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TECHNOLOGIES FOR THE IMPLEMENTATION OF INTERACTIVE METHODS IN THE EDUCATIONAL PROCESS

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Abstract. The article describes how interactive teaching methods allow for the effective use of modern technologies to improve the learning process. In particular, they may include the use of virtual laboratories, online simulations, web conferencing and other interactive tools that allow students to actively engage in learning, even in a remote format.

Keywords: technologies, interactive methods, professional competencies, educational process, online platforms.

Interactive teaching methods are based on the active participation of students in the learning process, creating an opportunity for deeper learning and the development of critical thinking. The main advantage of these methods, as evidenced by the experience of students and teachers of the Faculty of Physics and Mathematics of Ternopil Volodymyr Hnatiuk National Pedagogical University, is that they allow students to be actively involved in learning, creating favorable conditions for communication, exchange of views and cooperation with other participants in the educational process [1; 2].

One of the key aspects of using interactive methods in teaching computer science is the possibility of practical application of the acquired knowledge. Thanks

to the use of interactive methods, students have the opportunity not only to study theoretical material but also to apply it in practice by solving real-world problems, conducting experiments in virtual laboratories, and implementing projects in the field of digital technologies.

It should also be noted that the successful implementation of interactive teaching methods requires proper training and support from the university staff. This may include conducting training for teachers on the use of interactive methods, creating appropriate teaching materials and resources, and providing access to the necessary technical infrastructure, which is successfully implemented at the STEM Center of TNPU [3].

Modern educational technologies provide teachers and educators with a wide range of tools to improve learning and engage students. The key technologies and their applications are described below [4].

- ❖ Using interactive whiteboards and displays

Interactive whiteboards and displays provide real-time interaction between students and learning material. These devices allow students to write, draw, watch videos, and work with various applications, which stimulates active participation and interest.

- ❖ Online platforms and virtual classrooms

Among the most common technologies are online platforms (e.g., Google Classroom, Microsoft Teams) and virtual classrooms. They provide opportunities for distance learning, webinars, online testing, and collaborative work on projects.

- ❖ Using mobile apps

Mobile learning apps allow students to access learning materials, complete assignments, and communicate with teachers at their convenience. Examples of such apps include Kahoot!, Quizlet, Duolingo, and others.

- ❖ Learning Management Systems (LMS)

Learning management systems (e.g., Moodle, Blackboard) help organize the learning process, track student progress, and provide students with the necessary resources. LMSs provide centralized storage of materials and the possibility of

automated testing.

- ❖ Use of gaming technology (gamification)

Gamification in learning involves the use of game elements such as points, levels, rewards, and contests to motivate learners and increase their engagement. It can be implemented through specialized platforms or built into existing learning systems.

- ❖ Augmented Reality (AR) and Virtual Reality (VR)

AR and VR technologies allow you to create interactive and immersive learning environments that can be used to learn complex concepts, conduct virtual labs and simulations.

- ❖ Using social media

Social networks such as Facebook, Instagram, Twitter can be used to organize group work, discussions, and disseminate learning materials. They help create communities where learners can exchange ideas and support each other.

- ❖ Electronic textbooks and digital resources

E-textbooks and various digital resources (videos, interactive tasks, audio recordings) allow for an individualized approach to learning, meeting the needs of each student.

Each of these technologies has its own advantages and challenges, and the effectiveness of their implementation depends on proper integration into the educational process and teacher training in their use. The development and adaptation of interactive methods requires continuous improvement of pedagogical practices and the infrastructure of educational institutions.

In general, the use of interactive teaching methods is an important step towards training qualified and competitive specialists in the digital society. These methods allow to create a new digitized learning environment where students can develop their abilities, skills and knowledge, and improve digital competencies necessary for a successful career in computer science. The development and improvement of interactive teaching methods is an important task for modern education, as it contributes to improving the quality of education and the level of qualification of

future professionals.

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