RESEARCH ARTICLE

Comparative scientific analysis of the concept of modern technology in education and practice; in the context of international educational research

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Abstract

The topic "Modern educational technologies" is intended for pedagogical workers of educational institutions. The presented material may be useful to teachers for the rational organization of the educational process using modern educational technologies. The "Modern Educational Technologies" distance learning unit is designed for 6 hours and includes the study of the following questions: "The concept of"pedagogical technology", the prerequisites of its emergence of the term", "Classification of technologies", "Structure of pedagogical technology", "Features of pedagogical technology and technological processes". The structure of the block consists of a theoretical material that reflects the nature and features of the technological approach to learning, the characteristics of individual technologies, as well as questions for self-control and the final test on the material under consideration. The block of distance learning "Modern educational technologies" contains glossary and a list of references. The student, while studying the topic of "Modern educational technologies", will receive not only theoretical knowledge, but also master practical skills aimed at the effective organization of the educational process using modern educational technologies.

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Introduction

The concept of "educational technology" prerequisites occurrence of the term

In order for knowledge to become a control factor, it must itself be organized, structured and organized in a known manner. It is thanks to the special didactic processing of scientific knowledge related to its transformation into the form of educational information; the latter becomes a management factor. Next, we consider this process on the example of modern educational technologies.

The choice of one or another learning technology is determined, first of all, by the specifics of the content of the subject and the method of its construction. Any restructuring in the structure of the academic subject entails changes in the methods of teaching and learning.

It becomes obvious that the process of accumulation and the empirical (based on practice) selection of training systems should be combined with the selection of the goal and the development of a control system for the learning process. This is facilitated by the technologization of the learning process.

For the first time in the 20s, the term "pedagogical technology" is mentioned in works on pedagogy based on reflexology works (I.P. Pavlov, V.M. Bekhterev, S.T. Shatsky). At the same time, another concept spread - "pedagogical technology", which in the Pedagogical Encyclopedia of the 30s was presented as a combination of techniques and tools aimed at a clear and effective organization of training sessions. The pedagogical technology also included the ability to operate with educational and laboratory equipment, to use visual aids.

In the 40-50s, when the introduction of technical means into the educational process began, the term "technology of education" appeared. In the following years, under the influence of work on the method of applying various TSS, in particular, cinema, radio, controls, was modified in "pedagogical technology".

In the mid-60s. The content of this concept has been widely discussed in the pedagogical press abroad and at international conferences, where two directions of its interpretation were determined depending on the level and results of research in this field in various countries (USA, Japan, France, Italy). Proponents of the first claimed the need for the use of technical tools and tools for programmed training. Representatives of the second direction were seen as the main thing in improving the organization of the educational process.

By the beginning of the 70s, the need to modernize various types of training equipment and subject teaching aids was recognized as a necessary condition, without which progressive methods and forms of training would not work.

Thus, by the end of the 70s - the beginning of the 80s. Due to the development of technology and the computerization of the concepts that have begun abroad, the concepts of "learning technology" and "pedagogical technology" have increasingly become recognized as a system of means, methods of organizing and managing the educational process. At the same time, two sides of pedagogical technology were identified: the use of system knowledge for solving practical problems and the use of technical devices in the educational process.

The modern definition of the term reflects various approaches to its study: personality-oriented, activity, sociological, etc. T.A. Stefanovskaya defines pedagogical technology as a scientific and pedagogical substantiation of the nature of pedagogical interaction, a scientific and pedagogical substantiation of the system of professional skills of a teacher, allowing for a delicate touch on the personality of a student entering the culture; V.P. Bespalko gives the following definition: pedagogical technology - a project of a certain pedagogical system implemented in practice (Components of educational technology. - M, 1989, p . 5) .

New educational technologies have gone through several stages of development. Thus, the development of cybernetics and computing technology led to the development of programmed learning; the results of research on the patterns of development of human thinking led to the development of problem-based learning. Trends in the development of modern educational technologies are directly related to the humanization of education, contributing to self-actualization and self-realization of the individual.

An important feature is the connection of educational technology with psychology. Each technological link, chain, system achieves high efficiency, if it has psychological justification and practical outputs. Some technological tools associated with clarity, based on the peculiarities of figurative thinking and provide the most vivid perception of educational material. The foundations of others are based on the psychological laws of memorization by similarity, by association, by the power of emotional arousal. Still others are based on the ability of the nervous system to unconsciously master information or skill in the process of playing activity, or even sleep.

