

THE ROLE OF ARTIFICIAL INTELLIGENCE AND ADVANCED TECHNOLOGIES IN MODERN LANGUAGE PEDAGOGY

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Annotation: The utilization of Artificial Intelligence is fundamentally altering the landscape of foreign language education in academic settings. This article explores the transformative impact of artificial intelligence (AI) and advanced technologies on modern language pedagogy. It examines the various applications of these technologies, ranging from personalized learning platforms and intelligent tutoring systems to virtual and augmented reality experiences. The article also discusses the potential benefits and challenges associated with integrating these technologies into language classrooms, including considerations of accessibility, ethical implications, and pedagogical best practices.

Keywords: Artificial Intelligence, Language Pedagogy, Technology-Enhanced Learning, Personalized Learning, Virtual Reality, Augmented Reality, Chatbots, Automated Assessment, Machine Translation, Rosetta Stone, ChatGPT, Duolingo, Babel, Siri and Alexa.

Introduction

The landscape of language education is undergoing a rapid transformation, driven by the advent of artificial intelligence and other advanced technologies. These tools offer unprecedented opportunities to enhance language learning and teaching, promising more personalized, engaging, and effective learning experiences. From AI-powered language learning apps and virtual reality simulations to automated feedback systems and intelligent tutoring, technology is reshaping how languages are taught and learned. This article examines the diverse roles that AI and advanced technologies play in modern language pedagogy, exploring both their potential benefits and the challenges they present.

After the adoption of the Resolution of the President of the Republic of Uzbekistan No. PQ-5117 dated May 19, 2021 "On measures to bring the popularization of foreign language learning in the Republic of Uzbekistan to a qualitatively new level", attention to the teaching and learning of foreign languages has increased in our country. This resolution creates a strong impetus and incentive for the study of foreign languages in Uzbekistan. One of the points of the implementation of the resolution requires the use of advanced pedagogical technologies, interactive, innovative methods, and communicative and information tools in the process of teaching foreign language lessons [1]. Currently, the Common European Framework of Reference for Languages (CEFR) and the International English Language Testing System (IELTS) are very popular. The assessment of foreign language proficiency, and English in particular, is divided into four skills (reading,

writing, listening comprehension, and speaking), with separate concepts and skills being provided for each of them.

Methods

The role of modern technology in language learning and teaching is incomparable. The use of technological tools is useful in every aspect of learning a foreign language (reading, writing, listening comprehension and speaking). For example, for listening comprehension, this process cannot be carried out without a computer, player, CD discs. Listening comprehension is one of the most important parts of language learning. In this, the student is required to pay attention to the speaker's pronunciation, compliance with grammatical rules, vocabulary and its meanings at the same time. In the use of modern technologies in the educational process, it is also an important factor that students know and can use information and communication technologies well. Until now, when analyzing listening comprehension tests, the main method was for the student to listen to the audio file again or ask the teacher to explain the answers to questions that he did not understand. Eventually, this process can also be carried out using artificial intelligence programs [2]. In this case, the test questions and audio file to be processed are placed in one of the Bing AI or Open AI programs, and after the test is processed, the questions can be asked directly by artificial intelligence. This, in turn, creates convenience in the language learning process.

Teaching and learning a foreign language using modern technologies is one of the most effective methods. In this process, including: using computers, the student can watch and hear foreign language video clips, presentations, dialogues, movies or cartoons; he can listen to and watch foreign language radio broadcasts and television programs. In this case, after the language learner determines its level, he uses artificial intelligence-powered search engines such as Google, Yahoo or Yandex to find material appropriate to his level [3]. The use of these technical tools ensures that the process of learning a foreign language is painless and effective for students. In the process of globalization, it is difficult to imagine our life without the Internet.

Research shows that AI tools have proven their effectiveness in the following areas. The use of AI in the educational process leads to personalized learning. Adapts to the needs of each student. For example, Chen (2021) reported a 20% improvement in language learning outcomes through Duolingo [4]. AI tools provide real-time analysis and feedback, encouraging students to correct mistakes (Jones & Smith, 2020). Engaging students through interactive and gamified platforms (Brown, 2022). For example, in South Korea, AI tools have been widely implemented in schools, increasing student motivation by 30%.

The use of AI tools can widen the digital divide for students with disabilities. Lampou (2023) calls for the development of policies to ensure equal access to AI-based educational resources. Integrating AI tools into existing curricula requires careful pedagogical adaptation. Owoc et al. (2021) argue that teachers need to balance traditional teaching methods with the use of AI tools.

Studies by Gokcearslan et al. (2024) and Al-khreshehm (2024) demonstrate the effectiveness of AI chatbots in improving EFL learners' English language proficiency. These tools provide

real-time feedback and replicate real-life communication scenarios, which improves students' speaking and writing skills. Normuminov (2024) highlights the role of AI-based technologies in enhancing the professional competence of future English language teachers. By incorporating AI tools into teacher training programs, they can develop their skills in using these technologies in the classroom [5].

