

Artificial Intelligence in Language Learning: What Are We Afraid of

Kushmar Lesia Viktorivna

Department of Foreign Philology and Translation,
Kyiv National University of Trade and Economics, Kyiv, Ukraine

Vornachev Andrii Oleksandrovyh

Department of Foreign Philology and Translation,
Kyiv National University of Trade and Economics, Kyiv, Ukraine

Korobova Iryna Oleksandrivna

Department of Ukrainian and Foreign Languages
National University of Ukraine on Physical Education and Sport, Kyiv, Ukraine

Kaida Nadia Oleksandrivna

Department of Foreign Philology and Translation,
Kyiv National University of Trade and Economics, Kyiv, Ukraine

Received: 02/02/2022

Accepted: 07/05/2022

Published: 07/25/2022

Abstract

Artificial Intelligence (AI) has been an essential part of human lives in the XXI century. The research paper focuses on examining the role of AI in English language learning, how effective it is, and what practical methods can be used to apply it effectively. AI has the potential to transform the functioning of the education system, increase the competitiveness of institutions and empower teachers and students at all levels. With intelligent content of instructions and testing, artificial intelligence allows focusing on the needs of the students. This review paper discusses what we are afraid of AI in language learning. The survey was conducted in 2021 for English language learners at Ukrainian Universities: Kyiv National University of Trade and Economics and Zhytomyr Ivan Franko State University. The study analyzes the responses of 418 students. Responses show a very high level (83-100%) of understanding AI in language learning. It determines the opinion that cyber-attacks will happen about future personalized accounts. It was the risk of losing personal information. Students fear losing a natural environment with speakers and their real emotions. Furthermore, this paper evaluates a very high level (98%) of the learners' spontaneity and creativity lack using AI in language learning. The report concludes with the notion that using AI in language learning requires the wisdom of human content designers and educational experts.

Keywords: Artificial Intelligence, language learning, foreign languages, online learning, Ukrainian Universities

Cite as: Kushmar, L.V., Vornachev, A.O Korobova.I.O., & Kaida,N.O. (2022). Artificial Intelligence in Language Learning: What Are We Afraid of. *Arab World English Journal (AWEJ) Special Issue on CALL (8)*. 262-273. DOI: <https://dx.doi.org/10.24093/awej/call8.18>

Introduction

Artificial Intelligence (AI) is an essential part of human lives, the important role of everything big and small; it is everywhere. With the technology of deep learning in medicine, AI has already reached an expert level in the diagnosing diseases and speech synthesis by reading the neural activity of the cerebral cortex. AI can compose music and literary drafts, and draw pictures by analyzing the works of artists, writers, and musicians. AI can already generate realistic photos and videos that are difficult to distinguish from real ones. It recognizes a person's face to protect access to data on gadgets, such as banking. Chatbots already exist and are becoming increasingly popular to improve customer communication based on artificial intelligence. The intelligent home system is one of the most popular technologies, which can monitor home security, control electricity and water consumption, network condition, clean the house, and generally make our life more comfortable. AI can distinguish odors and the mimic work of the human nervous system with the task of monitoring the environment ecology, as well as improving occupational safety at work. It is widely used in gaming. Studying the environment by trial and error based on AI is also an integral part of human development.

Moving from researchers' labs to our homes and gadgets, AI is penetrating our lives. The advantages of artificial intelligence are undeniable: the ability to process vast amounts of information in a short time, increase efficiency, and convenience, eliminate long-term processes and automate the usual with no fatigue.

AI is an essential part of the educational process. It can transform the functioning of the education system, increase the competitiveness of institutions and empower teachers and students at all levels. Voice assistants, such as Amazon Alexa, Apple Siri, and Google Home, allow interaction with various learning materials anywhere and anytime without communicating with the teacher. Intelligent content means various learning materials, from digitized textbooks to customized interfaces. Using the possibilities of artificial intelligence, students can study multiple courses and curricula worldwide.

Artificial intelligence also penetrates the study of languages. But what are we afraid of AI?