Three principles of pedagogical technology are known - these are consistently developed characteristics of pedagogical influence: focus on initiating the child's subjectivity, focus on maintaining the child's free choice as a subject, and focus on attitude as a result of education and the main object of the educational process.

However, in his understanding and usage, there are large discrepancies.

- *Technology* is a set of techniques used in any business, skill, art (explanatory dictionary).

- *Pedagogical technology* - a set of psychological and pedagogical installations that define a special set and layout of forms, methods, methods of teaching, educational tools; it is an organizational and methodological toolkit of the pedagogical process (B.T. Hachev).

- *Pedagogical technology* is a description of the process of achieving adjustable learning outcomes (I.P. Volkov).

- *Technology* is an art, skill, skill, a set of processing methods , state changes.

- *The technology of training* is an integral procedural part of the didactic system (M. Choshanov).

- *Pedagogical technology* is a model of joint pedagogical activity designed to design, organize and conduct the educational process with unconditional provision of comfortable conditions for students and teachers (V.Monakhov), thought out in all details.

- *Pedagogical technology* is a systematic method of creating, applying and defining the entire process of teaching and learning, taking into account technical and human resources and their interaction, which aims to optimize forms of education (UNESCO).

- *Pedagogical technology* means the systemic totality and functioning of all personal, instrumental and methodological means used to achieve pedagogical goals (M. Klarin).

In our understanding, pedagogical technology is a meaningful generalization that incorporates the meanings of all definitions of various authors (sources).

The concept of "pedagogical technology" can be represented by three aspects:

1) Scientific: pedagogical technologies - a part of pedagogical science that studies and develops the goals, content and methods of teaching and projects educational processes;

2) Procedural and descriptive: description (algorithm) of the process, a set of goals, content, methods and means to achieve the planned learning outcomes;

3) Procedurally effective: the implementation of the technological (pedagogical) process, the functioning of all personal, instrumental and methodological pedagogical tools.

Thus, pedagogical technology functions both as a science exploring the most rational ways of learning, and as a system of methods, principles and regulative used in teaching, and as a real learning process.

Technology system - conditional image of the process technology, its division into separate functional elements and the designation of logical links between them.

Routing - a description of the process in the form of a step-by-step, step-by-step sequence of actions (often in graphical form) indicating the means used.

Terminological nuances. In the literature and practice of schools, the term pedagogical technology is often used as a synonym for the pedagogical system. As noted above, the concept of a system is wider than technology, and includes, in contrast to the latter, the subjects and objects of activity themselves.

The deep meaning of pedagogical technology V. P. Bespalko sees:

Firstly, in a departure from impromptu and the transition to preliminary design;

Secondly, in the development of the structure and content of the educational and cognitive activity of the student himself;

Thirdly, in diagnostic targeting and objective control of the quality of students' learning of educational material and the development of the personality as a whole;

Fourthly, in the implementation of the principle of the integrity of the structure and content of the components of the educational process.

The benefits of technology. Compared with the training built on the basis of the methodology, the technology of training has significant advantages.

First, the technology is based on a clear definition of the ultimate goal. In traditional pedagogy, the problem of goals is not the leading one; the degree of achievement is not accurately determined. In technology, the goal is considered as a central component, which allows determining the degree of its achievement more accurately.

Secondly, the technology in which the goal (final and intermediate) is determined very accurately (diagnostically) allows us to develop objective methods for monitoring its achievement.

Thirdly, the technology makes it possible to minimize the situation when the teacher is faced with a choice and is forced to switch to pedagogical impromptu in search of an acceptable option.

Fourthly, in contrast to the previously used methodical lesson development oriented to teachers and its types of activity, the technology proposes a project of the educational process defining the structure and content of students' learning and cognitive activity, which leads to a higher stability of the success of almost any number of students.

The leading, core characteristic of learning technology is *flexibility*. *Content flexibility is* reflected primarily in the possibilities of both differentiation and integration of the content of training. This possibility itself takes place due to the block and modular principle of constructing educational material in the proposed technology. *Technological flexibility* provides the procedural aspect of training, including the variability of teaching methods, the flexibility of the monitoring and evaluation system, the individualization of students' learning and cognitive activity.

The scope of the concept of "technology" in pedagogy is currently not clearly defined. Today, the concept of "technology" is used in pedagogy, at least in three senses:

1. As a synonym for the concepts "methodology" or "form of organization of training" (technology of writing test papers, technology of organizing group activities, technology of communication, etc.)

