ARTIFICIAL INTELLIGENCE: A NEW STAGE OF INNOVATION IN EDUCATION

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Abstract:
We are witnessing a thrilling transformation in education, particularly in how we learn foreign languages. Artificial intelligence (AI) is no longer a futuristic concept but a concrete reality, altering traditional teaching methods and opening doors to incredibly personalized and captivating learning experiences. This article explores how AI is enhancing language acquisition, refining teaching techniques, and fostering a more dynamic and interactive learning environment. From AI-powered learning platforms to intelligent tutoring and automated assessment tools, we'll explore how AI is transforming foreign language education, making it more effective and accessible than ever before.

Keywords: artificial intelligence, foreign language education, innovation, technology assisted language learning, personalized learning, chatbots, natural language processing, machine translation, speech recognition, pedagogy

The digital age has significantly changed every part of our lives, especially education. We're seeing a shift where knowledge and the ability to learn are becoming more important than owning physical things. This change highlights the need for people to be equipped to succeed in a complex world. Being skilled with technology is now just as important as traditional reading and writing. Today, a well-educated person is not only knowledgeable but also capable of using technology to find, understand, and use information effectively.[1]

Central to this technological revolution is the rise of Artificial Intelligence (AI). The seeds of AI were sown back in 1956, at a gathering of brilliant minds at Stanford University, including personalities like John McCarthy, Marvin Minsky, Allen Newell, and Herbert Simon [2]. This group, driven by a shared vision of creating machines capable of intelligent thought and action, birthed the very concept of “artificial intelligence”.

AI, in essence, attempts to create machines that can perform tasks typically associated with human intelligence. It aims to replicate the human capacity to learn, reason, adapt, and interact with the world in meaningful ways[3] . The term "intellect," derived from the Latin "intellectus," encapsulates these cognitive abilities, encompassing reasoning, understanding, and

[1] Zubov A. V., Zubova I. I. Osnovy lingvisticheskoy informatiki. Ch. 3. Iskusstvennyy intellekt. — Minsk, 1993. - 144 s.
2 Dick, S. (2019). Artificial Intelligence. Harvard Data Science Review, 1(1). https://doi.org/10.1162/99608f92.92fe150c
[3] Bashmakov, A.I., & Bashmakov, I.A. (2005). *Intellektual'nyye informatsionnyye tekhnologii: Uchebnoye posobiye*. Izd-vo MGTU im. N.E. Baumana. - Moskva. - 304 s.

awareness[4]. AI systems, at their core, analyze past experiences and external stimuli to make informed decisions, optimal outcomes. While a universally accepted definition of AI remains elusive, constantly evolving with new advancements, a practical understanding sees AI as the endeavor to build systems that mimic human intelligence, enabling them to pursue goals, learn, adapt, and communicate effectively.

While the application of AI in foreign language teaching is relatively nascent, several Uzbek scholars are actively exploring its potential. For instance, Abdullaev B.S. and colleagues' research demonstrated that students with higher technological literacy exhibited more positive emotional responses and greater engagement when using AI-powered language assessment systems [5]. Similarly, Ibragimova S.'s work on phoneme-based speech recognition for the Uzbek language [6], and Mukhamadiyev A. and colleagues' research on developing language models for continuous Uzbek speech recognition[7] underscore the potential of AI to advance language-specific technological tools.

The historical trajectory of AI reveals a progression through distinct phases, each marked by specific objectives and advancements. The initial phase (1956-1970) saw researchers focused on developing “problem solvers” capable of mimicking human reasoning in limited domains, such as solving puzzles or simple mathematical problems. Early forays into machine translation also emerged during this period, though they were rudimentary compared to today's capabilities. The second phase (early 1970s to 1980s) shifted towards creating intelligent robots capable of navigating and interacting with the physical world, potentially laying the groundwork for future language-learning robots. The third phase (early 1980s onwards) witnessed a focus on developing more sophisticated systems capable of complex planning, knowledge representation, and natural language interaction.

The integration of AI into foreign language teaching is deeply rooted in the broader concept of Technology Assisted Language Learning (TALL). The advent of personal computers and the rise of the information society in the 1970s were pivotal in this regard, providing the technological infrastructure for innovative language learning tools. These tools, initially focused on providing interactive exercises and access to digital resources, gradually evolved to incorporate more sophisticated AI capabilities, leading to the personalized and adaptive learning experiences we see today.

The field of applied linguistics has played a crucial role in connecting these technological advancements for language education. By focusing on tasks such as creating AI systems, developing automatic translation and annotation tools, building text generation systems, and

[4] Gavrilov, A.V. (2001). *Sistemy iskusstvennogo intellekta: Uchebnoye posobiye: v 2-kh ch.* Izd-vo NGTU. - Novosibirsk. - Ch. 1. - 67 s.

[5] Abdullaeva, B. S., Abdullaev, D., Rakhmatova, F. A., Djuraeva, L., Sulaymonova, N. A., Shamsiddinova, Z. F., & Khamraeva, O. (2024). Uncovering the impacts of technology literacies and acceptance on emotion regulation, resilience, willingness to communicate, and enjoyment in Intelligent Computer-Assisted Language Assessment (ICALA): An experimental study. *Language Testing in Asia, 14*(40). https://doi.org/10.1186/s40468-024-00316-x

[6] Ibragimova, S. (2023). Creation of An Intelligent System for Uzbek Language Teaching Using Phoneme-Based Speech Recognition. *Revue d'Intelligence Artificielle, 37*(6).

