



DEVELOPMENT OF LOGICAL COMPETENCE OF FUTURE PHYSICS TEACHERS BASED ON STEAM AND SMART EDUCATIONAL TECHNOLOGIES

¹Gulnoza Nafasova Bakhtiorovna

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Gulistan State University Trainee researcher

E-mail: gulnozanasova544@gmail.ru. Phone: 94 1647676

²Abdullayeva B.S

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ABSTRACT

This article talks about the development of logical competence of future physics teachers based on steam and smart educational technologies. The levels of development of logical competence based on steam and smart educational technologies were analyzed didactically.

On December 14, 2016, the President of our Republic, Shavkat Mirziyoyev, at the joint meeting of the chambers of the Oliy Majlis, said, "Our youth are people who think independently, have high intellectual and spiritual potential, and are not inferior to their peers in any field on a global scale. "We will mobilize all the strength and capabilities of our state and society so that they become mature and happy," he said, noting that improving the education system, educating young people based on world standards, and raising a generation with high intellectual potential is one of the urgent issues of today. puts in order. In the pedagogical research conducted in the educational system, the scientific basis for the development of intellectual potential is an important factor in the development of a person. By the 21st century, humanity is rapidly moving towards the formation of an open information society that provides equal access to information for all. Elements of digital existence such as "e-government", "e-house", "e-commerce", "e-education" have entered our lives and become traditional. Now humanity aims to use electronic resources not only as a source of information, but intelligently in an interactive environment. This requires the use of information and communication technologies, which are rapidly being updated, at the level of communication and data processing. Creating electronic resources that communicate and teach such a "smart" person is a very urgent and difficult task, and its creation requires combining the capabilities of the most qualified experts from around the world.

One of the significant steps taken in this direction is the "SMART education" project, which has been implemented worldwide in the field of education. SMART education is a flexible and individualized new global educational technology implemented in an innovative virtual environment with the help of open information resources. Its main feature is its implementation on a global scale and the creation of equal access to information and wide use of educational opportunities for everyone. In turn, the "SMART education" educational environment requires its participants to update and integrate the methods and technologies used in the entire educational process. For the same purpose, the countries of the European



Union are on the way to bring their education systems to the same standard and are encouraging other countries of the world to do the same. The project of the Single European University, which is recognized as the environment of future education, is one of the important steps in this direction. It is known that harmonious use of pedagogical and information technologies is defined as an important task in the regulatory documents adopted on improving the effectiveness of the teaching process organized in the continuous education system. In fact, in the era of globalization of information, increasing the effectiveness of teaching using pedagogical and information technologies in the educational process is considered an urgent problem. One of the important tasks of teachers-pedagogues working in the continuous education system is to increase students' interest in mastering the basics of science, to ensure their competence through the development of independent and creative thinking skills. Information technologies play an important role in solving these problems. In general, STEAM technology encourages students to conduct experiments, construct models, independently create music and movies, realize their ideas, and create a product.

This approach to teaching allows students to effectively apply theoretical knowledge and practical skills. It will also increase the creativity of students, and will be a solid foundation for the training of highly qualified, up-to-date personnel. It would be appropriate to implement the following measures to introduce SMART technologies into the educational system of our country: - the time allotted for technological renewal (2020-2025) is very short. Therefore, applying the "quick start" method, that is, studying the requirements of the "SMART education" educational environment and accelerating its introduction into the educational system of our country; - coordination of electronic resources created in different disciplines in our republic with world standards and best practices of developed countries; - without re-creating open resources created around the world, translating and adapting the most appropriate of them and introducing them into the educational process; - to accelerate the provision of educational institutions with the technical means of the "SMART education" educational environment. Modern society is an information society characterized by the development of computer technologies and means of communication, which makes surrounding technical devices increasingly "smart", making life more comfortable, safe and interesting.

This stage of development of society and economy is characterized by the following: - increasing the role of modern information technologies in society's life; - increase in the number of people engaged in the production of information technologies, communication and information products and services; - expanding the information of society using telephone, radio, television, internet, traditional and electronic mass media; - creation of a global information space that ensures effective information exchange of people, their use of world information resources, satisfaction of information products and services needs. Today, a number of countries have begun to develop SMART education. SMART - the model of the society implies the creation of an intelligent, high-tech, human-friendly environment with the help of modern information and organizational systems. More and more, a person acquires new knowledge, and he will not be able to use this knowledge without information technologies. One of the main goals of education is to achieve quality education by forming a modern education system based on SMART technologies. Usually, most teachers set the



following goals for the lesson: for example, if the topic is "computer devices", the educational goal of the lesson is to teach students about the computer structure, internal structure, devices and their functions, and the mechanism of operation. give insight. With this goal in mind, the teacher explains a new topic in the lesson, now can he confidently say "I have achieved my goal"? Is the formation of basic and science-related competencies in students based on the state demand for science?

Are conditions not created for the development of students' scientific outlook, critical, analytical, and creative thinking? So, it can be said that goals like the above do not meet the criteria of SMART goals. The teacher, first of all, should not direct the goal to himself, but should focus on the formation of students' knowledge, skills, qualifications, and competencies. It is recommended to use the criteria of SMART goals. When defining the educational goal, it is often necessary to "increase students' computer literacy and form technical culture; moral, aesthetic education, etc. sentences are used. However, this goal cannot be achieved within 45 minutes. In this case, "creating conditions for the formation of technical culture of students, continuing moral and aesthetic education, etc." should be said. The goals formulated above correspond to the elements of competencies listed in the curriculum, that is, it can be noted that they are aimed at students and are related to the activities of students. After clearly defining the goal, the teacher chooses the necessary teaching methods and tools to achieve this goal.

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