Peculiarities of Pedagogical Technologies in Teaching

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ABSTRACT

Pedagogical technology is a system that sees the needs of society as a system that effectively forms the pre-determined social qualities of the individual and is a specific, goal-oriented learning process. It is a technological educational activity, which shows the influence of a teacher on students in a certain sequence under specific conditions with the help of teaching aids and evaluating the learning outcome in the process of control.

This article presents definitions and opinions of foreign and local scholars on pedagogical technology who tried to identify its role and efficacy in education. Moreover, this article focuses on aspects, types, main tasks, features, results of pedagogical technologies and principles of improved pedagogical technologies in Uzbekistan.

Key words: empirical, cognitive, heuristic, creative, inversion, integrative, adaptive, inclusive pedagogical technologies, nature adapted pedagogical technologies, evolutive technologies

Introduction.

Today, the study of the theoretical foundations of innovative pedagogical technologies and the need to apply them into practice has become an essential issue, since traditional teaching systems have lost their activation, and it has been revealed that their utilization will not give desired results.

In addition, because of the rapid scientific and technological development we have unlimited information and this results in having limitations of time while using information in education and this trend requires the need to provide a technological approach to the educational process

Main part.

The concept of pedagogical technology appeared in the twentieth century and was used in the form of “learning technology” in 1940-1950, and the use of audio-visual technology in the educational process. The term first began to be used in the United States. The use of the term “programmed education” is later spread instead of “education technology”. Later pedagogical technology began to express designed education with a specific purpose. [1, p.13]

It is worth noting that today in developing countries, as evidenced by the growing interest in pedagogical technology, as a rule, it is considered as a priority of policy in the field of education.

This approach was by UNESCO, and in 1972 the International Commission on the Development of Education was established. The commission said that modern technology is the driving force in modernizing education. Hence, UNESCO defines: “Pedagogical technology is the process of creating, applying and identifying teaching teaching and acquisition of knowledge, taking into account the technical and human capabilities and their interdependence, which set the task of optimizing the forms of education”. [2, p. 7]

Thus, currently the study of the concept of pedagogical technology and its essence is one of the most pressing issues, and many foreign scholars have contributed to the study of this
problem. It is important to mention the contribution of such scientists as V.P.Bespalko, M.V.Klarin, V. Monakhov, G. Selevko, V.Likhachev, S. Slastenin.

However, it should be noted that the views of researchers do not always coincide, and the concept of “pedagogical technology” is different. Here are a few examples to prove this.

B.Bespalko sees technology as a set of theoretically based tools and methods that develop the teaching and learning process, and it is a pedagogical system that is implemented in practice, which allows to achieve the set educational goals, as well as the successful implementation of the project. [3, p.192]

According to B. Likhachev, pedagogical technology is a set of pedagogical and psychological norms, which determines the forms and methods of teaching, a special set and order of teaching aids, and it is an organizational and methodological tool of the pedagogical process. [4, p.104]

As V.Slastenin states, pedagogical technology is a system of coherent, interconnected lines of action aimed at the pedagogical task of a teacher, it is a coherent and integrated image of the systematic and pre-planned pedagogical process. Also, pedagogical technology is a product that clearly guarantees the success of a rigorous scientific project and pedagogical movement. [5, p.330]

According M. Clarin, pedagogical technology represents a systematic generality and order for the operation of all personal, instrumental, and methodological tools used to achieve pedagogical goals. In addition, this concept in local pedagogy, unlike foreign one, is not limited to the field of education, but it is interrelated with the process of teaching and upbringing. [6, P.17]

Pedagogical technology is a well-thought-out model of a pedagogical activity in the design, organization and conduct of the educational process, creating favorable conditions for students and teachers. [7, p.35]

G.Selevko highlights three aspects of pedagogical technology:
- scientific: pedagogical technologies are an integral part of the discipline of pedagogy, it studies the purpose, content and methods of teaching and the design of pedagogical processes;
- describes the process: a description of the process, a set of goals, composition, methods and tools to achieve the planned results;
- effectiveness of the process: the implementation of the technological (pedagogical) process, the functioning of all personal, instrumental and methodological pedagogical tools. [8, p.16]

Aspects of such pedagogical technology are also mentioned in the manual written by N. Azizkhodjaeva, a scientist in the field of public education in Uzbekistan. [9, p. 68]

Any pedagogical technology must meet some basic methodological requirements (technological criteria).

Conceptuality. Each pedagogical technology must be based on a specific scientific concept, including philosophical, psychological, didactic, socio-pedagogical, which is specific to the achievement of educational goals.

Sequence. Pedagogical technology should have all the features of the system: the logic of the process, the interconnection of all parts, integrity.

Control. This implies the ability to set different diagnostic goals, to plan the learning
process, to use step-by-step diagnostics, and to use a variety of tools and methods to correct the results.

**Efficiency.** Modern pedagogical technologies must be available in a competitive environment, be effective in terms of conditions and results, be cost-effective, and ensure that a certain educational standard is achieved.

