# THE NEED FOR INTELLECTUAL SYSTEMS IN THE DEVELOPMENT OF THE PROFESSIONAL TRAINING OF STUDENTS

B. B. Abdullayev

TKTI Yangiyer filiali katta oʻqituvchisi

Pedagogika fanlari falsafa doktori (PhD)

## ABSTRACT

is about the role and necessity of intellectual systems in the development of professional training of students studying in higher education, it is about the possibility of improving the quality of education by using intellectual systems in the teaching process . The importance of intellectual systems in the educational process, the experiences of foreign educational institutions, as well as the impact of intellectual systems on the educational process were expressed.

Shows the importance of people's ability to effectively use modern information and communication technologies in managing the socio-economic development of the country and determining its future . In particular, the international concept [1] of education until 2030, adopted by the UNESCO organization dealing with science and culture of the United Nations "Education is the main driving force of development and an important activity that achieves the goals of sustainable development" in which "Creating the opportunity to receive quality education throughout life" is defined as an urgent issue. Also, in the successful implementation of the "Education-2030" international action program for the development of education, UNESCO [2] aims to use the potential of intellectual systems in the educational process , and it is based on the main principles of inclusiveness and equality. Today, it is important to educate talented young people who are fully developed, who can think independently, who can effectively use the tools of the intellectual system, who are smart and who can take bold steps towards the future.

Intelligent systems are one of the fastest growing fields today. The reason is that with the help of modern information and communication technologies , automated management systems are being created with the help of intelligent systems in all production enterprises, in the transport management system, in education, in the medical field and in all areas of the national economy . Nowadays, in developed countries, we can see the development of intelligent systems through smart streets , self-driving vehicles, and products made with the help of robots in production .

In the 1950s, Alan Turing proposed a solution to the question of when a human-made system becomes "intelligent". Turing proposed the Imitation Game , which tests the ability of a human listener to distinguish between a conversation with a machine or another person. "If this difference is found, we can recognize the presence of an intelligent system or artificial intelligence," he says. It should be remembered that the focus on intelligent system solutions dates back to the 1950s. In 1956, John McCarthy proposed one of the first and most influential definitions: "Intellectual systems must proceed on the assumption that every aspect of learning

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[1] Education 2030: Incheon Declaration and Framework for Action Towards inclusive and equitable quality education and lifelong learning for all**. http://uis.unesco.org/sites/default/files/documents/education-2030-incheon-framework-for-action-implementation-of-sdg4-2016-en_2.pdf**

[2] Unesco artificial intelligence in education https://en.unesco.org/artificial-intelligence/education

and teaching, or any other feature of the mind, can in principle be described so precisely ". Since 1956, we have found various theoretical representations of artificial intelligence, influenced by advances in chemistry, biology, linguistics, mathematics, and intellectual systems . However, the variety of definitions and interpretations remains controversial . Many approaches focus on limited perspectives on cognition or ignore the political, psychological, and philosophical aspects of the concept of mind. In order to analyze the impact of intelligent systems on learning and teaching in the educational process, we considered the main definitions based on the literature review, which included some of the previous definitions in this field. Thus, we can define intelligent systems as computing systems capable of participating in human-like processes such as learning , adaptation, synthesis, etc.

Broadly speaking, intelligent systems are attempts to create machines that can solve situations previously only possible through human perception, learning , and reasoning. While the main goal of many researchers is to develop intelligent systems that match and exceed the full range of human cognition, such technologies are still years away. Initially, so-called "expert systems" were developed using broad programming rules for computers. Ironically, these technological advances are driving the use of intelligent systems in the learning process . Intelligent systems can analyze large amounts of data and support teaching, communication, administration, and resource management throughout the learning process . Often , intelligent systems in the learning process take a virtual form, not through robots. Technical components such as audio or sensors that collect or monitor information about the environment may be involved. But in the learning process, intelligent systems usually manifest themselves through digital software processing systems.

a large number of administrative staff and teachers in educational institutions [78]. Therefore, it is important to teach with the help of the intellectual system in educational institutions , especially in a situation where the demand for initiative, creativity and "entrepreneurial spirit" of students is increasing. This study focuses on research on the impact of the intellectual system tool on learning and teaching in the educational process . Also, during the research , we reviewed the literature and analysis of recent studies on how the intelligent system tool can change not only the way students are taught , but also the entire architecture of educational institutions.

introduction and implementation of new technologies in education and training has developed rapidly over the past 30 years. If we look at today's development , we can see that it is effective to teach students based on the tool of intellectual system in our educational institutions. Assistive technologies such as AI-based text-to-speech, speech-to-text, spell checkers, and search engines are just a few examples of technologies that were originally developed to assist students with disabilities. Later, the use of these technological solutions was expanded and now we can see them as common features on all personal computers, smartphones and phones. These technologies are now expanding the educational and educational opportunities of all students around the world. In addition, intelligent system tools are currently improving the tools used every day in cities and educational institutions around the world . Internet search engines cover everything from smartphone features and apps to public transportation and home appliances. For example, Google is using intelligent systems tools for its search engines and maps, and all new cars are using intelligent systems in everything from their engines to parking

Some big companies like Tesla, Volvo, Mercedes and Google are already making self-driving technology a development priority.

