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POSSIBILITIES OF USING AI IN GEOGRAPHY LESSONS

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Abstract. *The paper examines the potential uses of AI tools during geography lessons at school. The authors focus on the advantages and disadvantages of using artificial intelligence capabilities to teach schoolchildren. The authors see the importance of AI for the study of geography at school for creating presentations and studying maps and geographical nomenclature.*

Keywords: *education, geography, information technology, artificial intelligence, lesson, presentation*

Introduction.

In today's world, which is becoming increasingly saturated with technology, it is important to note that education is not left out of this trend. The school education system is beginning to actively introduce new opportunities for teaching various subjects through the use of advanced technologies, such as artificial intelligence (AI). In particular, geography lessons, which are one of the key subjects that form the general worldview of students, can significantly benefit from the introduction of AI. This improvement lies in the fact that the use of artificial intelligence allows you to make the learning process more interactive, exciting and, importantly, effectively effective. The relevance of this approach is due to the urgent need to improve the quality of education and integrate modern technological solutions into the educational process, which contributes to a deeper understanding of complex geographical concepts and processes by students. Artificial intelligence opens up new horizons for teachers and students, allowing you to implement innovative teaching methods, analyze large amounts of data, and visualize geographic information in new unusual forms. This comprehensively contributes to a deeper understanding of complex geographical

processes and phenomena, as well as the development of critical thinking and analytical skills in students. This work intends to consider in detail how artificial intelligence can be organically integrated into the educational process of geography. In addition, the existing opportunities and challenges on the way of this integration will be analyzed, and the prospects that open up for the educational industry through the use of AI will be outlined.

Digital technologies based on artificial intelligence are significantly affecting our daily lives, transforming our thoughts, behavior and interaction. The potential for using artificial intelligence in education to improve learning processes, support teachers and introduce effective individual approaches to learning is both exciting and raises some concerns, as there are negative consequences that need to be taken into account.

Main text.

Artificial intelligence is defined as a set of technologies that provide "intelligent" activities without direct human intervention. It is a method that allows computers and programs to function in a similar way to the human brain by studying its laws and analyzing cognitive processes. This research leads to the creation of software with intelligent systems.

Artificial intelligence is a field of computer science that aims to develop systems that can solve problems that traditionally required human intelligence. These include the ability to learn from data, recognize patterns, make decisions, and perform complex tasks.

Characteristics of artificial intelligence include:

- Learning: the ability to collect and analyze data, make predictions, and choose the best solution.
- Language understanding: the ability to understand human language, interact with voice and text.
- Sensing: the ability to interact with images and sensory data, automatically analyzing them.
- Decision-making: the ability to make decisions based on knowledge and context.

- Creativity: the generation of new ideas and solutions.
- Speed and accuracy.

Popular AI tools for educators include MidJourney, DALL-E, Stable Diffusion, and Playground for creating digital images, and ChatGPT, Bard, or Gemini for writing texts and finding answers to questions.

AI technologies are increasingly being used in education, offering opportunities for personalized learning based on individual student needs. They help teachers identify strengths and weaknesses in student performance through adaptive teaching strategies. The use of machine learning and data allows for monitoring the quality of teaching, helping to analyze the strengths and weaknesses of educational processes [7].

One of the main tasks of artificial intelligence in education is to make the learning process as comfortable as possible and remove the factor of personal knowledge from the equation. Artificial intelligence can change approaches to education through personalized algorithms, virtual and augmented reality.

The benefits of artificial intelligence for education include:

- Personalized learning: adapting to the individual needs of students by analyzing their learning styles.
- Adaptive learning: adjusting the complexity of the material according to the level of students.
- Intelligent learning systems: providing real-time feedback and recommendations.
- Automation of administrative tasks: facilitating the work of teachers by automating assessment and management.
- Improved analytics: providing teachers with information about student performance.
- Accessibility: the ability to access AI-based educational resources anywhere and anytime, which opens up new opportunities for students in remote or underserved regions.

The integration of artificial intelligence significantly improves geography learning, offering new approaches to teaching. Through engaging visualizations and personalized learning, artificial intelligence helps students become more aware of the

world around them.

Students and teachers can use AI in geography lessons in several ways:

- ✓ As an opponent, AI can lead discussions on a given topic to prepare students for class debates.
- ✓ As an assistant, AI facilitates collaborative work on projects, helping to explore questions and find solutions together.
- ✓ As a personal tutor, ChatGPT offers individual feedback, providing test results and suggestions for improvement.
- ✓ For map learning, AI includes interactive games that facilitate the interpretation of geographic data.