Literature Review

The Concept and Components of Artificial Intelligence (AI) and the History of Its Development

The term artificial intelligence was constructed the first in 1956 by John McCarthy (McCarthy et al., 2006). "At that time, the researchers came together to clarify and develop the concepts around thinking machines which up to this point had been quite divergent. McCarthy is said to have picked the name artificial intelligence for its neutrality; to avoid highlighting one of the tracks being pursued at the time for the field of thinking machines that included cybernetics, automata theory and complex information processing. The proposal for the conference said, "The study is to proceed on the basis of the conjecture that every aspect of learning or any other feature of intelligence can in principle be so precisely described that a machine can be made to simulate it." (as cited in Marr, 2018, para. 2).

AI refers to a broad field of science encompassing computer science, psychology, philosophy, linguistics, mathematics, and others. It becomes evident that there are many points of view on AI, and many definitions exist.

Dictionary definitions focus on AI “is a sub-field of computer science and how machines can imitate human intelligence: a branch of computer science dealing with the simulation of intelligent behavior in computers; the capability of a machine to imitate intelligent human behavior” (as cited in Merriam-Webster).

“Definitions of artificial intelligence begin to shift based on the goals that are trying to be achieved with an AI system. Generally, people invest in AI development for one of these three objectives: build systems that think exactly like humans do (strong AI), just get systems to work without figuring out how human reasoning works (weak AI), and Use human reasoning as a model but not necessarily the end goal” (as cited in Marr, 2018, para. 7).

“Amazon defines AI as the field of computer science dedicated to solving cognitive problems commonly associated with human intelligence, such as learning, problem-solving, and pattern recognition. Machine learning is so important to Amazon, they stated, Without ML, Amazon.com could not grow its business, improve its customer experience and selection, and optimize its logistic speed and quality (as cited in Marr, 2018, para. 10).

Machine and deep learning are the priority for Google AI and its tools to create smarter, more useful technology and help as many people as possible from translations to healthcare to make our smartphones even smarter. Facebook AI Research is committed to advancing the field of machine intelligence and is creating new technologies to give people better ways to communicate. IBM’s three areas of focus include AI Engineering, building scalable AI models and tools; AI Tech, where the core capabilities of AI such as natural language processing, speech and image recognition, and reasoning are explored and AI Science, where expanding the frontiers of AI is the focus” (as cited in Marr, 2018, para. 12).

Artificial Intelligence and Education

Entering the 21st century has been accompanied by many radical changes in the educational system as far as learning inputs, processes, and outcomes are concerned. Intelligent machines as applications of AI contribute to changing the roles played by schools, teachers, and learners. They will also change the traditional and virtual patterns of interaction in the educational milieu. Teachers and learners will be dealing with interactive machines to share educational experience, and achieve the required objectives. These machines will offer interactive educational platforms that conduct discussions with the students and respond to their questions and reactions. They will solve traditional classroom problems such as paying attention and motivation, caring for individual differences among learners, and supporting those with special needs. With feedback, improving the levels of student achievement, and developing positive attitudes towards teaching/learning, they will also provide solutions to the problem of interaction in large classrooms. These aspects will be directly and positively affected by employing AI applications in the teaching/learning process (Dickson, 2017).

Al-Gayyar, (2013) indicates that AI applications vary, and intelligent systems of online electronic learning are among the most essential intelligent educational systems. These are the most significant applications of AI use in Education. They are the outcome of merging many systems and applications in the field of AI such, as Intelligent Tutoring Systems, Activating the Internet, Activating hypermedia, and Activating distance E-education (pp. 503-504). Muhammad, (2014) describes various applications of AI, “which include electronic neural networks, developed hybrid systems, applications of developmental algorithms, electronic auto-copying, adaptive electronic platforms, bio-robots, Nano-technology, chemical and organic systems, and advanced controlling systems” (p. 18).

Borge, (2016) analyzes the importance of AI applications in the results of student evaluation processes at the university and pre-university stages. AI makes it easy for instructors to measure their students’ level precisely, which is something often difficult to achieve. It enables university teaching staff to assess the status of the educational processors and determine deficiencies in the lectures, scientific content, and the educational material introduced to students. AI helps meet the needs of each student according to their abilities and needs by submitting home assignments and monitoring the scores obtained by each student because it has intelligent programs that identify common mistakes. It gives the instructors hints as to what the problems are, and introduces instant feedback in a file designed separately for each student. Furthermore, AI tools and programs can cope with classroom density (pp. 10-11).