**Reproduction.** This involves the use of pedagogical technology in other types of educational institutions and organizations (repetition, reproduction). [8, p. 18; 11, p. 20]

According to V.Slastenin, one of the decisive conditions for the success of the pedagogical process is its structure, which includes analysis, diagnosis, forecasting and development of a project of activities. Therefore, V. Slastenin highlights the following components of pedagogical technology:

1) Analytical activity (concluding with the diagnosis).
2) Predictive and projective creative thinking activities.

Analysis, forecasting and project are the “integral” trinity in solving any pedagogical problem. [5, p. 349]

Analysis of the above approaches to defining the concepts of “teaching technology” and “pedagogical technology” allows us to conclude that the study of this issue is still important, because the use of pedagogical technologies increases the effectiveness of the learning process and it is a guarantee of achieving planned learning outcomes. In addition, pedagogical technologies are considered as a unique algorithm for building a learning process with predetermined results. [11, p.15]

Another Russian scientists, V.Monakhov defines pedagogical technology as a model of joint pedagogical activity, in which all the details such as planning, organization and conducting the lesson are thought over to provide favorable conditions for students and teachers. [10, p.7 ]

Uzbek scholars U.Nishonaliev and B. Farberman defined pedagogical technology as follows: “Pedagogical technology is characterized by a clear definition of learning objectives, the guarantee of the final result, ensuring the reproducibility of the learning process and the availability of immediate feedback”.

As can be seen from the above definitions, when pedagogical technology is introduced into the learning process, new features and characteristics such as the definition of objectives, adjustment to the learning process and objectives according to its guaranteed results and the presence of consistent feedback, that are not typical of the traditional learning process are defined.

It is also worth noting that as Saidakhmedov says, today teachers are often unable to distinguish methodology from technology. Methodology consists of a set of recommendations for organizing and conducting the learning process. The purpose of methodology is to transfer theories on the subject to the plane of real events. Pedagogical technology provides an organizational arrangement of the interrelated parts of the learning process, the construction of stages, their introduction, identification of requirements, the achievement of a goal, taking into account the available opportunities. Technology differs from the methodology due to its flexibility, stability of results, efficiency, the need for pre-design. [2, p 9]

Based on the above, we can give the following brief and generalized definition of pedagogical technology: “Pedagogical technology is the activity of shaping a mature person”.

Moreover, considering that pedagogical technology is a broad, large-scale concept, we can cite a few more definitions.
Pedagogical technology is the process of assimilating information, using it in practice, learning to create new information by discovering new meanings and connections between information.

Pedagogical technology is a set of teaching methods, techniques, ways and educational tools. It is a set of organizational and methodological tools of the pedagogical process.

Pedagogical technology is a systematic method of creating, applying and defining the whole process of teaching and learning considering the technical resources and people with the task of optimizing the forms of education.

Pedagogical technology is the process of transmitting and assimilating information in a form and method that is convenient for learning.

Thus, pedagogical technology is the activity of influencing a person (learner) in accordance with a predetermined goal.

Pedagogical technology is a process that guarantees teaching learners to read, learn and think independently.

In the process of pedagogical technology under the guidance of a teacher students learn and master independently.

Implementation of this activity includes processes such as organization, conduct, improvement, analysis, research, comparison, generalization, conclusion, management, control and evaluation. [10, p.10]

Pedagogical technology as an educational process is implemented through the activities of participants. The ultimate goal of this process is the formation and development of a mature person and it consists of the following:

-education:
-transmission of information from generation to generation:
-teaching independent thinking;
-achieving training and mastering of knowledge, skills and abilities; -application and improvement of various methods; -diagnostics, monitoring;
-based on humanistic, nationalist, ideological principles in the educational process;
-considering the level of readiness of students, psychological, physiological, age characteristics, hygienic requirements;
-taking into account the requirements and conclusions of educational management, marketing, social motives. [10, p.13]

At present, there are different directions of pedagogical technology and the main ones are empirical, cognitive, heuristic, creative, inversion, integrative, adaptive, inclusive pedagogical technologies. The main features of these directions are: [12, p.37; 11, p. 16]
Now, if we look at the types of pedagogical technologies, for example, J.Yuldoshev and S. Usmanov in their guidebook for public educators “Fundamentals of pedagogical technologies” and B. Rakhimov, A.Mavlyanov, S. Abdalova, N.Temirov in the guidebook “Pedagogical technologies in schemes” mentioned the following types: [10, p.15; 12, p.11]
Many technologies have enough similarities in their purpose, content, used methods and tools, and they can be classified according to these common characteristics.