Artificial intelligence supports students throughout the learning process. It helps them determine their current level of knowledge and offers exercises and tasks to deepen the material. In addition, AI can assess the level of knowledge of students on specific topics, which improves the quality of learning.

The use of AI in geography lessons makes learning more interactive, personalized and effective. Technologies allow for the analysis of large amounts of data, creating interactive maps to study climate change, population trends, ecological zones, etc. This increases the ability of students to understand the relationships between different geographical phenomena [6].

Artificial intelligence is able to adapt educational materials to the individual needs of students, identifying weak areas and offering resources for their improvement. It also helps analyze satellite images to study changes in the landscape and urban infrastructure, which allows for a deeper understanding of human impact on nature.

Through the integration of virtual reality, AI allows students to "visit" different parts of the world without having to leave the classroom. This makes studying geography more exciting and suitable for those who do not have the opportunity to travel.

Automated assessments help teachers assess students' learning by providing detailed analysis of results and recommendations for further learning.

Artificial intelligence helps to understand global issues such as climate change

and resource scarcity. Big data analysis and scenario modeling help students understand the impact of their actions on global processes.

Artificial intelligence in geography teaching makes this subject more relevant and useful, helping students better prepare for the challenges of the modern world.

The use of artificial intelligence can significantly improve the quality and productivity of presentations in geography lessons. AI is able to automatically generate visualizations, animated maps and infographics, which makes it easier to learn complex topics such as climate change, plate tectonics or global migration processes. Machine learning algorithms make it possible to quickly process large amounts of data and present them in an accessible format, which contributes to deeper learning of the material by students. In addition, AI can adapt content to the individual needs of each student, taking into account their learning style and level of knowledge. This makes learning more personalized and effective, which is especially important for complex subjects such as geography.

Using artificial intelligence to create presentations in geography lessons can greatly facilitate the process of preparing materials, making them more interactive and informative.

First, AI can automate content creation. AI-based tools such as ChatGPT can help in forming text for slides. A teacher can ask a question or topic, and AI will generate appropriate text. Also, AI can quickly find and select relevant data from scientific articles, reports or news, which will help in preparing materials.

Second, AI can be used for data visualization. AI tools can automatically create graphs and charts based on the data provided, which makes the information more understandable. Using AI to create interactive maps can also show various geographical phenomena, such as climate change or population.

The third aspect is design and layout. AI tools can suggest slide templates that match the topic of the lesson, making the design process easier. AI can analyze slides and suggest improvements in layout, colors, and fonts for better visual appeal.

The fourth aspect is interactivity. Including chatbots in the presentation that can answer students' questions in real time makes lessons more interactive. Using AI to

create interactive polls or quizzes during the presentation allows students to be more actively involved in the learning process.

Finally, AI can help with feedback analysis. It can collect and analyze feedback from students on presentations, allowing teachers to improve them in the future.

Examples of tools that can be used include Canva, which offers templates and design elements for creating presentations; Prezi, which uses AI to create dynamic and interactive presentations; and Google Slides, which has apps that can be integrated to automate the slide creation process.

So, using AI to create presentations in geography lessons not only simplifies the preparation of materials, but also makes learning more interesting and effective. Students get the opportunity to interact with the material, which contributes to better assimilation of knowledge.

Summary and conclusions.

The introduction of artificial intelligence into the teaching process in geography lessons significantly increases the effectiveness of education. AI allows you to modify educational materials, taking into account the individual needs of each student, which contributes to a deeper understanding of the topic. Thanks to the integration of AI, you can create lessons with elements of interactivity that make learning more exciting and motivating. Students have the opportunity to use virtual tours, analyze satellite images and interact with interactive maps, which adds interest to the study of geography. Artificial intelligence opens up the possibility of personalizing learning, allowing students to receive materials adapted to their level of knowledge and personal interests. This contributes to the detailed assimilation of information and the development of critical thinking. Teachers also benefit from the use of AI, using it to automate routine tasks, such as checking tests or drawing up schedules. This makes it possible to focus on more significant aspects of learning. However, there are certain challenges associated with the use of AI in geography: unequal access to technology, the potential threat of academic dishonesty, and overreliance on technology. These factors need to be taken into account when implementing AI in the educational sphere. Artificial intelligence helps students explore global issues, such as climate change or migration,

by analyzing large amounts of data and modeling scenarios. This makes it possible to better understand the impact of human activities on the natural environment. Thus, the use of artificial intelligence in geography lessons opens up new horizons for improving the quality of education, making it more personalized, interactive, and adaptive to modern requirements. For the successful integration of AI into the educational process, it is important to overcome existing challenges and ensure equal access to technology for all students.

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