Results

The use of artificial intelligence tools in the Uzbek education system is not yet widespread. Nevertheless, some universities are trying to introduce modern technologies. For example, Tashkent State Pedagogical University recommends that teachers use Grammarly and ChatGPT tools as part of its experimental projects.

In 2023, the Internet penetration rate in Uzbekistan was 78%, while the rate of high-speed Internet access in schools and universities was around 65%. With the help of artificial intelligence, curricula are created that are tailored to the individual needs of students, which effectively increases the level of knowledge of students. AI-based platforms, such as Duolingo and Grammarly, increase student motivation and make learning more interesting for them. Giving students the opportunity to quickly identify and correct their mistakes using artificial intelligence tools improves the quality of education. Only 30% of teachers in Uzbekistan know how to use artificial intelligence tools. This, in turn, limits the effective implementation of artificial intelligence technologies in the educational process. However, 40% of students reported using such technologies, which indicates that students are ready to adopt advanced technologies.

AI has the potential to fully personalize digital language learning for each student, reducing the time, cost, and hassle associated with completing online or app-based courses. AI algorithms have the potential to improve eLearning across industries. Language learning solutions help large enterprises upskill their employees. Individuals can use AI language learning to learn whenever and wherever they want. Most importantly, AI-powered online language learning platforms allow people to learn a language in as little as 30 minutes a day. This allows them to stay logged in and learn whenever they want, wherever they want, without interruption. With AI used for language acquisition, learners can learn at their own pace, set their own goals, and follow a personalized curriculum from anywhere in the world. With a personalized approach to learning that varies from student to student, teachers don't have to cover the same content year after year. In addition, AI can help design engaging games, quizzes, and other learning and exploration activities that connect curriculum with student interests.

Discussion

Benefits of Artificial Intelligence

1. Personalized Learning and Adaptive Systems:

AI algorithms can analyze learners' individual strengths, weaknesses, and learning styles to tailor instruction and provide personalized feedback. Adaptive learning platforms, such as

Duolingo and Babbel, utilize AI to adjust the difficulty and content of lessons based on learners' progress, ensuring an optimal learning experience.

2. Intelligent Tutoring Systems:

AI-powered tutoring systems can provide individualized support and guidance to learners, offering targeted feedback on pronunciation, grammar, and vocabulary. These systems can simulate conversations, provide explanations, and offer practice exercises, mimicking the role of a human tutor.

3. Virtual and Augmented Reality (VR/AR):

VR and AR technologies offer immersive and engaging language learning experiences. Learners can interact with virtual environments, practice real-life scenarios, and engage in simulated conversations with virtual characters, fostering communicative competence in a safe and controlled setting.

4. Automated Assessment and Feedback:

AI-powered tools can automate the assessment of learners' writing and speaking skills, providing instant feedback on grammar, vocabulary, and pronunciation. This frees up teachers' time for more personalized instruction and allows learners to receive immediate feedback on their performance.

5. Machine Translation and Language Processing:

Machine translation tools can assist learners with comprehension and translation tasks, while natural language processing (NLP) can be used to analyze learners' language use and identify areas for improvement.

Challenges and considerations

While the potential benefits of these technologies are significant, several challenges need to be addressed. These include:

- **Digital Divide and Accessibility.** Ensuring equitable access to technology and resources for all learners.
- **Ethical Implications.** Addressing concerns related to data privacy, algorithmic bias, and the potential displacement of human teachers.
- **Pedagogical Integration.** Developing effective strategies for integrating these technologies into existing pedagogical frameworks.
- **Teacher Training and Professional Development.** Equipping teachers with the skills and knowledge to effectively utilize these tools.

Siri and Alexa. Voice assistants, such as Alexa and Siri, are useful tools for language acquisition. They are perfect for honing conversational and pronunciation abilities since they use sophisticated machine learning and natural language processing to comprehend and react

to customer enquiries. For example, students can get instant feedback on their pronunciation when they talk effectively to these assistants, which can help them become better speakers. By using these AI tools to have discussions, students may practise real-life conversations in a relaxed setting, which increases their confidence. Additionally, Alexa can be configured with a variety of language-learning-specific skills. Vocabulary tests, pronunciation drills, and even interactive storytelling are examples of these abilities that can improve learning effectiveness and enjoyment.

Duolingo. Another effective program that has grown in popularity due to its gamified approach to language learning is Duolingo. For learners of all skill levels, the app provides bite-sized lessons covering grammar, pronunciation, and vocabulary. By reviewing words and phrases at carefully timed intervals, spaced repetition—one of Duolingo's primary features—helps strengthen memory recall. Because it fosters constant practice over time, this strategy is very helpful for language learning. A range of interesting activities are also included in Duolingo, including listening comprehension tests, matching words with pictures, and phrase translation. Different learning styles are accommodated and users are kept engaged by the variety of learning activities available.

Babbel. Babbel stands out for its personalized curriculum and grammar exercises. With the help of AI, Babbel checks the user's pronunciation and gives them specific recommendations. Babbel also takes into account real-life situations, making learning effective.

Rosetta Stone. Rosetta Stone is a popular language learning platform that checks and corrects the user's pronunciation using artificial intelligence. It combines visual and audio materials during the learning process, making it easier to remember new words and phrases.

