

# MODERN DIGITAL TECHNOLOGIES AND ARTIFICIAL INTELLIGENCE IN FOREIGN LANGUAGE TEACHING IN HIGHER EDUCATION

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The modern system of higher education differs significantly from the model that dominated the educational space for many years. The rapid development of information and communication technologies, the digitalization of social processes, and the popularization of artificial intelligence create a number of challenges for science and education. At the same time, relentless globalization and the expansion of intercultural communication necessitate transformations in the training of specialists, particularly within the cycle of foreign language disciplines.

In contemporary conditions, students of non-linguistic specialties require intensive practice of all four communicative skills, an individualized learning pace, and sustained motivation. Generative AI opens new opportunities for personalizing the educational process, adapting materials to the CEFR level, and providing immediate feedback. According to research data, the market for AI tools in language learning is growing rapidly, while empirical evidence indicates improved learning effectiveness when technologies are integrated thoughtfully. However, the implementation of such tools is accompanied by significant pedagogical, technical, and ethical challenges, which necessitates a comprehensive analysis.

The aim of the study is to analyze the opportunities offered by modern digital technologies and artificial intelligence for personalizing foreign language teaching in higher education institutions and to identify the key challenges of their implementation. The objectives are as follows: to systematize contemporary digital tools; to examine the potential for personalization; to analyze empirical data on effectiveness; and to identify the main challenges.

Modern information technologies are radically transforming approaches to teaching in higher education, particularly influencing the process of foreign language instruction. The educational system is compelled to become more adaptive and flexible through the use of digital technologies, which facilitate the transition from traditional methods to personalized, interactive, and immersive learning. The integration of LMS platforms, generative artificial intelligence, adaptive applications, and immersive technologies enables the adaptation of educational content to students' individual needs, the provision of immediate feedback, and the creation of conditions for authentic language practice. According to systematic reviews, such a combination of technologies contributes to increased motivation, improved communicative skills, and overall learning effectiveness, although it is also accompanied by certain pedagogical and ethical challenges.

It is also important to note that foreign language teaching in higher education institutions (HEIs) of Ukraine has a number of specific features determined by both general educational trends and the professionally oriented training of future specialists. Unlike secondary school or philological faculties, where language is studied as a major, in non-linguistic HEIs a foreign language functions as a general educational discipline that performs instrumental and professionally oriented roles. The main features of foreign language teaching in the modern educational environment include: Limited amount of class time allocated to foreign language study; different initial levels of students' proficiency within the same group; professional orientation (English for Specific Purposes – ESP); the necessity of simultaneous comprehensive development of all four communicative skills (reading, writing, listening, and speaking); motivation-related challenges; the integration of digital competencies [2].

These features necessitate the transition from traditional reproductive teaching to a competency-based, student-centered approach with the active use of technologies that allow personalization of the learning process, increased practice volume, and enhanced motivation. Therefore, the integration of generative AI, LMS platforms, and immersive technologies is becoming not an additional option but an essential component of contemporary foreign language teaching methodology in higher education institutions [1].

Modern methods of digitalization include:

LMS platforms (Moodle, Canvas, Google Classroom) serve as the foundation for organizing the educational process, automated assessment, material management, and learning analytics. Moodle stands out for its high flexibility and customization potential, Canvas for its user-friendly interface and strong integration capabilities in higher education, and Google Classroom for its simplicity and rapid communication. In foreign language teaching, these platforms provide centralized resource storage, testing, discussion forums, and student progress tracking. Research confirms their effectiveness in supporting blended learning and improving organizational efficiency [4].

Generative AI (ChatGPT, Gemini, Claude, Tweek, MagicSchool AI). Generative artificial intelligence models are revolutionizing the creation of personalized learning materials — exercises, dialogues, texts adapted to the CEFR level — and providing immediate, detailed feedback. They are particularly valuable for developing writing skills, generating ideas, text editing, and simulating communicative situations. Systematic reviews from 2025–2026 demonstrate significant improvements in writing accuracy, vocabulary retention, and overall student productivity when GenAI is integrated into EFL/ESL teaching.

AI chatbots and virtual interlocutors provide a safe, constant, and non-judgmental environment for developing speaking and listening skills. They simulate real-life dialogues, correct pronunciation, suggest alternative formulations, and reduce student

anxiety. Empirical studies show statistically significant improvements in fluency, vocabulary acquisition, and willingness to communicate after regular practice with AI chatbots [5].