2. As a set of all methods, means and forms used in a particular pedagogical system (technology by V. V. Davydov, traditional technology of training, etc.)

3. As a combination and sequence of methods and processes that allow to obtain a product with specified properties.

Using the concept of "technology" in the first sense does not give pedagogy something new, does not specify the learning process. It just happens that one concept is replaced by another. For example, if they used to say “the technique (or the system of D. B. Elkonin - V. V. Davydov”, now in order to show off their erudition, they say “the technology of D. B. Elkonin - V. V. Davydov.” changes of words the essence of the subject (the system of D. Elkonin and V. Davydov) did not change.

More recently, the teacher was offered only ready thematic planning of the educational content “cut” for one, two, three school hours and on behalf of the ministry was offered to teachers for compulsory execution. Therefore, the Russian teacher was unprepared; today he cannot distinguish the method from the technology. It makes sense to clarify - the technique in most cases is a set of recommendations on the organization and conduct of the educational process. The pedagogical technology is characterized by two fundamental points: the guarantee of the final result and the design of the future educational process. Pedagogical technology is an ordered system of procedures, the strict implementation of which will lead to the achievement of a certain planned result, i.e. in this case, the state standard.

4. In the second case, when technology means the totality of all methods, means and forms used in a particular pedagogical system, it is a question of a new concept with its own meaning. However, in this case, the concept of "technology" loses its original meaning with which it came from the industrial sphere. In addition, there is no clear distinction, which leads to confusion. The conclusion can be made unambiguous: the replacement of well-known and proven concepts with more general and non-specific ones is a definite step backward, a departure from scientific positions. Therefore, the term “technology” can be used only in the third interpretation, which retains the original meaning that came from industrial production (technology is the totality and sequence of methods and processes that make it possible to obtain a product with desired properties).

The purpose of educational technology

It is well known that the main goal facing the education system of any country and at all times reflects the public need to prepare the younger generation for life, for effective participation in the life of society. At different stages, this need changes, and therefore the global goal may change.

In order for the goal to help, it must, firstly, give a complete idea of the final result we want to receive, and, secondly, diagnose the result and unequivocally answer the question “Has the goal been achieved?”. Such a goal in pedagogy received the name of "diagnostic goal", i.e. goals, on the basis of which you can build a diagnosis of the achieved result.

Thus, the technologization of education requires:

1. Redefine the ideal (global goal) into a diagnostic goal.

2. Break the new diagnostic global target into steps and define diagnostic targets for each of the learning steps.

How to set a goal so that it becomes diagnostic? Science claims that the purpose of learning is considered diagnostic if the following conditions are met:

1. Given such an accurate and definite description of the quality, properties, skills, experience, which can be accurately distinguished from any other?

2. There is a diagnostic tool that allows objectively and unambiguously:

a) Identify the quality, property, skill, experience;

b) Measure the level of its development or formation;

c) Evaluate this level and compare it.

The concept of "educational technology" G.K. Selevko uses on three levels.

General education level. Pedagogical technology characterizes the holistic educational process in a given region, educational institution. Here, pedagogical technology is synonymous with the pedagogical system: it includes a set of goals, content, means and methods of teaching, and even an algorithm for the activities of the subjects and objects of the process (with the exception of themselves).

Private methodical (subject) level. Here, pedagogical technology is used in the meaning of a *private technique,* i.e., a set of methods and means for realizing a certain content of training and education in the framework of one subject, group, teacher (methods of teaching subjects, method of compensatory training, methods of work of a teacher, educator).

Elemental (modular) level. Let's start to consider the technology of *individual parts of* the educational process: the technology of individual activities, technology (the formation of concepts, the education of individual personal qualities, the technology of the lesson, the technology of assimilation of new knowledge, the technology of repetition and control of the material, the technology of independent work, etc.

The structure of educational technology

Vertical structure any pedagogical technology covers a certain area of pedagogical activity. This area of activity, on the one hand, includes a number of its components (and relevant technologies), on the other hand, it can itself be included as an integral part of the activity (technology) of a wider (higher) level. In this hierarchy (vertical structure) , there are four co-ordinate classes of educational technologies (adequate to the levels of the organizational structures of the activities of people and organizations

Meta technologies are an educational process at the level of implementation of social policy in the field of education (social and pedagogical level). These are general pedagogical (general educational, general educational) technologies that encompass a holistic educational process in a country, region, or educational institution. Examples: technology of developmental education, technology of quality management of education in the region, technology of educational work in this school.

