

# EDUCATIONAL TECHNOLOGY, ITS FORMATION AND MODERN STRUCTURE

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**Abstract:** *This article highlights the importance of educational technologies in teaching all the subjects. In order to efficient usage of these technologies, it is important to identify their formation, structure and components. This helps teachers to disseminate best practices into academic groups more effectively. Some important point on this process will be analyzed briefly in this article.*

**Keywords:** *complex, education, component, technological progress, technique, knowledge, discipline, category, information, preparation, outcome, specific goals, content, program.*

## I. INTRODUCTION

The education process is extremely complex and multi-component. The effectiveness of education depends on the activity of teachers and students, the availability of educational tools, the organizational, scientific and methodological perfection of the educational process, the need for scientists in society and many other factors that have not yet been identified. Society demands high efficiency of education based on its socio-political and economic needs.

All links in education should be organized in such a way that it teaches young people to think broadly while providing in-depth and sound knowledge. The need of the student to acquire independent knowledge in the educational process is a modern requirement.

A number of work methods have been used in pedagogical practice and research. Problem-based organization of education, activation of students in education, collaborative pedagogy, based on basic knowledge, optimization of education, etc. However, although these pedagogical tools have been effective for some teachers, they have not been integrated into the education system.

## II. RESEARCH METHODOLOGY

The main essence of pedagogical technology is to engage students in education and achieve full mastery of knowledge. The main goal of the introduction of pedagogical technology is that the vast majority of students thoroughly master the knowledge imparted in education.

The main requirement for teaching based on pedagogical technology is to provide knowledge based on the student's life experience, previously acquired knowledge and interests. Pedagogical technology requires students not to leave room for negative experiences, even if they do not have enough knowledge in the field of study, and to admit that this is not the fault of the student. When activism is demonstrated, students can gain confidence in mastering knowledge.

In the existing pedagogical discipline, the focus is on the presentation of new knowledge, the consolidation of new knowledge, and the consideration of outcomes. The teacher did not take into account the student's previous knowledge and life experience. The lesson plan suggests completing the previous topic and linking it to a new topic. However, it was not enough to determine the student's knowledge on this new topic, to provide initial information specific to the topic.

Pedagogical technology shows that students will be able to remember, revive, and acquire new knowledge in the field of study. Determining knowledge and preparation provides a positive motivation for student activation and knowledge acquisition. The topic animated in free conversation, discussion, brainstorming, and other forms as you begin to explore the topic.

Pedagogical technology is used in educational practice at three levels:

1. General pedagogical degree. General pedagogical (general didactic, general educational) technology represents the whole structure of the educational process, the general laws of technology, scientific theoretical foundations, principles, general features of application in practice, conditions of a particular region, the educational institution at a certain stage of the system of continuing education. It should be noted that at each stage of the system of continuing education, pedagogical technology also has its own characteristics, as it is intended to implement the relevant specific goals and objectives through the content of education. At this level, pedagogical technology is synonymous with the concept of pedagogical system. It includes the goals and objectives of the educational process, content, tools and methods, the object of the educational process and the algorithms of the subject.

2. At the special methodological level is understood a set of pedagogical content, teaching aids, methods and forms used for the implementation of a particular subject, the goals and objectives of the teaching process of the course.

3. At the local (modular) level understood the technology aimed at solving the specific didactic and educational purpose of a particular part of the educational process. It provides for the organization of independent work of students, the control of their knowledge, the formation of personal qualities.

The three levels of pedagogical technology mentioned above complement and require each other. In Uzbekistan, the issues of pedagogical technology studied mainly in the field of education. Educational technology refers to the level of information content and modeling by changing the status of the student in the educational process, methods of pedagogical processing of the subject, adapting the subject to the real cognitive abilities of students, raising and evaluating learning outcomes. tools, we understand the organizational forms of education. Educational technology limits the current guiding principle (subordination) of the management of the educational process, in which coordination becomes the guiding principle of mutual coordination of teacher (teacher) and student activities. When coordination becomes the main principle of organization, management and control of education, the student becomes an equal subject of the educational process with the teacher (pedagogue), the educational process is carried out jointly by the teacher (pedagogue) and the student-student.

### III. RESULTS

The main idea of educational technology in Western countries based on programmed education. One of the founders of programmed learning, Berres Frederick Skinner, noted that students' learning material and behavioral behaviors (student activities) are divided into stages (stages of learning), at each stage a certain share of learning material is fully mastered, the mastered share of learning material is checked and the next share is studied. . Thus, the basic principle of pedagogical technology is the tactic of full mastery of the content of information, which first appeared in the shell of the theory and practice of programmed education.

