

Modernization of Education and Innovative Process

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Annotation: The article reveals the essence and concept of "innovative activity". The innovations in the education system of the Republic of Uzbekistan are analyzed. Particular attention is paid to the most important areas of informatization of education and innovative technologies in teaching biology.

Keywords: Innovation, education, modernization, informatization, distance learning.

Innovations in education are actual significant and systematically self-organizing innovations that arise on the basis of a variety of initiatives and innovations that become promising for the evolution of education, positively affect the development of all forms and methods of education. The concept of "innovative activity" in relation to the development of modern education can be considered as a purposeful transformation of the content of education and the organizational and technological foundations of the educational process, aimed at improving the quality of educational services, the competitiveness of educational institutions and their graduates, ensuring the comprehensive personal and professional development of students. Innovations in the education system have a natural character, their content, forms and methods of implementation depend both on the global problems of human development and on the socio-economic, legal, spiritual and political processes of reforming society [1].

The basis of social innovations is the modernization and informatization of education. The main goal of the modernization of education is to create a mechanism for the sustainable development of the education system, ensuring that it meets the challenges of the 21st century, the social and economic needs of the country's development, the demands of the individual, society and the state.

Modernization of education is an innovative process of transforming the entire education system, aimed at maximum satisfaction of the educational needs of students in the widest range of specialties, levels of education, educational institutions and information and educational resources. At the same time, education should give the expected effect, regardless of the location of both the student and the educational resource or service that he needs, carried out using the most modern information and telecommunication technologies. The result of modernization should be the achievement of a new quality of education, which is determined, first of all, by its compliance with the current and future needs of the modern life of the country[2-4].

Informatization of education is aimed at implementing the idea of improving the quality of education content, conducting research and development, their implementation, involves replacing traditional information technologies with more efficient ones in all types of activities in the national education system of Uzbekistan.

The most important areas of informatization of education are:

- formation of a virtual information environment at the level of an educational institution;
- system integration of information technologies in education, supporting the processes of learning, scientific research and organizational management;

- construction and development of a unified educational information space;
- constant provision of new scientific, technical and scientific and methodological information;
- creation of a wide network of information centers focused on solving the problems of information support of the education system with computer programs.

The introduction of innovative technologies in education requires new approaches to teaching based on modern educational technologies. Educational technology is the targeted application of the system of means in education, which determines the receipt of the specified characteristics of some educational phenomenon (certain qualities of graduates, the content of education, advanced training of educators, etc.). Modern educational technologies, first of all, should work for creative education, contributing to the creative development of the personality of each student [5].

Educational technology includes a set of actions related to any educational processes (management of the education system, development of an educational institution, formation of a teaching staff, etc.). The structure of educational technology includes such components as goal-setting, monitoring and evaluation, while the basis of the modern education system is information technology. At the same time, it is essential that innovative technologies in education require not only the development of education based on information technologies, but also the creation of an appropriate information and educational environment [6-7].

A unified information and educational environment can be defined as a controlled psychological and pedagogical system created by the people themselves, based on modern information and educational technologies and providing everyone with the same technological means to conduct the educational process in the Internet environment . Within the framework of a unified educational information environment, the formation and development of an open education system, provided with organizational, pedagogical and information technologies, is taking place. In this environment, with the help of architectural and structural solutions, open standards are provided for interfaces, formats and protocols for information exchange in order to ensure mobility, stability, efficiency and other positive qualities achieved when creating open systems. Thus, the system of open education is a combination of didactic, technical, informational and organizational approaches. At the same time, the basis of the educational process in open education is the purposeful, controlled, intensive independent work of the student, who can study in a place convenient for himself, according to an individual schedule, having a set of special teaching aids and an agreed opportunity to contact the teacher by phone, fax, e-mail. or regular mail, as well as using personal contact [8].

The purpose and principles of open education are focused on preparing students for full and effective participation in the public and professional fields in the conditions of market relations. Giving the education system the qualities of an open system entails a fundamental change in its properties in the direction of greater freedom in planning education, choosing a place, time and pace, in the transition from the principle of "education for life" to the principle of "education through life". In practice, this system is implemented using network technologies. Initially, network learning technologies became widespread among representatives of those age and social groups who are forced to give preference to learning without interrupting their main work activity. Today, open and distance learning provides an opportunity for various groups of the population to receive additional education using the Internet [9-10].

In the education system, the use of information and communication technologies is more common in the non-traditional (non-state) education system. However, many universities are actively using information and network technologies in the system of full-time education. As a result, the more effective use of modern educational technologies in the traditional education system is gradually

leading to the fact that the line between full-time, part-time and distance learning will be blurred, which is a characteristic feature of the open education system.

The introduction of distance learning in universities has both advantages over traditional forms of education, and its own characteristics, presenting certain specific requirements for both the teacher and the student.

The distance learning system is carried out with the help of an information and educational portal. An educational portal is an educational and methodological and software and hardware complex that provides management of an educational institution and contains all the necessary information about scientific and methodological information resources, state educational standards and any other information based on modern learning technologies [11].

The modernization of the education system and the introduction of information and communication technologies in the learning process raise the issue of the quality of education in a new way. Already today, many countries pay great attention to the problems of quality and efficiency of education, combining their efforts in the development of methodology, technology and tools for comparative studies of the quality of education, thereby creating a system for monitoring the quality of education in the world.

Innovative technologies today are gaining more and more recognition and are used in teaching various subjects at school. Teachers introduce into practice such innovative technologies as differentiation and individualization technologies, problem-based learning technologies, project technologies, interactive and information technologies [12].

Innovative technologies in teaching biology include the use of a computer. A lesson using ICT and multimedia technologies is a qualitatively new type of lesson. Taking into account the specifics of teaching the subject of biology, the psychological and age characteristics of schoolchildren, a large amount of visualization should be present in the lesson. As a rule, the use of posters and tables with illustrative material is no longer relevant, so the availability of computer programs is a great help to the teacher in preparing and conducting modern, non-standard and interesting biology lessons.

Usually educational presentations, interactive drawings, videos, animations, computer tests allow students to quickly and easily learn the material. The use of information and communication technologies provides:

- the speed of obtaining the necessary information;
- conducting a qualitatively new, dynamic and informative type of lesson;
- a wide range of visual aids;
- increasing interest in the subject;
- qualitative testing of knowledge with the help of simulators;
- acceleration of the educational process due to closer interaction between the teacher and students.

Today, a large number of new digital educational resources have appeared, the use of which allows you to save time preparing for the lesson, choose the material that will allow students to fully assimilate new knowledge, diversify the verification and consolidation of the learned material. Digital educational resources provide an opportunity to show those processes and phenomena that are distant from us in time and space [13].

All objects can be arranged into various presentations for lessons, depending on the type of lesson, the tasks set by the teacher, the level of preparation of students. Also, digital educational resources

allow you to prepare material for independent and laboratory work, select information objects in the desired sequence.

Innovative technologies in teaching biology are fundamentally new ways and methods of interaction between teachers and students, ensuring the effective achievement of the result of pedagogical activity.

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