provide personalized feedback and recommendations, thereby improving learning effectiveness. Analyses report medium-to-large effect sizes, indicating substantial gains compared to traditional methods [5, 173–177]. Furthermore, embedded functions allow teachers to monitor achievements and identify knowledge gaps. Based on large datasets of learner behavior, AI generates personalized learning paths, ensuring individualized and efficient education.

Natural Language Processing (NLP) technologies are widely used to develop writing and reading skills in foreign language learning. Modern NLP systems can automatically analyze student-produced texts, detect grammatical and lexical errors, and flag stylistic inconsistencies. Automated writing evaluation systems provide instant feedback, enabling students to improve without constant teacher supervision. For example, grammar and style checkers such as Grammarly or Criterion identify errors and suggest corrections, fostering independent learning. More advanced machine-learning systems score essays by simulating expert judgment. NLP also powers intelligent language trainers that analyze learner input in natural language and generate personalized hints. Initially, NLP research focused on automating writing assessment and developing text-based dialogue tutors [6, 195–207]; later, it expanded to spoken language, producing AI voice assistants that interpret learner speech and provide real-time feedback. Thus, NLP-based tools allow learners to practice language skills autonomously while receiving detailed, immediate feedback on grammar, vocabulary, and content.

Another AI application in language education is speech recognition for pronunciation improvement. Specialized AI programs analyze learners' pronunciation by comparing it with native-speaker models and highlighting inaccuracies. Computer-Assisted Pronunciation Training (CAPT) systems detect phonetic patterns and intonation, identify mispronounced sounds, and prompt learners to repeat them correctly. Such systems use advanced speech recognition models combined with visual feedback (spectrograms, articulatory animations), enabling self-correction. Studies show that regular practice with AI-driven CAPT improves pronunciation and boosts students' confidence when speaking [3, 153–158]. Especially for learners without access to native speakers, AI serves as a virtual pronunciation coach available anytime, fostering autonomous improvement in phonetic competence. All this positively affects the general speaking competence.

The rapid development of conversational AI has produced dialogue systems capable of maintaining natural communication with learners. Early chatbots supported fixed scripts, but new generative AI models such as ChatGPT have elevated conversational practice to a new level. Large language models generate coherent, contextually appropriate responses, allowing interaction that closely mimics human conversation. Integrating such AI tools into language learning enables continuous speaking and writing practice with immediate, context-sensitive replies. Preliminary studies demonstrate that conversational AI enhances vocabulary growth, grammatical accuracy, and confidence in language use. Generative AI can also explain grammar or word meanings, acting as a virtual tutor. However, researchers emphasize the need for further empirical studies on the pedagogical efficiency of large language models in EFL [7, 95-103]. Ethical and social aspects also require attention: AI bias, overreliance, and academic honesty [7, 113-121].

Results

Nonetheless, AI chatbots already represent a valuable complement to traditional instruction, offering virtually unlimited opportunities for communication practice and immediate feedback. As a result, it can enhance motivation, language confidence as well as writing skills.



Thus, the proper implementation of AI chatbots may enrich language practice at the higher education level.

Advantages of AI integration in language learning

The application of artificial intelligence (AI) technologies in foreign language education offers a number of proven advantages. First, AI enables the implementation of a personalized approach in mass education. Algorithms can adapt course content and task complexity to each learner's individual level – a result difficult to achieve in a traditional classroom environment. Personalization increases the efficiency of learning since students receive assignments that correspond to their current knowledge and identified gaps [6, 218–226].

Second, numerous studies report an increase in students' motivation and engagement when interactive technologies are used. AI-based tools make the language learning process more engaging and interactive, which encourages learners to devote more time and effort to their studies. According to several studies, digital assistants and AI-powered learning applications enhance students' interest in completing exercises and foster the development of self-regulated learning skills [6, 225–232].

Third, AI expands opportunities for independent practice. Students can complete extra assignments outside the classroom, practice speaking with chatbots, or improve pronunciation while receiving instant feedback. The ability to obtain real-time error correction and advice, anywhere and anytime, is a significant advantage emphasized by many researchers [6, 227–232]. Moreover, AI provides access to a vast array of learning materials and exercises. For instance, adaptive platforms can generate an almost unlimited number of sentences, dialogues, or reading texts appropriate to a student's level. This creates a richer linguistic environment than what is usually available in traditional instruction.

Finally, AI tools can positively influence the affective domain of language learning. Modern research indicates that the use of AI resources is often accompanied by reduced student anxiety, particularly in oral communication. This is because interaction with a computer is perceived as a psychologically safer environment – AI does not display impatience or judgment, which decreases learners' fear of making mistakes [8, 98-102]. For example, an experimental study in China demonstrated that regular feedback from an AI tutor helped students become more confident and reduced stress during English presentations. The same study also noted the development of students' creative abilities: the AI system, by providing not only corrective but also motivational feedback, encouraged learners to express original ideas in a foreign language, thereby enhancing creativity in both written and oral speech [8]. Thus, the effective integration of AI into the learning process can improve linguistic skills (literacy, vocabulary, listening comprehension) while simultaneously increasing students' confidence, interest in the subject, and willingness to communicate in the target language.

Discussion

The development of artificial intelligence (AI) technologies marks the beginning of a new era in foreign language education, particularly at the level of higher education, where adaptability and scalability of educational solutions are often required. The conducted analysis demonstrates that AI is already making a significant contribution to the practice of language learning – from intelligent tutors that allow courses to be customized for each individual student to conversational chatbots that provide opportunities for unlimited language practice. Computer algorithms have proven their effectiveness in enhancing academic performance, motivation, and learner confidence.

At the same time, the implementation of AI has revealed a number of challenges that must be taken into account. Technology does not eliminate the need for pedagogical involvement:



while the teacher's role is being transformed, it remains central in organizing the educational process and ensuring a learner-centered approach. It is essential to strive for a symbiosis between the strengths of AI and human experience. Technological solutions can assume the functions of a coach or assistant, whereas the human teacher guides the learning process, inspires students, and ensures the quality of outcomes.

A promising direction is the development of hybrid methodologies that combine traditional approaches with AI technologies (for example, combining in-person lessons with independent work in an adaptive online environment). Equally important is the preparation of teachers themselves: professional development programs in digital didactics will enable educators to confidently integrate AI services into their teaching practice. Addressing ethical issues represents another area of responsibility for researchers and education administrators: clear policies are needed regarding data usage, academic integrity, and the acceptable limits of AI application in assessment.

Conclusion

In conclusion, it can be stated that, when applied correctly, artificial intelligence becomes a powerful tool for enriching the experience of foreign language learning. In the context of higher education, where students aim to achieve advanced language proficiency and prepare for professional communication, AI can offer new opportunities for skill practice, personalized support, and sustained engagement with the subject. By combining the potential of AI with the creativity and empathy of the teacher, the educational community can elevate foreign language education to a qualitatively new level – making it more effective, engaging, and accessible for every student.

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