Pedagogical technology as a field of knowledge related to human consciousness, thinking represents a complex and inexplicable pedagogical process. Its peculiarity is that it also covers the problem of upbringing. So, the effectiveness of technology depends on the solution of the question of how fully a person is manifested in it with its multifaceted aspects, its psychological and professional aspects, how their future development (or decline) is taken into account. Shy in terms of technology, technology also has the ability to design, diagnose the stages of a person's development. This depends on the educator's ability to work with the technological process.

The ability of the pedagogue to perform the specified educational tasks within the limits of the permissible limits on the basis of the requirements specified in the normative documents can be called the ability to work. Therefore, in determining the skills of a teacher of a subject, it is necessary to consider the extent to which his activity meets the requirements of state educational standards and pedagogical conditions.

Pedagogical publications recommend a number of indicators for assessing pedagogical performance, including:

- pedagogical efficiency - the average value of mastering the subject in the pedagogical group;
- The scientific level of teaching - the teacher's explanation of the elements of learning on the stages of science abstraction;
- Methodological preparation of educational content - taking into account the requirements of generality, consistency, mobility, non-redundancy;
- effective use of ways to achieve this or that result in education - in extensive or intensive conditions, and so on.

In general, the main professional-normative indicator for a teacher is, first of all, to feel and understand his / her position as a constructive one in the pedagogical process. Unless a teacher is able to assess his personal professional suitability for his work, his place in the pedagogical reality, he can never be required to be creative. This means that everyone who enters the pedagogical activity must fully imagine that he is adaptable to it, that he has the ability and interest in this profession.

The main purpose of educational technology is to create an educational project that is suitable for the full mastery of the subjects. Such a project is created only on the basis of the basic and advanced ideas of modern psychology, didactics and pedagogical practice.

Education is a controlled process, the outcome of which depends in many respects on the prepared didactic project. The didactic project is a product of educational technology. Management of students' learning activities according to the didactic project is the pedagogical basis of educational technology. Just as there is a beginning and an end to any process, there are

entry and exit points for the implementation of a didactic project. Just as it is possible to place many points between two points, there are many effective methods and tools of teaching in the distance from the beginning to the end of the didactic project. Here, teaching technology is the most effective method, helping the teacher in choosing an effective form of teaching.

This means that the teacher (educator) and the student-mind encounter many events from the goal to the standard. Technological approach to education is the design of education based on the analysis of general and specific goals of the educational process through a comprehensive. Analysis of information and educational content, the definition of the didactic purpose of education at the meeting point of teacher (student) and student goals (teaching goal, learning goal) and is to achieve the intended benchmark by means of implementation. In general, when it comes to educational technology, there is a need to distinguish the following interrelated phenomena: didactic design of education; project implementation; make corrections and changes to the didactic project based on the current and intermediate results of education; consists of repetition of training and final control. The first and second of these phenomena occur in traditional educational practice. The difference between educational technology and the traditional education system is that the result of education and its standard level is always in the focus of the teacher (educator) and the student. The teacher (educator) frequently checks the learning outcomes, keeps the students informed of their achievements, and the students realize their achievements and shortcomings and try to increase their achievements and eliminate their shortcomings. Pupils feel the need for education, as they become a real subject of the learning process.

The work to be done on educational technology consists of two parts: the preparation of the educational project and the implementation of the project.

**1. Preparation of an educational technology.** The project is the product of the remedial work of a teacher or expert member and has a number of common features. The project is based on the future activities of teachers and students.

The educational technology begins with the analysis of the content of information in accordance with the requirements of state standards. The analysis focuses on how the elements of information content (knowledge, skills and abilities, experience of creative activity, relationships) are presented in the programs, how they are reflected in the textbooks. Then the content of education is studied, the purpose of studying this or that topic, the didactic purpose of education, the purpose of the teacher and students, the implementation of goals and record sheets, the amount of homework, test questions on the topics, the stages of rating control, the method of mastering at the standard level is predetermined. All of this work leads to the creation of a model of education in the mind.

**2. Implementation of the educational project.** The educational project is carried out in a direct educational environment. In this process, special attention will be paid to the following:

- Introduce students to the goals and objectives of the study, problems, assignments, as well as homework, independent work, the order and timing of their implementation, give instructions on the full mastery of the topic, the norms of mastering;
- Encourage students to be active, independent, to draw their attention to the content of the section or topic, to tell how to study it, to arouse interest in learning, to stimulate interest in learning, to stimulate the need to solve problems, to apply emotions, thinking events, knowledge to learning situations. collection of information on, organization of current control over

the collected data, changes, additions, corrections related to the full mastery of the topic; processing of the accumulated knowledge on a section or a subject.

The learning process is stochastic in nature. It also contains expected and unexpected, planned, emergency and accidental events. New changes, additions and corrections will be made to the project based on the results of current control in the process of processing the acquired knowledge;

- draw general conclusions on the section or topic, apply the conclusions to complex learning situations, collect information on the topic or section according to the results of midterm examinations, analyze the achievements of students in the process of processing the collected information, shortcomings in students' knowledge and skills; show, give each student in the group additional tasks to be completed before the final control, encourage them to master the material more thoroughly;

- The main task of the final control is to determine whether students have mastered the elements of information and educational content at the standard level, to warn students who have mastered below the standard level, to give additional tasks.

Modern pedagogical technology requires creative activity for each of the stages, from the clear definition of the purpose of education to the evaluation of its results. The level of technological activity of pedagogical activity is determined by prof. N. Saidakhmadov singled out on the basis of the following criteria.

1. The diagnostic set goal is the didactic, precisely dimensional concepts, actions and types of activities mastered by the student as a product of the process.
2. Taking into account the stages of abstraction and the level of information acquisition in the description of the content of education with the help of learning elements.
3. Sufficient logical rigidity of the stages of mastering the learning materials - compliance with the structure of the didactic process.
4. Introduction of new tools and methods of information in the educational process.
5. Demonstration of the limit of possible deviations in the regular (algorithmic) and free, creative activity of the teacher.
6. Ensuring personal motivation in the activities of students and teachers (freedom, creativity, struggle, life, professional nature, etc.).
7. Expediency of communicative communication, information technology at each stage of the learning process.

The above indicators fully reflect the technological level of the projected educational process, and its implementation in practice will transform the teacher into a highly qualified specialist, increase the prestige of the student and open new horizons for the development of creative activity.

Regular analysis of modern pedagogical technology is based on such principles as the ability to determine the appropriateness of the methods of selecting the most appropriate design tools (teaching methods), pre-analysis of the desired result (achieving goals), ensuring the integrity of the learning process. It is expedient to take the following measures to

generalize and apply in practice the work on the introduction of pedagogical technologies in the educational process, especially the creation of a modern system of pedagogical technology of our systematized educational process using the experience of pedagogical technologies in foreign countries:

1. Participants of the educational process - the teacher (pedagogue) and students between:

Curriculum development, ie when the teacher (pedagogue) develops a plan for the study of the section and the chapter, this plan should reflect the activities of the student and the teacher (pedagogue). One of the principles of modern pedagogical technology is the consistent planned distribution of educational work between the teacher (pedagogue) and the student-student, which requires the teacher (pedagogue) to consistently manage the educational process.

2. Targeted use of internal communication and inter-citizen communication opportunities of science.

Each study unit, small and large, relies on previously learned. Interdisciplinary links and knowledge of the level of preparation of students are also important. This means that the student can rely on the existing knowledge in bringing a student to study a new chapter, if the existing knowledge is not enough to learn a new chapter, intermediate preparation, and only then move on to the next stage of learning.

3. Definition of educational units (criteria).

Units of learning consist of concepts, definitions, rules, laws, events, vocabularies that the student must learn, and the provision of a logical connection between them leads to the mastery of this chapter or section. The teacher (pedagogue) chapter is the criteria that students should study in the hours allocated for the department, and the threshold value of the assessment of student knowledge is determined. When creating a curriculum, the teacher identifies the units of study that students and students need to know by sections, chapters, and assigns them a task before studying the section as an independent task.

4. Diagnostic analysis.

Diagnosis is carried out in order to identify gaps in the knowledge of students, fill them and take them to the next stage of mastering. Diagnosis serves the following purposes:

- Diagnosis of the level of mastery of students;
- prevention of gaps in their knowledge;
- development of special tasks to fill the identified gaps;
- setting the hours of special assignments;
- final diagnostic analysis.

Diagnostics is one of the key elements of educational technology, ensuring that the outcome of the educational process is guaranteed by identifying the hours of major mastery deficiencies, determining the level of knowledge of each student, making adjustments to the course.

#### 5. Add a correction

If the result of the diagnostic analysis of the level of mastery of the department or chapter is less than 50%, the teacher must make adjustments to the educational process.

#### 6. Replenishment (elimination of defects).

The purpose of correction is to eliminate shortcomings in the acquired knowledge. Defective situation must be reported to seller.

#### 7. Get the expected result.

This element is the central idea of modern pedagogical technologies. While pedagogical technology requires that the outcome of the educational process guaranteed, it sets the task for the teacher (educators) to ensure that the intended purpose of the process achieved and planned to be effective.

Classes based on educational technology differ from traditional pedagogical practice in a number of features:

- Classes begin with the clarification of the learning objectives of students;
- The educational process is organized with a predetermined outcome;
- Each student works at a pace consistent with the specifics of their activities;
- Each member of the team is often warned about the results achieved; the result achieved is integrated into the standard at each stage of education;
- The result is determined by the main learning objectives of students;
- The student who has fully mastered the material, moves on to the next topic;
- For students who have mastered below the standard, education is repeated in similar conditions;
- begins with the realization of equal goals for the student-learning movement;
- The student moves from the goals equal to the action to the intermediate goal - knowledge, from which the general learning goal;
- Going from an equal goal to a common learning goal provides a cyclical learning process;
- The final (control) assessment is issued after a thorough study of the training course.

## IV. DISCUSSION

**Information technology in education** Today, information technology is one of the most important factors influencing the development of our society. Information technology also exists at different stages of human development, and the peculiarity

of today's information society is that information technology takes the lead among all existing technologies, especially new technologies.

Extensive use of didactic materials that determine the effectiveness of information technology and technical means is one of the main features of modern pedagogical technologies. The national program emphasizes this important tool for managing the educational process. The level of use of information media (computer, electronic communications, radio, television) is determined by two factors:

1. *Development of didactic materials on topics for which the media is effective for the learning process.*
2. *To check the readiness of teachers to use methodically correct technical means and didactic materials in their practical activities.*

The intended goal can be achieved only if the process of informational education is pre-designed pedagogically. Computerization of the pedagogical process is one of the main directions and areas of modern pedagogical technologies.

Information technology is a method of organizing, storing, processing, retrieving, transmitting and transmitting information that enhances people's knowledge and expands their ability to manage technical and social processes. In addition, information technology is a creative activity that consists of a chain of processes that are carried out to achieve a specific goal. The efficiency of any technology will increase if the processes that make up the technological chain, the use of computers in the organization and exchange of information between them. Of course, this requires a careful study of this technology, the analysis of information exchange in processes and between them, as well as the information supply of process chain management (i.e. technology).

The basis of modern information technology is the following three technical achievements:

1. The emergence of a compact environment in the concepts of machine-readable information (magnets, tapes, movies, magnetic disks, etc.);
2. Development of means of communication that provide the transmission of information to any point of the globe without significant restrictions on time and distance, widespread coverage of the population by means of communication (radio, television, data transmission networks, satellite communications, telephone networks, etc.);
3. Increase the possibility of automated processing of information (sorting, classification, representation, creation, etc.) by computer-generated algorithms.

Information technology is, firstly, a set of information circulation and processing, and secondly, a description of these processes. Information technology plays an important role in the educational process and helps to solve the following tasks:

- The discovery, preservation and development of individual abilities of students, consisting of unique qualities of each person, the formation of cognitive abilities, the desire for self-improvement;
- Ensuring the coherence of a clear, natural-scientific, technical, social, humanities and the arts in the complex study of events and phenomena;



- constant and dynamic updating of the content, form and methods of educational processes;

From the point of view of the education system, the following problems arise with the introduction of information technology:

1. Technical problems - they determine the requirements for computer and microprocessor technology used in the education system, the features of their practical application;

Software problems - these determine the content and types of software for use in the education system, the content and features of their application;

## V. CONCLUSION AND FUTURE SCOPE

So how does technology help education? Simple; *it makes it better*. When the teachers introduce Educational Technologies through proper methods, it keeps the students engaged. It makes the evaluation easier. It prepares the students for the future. Now that we understand the importance of educational technologies, we have no other choice but to start using it in the best ways possible. Our students expect that from us. Both teachers and students are the driving force of the educational system. The students tell us what they need, and we find the best ways to provide such knowledge for them.

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