METHODOLOGY OF USING ARTIFICIAL INTELLIGENCE IN DEVELOPING INNOVATIVE COMPETENCE OF FUTURE PRIMARY EDUCATION TEACHERS

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Abstract: This article discusses the theoretical and practical aspects of the effective use of artificial intelligence technologies in the development of innovative competence of future primary education teachers. Especially for teachers working at the primary education stage, the use of artificial intelligence-based tools is expanding the opportunities for individualizing the teaching process, adapting it to the needs of students, and improving the quality of education. The article analyzes the integration of artificial intelligence technologies into the pedagogical process, the components of the concept of innovative competence, and the methodology for their formation. It also provides practical suggestions, methodological approaches, and ways to improve the teacher training system.

Keywords: artificial intelligence, innovative competence, primary education, pedagogical technologies, digital education, methodology, teacher training, creative thinking, adaptive teaching, quality of education

The modern education system is undergoing a phase of radical change, and this process is directly related to the rapid development of digital technologies, in particular, artificial intelligence. Today, education is not only a process of imparting knowledge, but has become a complex system aimed at developing skills such as independent thinking, problem solving, creative approach and flexibility in students. From this point of view, the primary education stage is of particular importance, because it is during this period that the foundations of students' attitude to learning, intellectual potential and personal development are formed. This places an extremely great responsibility on primary education teachers.

A modern teacher should not only have excellent knowledge of his subject, but also have innovative approaches, be able to effectively use technologies and organize the educational process taking into account the individual characteristics of students.

That is why the development of innovative competence of future primary school teachers is recognized as one of the most urgent issues of our time. The concept of innovative competence is broad and includes the teacher's ability to accept new ideas, put them into practice, master modern technologies and effectively use them in pedagogical activities. This competence, in turn, is closely related to a number of important qualities such as technological literacy, creative thinking, communication, reflection and making the right decisions in problem situations.

In recent years, the introduction of artificial intelligence technologies into the field of education has created broad opportunities for the formation of these competencies. Artificial intelligence-based programs, platforms, and systems allow teachers to individualize the teaching process, determine the level of knowledge of students, adapt educational materials, and automate the assessment process. This significantly increases the effectiveness of education. At the same time, artificial intelligence technologies facilitate the professional activities of teachers, freeing them up for more creative work and individual interaction with students.

However, in order to effectively use these technologies, teachers must have sufficient knowledge and skills. Otherwise, even if the technologies exist, it will be difficult to achieve the expected results from them. Therefore, improving the methodology for studying artificial intelligence technologies and using them is of great importance in the system of training pedagogical personnel. In this process, along with theoretical knowledge, special attention should be paid to practical training, and students should have the opportunity to test their knowledge in conditions close to real pedagogical situations. In addition, one of the important tasks is to form a positive attitude towards technologies in future teachers, encourage them to constantly learn and stimulate innovative activity. In general, the integration of artificial intelligence technologies into the education system opens up new horizons for the development of innovative competence of teachers, and the scientific and methodological substantiation of this process and its effective implementation in practice are emerging as one of the priority areas of modern pedagogy.

Modern globalization and digital transformation processes are bringing fundamental changes to the education system and requiring teachers to acquire new competencies. In particular, the primary education system is an important link in the formation of the intellectual potential of society. Therefore, the development of innovative competence of future primary education teachers is considered one of the

urgent issues. Innovative competence includes not only the ability to use new technologies, but also their effective use, adaptation to the pedagogical process and the development of new methods based on a creative approach. In this regard, artificial intelligence technologies are creating broad opportunities for teachers.

Artificial intelligence technologies have the ability to individualize the educational process, determine the level of knowledge of students, develop appropriate tasks for them, and provide methodological support to teachers. For example, adaptive learning systems analyze the level of knowledge of students in real time and offer appropriate content. This serves to increase the level of student mastery. Future teachers, on the other hand, will achieve efficiency in their professional activities by learning to use such systems.

Technological literacy, creative thinking, problem-solving skills, communication and a reflective approach can be identified as the main components of innovative competence. Artificial intelligence tools play an important role in the formation of these competencies. For example, the use of artificial intelligence in the processes of text creation, analysis, lesson planning and assessment not only saves teachers' time, but also increases their creative potential. At the same time, teachers need to develop a critical approach to the use of artificial intelligence, because any technology can only be effective if used correctly.