[7] Mukhamadiyev, A., Mukhiddinov, M., Khujayarov, I., Ochilov, M., & Cho, J. (2023). Development of language models for continuous Uzbek speech recognition system. *Sensors, 23*(3), 1145.

designing language teaching and speech recognition systems, applied linguists have paved the way for the integration of AI into language learning[8]. The automation of tasks like text editing, morphological and syntactic analysis, and dictionary lookups has further streamlined the process, making it more efficient and effective.

The rapid advancements in hardware, including faster processors, increased memory capacity, and the development of multimedia and networking technologies, have been instrumental in enabling the current wave of AI innovation in language education. This has led to the exploration of various pedagogical approaches, including TALL, Computer Assisted Language Learning (CALL), Computer Assisted Language Instruction (CALI), and Mobile Assisted Language Learning (MALL). These approaches, while distinct, share a common thread: leveraging technology to enhance language acquisition. They provide a rich foundation for understanding how AI tools like ChatGPT can be effectively integrated into the language learning process.

Computer-mediated language learning offers numerous benefits, including fostering interactive communication between learners and computers, providing access to vast linguistic resources, enabling independent practice through computerized courses and expert systems, personalizing the learning process, and facilitating assessment. Linguistic informatics, a subfield of applied linguistics, further contributes by studying how linguistic information can be processed computationally, delving into areas like text translation, annotation, and language teaching methodologies[9].

The social media revolution has created unprecedented opportunities for language learners to engage in authentic communication across various modalities. Consequently, language teachers today need not only to be computer literate but also to be proficient in using ICT resources effectively in their teaching. AI tools, in particular, offer exciting possibilities for enriching the learning experience, fostering international collaboration, creating virtual language environments, and providing access to a wealth of authentic materials.

The integration of ICT and AI can be implemented to achieve several key objectives in language education: enhancing teaching and learning by catering to diverse learning styles and fostering communication among learners, improving administrative tasks through streamlined document management and information sharing, and refining assessment and reporting through electronic tracking of student progress and facilitating communication with parents and peers.

Within the broader framework of computer-assisted language learning, behavioristic and cognitive-intellectual theories offer different perspectives on how learners interact with technology. The behavioristic approach, rooted in the idea that repetition leads to retention,

[8] Gerd A. S. O spetsifike zadach v prikladnoy lingvistike // Strukturnaya i prikladnaya lingvistika: Mezhvuz. sb. — Sankt-Peterburg, 1998. — Vyp. 5. — S. 123—132.6

[9] Zubov A. V., Zubova I. I. Osnovy lingvisticheskoy informatiki. Ch. 3. Iskusstvennyy intellekt. — Minsk, 1993. - 144 s.

has evolved to incorporate more sophisticated techniques like deductive reasoning and the use of hypertexts[10]. However, its focus on mechanical learning and its limitations in fostering cognitive development have been critiqued. In contrast, the cognitive-intellectual approach emphasizes activating learners' cognitive functions, leveraging technology to create rich learning environments that encourage exploration and deeper understanding.

Research has consistently shown that TALL has a positive impact on learners' motivation and engagement. Studies by Alraimi[11], Huang[12], and L. Lee[13] have demonstrated that TALL can boost learners' motivation, willingness to communicate, and sense of autonomy. Similarly, AI tools like ChatGPT have been shown to be effective in helping learners develop core language skills and improve their vocabulary, pronunciation, and grammar.

The site of AI-powered tools in education is diverse, encompassing learner-centered, teacher-centered, and system-centered approaches. Learner-centered tools, such as adaptive learning platforms and intelligent tutoring systems, focus on individual needs, while teacher-centered tools aim to streamline tasks like lesson planning and assessment. System-centered tools, on the other hand, focus on optimizing the overall efficiency of educational institutions.

The use of AI technologies like speech recognition, machine translation, natural language processing, chatbots, and facial recognition is gaining traction in foreign language education. Speech recognition provides instant feedback on pronunciation, enhancing oral proficiency. Machine translation aids in comprehending foreign language texts, while NLP enables personalized learning experiences by analyzing learners' strengths and weaknesses. Chatbots offer interactive language practice, providing immediate feedback and support. Facial recognition can even be used to analyze learners' oral movements, aiding in pronunciation training. AI-powered platforms like Duolingo, Rosetta Stone, Babbel, Lingodeer, and Pronunciator are developing language learning by offering personalized, interactive, and engaging experiences.

[10] Nikitina, S. Ye. (1978). *Tezaurus po teoreticheskoy i prikladnoy lingvistike*. — Moskva. - 376 s.
[11] Alraimi K. M., Zo H., Ciganek A. P. Understanding the MOOCs continuance: The role of openness and reputation // Computers & Education. — 2015. — Vol. 80. — P. 28–38.
[12] Huang H. K., Chou C. Y. Effects of a blended learning approach on student outcomes in a graduate-level online course // Journal of Computer Assisted Learning. — 2015. — № 31 (2). — P. 191–201.
[13] Lee L., Lai C. Technology and motivation in foreign language learning: Does technology deepen student learning motivation? // Australian Journal of Educational Technology. — 2017. — № 33(4). — P 1–14.