

THE ROLE OF ARTIFICIAL INTELLIGENCE IN THE FORMATION OF PROFESSIONAL COMPETENCE OF STUDENTS IN TECHNOLOGY CLASSES

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Abstract: *This study highlights the theoretical and practical aspects of using artificial intelligence (AI) technologies in teaching the subject of technology. The role of AI tools in developing students' professional competencies, their potential for organizing practical lessons effectively, and innovative pedagogical approaches are analyzed. It is emphasized that methods such as adaptive learning, simulators, automated assessment, and project-based teaching with the help of AI can enhance the quality of technology classes. The findings show that integrating AI tools contributes to the development of professional competencies, fosters creativity, and strengthens critical thinking.*

Keywords: *technology education, artificial intelligence, professional competence, adaptive learning, STEAM approach, innovative pedagogy, practical lessons.*

INTRODUCTION

In the current process of globalization and digital transformation, the education system requires the training of professionals adapted to the economic and social development of society, with innovative thinking and able to apply modern technologies. In this regard, the science of technology not only teaches students and students work skills, but also plays an important role in the formation of their professional competence, the development of creative abilities and critical thinking skills. Today, the development of artificial intelligence (AI) technologies has made it possible to introduce innovative approaches at all stages of learning. It is possible to increase the effectiveness of the educational process, organize practical classes in an interactive form and provide training adapted to the individual abilities of students by using SI tools in technological classes.

A number of initiatives on the use of artificial intelligence technologies are also being implemented in the education system of Uzbekistan. In particular, in the national training program, the development of the educational process based on modern technologies is noted as one of the most important strategic directions [1]. However, international studies also confirm the effectiveness of artificial intelligence in education, recognizing it as one of the most promising tools for the development of professional competence [2].

Results of the study

Artificial intelligence technologies are taking the science of technology to a new level by applying methods such as adaptive learning systems, virtual and augmented reality (VR/AR), automated assessment, and project-based learning. For example, modeling production processes in a secure environment using VR or AR technologies allows students to gain practical experience. On the other hand, automated assessment tools make teachers' work easier and provide students with instant feedback. This process effectively supports not only the acquisition of knowledge, but also the formation of professional competence.

The development of professional competence in the science of technology involves the acquisition of not only theoretical knowledge in the curriculum, but also practical skills necessary in production and in the labor market. Classes organized on the basis of SI serve to prepare students for professional activity, creating conditions close to real work processes. However, using artificial intelligence tools, it is also possible to develop students' creativity and innovative thinking. Because in the process of working with AI, new ideas, technological solutions and new approaches to solving problems appear.

Figure 1-2. Demonstration of the process of taking classes in our artificial intelligence aid



The use of artificial intelligence in the teaching of technical disciplines not only improves the quality of lessons, but also strengthens the skills of self-development, independent thinking and teamwork of students. Therefore, this study is aimed at analyzing the role of SI technologies in the formation of professional competence in technological education and is of practical importance for teachers, methodologists and educational policy makers.

Much attention is being paid to the field of education in our country today. Radical reforms are being carried out in the field of education. The effectiveness of the education system is improving and interstate cooperation in this area is being established. In general, in modern education, interest and attention to the use of interactive methods, innovative technologies, pedagogical and information technologies in the educational process is growing every day [3]. Currently, a lot of fruitful work is underway to improve the educational process and systematize this area in accordance with the requirements of the time. Modernizing these processes can give us the opportunity to enjoy knowledge about the world, providing us with opportunities to keep up with the modernizing world.

According to Stuart Jonathan Russell and Peter Norvig, the authors of one of the world's most popular textbooks on artificial intelligence, *Artificial Intelligence: A Modern Approach*, it was first published in 1995 (the fourth edition of the book was published in 2020). Artificial intelligence is trying to understand intelligent beings and create new intelligent people. "Although no one can predict the future in detail, it is obvious that computers with human intelligence (or higher) will have a huge impact on our daily lives

and the future development of civilization," he says[4]. Currently, projects have been developed to borrow foreign experience in the development of education, put it into practice with a creative approach, and implement it in accordance with the requirements of the time.

Conclusion

Technology science occupies an important place in the modern educational system in the formation of not only practical skills, but also comprehensive professional competence. The introduction of artificial intelligence technologies makes it possible to effectively organize the educational process, provide an individual approach and develop creative thinking. The use of AI tools in practical classes enhances students' ability to independently make decisions and solve problems in real-life situations.

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