Nowadays, studies refer to the diversification of AI education applications, including programmed learning and other open-source high technology. The importance of AI applications is determined by the ability: - to suit the needs and skills of the learners; - to work according to their educational preferences; - and to monitor the progress rate of each learner. These applications contain tracks that suit all learners despite differences among their levels, boost their learning motivation, and cope with students’ low levels of attention. They provide feedback that indicates student achievement levels and points of weakness and strength in the scientific content. They ensure that the curriculum subjects are integrated parts of each subject, and that the learner has mastered one section before moving on to a more advanced one. The scientific content can be introduced in the form of problems, which the students work out according to their self-study streams. Instructors monitor this process and provide guidance and feedback. AI tutoring systems can replace instructors as they have programs that provide advice automatically and enable learners to use self-study skills (Kamuka, 2015).

Teaching English as a foreign language is regarded as developing communicative competence, which is achieved through knowing how to use language elements and vocabulary to develop the skills of listening, speaking, reading, and writing. It also includes using language to produce texts, and how to use it to understand reading passages. The process of language development is based on communication as a goal and as a process. Therefore, using traditional and digital communication strategies in the teaching/learning processes and activities is necessary. It is required to use AI applications such as simulation and communication programs as they simulate real-life communication situations in English, introduce practical training in language skills, and educational games based on language. Communication tools based on AI help design situations for practicing the accurate pronunciation of letters and words through sound drills and

visual media. Such devices provide exercises for describing and interpreting images and everyday situations, for listening, and for practicing guided pronunciation. They also allow learners to practice language skills and provide feedback for guidance. Some programs have language drills that give training in communication through using language skills to guarantee that learners reach proficiency levels (Barnes-Hawkins, 2016).

Radwan, (2017) indicates that AI can be used to overcome many of the difficulties of teaching/learning English: using Information Retrieval techniques to build the ability to comprehend reading passages; employing Machine Translation to develop students' translation skills; using Automatic Speech Recognition techniques to learn correct pronunciation, using Text-to-Speech techniques for blind and visually impaired students; using open digital language dictionaries to enrich the vocabulary of the student; using intelligent programs to augment speaking skills for English learners; implying a writing evaluation technique to teach paragraph and essay writing.

Data and Methodology

The study used the descriptive-analytic approach to investigate the phenomenon of Artificial Intelligence in language learning. The purpose of a literature review is to answer questions about Artificial Intelligence, its components, and language learning applications, based on a clear, systematic, and replicable search strategy, with inclusion and exclusion criteria of studies. The research focuses on examining the role of AI in English language learning, how effective it is, and what practical methods can be used to apply it effectively.

Research Instrument

A questionnaire was designed to measure the point of view of university students about AI in language learning. The validity of the questionnaire has been revised by twenty-eight of the academic staff specializing in teaching methodology, curricula, and psychological testing. The questionnaire content has been determined as some questions (Table 1):

Table 1. *The questionnaire*

Questions	Answers
1. What does Artificial Intelligence mean?	
2. Where do you use AI?	
3. Does AI have a positive or negative effect on your life?	
4. How do you rate AI in language learning (%)?	
5. What are you afraid of AI in language learning?	

Participants

The sample consists of the students at the Foreign Languages Departments of Kyiv National University of Trade and Economics and Zhytomyr Ivan Franko State University. It was applied to 418 students of English during the first term of the academic year 2021/2022 at three

universities in Ukraine. The participants were last-year students, and proficient English users. All were exposed to online language learning with previous online experiences.

Results

1. What does Artificial Intelligence mean?

All participants answered the question in different ways, for example: it is a robot to perform tasks, it is science and engineering, it is a computerized system, it is our future, it is our life today, it is machine learning, machine intelligence, etc. According to the definitions of Cambridge dictionary (“AI – the study of how to produce machines that have some of the qualities that the human mind has, such as the ability to understand language, recognize pictures, solve problems, and learn” (as cited in Cambridge dictionary)), and Britannica (“the ability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings” (as cited in Britannica: dictionary)) all answers were structured in four groups as in Table 2.