In the process of training future primary education teachers, it is important to integrate artificial intelligence technologies into curricula. In this process, along with theoretical knowledge, special attention should be paid to practical training. Students should have the skills to work with artificial intelligence-based platforms, create teaching materials, create tests, and assess students' knowledge. At the same time, it is also important to encourage them to engage in independent research and interest in learning new technologies. From a methodological point of view, the use of artificial intelligence technologies can be implemented in the following stages: first, introducing teachers to technologies and explaining their capabilities; second, developing skills in their application through practical exercises; third, organizing the use of artificial intelligence in real pedagogical situations; fourth, analyzing and improving the results. When these stages are consistently implemented, the innovative competence of future teachers will increase significantly.

The use of artificial intelligence technologies also has a positive impact on the professional development of teachers. For example, through various online platforms,

teachers can update their knowledge, exchange experiences, and learn new methods. This serves to implement the principle of continuous education. Future teachers should learn to use such opportunities during their studies.

However, there are also some problems in the use of artificial intelligence technologies. In particular, problems such as insufficient technical infrastructure, low technological literacy of teachers, and lack of methodological manuals can be identified. Therefore, it is necessary to eliminate these problems in the education system based on an integrated approach. At the level of state policy, it is important to develop digital education, expand teacher retraining and advanced training programs.

The motivation factor also plays an important role in the development of innovative competence. When future teachers realize the benefits of artificial intelligence technologies, they strive to apply them in their work. Therefore, it is advisable to use real examples, successful experiences and interactive methods in the learning process. This encourages students to be active and increases their interest in learning. In addition, the use of artificial intelligence technologies also serves as an important tool for developing reflective and analytical thinking in future primary education teachers. Reflection is an integral part of pedagogical activity, which involves the teacher evaluating his own work, identifying mistakes and developing strategies to eliminate them in the future. Artificial intelligence-based platforms, for example, systems that record the teaching process or analyze student activity, provide the teacher with accurate and substantiated information. This gives much more effective and reliable results than subjective assessments. Future teachers will have the opportunity to revise their lessons, analyze student reactions, and improve their methodology through these technologies. At the same time, artificial intelligence will provide teachers with deeper information about the level of knowledge, interests, and learning styles of students, allowing them to teach them based on an individual approach. This is especially important in primary education, because it is at this stage that students' attitudes towards knowledge are formed. The teacher's flexible approach to each student directly affects their success. Also, through artificial intelligence tools, teachers can establish mutual cooperation, exchange experiences, and work together on professional development. This serves the development of the pedagogical community. As a result, artificial intelligence technologies not only increase the competence of individual teachers, but also help improve the quality of education as a whole.

Another important aspect is that the use of artificial intelligence technologies, while increasing the readiness of future primary school teachers for innovative activities, also ensures their professional flexibility. The modern education system is a rapidly changing environment, in which new technologies, methods and approaches are regularly emerging. In such conditions, a teacher must constantly work on himself, acquire new knowledge and skills. Artificial intelligence makes this process easier and more effective. For example, through various online courses, automated training systems and interactive platforms, teachers can independently improve their knowledge. Future teachers, learning to use such resources during their studies, become ready for their future work. In addition, artificial intelligence technologies allow teachers to test new ideas, conduct experiments and implement innovative projects. This develops their creative potential and makes the educational process more interesting and effective. At the same time, teachers will also have a greater sense of responsibility, as they will understand the need for the correct and effective use of technology. In general, the use of artificial intelligence technologies will be an important factor in training future primary education teachers in accordance with modern requirements, developing their innovative competence, and increasing the overall efficiency of the education system.

In conclusion, improving the methodology for using artificial intelligence technologies in developing the innovative competence of future primary school teachers is one of the important directions of the modern education system. To effectively organize this process, it is necessary to combine theoretical and practical approaches, provide teachers with modern technologies and develop methodological recommendations for their use. As a result, the opportunity will be created to train highly qualified, innovative thinking teachers who can effectively use digital technologies.

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