Macro technologies, or sectored pedagogical technologies, cover activities in the framework of any educational industry, field, and direction of training or education, academic discipline (general pedagogical and general methodology). Examples: technology of teaching a school subject, technology of compensating learning.

Meso technologies, or modular-local technologies, are technologies for the implementation of individual parts (modules) of the educational process, or aimed at solving private, local didactic, methodological, or educational tasks. Examples: the technology of individual activities of subjects and objects, the technology of studying the topic, technology lesson, technology assimilation, repetition or knowledge control.

Micro technology - is a technology aimed at addressing the operational challenges and bottlenecks relating to the interaction of the individual self-action or subjects of pedagogical process (contact and personal level). Examples: technology for the formation of writing skills, training for the correction of individual qualities of the individual.

The horizontal structure of educational technology contains three main aspects:

1) Scientific: technology is a scientifically developed (developed) solution of a certain problem, based on the achievements of pedagogical theory and best practice;

2) Formally descriptive: technology is represented by a model, a description of the goals, content, methods and algorithms of actions used to achieve the planned results;

3) Procedurally effective: technology is the process of the implementation of activities of objects and subjects, - their goal-setting, planning, organization, and implementation.

Thus, pedagogical technology functions as a science (a field of pedagogical theory), which explores and designs the most rational ways of learning, and as a system of algorithms, ways and regulative of activity, and as a real process of training and education.

The technological approach allows the followings:

- to predict results with greater certainty and manage pedagogical processes;
- analyze and systematize on a scientific basis the existing practical experience and its use;
- comprehensively solve educational and socio-educational problems;
- provide favorable conditions for personal development;
- reduce the effect of adverse circumstances on the person;
- make optimal use of available resources;
- Choose the most effective and develop new technologies and models to solve emerging social and pedagogical problems.

The main qualities of modern educational technologies

Any pedagogical technology must meet certain basic methodological requirements (qualities).

Technological scheme (map) - conditional image of the process technology with the help of its division into separate functional elements and the designation of logical links between them.

Scientific base . Each pedagogical technology should be characterized by reliance on a certain scientific concept of learning, the scientific substantiation of the process of achieving educational goals.

Consistency. Pedagogical technology should have all the features of the system; the logic of the process, the relationship of all its parts, integrity.

Controllability. It assumes the possibility of goal-setting, planning, designing the learning process, phased diagnostics, varying means and methods to correct the results.

Efficiency. Modern pedagogical technologies exist in a competitive environment and must guarantee the achievement of a certain standard of training, be effective in results and optimal in cost.

Reproducibility. It implies the possibility of using educational technology in other similar educational institutions, other subjects.

The main criteria for manufacturability are:

- *Consistency* (integrity, integrity),
- *Scientific character* (conceptualism, developing character);
- *structure* (hierarchy, consistency, algorithm city, processuality, continuity, variability);
- *Manageability* (diagnostic, predictability, efficiency, optimality, reproducibility).

Features of educational technology and technological processes are as follows: Separate technological processes in their structure and methods of their implementation bring up only attention, diligence, the ability to act mechanically, exclusively with a strictly defined sequence of the main elements of the program. Other technological processes perform the function of support for active conscious mental work and develop in a creative person the ability to facilitate their work by coding, which can be formalized information. Teaching by a single method leads to monotony and monotony in learning with all the circumstances arising from this. Hence, the problem of choosing the technologies used their optimal combinations for achieving the best results of training and education, the problem of the measure and dosage of pedagogical influences quite naturally arises.

An important feature of pedagogical technology is also the "manufacturability" of the content of education or upbringing - its ability to undergo coding without losing its educational and training opportunities. One material is easily encoded and when decoded, reproduction is not distorted, is not deformed and is realized by students in its entirety and integrity. This happens, for example, when coding mathematical formulas, methods for solving typical problems; physical and chemical formulas and laws; historical facts, events, etc. to be memorized. In this case, the introduction of coded technological chains into the learning process increases its efficiency. Other information, being encoded, loses its educational and training opportunities. From art, only facts, external signs are subject to processing information, and the essence remains behind the scenes: ideas in their movement, development, theories and conceptual approaches, various assessments. The coding process of learning is limited when teaching literature, art, history, and the psychology of family life. Here, the use of purely technological approaches can lead to mindless memorization, formalism in knowledge.