Table 2. *Participants’ answers to the first question, %*

Answers	%
The ability of a computer to perform intelligent tasks	78 %
Computer science	11 %
Life today	9 %
Danger in life	2 %
Total	100 %

Table 2 indicates the following:

- Based on the responses, Artificial Intelligence influences nearly every part of our lives to help improve human efficiencies.
- Responses demonstrate a very high level of understanding of the AI’s role in peoples’ life.
- A small number of answers refer to fears about the future use of AI. The participants wrote about general anxiety about machine intelligence, the fear of mass unemployment, concerns about super-intelligence, and putting the power of AI into the wrong peoples’ hands.

2. Where do you use AI?

Responses to this question covered a wide range of areas of human life, Figure 1.

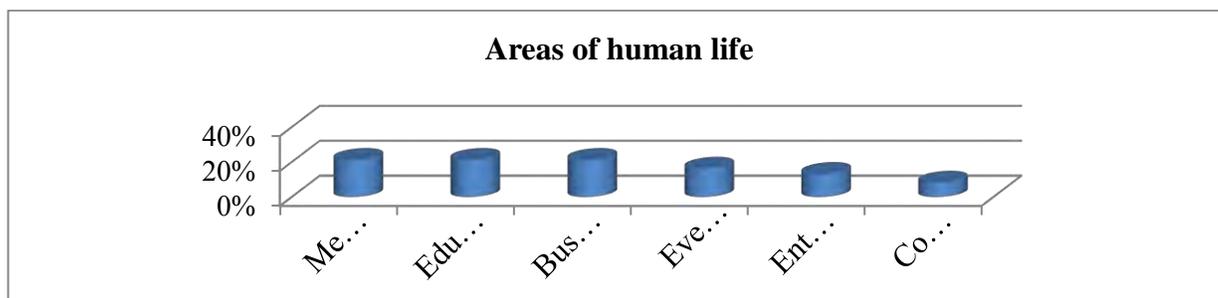


Figure 1. Answers to the second question, %

Figure 1 indicates the following:

- The importance of AI in the field of Medicine, Education, and Business is reflected by a very high level of value (21 %).

Answers about Medicine concern updating records, reviewing test results, handling drug refills, checking EKG (electrocardiogram) recordings of the heart, screening chest X-rays for many diseases, reading mammograms to look for early signs of breast cancer, checking moles for signs of skin cancer, screening for COVID-19 by the sound of the cough, giving real-time info about health to the doctors and about homebound people to caregivers, etc.

The responses related to the area of Education reflect a high level of understanding of AI's role in this sphere nowadays. Participants described digital voice assistants, online meetings, Google search, and different apps for studying. AI drives efficiency, personalization, and streamlines admin tasks to allow teachers the time and freedom to provide understanding and adaptability. Students mentioned tutoring via AI chatbots, personalized learning programs adapted to each student's ability and goals, 24/7 access to learning from anywhere, and time-management benefits.

The responses concerned with Business reflect product recommendations and purchase predictions, fraud detection and prevention for online transactions, dynamic price optimization, ad targeting and optimized, real-time bidding, customer segmentation, social semantics, sentiment analysis, voice-to-text features, automated responders, online customer support, sales, business forecasting, and predictive customer service, etc.

- The responses related to AI in everyday life formed 16 %, and in entertaining – 13 % of all answers. Participants wrote about heating/cooling preferences, intelligent refrigerators, navigation apps, 3D photography, facial recognition, online banking, autonomous vehicles, **etc.** The majority of responses to artificial intelligence in media, shows, videos, sports, and games regarded by interviewees as concerned entertaining area.

- The level of AI importance in the communication area reflects a low level of agreement; the mean value is 4 %.

3. Does AI have a positive or negative effect on your life?

Answers to the third question indicate 99 % getting an idea about the positive effect of AI and 1 % about the negative impact of AI. It has been suggested according to the following:

- **Respondents** use Artificial intelligence with a wide range of applications in our daily lives: from intelligent devices, music, media streaming services, and banking to education, and healthcare. They are ubiquitous and simplify the vast majority of our daily lives.