Gamified and adaptive platforms (Duolingo Max, ELSA Speak, Memrise) combine gamification elements (points, levels, competition) with adaptive algorithms that adjust task difficulty according to the student's level and progress. Duolingo Max offers AI-powered role-playing games and error explanations, ELSA Speak specializes in precise pronunciation analysis, and Memrise focuses on vocabulary acquisition through spaced repetition and authentic videos. These tools effectively increase motivation and practice regularity, especially among students of non-linguistic specialties [6].

Immersive technologies (VR/AR — ImmerseMe, Mozilla Hubs) create a sense of presence in authentic language situations (ordering in a café, travel, professional dialogues). ImmerseMe offers 360° videos of real locations with speech recognition, while Mozilla Hubs provides flexible shared virtual spaces for collaborative learning. Studies confirm increased engagement, better vocabulary retention, and the development of cultural competence through immersive experiences [8].

Thus, each of these modern digitalization systems offers substantial opportunities for personalizing learning in various ways, tailored to the needs and demands of specific participants in the educational process. In addition to adapting content and learning pace, digital technologies can directly reduce cognitive load and enhance motivation through gamification and relevant tasks. Empirical studies demonstrate significant improvements in writing accuracy, speaking fluency, vocabulary retention, and overall academic performance. In particular, AI tools contribute to productivity increases of 15–40% compared to traditional methods in certain experiments and reduce student anxiety during language practice [9].

Despite the significant advantages, the integration of modern digital technologies and artificial intelligence into foreign language teaching in higher education is accompanied by a number of substantial challenges that require careful pedagogical and institutional attention.

Digital inequality remains one of the key barriers. Not all students and teachers have equal access to stable internet, modern devices, or premium versions of AI tools. This creates a situation in which students from higher socio-economic backgrounds benefit more from personalized learning, while others find themselves at a disadvantage. Research emphasizes that the digital divide is exacerbated by cultural and linguistic biases in AI algorithms, which are predominantly developed with a focus on English and Western contexts.

Insufficient digital literacy and AI literacy among teachers and students constitutes another serious limitation. Many teachers lack adequate training for the effective and critical integration of GenAI tools, leading to fragmented or inefficient

use. Students often overestimate AI capabilities without possessing skills for critical evaluation of its outputs. Systematic reviews highlight the fragmented nature of existing AI literacy programs and the urgent need for systematic teacher training.

Ethical issues occupy a central place among the challenges. These include: Academic integrity and plagiarism — students may submit AI-generated content as their own, blurring the boundaries of authorship; bias in AI models — algorithms reproduce stereotypes, cultural, and gender prejudices; issues of data confidentiality and protection of students' personal information.

Empirical studies from 2025–2026 record an increase in cases of academic dishonesty and stress the need for new policies regarding transparent GenAI use [7].

The risk of diminishing the role of live human communication and technological dependency are also significant. Excessive use of AI chatbots may reduce motivation for real communication, weaken the development of emotional intelligence, critical thinking, and creativity. Students risk losing skills of deep text analysis and independent writing due to “cognitive offloading” (transferring thinking to technology) [3].

Research consistently indicates the necessity of enhancing AI literacy among teachers and developing clear institutional policies that combine ethical principles, transparency in tool usage, and a pedagogical balance between technologies and traditional methods. Without a systemic approach, the benefits of digitalization may be neutralized by the aforementioned risks.

## **Conclusions**

Modern digital technologies and artificial intelligence offer considerable opportunities for personalizing foreign language teaching in higher education institutions. Generative AI, LMS platforms, adaptive and immersive tools enable the adaptation of educational content to students' individual needs, immediate feedback, increased motivation, and expanded authentic language practice even under conditions of limited classroom time. Empirical studies confirm the positive impact of these technologies on the development of communicative skills, particularly writing accuracy, speaking fluency, and vocabulary retention. At the same time, effective integration of digital tools is possible only through awareness and overcoming existing challenges: digital inequality, insufficient AI literacy among teachers and students, ethical risks (academic integrity, algorithmic bias, data confidentiality), and the potential reduction in the role of live human interaction.

Thus, the optimal model remains blended learning, in which artificial intelligence performs functions of personalization, routine practice, and data analysis, while the teacher provides emotional support, critical thinking, cultural context, and the development of professional communication. For successful implementation in Ukrainian HEIs, systematic teacher training in AI literacy, the development of

institutional policies for ethical technology use, and empirical research in the national context are essential. Promising directions for further research include longitudinal experiments examining the impact of GenAI on the formation of foreign language communicative competence among students of non-linguistic specialties.

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