The peculiarities of the pedagogical technology also include the fact that each technological link, system, chain, method needs to find its appropriate place in the integral pedagogical process. No technology can replace a lively, emotional human communication.

Another feature is that any pedagogical technology, its development and application require the highest creative activity of the teacher and students. The teacher attracts children to creative participation in the development of technological tools: the compilation of technological support schemes, maps, to the organization of technologically clear forms of education and training. The teacher's activity is also manifested in the fact that he is well aware of the psychological and personal characteristics of his students, and on this basis makes individual adjustments to the course of technological processes. For example, when processing the skills of solving typical tasks, some guys, the most prepared, knowing the sequence of technological working cycles, get complete independence. Other, less prepared, the teacher provides assistance and provides the opportunity for ongoing consultation. During the implementation of technological processes, the teacher organizes mutual consultations, mutual testing and mutual evaluation. The activity of children is manifested in increasing independence, in the implementation on the basis of technological tools of mutual learning, in technological creativity. Of great importance in the revitalization of students in the technological process have a psychological installation on the deep development of knowledge. Of great importance in the revitalization of students in the technological process have a psychological installation on the deep development of knowledge. Of great importance in the revitalization of students in the technological process have a psychological installation on the deep development of knowledge.

Within the framework of this approach to learning, the goal is to develop opportunities for students to independently master new experiences; the orientation of the teacher and students is the generation of new knowledge, ways of action, personal meanings.

Requirements for the process.

So, what should be done so that the process of communication and interaction of people can be called technological? For this, it is necessary to fulfill a number of mandatory requirements, the main ones being the following:

1. Setting a diagnostic goal (indicating the required level of learning).

2. Conducting objective monitoring of the process efficiency and determining the level of achievement of the set goal (for this level of learning).

3. Achievement of the final result with an accuracy of at least 70% (at this level of learning).

Pedagogical technology does not relieve the teacher from the need to think. Without a pedagogically developed thinking, pedagogical technology reduces education to the level of craftsmanship, deprives the creative influence, does not fulfill its purpose.

First, pedagogical technology acts as a condition that provides the tools through which exposure is carried out. Secondly, communication with students and the organization of their activities are seen as key elements of educational technology. Thirdly, its content will include a scientifically based system of skills related to such teacher functions as presenting a socialized demand, transferring social experience through verbal information, socialized student assessment, setting the goal of influences and analyzing the current situation.

Classification of educational technology (G.K. Selevko)

In theory and practice of schools today, there are many options for the educational process. Each author and performer introduces something individual into the pedagogical process, and therefore they say that a particular technology is author's. You can agree with this opinion. However, many technologies have quite a lot of similarities in terms of their goals, content, methods and means used and can be classified into several generalized groups according to these common features.

- *In terms of application,* general pedagogical, particular method (subject) and local (modular) technologies are distinguished.

- *On a philosophical basis:* materialistic and idealistic, dialectical and metaphysical, scientific (scientist) and religious, humanistic and inhuman, anthroposophical and theosophical, pragmatic and existentialist, free education and coercion and other varieties.

- *According to the leading factor of mental development*: biogenic, sociogenic, psychogenic and idealistic technologies. Today, it is generally accepted that a person is the result of the cumulative influence of biogenic, sociogenic and psychogenic factors, but a particular technology can take into account or rely on any of them, consider it the main one.

- *According to the scientific concept of learning,* the following are distinguished: associative-reflex, behavioral, gestalt technologies, developing ones.

- *According to orientation on personal structures*: information technologies (formation of school knowledge, skills, skills in subjects - ZUN); operational (the formation of methods of mental action - COURT); emotional-

artistic and emotional-moral (formation of the sphere of aesthetic and moral relations - SEN), technology of self-development (formation of self-governing mechanisms of the personality - SUM); heuristic (development of creative abilities) and applied (formation of an effective-practical sphere - SDP).

- *By the nature of the content and structure,* technologies are called: training and educating, secular and religious, general educational and professionally oriented, humanitarian and technocratic, various sectoral, private subject, as well as mono technologies, complex (poly technology) and penetrating technologies.

In mono technologies, the whole educational process is based on any one priority, dominant idea, principle, concept, in complex ones it is combined from elements of different mono technologies. Technologies whose elements are most often included in other technologies and play the role of catalysts, activators for them are called penetrating.