- A small number of responses concerned with a negative effect reflect fears about AI because systems can never be wholly understood and can fail in unpredictable ways.

4. How do you rate AI in language learning (%)?

Responses to this question covered five areas of using AI in language learning, Figure 2.

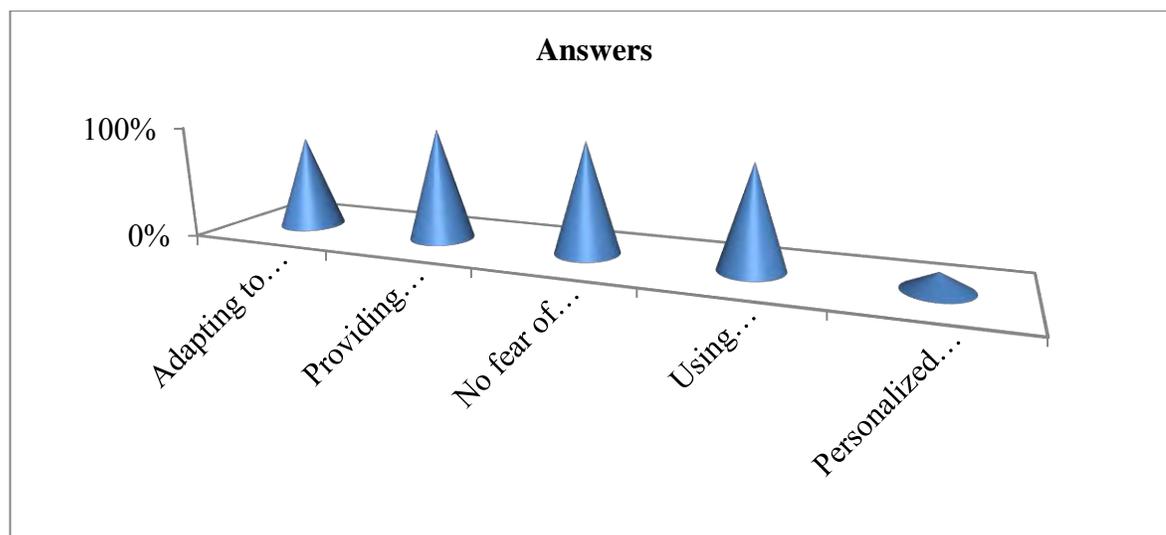


Figure 2. Answers to the fourth question, %

Figure 2 indicates the following:

- Based on the responses, AI provides instant feedback 100 %. Students wrote about the results, and the mistakes they made, pointing out mistakes and proposed ways to avoid them in the future. Participants make while learning; adaptive educational systems shape their learning path through appointed learning materials.

- Responses show a very high level (83-100%) of understanding AI in language learning, especially in foreign languages. In most cases, students wrote about applying AI-powered language learning software (MyEnglishLab platform and app by Pearson).

- A small number of answers refer to Personalized textbooks (15 %). However, it is one of the most precious merits of AI concerning Education to adapt to the expectations of each learner, such as personality, talent, objectives, and background.

5. What are you afraid of AI in language learning?

The objective of the question was to determine the respondents' attitude to the emergence and development of AI in language learning, focusing on the negative implications entailed by its effect.

The results revealed the following:

- Most of the respondents believe that cyber-attacks are to happen to their personalized accounts in the future. It is the risk of losing personal information, Figure 3.