Pedagogical technologies are classified according to the following criteria:

- depending on the level of application;
- on philosophical basis;
  - on the main development factor;
  - on the concept of mastering;
- on the orientation according to personal characteristics; content features;
- type of management;
- on the approach to the child;
- on the most widely used methods; by categories of students.
At the same time, the development of society has created new pedagogical technologies on a humane philosophical basis in individual countries and in the world as a whole. These can also be classified according to the above criteria as follows: collaborative pedagogy, game technology, problem-based learning, programmed learning, group technology and so on. [10, p. 19]

On this basis, the main criteria of the technology can be defined as follows:
1. Relying on a certain scientific basis, concept.
2. Systematization, the logical connection of the educational process and its components.
3. Effectiveness, ensuring that educational standards are met, required time, effort and resources are within the norm.
4. Possibility of repetition by others. [10, p.20]

The main process of pedagogical technology is carried out in the form of educational lessons, this means pedagogical communication between teacher and a student. During this communication, each of them performs certain types of activities. Their activities directly form the core process of pedagogical technology. This can be illustrated in the schematic form as follows.

The main process of pedagogical technology is for a teacher to teach to think and to gain knowledge independently by speaking, demonstration, assignments, controlling (explanation, guidance) and for a students to acquire knowledge and to think independently by listening, observing, completing tasks (understanding, mastering). This diagram shows that under the guidance of a teacher, students acquire knowledge, learn, master and develop independent thinking skills. [10, p.29]

The results of pedagogical technology refer to all its participants, and the following diagram summarizes the relevant aspects for a teacher and students who are the main participants: [10, p.31]
As for the main tasks of advanced pedagogical technology, they include the creation of a theoretical and scientific basis of advanced pedagogical technology, the gradual development of an integrated project of the educational process, the creation of pedagogical bases for the application of advanced pedagogical technologies in the educational process, popularization of best practices, improvement of the assessment system of students’ knowledge on the basis of advanced pedagogical technologies, development of recommendations for achieving results and effectiveness by defining learning objectives, creation of a new generation of textbooks on advanced pedagogical technology. These tasks can be given in the following form: [12, p.10]
In the second stage of the national training program the tasks are to provide educational process with advanced pedagogical technologies, and in the third stage to fully implement it. Based on the principles of programmed teaching and the model of education in Uzbekistan it is possible to recommend these principles of pedagogical technology, which are being improved. [12, p.37]

**Figure 6. Principles of improved pedagogical technologies in Uzbekistan**

1. **Orientation to the learner.** Carrying out the educational process in accordance with the interests of the learner, individual characteristics, learning opportunities. Defining specific learning objectives that cover the basic concepts of the learning material and expressing them in verbs that represent the final activities of the learners. Allow learners to master learning material on an individual basis.

2. **Democratization of the educational process.** Provide the cooperation of educator and learner in the organization and conducting the learning process. Transforming the status of an educator from a source of information into a person who creates conditions for the learning process of students, advises them, guides them towards the goal. Telling clear learning goals assignments to learners in advance.

3. **Organization of the educational process on the basis of information and communication technologies.** Creation of virtual lectures, experimental stands, which are the most effective means of delivering information to students, ensuring their independent use and work during the lessons. Creating a sequence of devices that control learners’ learning activities.

4. **Acquisition of knowledge through scientific research.** Achieving that learners draw their own conclusions, understandings, and rules on their own as a result of independent research and experimentation. Achieving the development of professional independent skills by shaping their independent research skills.

5. **Assimilation of educational material by dividing into modules.** To ensure complete mastery of each module by students (setting the limit of full mastery at 85%, in very special cases 75%) and announce it to students. In this case, to cover the additional time required for the full mastering of each module at the expense of students’ independent study budget. While creating training modules it should be considered that they should gradually become more complex.

6. **Differentiated approach to knowledge acquisition.** Students who have not achieved specific learning objectives should be divided into separate groups and additional trainings and independent work on the studying of the material that have not been fully mastered should be organized.

**Special attention should also be paid to the following**

To increase the share of practical training and independent work based on the specifics of subject teaching, to monitor the gradual formation of students’ practical skills and abilities

To develop learners’ ability to think independently and creatively. Bloom’s taxonomy categories should be used to ensure that defined learning objectives are achieved at high levels of mastery. Adhere to these levels of mastery in translating learning objectives into test assignments as well. Also, effective use of problem-based learning forms (problem question, assignment, situation, problem) and interactive strategies (cluster, sinkway, Venn diagram, etc) of the international RWCT (Reading and Writing for critical thinking) program.
Conclusion

The use of pedagogical technologies in the learning process is of great importance in formation of knowledge and developing students’ skills. As mentioned in this article, the use of pedagogical technologies increases the efficiency of the learning process and is a guarantee of achieving planned learning outcomes. Pedagogical technology is a model of joint pedagogical activity in which all details of the design, organization and conduct of the learning process to provide unconditionally favorable conditions for students and teachers are considered.

Thus, pedagogical technology is a process of interaction with a learner on a predetermined purpose, a process that guarantees to teach students to read, learn, think independently, and with the help of a teacher learners master and develop required skills and knowledge.

References: