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USING ARTIFICIAL TEXT TO PERSONALIZE E-LEARNING

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Abstract. In the context of modern technological dominance at all levels of life, universal solutions are becoming insufficient. Consumers are demanding “personalization”, and companies are adapting to these requests to make their products and services more attractive to a specific audience. In education, this is manifested in the creation of a learning environment where students can manage their own learning.

E-learning, based on information and communication technologies, has become popular in recent years. To achieve the best results in such learning, its personalization is necessary, which can be effectively achieved with the help of artificial intelligence technologies.

The purpose of this paper is to study the possibilities of using artificial intelligence technologies for personalization of e-learning. The methods of comparative and system analysis, as well as a logical approach, were used. The article discusses key approaches to personalized learning and the features of personalization in the context of e-learning. An analysis of the possibilities of using artificial intelligence in this area was conducted, and conclusions were made that such technologies can simplify the process of personalized e-learning without increasing the workload of teachers.

Keywords: educational process, personalization, e-learning, virtual educational environment, artificial intelligence, personalized educational technology systems.

Introduction. Modern education should be aimed at developing the skills needed in the digital economy, which contributes to improving the quality of life and conditions for entrepreneurship [1].

Key educational trends in modern conditions are: personalization of learning, adaptive learning, student involvement in the process of creating curricula, the use of open data, active student interaction and inter-university educational projects. Research shows that 77% of education specialists consider personalized learning to be critical for increasing student engagement and improving the effectiveness of the educational process [7].

Personalized learning, which adapts educational content to the individual needs of students, is becoming an important element of the educational process. More and more educational institutions around the world are beginning to implement this approach, using the capabilities of data analysis and artificial intelligence to achieve better results.

E-learning is the process of delivering educational programs and materials using electronic means. It involves the use of computers or other electronic devices to deliver educational content. The main advantage of e-learning is the ability to gain knowledge anytime and anywhere.

Personalized learning. Personalized learning is an approach in which the pace and methods of teaching are adapted to the needs of each student. In this process, learning objectives, teaching methods, content and order of materials can be varied to meet the unique needs of each student.

There are several main methods of personalized learning. Adaptive learning is based on data about various aspects of a particular student's learning, from studying the material to passing exams. This allows for the selection of materials that match the level of knowledge and learning style of each student. Individualized learning involves adjusting the pace of learning depending on the needs of individual students. Differentiated learning adapts learning approaches to the individual needs of students. Competency-based learning allows students to progress through the program depending on their ability to demonstrate knowledge and skills [2, 10].

E-learning provides the opportunity for interaction between students and teachers at any time and in any place using information and communication technologies. In recent years, this area has been actively researched and developed. E-learning involves the online delivery of personalized and dynamic learning content that fosters communities of knowledge that connect learners and experts. It supports traditional learning pathways and in some cases becomes the only way to learn, especially for students with special needs [4].

However, successful implementation of e-learning faces the challenge of insufficient personalization. The individualized aspect is often ignored, resulting in learners simply following prescribed routes through the course, from pre-assessment to final assessment. In addition, many courses are offered over a fixed academic term, which does not take into account the individual pace and learning experience [3, 9].

Effective personalized learning systems should perform the following functions:

- Align with established standards and promote the development of students' social and emotional skills.
- Provide the opportunity to customize the learning experience to suit students' interests.
- Flexibility in the pace of learning, allowing students to advance when they are ready or slow down to fully master the material.
- Teachers have access to real-time performance data and feedback to tailor materials and support students.
- Transparency of learning goals and assessments so that students know in advance what is expected of them.

Personalization in e-learning involves the use of technology and student information to tailor teacher-student interactions, thereby improving learning outcomes. Research in this area focuses on two main aspects: management of learning materials and information, and learning activity-oriented processes [5]. Personalized technology systems help students set their own learning goals, manage content and learning, and interact with other participants in the educational process. Such systems can be implemented both as desktop applications and as web services [8].

