

**PRINCIPLES OF A SYSTEMATIC APPROACH TO THE USE AND QUALITY OF
INFORMATION AND COMMUNICATION TECHNOLOGIES (ICT) IN EDUCATION****Hasanova Natavan Filman**

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Abstract

The article examines the impact of the rapid development of modern information technologies on the educational process and the technologies and methods applied in the educational systems of different countries. It compares the traditional education system with distance education and examines the quality standards of education.

Keywords: *programmed education, electronic education, information culture, project-based education, informatization of the education system, electronic school*

Introduction

Today, technologies that determine the future of global economic development form the main line in the policies implemented by the world's leading countries. Rapidly spreading information and communication technologies (ICT), and globalization processes that have formed against their background and gained new development momentum, have a direct impact on the socio-economic life of countries. It is no coincidence that the 21st century is called the "Computer Age" and the process of applying ICT is underway in all areas. It can be said that most countries in the world have adopted national strategies that envisage the use of ICT in various fields, including education. In many cases, the purpose of these strategies is to provide students, as well as teachers, with the necessary ICT knowledge. Another important aspect is the provision of schools with modern technology and infrastructure. The "Program for Providing Secondary Schools with Information and Communication Technologies in the Republic of Azerbaijan (2005-2007)" approved by the President of the Republic of Azerbaijan, Mr. Ilham Aliyev, on August 21, 2004, launched this process in our country. After that, the "State Program on the Informatization of the Education System in the Republic of Azerbaijan in 2008-2012", adopted by the head of state on June 10, 2008, set as its main goal the establishment of a qualitatively new education model in our country in accordance with international standards by using ICT, the creation of a single electronic educational space, and the integration of the education system into the world educational space. World experience shows that the

modern education model established using ICT also places new demands and tasks on the school's pedagogical staff [1].

The use of ICT in the educational process is one of the methods of increasing achievements in education. ICT contributes to the development of not only the student, but also the teacher as a creative personality. ICT helps to communicate, educate and self-actualize, and at the same time fulfill the human need for knowledge. The application of ICT in the educational process serves to increase the efficiency of teaching, free teachers from previous teaching methods, visualize teaching materials, implement the division of tasks into grades, as well as improve feedback forms.

The use of ICT opens up additional didactic opportunities, as it has the ability to clearly present phenomena that cannot be demonstrated by other methods when visualizing the material.

The multimedia system allows for the most convenient and accessible presentation of didactic material, which increases interest in education and, as a whole, creates conditions for eliminating gaps. The main means of monitoring and evaluating the creative results of students are tests and test tasks that allow for various types of control (introductory, intermediate and final) using ICT [2].

One of the most important issues for the preparation of highly qualified specialists who are able to apply new information technologies in their professional activities is programmed educational technology.

Programmed teaching technology was developed in the early 1950s by the American psychologist P.F. Skinner. He proposed increasing the efficiency of learning by mastering the material, transferring information in a certain amount, and establishing control over it through sequential programs.

Programmed learning refers to the controlled learning of educational materials using a computer. Educational material is conceived as a series of information presented in a certain logical sequence and in not too large chunks.

The principles of programmed education include the following:

1. Hierarchy of management structures. The educator is the one who manages the system:
 - a) creation of a primary directional system in the program;
 - b) individual assistance and correction of education.
2. The principle of feedback. To help the student understand the teaching material and to help the teacher make corrections.
3. Step-by-step technological process: information, feedback, and control.
4. Individuality of the information process. Everyone chooses a convenient way of working for themselves, and everyone has the opportunity to return to information, to individual fragments.

When individuals in the educational process interact with the infosphere surrounding them, on the one hand, they act as receivers, memory, and processors of information (information consumers), and on the other hand, as transmitters (information producers). From this perspective, the process of forming a person's information culture is decomposed and carried out in accordance with the stages of information reception, memory, processing, protection, and transmission [3].

Information culture, first of all, requires from the teacher and the student new knowledge and skills, a mindset that ensures the necessary social adaptation to changes and guarantees a worthy place in the information society.

Information culture performs the following functions:

- regulation has a decisive impact on all activities, including informatization;
- cognition (understanding), that is, it is directly related to the subject's research activity and his or her education;
- Communicativeness and information culture are an integral element of human interaction;
- Educational, information culture actively participates in the assimilation of all cultures by humans, in the acquisition of knowledge accumulated by humanity, and in the formation of its morality.

The teacher's information culture includes worldview and technological components. Worldview consists of ethical, psychological, social, emotional and aesthetic characteristics, and the information possessed by the teacher reflects his attitude towards the assessment of work.