Studies have shown that in the next few years, while we may not see robots as teachers, we will see many projects using computers to help curricula and teachers get more out of the educational experience. . Below is the role and importance of intellectual system tools in the educational process:

the educational process, intelligent content is created through the tool of the intellectual system.

An intelligent system tool can be used to create customized textbooks for specific subjects from traditional curriculum materials . Such systems digitize this learning material and create new learning e-learning interfaces to help everyone. Intelligent systems can indicate areas of improvement . Teachers may not always be aware of gaps in lectures and teaching materials that may confuse learners with certain concepts. Intelligent systems offer a solution to this problem. Coursera, a major provider of open source online courses, is already putting this into practice . If a large number of students are found to have answered the homework incorrectly, the system will alert the teacher and send the students a personalized answer and hints for the correct answer. Such a system helps to fill the gaps that may arise in the courses and to create the same conceptual framework for all students . Instead of waiting for the teacher to respond, students receive feedback to help them understand the concept and remember how to do it next time.

Intelligent systems and the learning process go hand in hand, and new techniques are needed to ensure that all students achieve their ultimate academic success. Smart content is a hot topic today, and it also includes virtual content such as video conferencing and video lectures . Intelligent systems use traditional curricula to create customized textbooks for specific subjects As a result, textbooks will be digitized, and new educational electronic interfaces will be created to help students of all grades and ages .

Smart content refers to a variety of learning materials, from digitized textbooks to customized interfaces. For example: Content Technologies, Inc. - a production company working with intelligent systems. Its main goals are to automate business processes and improve user experience. The company has already created its own solutions for the educational process . For example, Cram101 can break down textbook content into parts. They assess student knowledge by including subject summaries, quizzes, and more . Additionally, Netex Learning is another company focused on building smart content platforms. The solution is packed with features based on intelligent systems – such as real-time feedback and a digital curriculum. The Netex platform also offers individual learning platforms with virtual training, conferences and more. the educational process.

Curriculum can be tailored to the needs of students. One of the main ways that intellectual systems tools affect education, from preschool to higher education, is through the use of higher levels of individualized instruction . This is partly due to the proliferation of adaptive learning programs, games and software. These systems respond to the needs of the student by focusing more on certain topics , repeating topics that have not been mastered, and generally helping them work according to their preferences. In individual education, an intelligent system tool that helps students of different knowledge levels to work together in one group, facilitates

teaching for teachers , and provides support when necessary, can be a solution. Personalized learning is having a huge impact on education around the world (especially through programs like the Khan Academy), and as intelligent systems tools continue to evolve, these kinds of flexible programs will only improve.

help to determine what the student is doing and what he wants to know. Thus, the tools of the Intelligent System analyze the educational process according to the specific needs of students and increase its efficiency.

can change where students learn , who teaches them, and what key competencies they acquire. While major changes may occur over the next few years , the reality is that intelligent systems could revolutionize everything we know. Using intelligent systems, software support , students can study from anywhere in the world at any time, and in such programs, it will be possible to replace certain types of classroom study. AI-based learning programs are already helping students acquire basic skills, and in the future, as these programs develop and AI-based learning resource developers become more knowledgeable, they will be able to offer more services to students .

, as a result of the research conducted on the characteristics of intellectual systems and their use, the following components of the systematic approach were determined :

- determining the main features of education based on the criterion of compliance with goals;

- ensuring the effectiveness and continuity of teaching "Information Technologies" at all stages of higher education, taking into account the criteria of knowledge enrichment, the continuity and perspectives of the content, forms and methods of teaching at each stage ;

- education based on the use of intellectual systems , creating conditions that allow students and teachers to freely choose the level of mastery of the subject at the final stage of education based on their personal plans and abilities;

- humanizing the educational process based on the use of educational resources based on the intellectual system tool, that is, organizing the educational process taking into account the student's personality, his spiritual world, interests and abilities. Such education is the essence of humanization of general education and, in particular, education based on intellectual systems, in the recognition of the individual. Determining each person as the highest social value of society;

The results of the research show that the use of intellectual system tools, their creation and implementation is an urgent issue today. The use of intelligent system tools is well advanced in many developed countries . In turn, we can see that it is developing in the socio-economic spheres and in the spheres of education. Our acquisition of knowledge and skills in creating and using intellectual system tools, analyzing foreign experiences and adapting them to our own, ensures the consistency of our work in the field.

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