Svitlana NYKYPORETS
senior English language lecturer
Foreign Languages Department
Vinnytsia National Technical University

Bohdan KUTSYK
student of the Faculty of Management and Information Security,
Vinnytsia National Technical University

EVALUATING THE EFFECTS OF ARTIFICIAL INTELLIGENCE ON LANGUAGE ACQUISITION

In recent years, the integration of artificial intelligence (AI) into educational methodologies has prompted significant interest and research, particularly concerning its impact on language acquisition. As AI technologies such as natural language processing and machine learning become increasingly sophisticated, they offer unique opportunities to enhance how languages are taught and learned. This introduction to the study of AI's effects on language acquisition will explore how these technologies are being applied in educational settings, their potential benefits, and the challenges they pose. By analysing data-driven insights and case studies, this paper aims to provide a comprehensive overview of AI's transformative role in facilitating language learning, addressing both theoretical frameworks and practical applications.

Artificial intelligence is the simulation of human intelligence processes by machines, especially computer systems. Specific applications of AI include expert systems, natural language processing, speech recognition and machine vision [1]. Based on this, artificial intelligence has enormous potential in many industries and one of them is language learning.

In the realm of this industry, AI offers great opportunities for personalized and efficient education. With its adaptive algorithms and different simulations, artificial intelligence can provide learning experience to individual learners. This work aims to learn the influence of artificial intelligence on language learning, exploring its implications for learners, educators, and the future of language education based on AI.

Research results

Perhaps the oldest branch of computer science, artificial intelligence (AI) covers a wide range of topics, including creating systems that can learn and think like people and simulating cognitive processes for the purpose of solving problems in the real world. Thus, it is frequently referred to as machine intelligence. The study of artificial intelligence's (AI) effects gives its users a lot of useful information about how to use AI in the most efficient ways.

These days, research is also concentrated on the use of AI technologies in the classroom. For example, pre-service teachers (PSTs) and in-service teachers (ISTs) are being trained in the use of emerging technologies through a progressive introduction into teacher education. For instance, online courses have replaced traditional classroom instruction as the primary means of student instruction in teacher education.

Moreover, the increasing popularity of massive open online courses has allowed for the analysis of student involvement based on their activities, which are monitored by analytics provided by the platform. Also, artificial intelligence methods like natural language processing have been applied to the analysis of written and spoken language to improve better teaching experience.

AI can be defined as "computing systems that are able to engage in human-like processes such as learning, adapting, synthesizing, self-correction and use of data for complex processing tasks" [2]. AI is a broad field with many subfields. For example, machine learning (ML) uses algorithms to identify patterns in educational data through repeated training; deep learning simulates and predicts educational outcomes using large datasets; and natural language processing (NLP) uses algorithms for language recognition to extract and analyze textual meaning.

By using intelligent tutoring systems, intelligent agents, and intelligent collaborative learning systems, artificial intelligence (AI) supports and improves learning environments in education. AI research has recently had a big impact on education, and to combine multiple domains including computer science, image processing, linguistics, psychology, and neuroscience, an interdisciplinary

approach is needed. By providing real-time class status updates and addressing students' requirements via personalized learning platforms, artificial intelligence (AI) assists teachers in making decisions. Furthermore, AI has the power to change the educational landscape [3].

Types of AI language learning tools

There are various AI language learning tools available, each with unique characteristics and goals. For example, there are machine translation tools, language tutoring systems, language generation systems, language platform, etc.

Machine translation tools use AI algorithms to automatically translate text or speech from one language to another in real time. Translation tools are commonly used for quick translations of short phrases or sentences and are often found in mobile apps or online platforms (Google Translate, Bing Translator, ChatGPT, CHAR AI).

Dissimilar to translation tools, language tutoring systems tools use AI algorithms to give users personalized language lessons and feedback. They might have interactive lessons, activities, and tests to assist students get better at speaking, grammar, and vocabulary (Duolingo, Open English, Busuu).

Language generation systems tools use AI algorithms to produce original text in a given language based on a set of input parameters. These systems could produce reports, social media posts, or news stories. Software applications and internet platforms often have language generation technologies. One of them are Hugging Face's Transformer and OpenAI's GPT-3.

Some AI language learning technologies, such as chatbots that use natural language, mix elements of these categories.

Chatbots

Chatbot is a computer program or artificial intelligence which carries out conversations through audio or text [4], and interact with users in a particular domain or topic by giving intelligent responses in natural language [5]. Chatbots have been developed for both general and instructional purposes.

The idea of chatbots to be in role of teachers for language learning is still relatively new, despite their boundless potential to improve language teaching and

learning. Chatbot use is also compared with humanoid robot in science lecture class, and reported that the visualization using chatbot was helpful for students to understand the lecture smoothly [6]. However, researches on chatbot use and development to enhance language learning rather difficult to find. This study identified researches on language teaching and learning.

Conclusions

Artificial intelligence significantly influence on how much time need to spend on learning new language and it's efficiency due to the possibility of creating an individual plan to each student. Also, AI can use different methods and approaches for native speakers who have some similarities with learning languages or other factors, related with student.

References:

1. What is artificial intelligence (AI)? *TECHTARGET.COM*, 1 квітня 2024. Avaliable at https://www.techtarget.com/searchenterpriseai/definition/AI-Artificial-Intelligence.

2. Popenici, S. A. D., Kerr, S. Exploring the impact of artificial intelligence on teaching and learning in higher education. *RPTEL (Research and Practice in Technology Enhanced Learning).* 2017. Vol. 12, Art. 22. URL: https://doi.org/10.1186/s41039-017-0062-8.

3. Chen, L.; Chen, P.; Lin, Z. Artificial Intelligence in Education: A review. IEEE Access 2020, 8, 75264–75278.

4. Shevat A. Designing bots: creating conversational experiences. O'Reilly Media, Inc. 2017.

5. Nykyporets S. S. Impact of artificial intelligence on sustainable development of tertiary technical education in Ukraine. Proceedings of the 1st International Scientific and Practical Internet Conference «Impact of Artificial Intelligence and Other Technologies on Sustainable Development», December 28-29 2023. 2023. Pp. 22-25.

6. Nykyporets S. S. Challenges and implications of Artificial Intelligence and digitalization in the context of higher education in Ukraine. Збірник матеріалів II Міжнародної науково-практичної конференції для освітян «Березневий науковий дискурс 2024» на тему: «Детермінанти посилення ролі освіти у повоєнному відновленні України», м. Київ, 29 березня 2024 р. Чернігів : ГО «Науково-освітній інноваційний центр суспільних трансформацій», 2024. С. 64-67.

7. Kutsyk, B. M., Nykyporets, S. S., The impact of artificial intelligence (AI) on language learning. Матеріали Всеукраїнської науково-практичної інтернет-конференції «Молодь в науці: дослідження, проблеми, перспективи (МН-2024)», Вінниця, 11-20 травня 2024 р. Електрон. текст. дані. 2024. URL: https://conferences.vntu.edu.ua/index.php/mn/mn2024/paper/viewFile/21169/17643.