The technological component consists of skills and habits related to the processing of information during the application of ICT. Technologies that ensure the activity and freedom of students occupy a special place here. The collaborative methodology is suitable for this. In this type of education, students attach great importance to helping each other. The work is organized in such a way that the fulfillment of the task depends on each member of the group. The most striking example of activating technologies based on the student's independent activity is project-based education. Project-based education helps to form intellectual, creative and communicative skills in students:

- ✓ working with text;
- ✓ analyze information;
- ✓ to draw conclusions;
- ✓ compare and create similar ones;
- ✓ to convey one's opinion concisely.

One of the most important and complex goals facing the educational process is to achieve quality in education. It should also be noted that the problem of quality in education is one of the least studied areas.

When talking about quality in education, first of all, in order to manage the quality of education, it is necessary to perfectly know the mechanism of organization of management and be able to apply this mechanism to activity. If we explain management activities in a logical sequence, it is necessary to take into account who, how, when and where they are implemented. The mechanism of management of quality of education is a system of its own measures. These measures consist of relationships between structures that are interconnected in a logical sequence.

At a time when integration into world education is important, learning, generalizing, and disseminating advanced pedagogical practices of developed countries, benefiting from the advanced pedagogical practices that have been formed, increasing the efficiency of the teaching process, and having the ability to present one's own activities are among the quality indicators of a teacher's creative work.

A teacher's participation in projects that require creativity and healthy competition, in competitions and innovative programs, plays an important role in revealing the quality of his or her creative work.

What is included in such a vague concept as “quality of education”? Some understand the quality of education as the percentage of students who graduated from the reporting period with a triple, that is, “good” and “excellent” grades, others understand individual development, third understand the quality of education as the percentage of graduates working in higher education institutions, and the fourth group understands the quality of education as the number of associate professors and professors teaching students. Also, the scientific meanings of the concept of “quality of education” are not uniform. In a broad sense, the quality of education is understood as a balanced agreement of higher education with various needs, goals, requirements, norms (standards) (such as results, processes, education system). This approach is closer to the concept of quality that meets the international standard (ISO 8402): “Quality is the totality of characteristics of an object that bear on meeting certain and assumed needs.”

In education, both external (state, society, employers, families of students) and internal (students, teachers, service personnel) requirements are determined by the participants in the educational process. Therefore, perhaps the most complete definition of the quality of education belongs to SE Shishov and VA Kalney (2000): “The expectations of the participants in the educational process, the degree of satisfaction with the educational services provided by educational institutions, are called the degree of quality”.

Harvey and Green consider five broad approaches to quality systems in higher education:

- a specific process directed towards a positive outcome “at the exit”;
- improvement process within the educational process;
- Compliance of the implementation of users' requests, demands and expectations with the goals;
- the result of capital investment;
- Transformations that represent an improvement change in the development of new knowledge or the provision of opportunities to students.

Analyzing various explanations of the concept of quality, let us highlight the most important characteristics to justify this approach:

- interaction with the goals of the education system;
- multidimensionality and multifactoriality in determining quality;
- The dependency that arises in the discussion of different aspects and perspectives in determining the quality of the education system.

In Europe, the term “quality assurance”, which can be translated as “quality assurance” or “quality assurance”, is often used. In addition to the stages related to evaluation, the quality assurance system includes stages of improvement and their implementation, research and decision-making. The most important feature of the quality assurance system is that it is cyclical and improvement-oriented.

Educational quality assessment system in European countries (Great Britain, Denmark, Netherlands, Norway, Finland, Sweden) and the USA

The growing interest and attention to the problems of determining quality in the higher education system is typical not only for individual European countries, but also for the European Union as a whole. The concept of the quality of the educational process began to attract attention in many European countries already in the early 80s. In 1984, in Great Britain, R. Joseph expressed the idea that “quality should be considered alongside the main objects when evaluating the education system” and “capital investment”. In the same year, the National Committee on Quality was established in France. In 1985, a government document entitled “Higher Education: Autonomy and Quality” was published in the Netherlands. A number of other countries began discussions on the introduction of a quality system into the higher education structure.

Thus, the expansion of the Western European higher education system, the growth of spending on its development and support leads to the fact that educational institutions are faced with the need to demonstrate a truly high-quality level of training of specialists in order to justify the capital investments made in them. In the British approach, universities are independent in their development and choice of types of control. This is due to the fact that the higher education system in Great Britain is less dependent on state funding.

Higher education quality assurance systems: experience, problems, prospects

Brennan, Williams, Harris, McNamara (1997), who conducted a survey of educational institutions, came to the following conclusions: the assessment of the quality of education is a collective and multifactorial process, the purpose of which is not only to evaluate, but also to monitor compliance with standards, changes and innovations. The assessment process should be clear on the basis of real events and facts related to the work of specific institutions and educational institutions.