Personalization in e-learning focuses on:



Figure 1 - Focus on personalization in e-learning

Artificial intelligence (AI) is the simulation of human intelligence processes using computer systems. These processes include learning (collecting information and developing rules for using it), reasoning (applying rules to draw conclusions), and self-correction. Specific applications of AI include expert systems, speech recognition technologies, and machine vision. One area where AI can significantly change approaches is education, especially in the field of e-learning.

Conclusion. In conclusion, although significant changes in education may take several decades, artificial intelligence already has the potential to radically transform many aspects of the educational process. AI technologies provide the opportunity for deep personalization of e-learning, allowing students to receive education anytime and anywhere in the world using software that partially replaces traditional classroom teaching methods.

Modern AI-based educational programs are already helping students master basic skills, and as the number of such programs increases and developers accumulate experience, the range of services provided is expected to expand. AI can automate assessment processes, freeing teachers from routine tasks. These technologies are able to assess student achievement and adapt to their individual

needs, supporting learning at their own pace. In the future, AI may change both the place and the way of learning, perhaps even replacing some teachers.

AI applications in e-learning environments help educational institutions develop personalized learning paths taking into account individual student success, as opposed to the current model, when the same content is provided to everyone at the same time. Experts see these technologies as an ideal solution to facilitate personalized e-learning without increasing the demands on teachers.

References:

1. The Role of Data in Personalized Learning Environments. [Electronic resource] // Journal of Educational Data Mining. 2019. URL: <https://www.jedm.org/article/the-role-of-data-in-personalized-learning-environments> (accessed 08/20/2024)

2. Burnyashov B.A. Personalization as a global trend in e-learning in higher education institutions [Electronic resource] // Modern problems of science and education. 2017. No. 1. P. 90. URL: <https://elibrary.ru/item.asp?id=28401246> & (accessed 05/16/2019)

3. Weinstein Yu.V., Esin R.V. Personalization of the educational process in the electronic educational environment [Electronic resource] // Electronic learning in continuous education. 2017. No. 1. P. 54-59. URL: <https://www.nationalreview.com/2018/04/education-technology-personalized-learningbetter-results> (date of access 08/20/2019)

4. Paskova A.A. Mobile learning in higher education: BYOD technologies // Bulletin of the Maikop State Technological University. 2018. Issue. 4. P. 98-105.

5. Starodubtsev V.A. Personalization of the virtual educational environment [Electronic resource] // Pedagogical education in Russia. 2015. No. 7. P. 24-29. URL: <https://cyberleninka.ru/article/n/personalizatsiya-virtualnoy-obrazovatelnoysredy> (accessed 21.08.2019)

6. Dhonson M. Personalization Is the Key to Transforming Education [Electronic resource] // National Review. 2018. URL: <https://www.nationalreview.com/2018/04/education-technology-personalized-learningbetter-results> (accessed 10.07.2019)

7. Hughes D. What Will Personalized Education Look Like in 2020? [Electronic resource] // Digitalmarketinginstitute. URL: <https://digitalmarketinginstitute.com/blog/what-will-personalized-education-look-likein-2020-education> (accessed 10.08.2019)

8. Hutchins D. How Artificial Intelligence is Boosting Personalization in Higher Education [Electronic resource] // EDTech. URL: <https://edtechmagazine.com/higher/article/2017/11/ai-boosts-personalized-learning-higher-education> (accessed 15.07.2019)

9. Khurana S. Personalized learning through artificial intelligence [Electronic resource] // Medium. 2018. URL: <https://medium.com/swlh/personalizedlearning-through-artificial-intelligence-b01051d07494> (date of access 08/18/2019)

10. Perceived Differentiation and Personalization Teaching Approaches in Inclusive Classrooms: Perspectives of Students and Teachers [Electronic resource] // K. Linder [etc] // Frontiers in education. URL: <https://www.frontiersin.org/articles/10.3389/feduc.2019.00058/full> (date of access 08/07/2019).