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Research Article

POSSIBILITIES OF APPLICATION OF ARTIFICIAL INTELLIGENCE TECHNOLOGY IN TEACHING FOREIGN LANGUAGES IN UNIVERSITIES

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ABSTRACT

This article deals with the features of using AI technologies in foreign language learning at universities, as well as its advantages for both students and teachers. Special attention is paid to neurolinguistic programming (an area that combines artificial intelligence and linguistics, and is associated with automated processing of human language), machine and deep learning (a method that uses artificial neural networks to learn from large datasets).

KEYWORDS

Education, artificial intelligence, neuro-linguistic programming (NLP), machine learning, deep learning, foreign language.

INTRODUCTION

The widespread introduction of digital technologies affects all spheres of human activity, including production and business processes, the social sphere of society, and the education system. Digital development also has a huge impact on the education sector, including the improvement of the activities of higher educational institutions. The modern period in the activities of universities is increasingly using digital technological solutions that allow the transition to personalized learning, which is necessary to achieve the highest results of educational activities. Digital technologies effectively influence the development of the digital infrastructure of universities. This aspect implies the development of communication channels, the acquisition of new devices for the use of digital educational materials in the educational process.

THE MAIN RESULTS AND FINDINGS

In the modern period, it is no longer possible to imagine the activities of a higher educational institution without the integrated use of computer networks, digital platforms, virtual libraries, electronic

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courses and educational publications, advanced technological and pedagogical solutions based on the use of advanced information and communication technologies. Digital technologies in the modern period have a positive impact on the development of academic mobility programs, attracting leading scientists, practitioners to improve the quality of education.

A number of domestic and foreign studies are devoted to the study of certain aspects of the digitalization of education, the problems that teachers and students have to face in the process of using computer technologies. Digital technologies are completely changing the established model of education. Unlike classes conducted in the traditional form, the learning process using digital tools becomes more interesting and productive. In the framework of this work, we turn to the consideration of the possibilities of using artificial intelligence (AI) technologies in the study of a foreign language at a university. In the higher education system, language groups often have more than 20 students, and it is almost impossible for a teacher to find the right approach to everyone at the same time. But thanks to the use of artificial intelligence for learning a non-native language, it is possible to focus on the educational needs of each individual student. By applying AI-based technology solutions integrated into the learning process, educators can collect a wealth of data about students, their interests, abilities, and so on. When analyzed, this data can pave the way for personalized learning.

AI language learning platforms allow students to work at their own pace, repeating topics and focusing on what they are having trouble with. The AI-powered learning platform can automatically grade tests and even essays as soon as they are taken, instantly identifying mistakes and suggesting ways to avoid them in subsequent assignments. This allows learners to take immediate action to correct their mistakes and possibly do better on future tests. For educators, AI-assisted language learning solutions can identify weaknesses in the curriculum and help educators see what can be improved in their lectures or practice assignments. Thanks to the introduction of artificial intelligence in the educational process, teachers have more time to coordinate educational activities and mentor students. In addition, educators can become data scientists by analyzing and using the information they learn from the learning process. When learning a language using AI technologies, the process of obtaining feedback is accelerated. In turn, students get the opportunity to set their own goals and follow an individual program.

As Rolgaiser A.A. notes, today the most popular artificial intelligence tools that are used in the study of foreign languages are text recognition and analysis services (voice assistants, chat bots, online translators, services for checking spelling, punctuation, grammar and text style). AI-powered language chatbots are capable of presenting personal responses to students' messages, can evaluate their work or give advice on what they need to improve.

Recently, the use of neural networks has allowed machine translation to take a giant leap forward, making it possible to include this technology in the process of learning a foreign language. For example, machine translation as a bad model is a pedagogical method by which students identify inconsistencies and errors in the translated text and correct them. This helps students to better perceive a foreign language and its features, understand the structure of sentences and expand vocabulary. Since students learn differently and at different rates, it is unreasonable to expect everyone to follow the same textbook and

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achieve the same success. This is why personalized textbooks are so important. When a smart language learning solution is aware of progress and adapts to needs based on personal data, it can provide the necessary learning materials. Adapting textbooks can also be helpful for educators. For example, if teachers were able to upload their educational programs to a system created on the basis of artificial intelligence, the system itself could create textbooks adapted for a particular course or even a group of students. Neuro-linguistic programming (NLP), phrase extraction, and point-to-point mutual information are often used to help artificial intelligence become a valuable tool for language learning. NLP allows machines to read and understand human language, and phrase extraction can be used to extract information, classify documents, and solve language generation problems. When it comes to introducing artificial intelligence into language learning, there is a large selection of Android, iOS and NLP learning apps that help learners master the vocabulary of the target language.