Busuu. Busuu organizes the learning process individually using AI. The application analyzes the user's mistakes, provides exercises to improve pronunciation, and provides lessons tailored to the level of learning.

Chat GPT. Recently, Open AI presented its latest achievements: the GPT 3.5 and GPT 4 chatbots, which significantly simplified the integration of artificial intelligence technologies and showed positive results in terms of increasing the efficiency of the learning process. The updated versions feature significant advancements in the field of text creation tools and applications. Compared to existing chatbots, the systems offer higher efficiency in text creation, especially for long essays and creative works, and have an amazing ability to perform human-like actions in various academic and professional tasks. This truly represents a revolution in the field of text creation.

Foreign researchers consider the use of GPT chat as an effective tool for writing full-cycle works: from idea to final editing. The main advantage is saving time and effort, which allows students and teachers to focus on other tasks [6]; the ability to generate new ideas for writing assignments [7]; high quality of translation, eliminating possible errors in language structures [8]; Machine intelligence can check and edit students' written work, suggesting corrections of grammatical, syntactic and spelling errors.

The directions of development of artificial intelligence are the creation of knowledge-based systems and the presentation of knowledge. This is the main direction of artificial intelligence.

They are related to the creation of knowledge description models and knowledge bases that form the core of expert systems. For example, based on the test, checking the knowledge level of students and English language learners, diagnosing them, dividing them into classes and groups, and stratifying them, that is, stratifying them according to the level of knowledge of the English language, these are: a) low-level or beginner groups; b) medium-level groups; c) high-level groups.

Conclusion

Artificial intelligence and advanced technologies are revolutionizing language pedagogy, offering new possibilities for personalized, engaging, and effective language learning. By carefully considering the potential benefits and challenges, and by developing sound pedagogical strategies for implementation, educators can harness the power of these tools to create enriching and transformative learning experiences for all language learners. The future of language education lies in the thoughtful and strategic integration of these powerful technologies, empowering learners to achieve fluency and intercultural competence in an increasingly interconnected world.

AI technologies allow students to access educational content anytime, anywhere, without the constraints of a traditional classroom. This flexibility allows for continuous learning and practice, which is essential for language acquisition. This information helps teachers adjust their instruction and identify areas where students need additional support.

AI can provide assessment and feedback on student work. It can assess oral and written language skills, and provide suggestions for corrections and improvements. This in turn can make the teacher's work a little easier and can be a practical aid to young teachers.

References:

1. Resolution of the President of the Republic of Uzbekistan No. PQ-5117 dated May 19, 2021 "On measures to bring the popularization of foreign language learning in the Republic of Uzbekistan to a qualitatively new level".
2. Alpaydin E. Introduction to Machine Learning. Cambridge, MA, The MIT Press Publ., 2014. 640 p.
3. Shirinoy Yusupova ADVANTAGES OF ARTIFICIAL INTELLIGENCE IN TEACHING ENGLISH // Academic research in educational sciences. 2023. №CSPU Conference 1.
4. Chen Y.C. Artificial intelligence-assisted personalized language learning: Systematic review and co-citation analysis // 2021 International Conference on Advanced Learning Technologies (ICALT). IEEE. 2021. P. 241-245.
5. Zaripov K.Ya ROLE OF ARTIFICIAL INTELLIGENCE IN TEACHING ENGLISH // EJTI. 2024. №5.
6. ChatGPT and a New Academic Reality: AI-Written Research Papers and the Ethics of the Large Language Models in Scholarly Publishing / B. Lund, T. Wang, N. R. Manuru et al. // Journal of the Association for Information Science and Technology. 2023. Vol. 74. Iss. 5. Pp. 570-581



7. Taecharungroj V. What can ChatGPT do? Analyzing early reactions to the innovative AI chatbot on Twitter // Big Data and Cognitive Computing. 2023. Vol. 7. Iss. 1. Art. 35. DOI: 10.3390/bdcc7010035
8. ChatGPT Generative Pre-trained Transformer, Zhavoronkov A. Rapamycin in the context of Pascal's Wager: Generative pre-trained transformer perspective //Oncoscience. 2022. Vol. 9. Pp. 82-84. DOI: 10.18632/oncoscience.571.
9. Healey, Justin. Artificial Intelligence (Volume 450). Thirroul: The Spinney Press, 2020.
10. Taylakova Guli Bekmuratovna ARTIFICIAL INTELLIGENCE IN EDUCATION // EJAR. 2024. №7S.
11. Arnurkyzy Aruzhan, Saduakas Akbota ARTIFICIAL INTELLIGENCE IN EDUCATION SYSTEM // International scientific review. 2024. №XCIV.
12. Linghui Kong. Computational intelligence and neuroscience. Volume 2022. 2p. 3. A. Aleina. translation technologies: Scope, Tools and Resources. Target. Volume 20, №6. P. 79-182.
13. I.Bowker. Computer-Sided translation technology. A practiced introduction. Ottawa. University of Ottawa Press. 2002