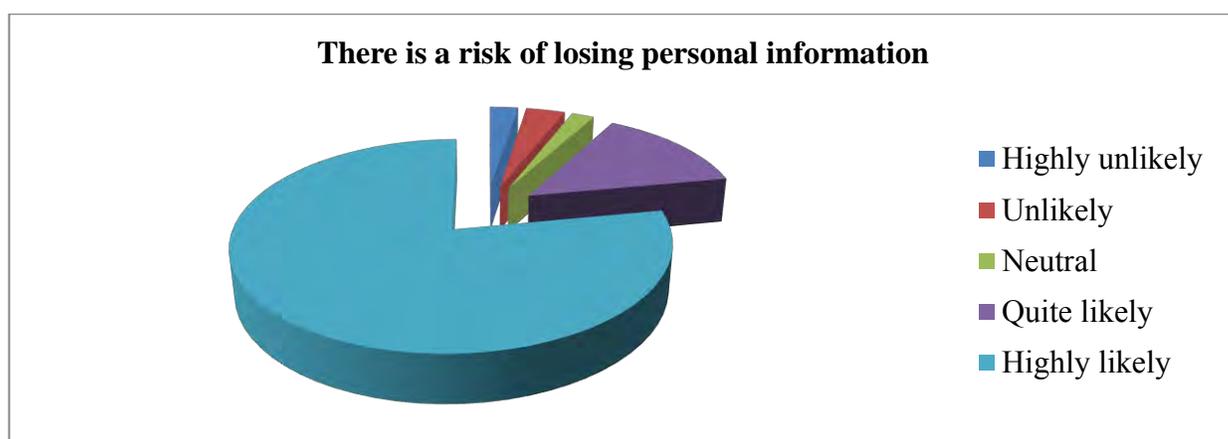


Figure 3. Risk of losing personal information, %

- Responses concerned humanity being destroyed by AI intelligence in language learning. It is followed by those who think this is likely to happen in the future – 22 % of total responses; who think neutrally on this issue – 51 %; who believe that it is unlikely to happen – 27 %.

- Based on the responses, with AI, humans can talk to machines akin to when they speak to a human. But learners are afraid of assessment by AI in 92 % because of their pronunciation, accent, way of speaking, and emotions.

- Responses show a very high level (98%) of lack of creativity using AI in language learning. The problem is that learners work with close tasks, and many apps are based on outdated concepts because they are easy to model. There is a lack of space for learners' spontaneity.

Discussion

It has been found that students were more positive in learning English with AI. It is true when students selected to learn the language with MyEnglishLab (an online component designed by Pearson) were more confident in their speaking, grammar, and vocabulary. It seems indirect, but reading and writing can also be strengthened.

The quality of Education ultimately depends on the quality of the learning content. Creating new content requires the wisdom of human content designers and educational experts. To date, AIs have not shown the capability of creating learning content independently. However, they still

have plenty to offer in content production by automating mundane jobs and helping humans in tasks where human input is necessary. Specifically, the role of AI should be to take away repetitive tasks that can be automated and assist humans by providing feedback extracted from data during the process of content production in a human-in-the-loop manner (Maghsudi, 2021, p. 6).

Students fear of losing an unnatural environment with native speakers of the language and an unnatural learning environment in institutions with no language speakers. Learning and teaching a foreign language in an artificial learning environment often arises. But there are real emotions of people. With AI, the need for real people will not disappear; it will only exacerbate the feeling of fear about unreal life.

Three different scenarios stand out in foreign languages within the framework of technological developments. The first of these scenarios is that there is no longer a need to learn a foreign language because communication in a foreign language will take place with technological devices, human influence will remain in the background. A device will instantly transfer conversations between people from one language to another. The second scenario suggests that foreign language learning is needed, but the learning method is different. Foreign language will not be taught in educational institutions with a proper understanding, and it will be learned informally, just like native language acquisition. The last scenario is about learning a foreign language both formally and informally. The second reminds of the understanding of de-schooling foreign language learning, which is the subject of this study. Those who learn through autonomous learning will understand the foreign language they want to learn online without needing for a school. Undoubtedly, this type of learning method requires learners to have some competencies. Learners should have a developed sense of responsibility, self-control, questioning, interpreting, testing their learning, making decisions, implementation, and self-orientation. Because they no longer have the the planning, timing, and evaluation system, they find them ready at school. Learners themselves must create all of these systems. It can be easily observed that these skills are not yet developed in foreign language students nowadays (Bozavli, 2021).

Conclusion

AI significantly improves the quality of language learning by adapting to the individual features (talent and background) and expectations (aims and objectives) of each student. Online language learning is of the utmost value under abnormal circumstances such as the COVID-19 outbreak. There is a necessity for future research about AI in language learning: conflicting objectives; assessment and evaluation; incentives and motivation; building learning networks; diversity, and fairness.