Some apps use data from Oxford Dictionaries and integrate an artificial intelligence called FeeBu (Feedback Butterfly) to simulate the behavior of a teacher who gives automated intelligent feedback. The application has access to a huge corpus of authentic English texts, thus providing a contextualized vocabulary. FeeBu uses four basic criteria to measure language learning success: grammar, spelling, meaning, and word choice. The FeeBu-based application has a component that automatically generates space-filled exercises and answer options given a headword and semantic context. In addition, a system is used that automatically evaluates the text and analyzes it in order to identify grammatical errors. For quick feedback, a server-side component has been introduced that analyzes student responses using NLP processing.

Corpus analysis with the n-gram model, collocation extraction, and point mutual information extract collocations from the huge corpus of the English language to provide a reliable assessment of fluency. The application proved so successful that Oxford University Press, the world's largest publisher of English language learning materials, purchased it and licensed the technology for worldwide distribution. Summarizing, it should be noted the general key concepts of using artificial intelligence technologies in terms of language learning:

1. Neuro-Linguistic Programming (NLP) is a field that combines artificial intelligence and linguistics, the purpose of which is the automated processing of human language. NLP focuses on the creation and analysis of written and spoken language, although speech processing is often treated as a separate field. NLP can be seen as the applied side of computational linguistics, an interdisciplinary field of research related to the formal analysis and modeling of language and its applications at the intersection of linguistics, computer science and psychology.

2. Machine learning is part of artificial intelligence. This refers to systems that receive information or learn from experience. Machine learning "helps find solutions to many problems with speech, recognition, and robotics."

3. Deep learning is a field of artificial intelligence, a type of machine learning that uses artificial neural networks (computing systems that resemble certain neural networks in the human brain) to learn from large datasets. Deep learning mainly focuses on vision based categories (e.g. image discrimination) but can also be used for NLP purposes. Experts believe that AI-based tools “offer the possibility of learning that is more personalized, flexible, inclusive and engaging,” and there is evidence that digital language learning itself

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has become more dynamic and adaptive. Especially for assistive and adaptive language learning scenarios (when the algorithm supports the teacher and the student and creates an individual learning path), so-called narrow artificial intelligence technologies come into play.

They can be divided into the following categories:

1. Learner-centric AI tools that help improve in a particular subject through specific practice patterns, reflective feedback mechanisms, or behavioral exercises.

2. Teacher-centric systems: teacher-centric tools that aim to minimize the workload, mainly in automated processes (such as grading, feedback mechanisms, classroom management, administrative issues).

3. Artificial intelligence system tools: algorithms that provide processed data mainly to institution administrators or stakeholders, such as software that processes student work and calculates their future academic performance. Thus, the introduction of AI in the educational process significantly changes the approaches to the work of a teacher. For several years now, leading universities have been trying to modernize the educational linguistic process with the help of artificial intelligence. However, since the introduction of online learning in this sector, the changes are not yet so massive.

With the development of the material and technical base of the university, it becomes possible to use machine learning technologies, robotics, and artificial intelligence. In addition, the development of digital technologies requires the faculty to constantly improve their qualifications in the use of advanced innovative technologies. Artificial intelligence is already an integral component of the foundation of the modern education system. Based on this, one of the objectives of the project is to study and systematize the main modules in education management systems.

The main attention is supposed to be paid to interactive lectures, individual and group trainings, journaling of learning outcomes. The possibility of involving the process of educational communication not only of the students themselves, pedagogical and administrative employees of the university, but also representatives of the families of students by organizing a wide informing about the results of educational activities is considered. The purpose of studying the components of educational systems using elements of artificial intelligence is to build individual learning trajectories while automating the verification of learning outcomes and self-control mechanisms, studying algorithms for taking into account the control points of classes, tracking the progress of students, identifying the most difficult elements of the course to master and informing the teacher about them.

CONCLUSION

A separate aspect of the project is the study of learning gamification technologies, the use of game tasks not only during classes, but also in the organization of certification tests. For the organization of educational communication, the use of chat bots, forums, etc. is considered, which help to maintain an educational dialogue, to establish support for the learning trajectory. Adaptive learning management is considered as one of the promising directions for modifying the classical components of language training. One of the objectives of the project is to study various aspects of the algorithms for the formation of the educational trajectory of learning a foreign language, taking into account the peculiarities of the functioning of language units inherent in this language.

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