Two approaches are distinguished in the quality policy of the higher education system: the continental (European countries) and the British approaches. For the continental approach, foreign policy is more important, that is, to what extent are the graduates of a higher education institution prepared to participate in the national economy of the country. This is due to the state financing of higher education institutions.

A review of the quality and organization of the control system of institutions and universities of Northern European countries (Denmark, Norway, Finland, Sweden) allows us to briefly review the following, based on the work of S. Wahlen:

In Denmark, the assessment system is included in all core educational programs. The assessment process, which takes place throughout the academic year, consists of five stages:

- planning the first phase assessment program;
- second stage methods for improving processes within the educational field;
- in the third stage, the educational process is examined by graduates, students, and employers;
- holding a meeting to review the work of the committee involved in assessing the quality of the educational process for the fourth stage;

- The fifth stage is to hold a final conference, which is a report from the committee on the work done during the academic year.

The Finnish Higher Education Quality and Supervision Committee was established in 1996. The main purpose of the committee is to assist educational institutions and the Ministry of Education in developing the assessment system. In fact, this committee performs an advisory role rather than a supervisory role. Its tasks include: training specialists to work in the quality assessment system within educational institutions, ensuring the assessment system at the level of state and private institutions, and developing and improving materials for the accreditation of professional institutions.

In Sweden, there are four types of evaluation at the national policy level in higher education. The first direction is the national evaluation of subjects and study programs; the second direction is evaluation for the accreditation of study programs; the third direction is evaluation to check the professional readiness of graduates from small educational institutions; and the fourth direction is the general evaluation of all study programs.

The system of monitoring and evaluating the quality of the educational process in the United States is called "accreditation". It acts as a key factor in the evaluation of the educational process of colleges and universities in the United States. In this system, evaluation is carried out in two directions: internal and external. In the external system, organizations such as a federal body, a relevant state (state) body, an agency for accreditation of institutions, and a specialized agency for the accreditation of educational programs of educational institutions are involved. The internal evaluation process includes a report by the committee on the implementation of university educational programs, planning and improving new educational programs, and evaluating them based on student performance.

The accreditation system was introduced in the United States at the beginning of the 20th century. The main aspect of this assessment direction is the decision-making process and attestation of an educational program. As a result of accreditation, the educational program and institution are either granted the right to further activity or are denied it.

Recently, a new term for evaluation has been introduced in the United States, which refers to the evaluation of graduates or students. New methods and techniques are used in this process. On the one hand, evaluation is an integral part of accreditation and is used as a tool, but on the other hand, evaluation is viewed as a process distinct from accreditation [4, 5].

In general, all these works carried out and planned in the education system serve the informatization of the education system and, as a whole, the establishment of education at a modern level and are constantly in the spotlight. Within the framework of the State Program, all educational institutions of Azerbaijan (including those in remote regions) It is planned to provide Internet access to all schools (including those located in remote areas), equip each educational institution with the necessary technical equipment and connect all educational institutions to a single educational network, as well as provide each classroom in secondary schools with a laptop, projector and electronic board, and provide all students with netbooks or tablets within the framework of the "1 student - 1 computer" project.

The informatization of the education system is being continuously implemented in many leading countries, including Azerbaijan. Thus, the effective integration of ICT into education management [7] is being continued and management mechanisms are being applied through the creation of a unified education information system. Also, the possibility of increasing transparency in the management of the education system is emerging due to the expansion of the application of the electronic document circulation system.

Currently, standards are being developed and implemented to support higher education institutions in training specialists with knowledge and skills in accordance with the country's socio-economic development requirements, and their transformation into education-research-innovation centers. Scientific research conducted in higher education institutions is being brought up to modern standards, the application of the results of scientific research in the educational process and production is being organized, and opportunities are emerging to take measures to strengthen the information provision of science and deepen

international scientific relations. The application of electronic educational technologies is being further expanded, and a virtual learning environment is being formed for teachers and students.

Conclusion

For this purpose, the creation of electronic teaching and methodological resources in all subjects is continued, and it is planned to apply “cloud” technologies to ensure reliable storage of electronic resources and easy access to them, increase the number of “Electronic Schools” to 1000, and expand the opportunities for using digital educational resources. Currently, 50 educational institutions are involved in the “Electronic School” project, which began to be implemented in 2009. 43 of them are secondary education institutions. The goal of this project is the wide and comprehensive use of ICT in the educational system, as well as the application of the positive results achieved in other educational institutions in Azerbaijan. Through these projects, internal management of schools is carried out, electronic journals are used to assess students, and parents have the opportunity to monitor their children's attendance online or via SMS [6].

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