About the Authors:

Kushmar Lesia Viktorivna, Ph.D. (Candidate of Philological Sciences), Associate Professor of the Department of Foreign Philology and Translation, Kyiv National University of Trade and Economics. Sh has 16-year experience in teaching foreign languages and applied subjects. Research interests include the English language teaching methods, psycholinguistics, etc. Author of nearly 80 publications, including four textbooks. <https://orcid.org/0000-0003-0407-6267>.

Vornachev Andrii Oleksandrovysh, Ph.D. (Candidate of Philological Sciences), Associate Professor of the Department of Foreign Philology and Translation, Kyiv National University of Trade and Economics. About 21-year experience in teaching foreign languages and applied subjects. Research interests include the English language and the English language teaching methods. Author of nearly 30 publications. <https://orcid.org/0000-0003-0342-0601>.

Korobova Iryna Oleksandrivna, Ph.D. (Candidate of Philological Sciences), Associate Professor of the Department of Ukrainian and Foreign Languages, National University of Ukraine on Physical Education and Sport. About 20-year experience in teaching foreign languages. Research interests include the English language teaching methods, etc. Author of nearly 45 publications. orcid.org/0000-0001-8253-9330.

Kaida Nadia Oleksandrivna, Senior Lecturer of the Department of Foreign Philology and Translation, Kyiv National University of Trade and Economics. About 25-year experience in teaching foreign languages. Research interests include the English language, the English language teaching methods, etc. Author of nearly 20 publications. orcid.org/0000-0002-7702-660X.

References

- Al-Gayyar, G. A. N. M. (2013). Employing Artificial Intelligence for building educational websites is a prelude to the development of electronic university learning. *Future of Arabic Education: The Arab Center for Education and Development*, 20 (82), 501–510.
- Barnes-Hawkins, C. (2016). English language learners' perspectives of the communicative language approach. Available at <https://scholarworks.waldenu.edu/cgi/viewcontent.cgi?article=3623&context=dissertations&httpsredir=1&referer=>.
- Bozavlı, E. (2021). Is Foreign Language Teaching Possible Without School? Distance Learning Experiences of Foreign Language Students at Ataturk University During the Covid-19 Pandemic. *Arab World English Journal*, 12, 3–18. <https://doi.org/10.24093/awej/vol12no1.1>
- Britannica: Dictionary. Available at <https://www.britannica.com>.
- Borge, N. (2016). White paper – Artificial Intelligence to Improve Education/Learning Challenges. *International Journal of Advanced Engineering & Innovative Technology*, 2 (6), 10–13. <https://doi.org/10.32595/iirjet.org/v2i2.2016.29>
- Cambridge dictionary. Available at <https://dictionary.cambridge.org>.
- Dickson, B. (2017). How Artificial Intelligence is Shaping the Future of Education. *PC Magazine*, 105–115. Retrieved from <https://www.pcmag.com/news/how-artificial-intelligence-is-shaping-the-future-of-education>.
- Kamuka, E. E. D. I. (2015). Artificial Intelligence in programmed Education. *The Arab Institution for Scientific Counsel and Development of Human Resources*, 49(1), 84–96.
- Maghsudi, S., Andrew Lan, A., Jie Xu, J. & Schaar, M. (2021). Personalized Education in the AI Era: What to Expect Next? Retrieved from <https://researchin.net/archives/pdf/Personalized-Education-In-The-Ai-Era-What-To-Expect-Next-1923819>.

- Marr, B. (2018). The Key Definitions Of Artificial Intelligence (AI) That Explain Its Importance. Available at <https://bernardmarr.com/the-key-definitions-of-artificial-intelligence-ai-that-explain-its-importance/>.
- McCarthy, J., Minsky, M., Rochester, N. & Shanno, C. (2006). A Proposal for the Dartmouth Summer Research Project on Artificial Intelligence. *AI Magazine*, 27 (4), 12–14.
- Merriam-Webster: Dictionary. Available at <https://www.merriam-webster.com/dictionary/artificial%20intelligence>.
- Muhammad, N. S. E. (2014). *Motivation applications in artificial intelligence*. Unpublished M. A. thesis. Al-Neelain University, Khartoum.
- Radwan, Z. M. (2017). *Artificial Intelligence and its impact on development*. ASBAR Council. Retrieved from <http://multaqaasbar.com/index.php>.