

**THE USE OF ARTIFICIAL INTELLIGENCE  
IN ADAPTIVE LEARNING OF FUTURE IT SPECIALISTS**

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Training of IT specialists requires changing the content of academic disciplines, introducing new educational technologies, and other organization of the educational process and information support.

One of the main tasks of education is the comprehensive development and implementation of a new educational paradigm, which reflects the

basic principles and trends of education development in the information age. The main educational trends in modern realities are: personalization of education, adaptive learning, involvement of students in the process of forming the content of the program. Research shows that 77% of education professionals believe that personalized learning is crucial to attracting students in the educational process, helping to make learning more effective [1].

Adaptive learning systems use various innovations in the field of information technology, in particular, artificial intelligence and machine learning to ensure personalization in learning. This direction in education, first of all, is aimed at meeting the individual needs of the student, «adaptation» of the material and methods for his personal characteristics [2].

Most adaptive learning systems have three main components:

- a model of content that includes certain topics, detailed goals of learning and identifying tasks that need to be fulfilled;
- student model, where the system calculates the possibilities and skills of the student in the acquisition of certain topics;
- a model of teaching that determines how a system selects a particular topic for a particular student at a certain time [3].

Using the principles of adaptability and artificial intelligence, it becomes real to adjust the educational process for each student separately, using fully his strengths and pulling up the weaknesses. Adaptive learning has to solve this problem. It is assumed that the artificial intelligence program will select the material, tracking the success of each student, and offer him the passage of the blocks of the course according to his abilities, thereby informing the teacher about the successful passing of certain topics or vice versa.

Applying artificial intelligence to E-learning can create the potential to create a realistic environment that students can interact with. The student will actually interact with intellectual agents who, in turn, perceive changes in the modeled environment [1]. Consider the main possibilities of using artificial intelligence technologies in the personalization of E-learning:

1. Artificial intelligence can automate the main activities in education, including final certification.

2. Educational software can be adapted to the needs of students. One of the key factors of the influence of artificial intelligence in education is the increase in the level of individual learning. This is partly due to the

growing number of adaptive training programs, games and software. These systems meet the needs of the student, pay more attention to certain topics, repeat things that students have not learned, and usually help them work at their own pace.

3. Artificial intelligence technologies can indicate where courses should be improved and give students and teachers useful feedback. For example, when a significant number of students give the wrong answer to the same task, the system warns the teacher about it, and gives the students a special message that contains clues to the correct answer. This helps fill in the gaps in explanations that may arise when studying a course, and ensures that all students build one conceptual basis. Instead of waiting for a response from a teacher, students get immediate feedback that helps them understand the concept and remember how to do it right next time. An example of the implementation of such technology is courses in the Coursera platform.

4. Training programs based on artificial intelligence.

These programs can teach students the basics, but so far they are not able to help students learn to think and create.

5. Changing the role of teacher. Artificial intelligence systems can be programmed to provide expert knowledge, serving as a place where students can ask questions and find information. But teachers will always play a role in education, because mostly artificial intelligence shifts the role of the teacher to the role of facilitator.

6. Artificial intelligence can offer students a way to experiment and learn in a relatively judgmental-free environment. Trial and error is a critical part of learning, but for many students the possibility of failure or ignorance of answers is critical.

Thus, improving the quality of training is impossible without intensification of the educational process, use of new generation resources adapted to the individual characteristics of students aimed at activating independent work.

Using AI systems, software, students can study anywhere in the world at any time through programs that replace certain types of classroom teaching. Artificial intelligence in education can automate certification by freeing a teacher, can evaluate students and adapt to their needs, helping to work at their own pace, can also change the place and the way students learn, perhaps even replacing some teachers. Artificial intelligence tools in E-learning can help educational institutions outline a learning path for each

student, taking into account their individual successes, in contrast to the current model of providing the same content to everyone at the same time.

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