- *By type of organization and management of cognitive activity* V.P. Bespalko proposed such a classification of pedagogical systems (technologies). Teacher-student interaction (management) can be open-ended (uncontrolled and uncorrectable activity of students), cyclical (with control, self-control and mutual control), diffuse (frontal) or directed (individual) and, finally, manual (verbal) or automated (using learning tools).

The combination of these signs determines the following types of technologies (according to V.P. Bespalko - didactic systems):

1) classical lecturing (control - open, scattered, manual);

2) training with the help of audio-visual technical means (open, scattered, automated);

3) "consultant" system (open, directed, manual);

4) learning with the help of the educational book (open, directed, automated) - independent work;

5) the system of "small groups" (cyclic, scattered, manual) - group, differentiated ways of learning;

6) computer training (cyclical, scattered, automated);

7) tutoring system (cyclical, directed, manual) - individual training;

8) "Software training" (cyclic, directional, automated), for which there is a pre-compiled program.

In practice, various combinations of these "monodidactic" systems usually come out, the most common of which are:

- traditional classic class-less system Y.A. Comenius, representing a combination of the lecture method of presentation and independent work with the book (discography);

- modern traditional education using screensaver in combination with technical means;

- group and differentiated ways of learning, when the teacher has the opportunity to share information with the whole group, and also to pay attention to individual students as a tutor;

- programmed training based on adaptive program management with partial use of all other types.

A fundamentally important aspect in the pedagogical technology is the position of the child in the educational process, attitude to the child by adults. Several *types of technology* stand out here :

a) a secondary technology, in which the teacher is the sole subject of the educational process, and the student is only an "object", "cog". They are distinguished by a rigid organization of school life, the suppression of the initiative and independence of students, the application of requirements and coercion.

b) didactocentric technologies are distinguished by a high degree of inattention to the personality of the child ; in which the subject-object relations of the teacher and the student also dominate, the priority of training over education, and the most important factors of personality formation are considered didactic means. Didactocentric technologies in a number of sources are called technocratic; however, the latter term, unlike the first, relates more to the nature of the content, and not to the style of pedagogical relations.

c) Personality-oriented technologies put the child's personality at the center of the entire school educational system, providing comfortable, conflict-free and safe conditions for its development, and realizing its natural potentials. The identity of the child in this technology is not only the subject, but also the priority subject; it is the goal of the educational system, and not the means to achieve some abstract goal (as is the case with authoritarian technologies). Such technologies are also called anthropocentric. Thus, personality-oriented technologies are characterized by anthropocentricity, humanistic and psychotherapeutic orientation and are aimed at the diversified, free and creative development of a child.

In the framework of personality-oriented technologies, humane-personal technologies, cooperation technologies and free education technologies stand out as independent directions.

d) D -personal technologies are distinguished, first of all, by their humanistic essence, psychotherapeutic orientation to support the individual, help her. They "confess" the idea of full respect and love for the child, an optimistic belief in his creative powers, rejecting coercion.

e) T technologies of cooperation implement democracy, equality, partnership in the subject-subject relations of the teacher and the child. The teacher and students jointly develop goals, content, give assessments, being in a state of cooperation, co-creation.

d) The technology of free education focuses on providing the child with the freedom of choice and independence in a greater or lesser sphere of life . By making a choice, the child best implements the position of the subject, going to the result from inner motivation, and not from external influence.

g) Esoteric technologies are based on the doctrine of esoteric ("unconscious", subconscious) knowledge - Truth and the paths leading to it. The pedagogical process is not a message, not communication, but communion with the Truth. In the esoteric paradigm, the man himself (the child) becomes the center of information interaction with the Universe.

The method, method, means of learning determine the names of many existing technologies: dogmatic, reproductive, explanatory and illustrative, programmed learning, problem-based learning, developmental learning, self-developing learning, dialogical, communicative, gaming, creative , etc.

By the category of students the most important and original are:

- mass (traditional) school technology, calculated on the average student;
- advanced technology (in-depth study of subjects, gymnasium, lyceum, special education, etc.);
- compensatory learning technologies (pedagogical correction, support, leveling, etc.);
- various victim logical technologies (deaf-, ortho-, typhlo-, oligophrenopedagogics);
- technology work with deviating (difficult and gifted) children in the framework of the mass school.

According to the content of upgrades and modifications, which the existing traditional system undergoes in technologies.

Monodidactic technology is used very rarely. Usually, the learning process is constructed in such a way that some poly-didactic technology is being constructed, which combines and integrates a number of elements of various mono technologies based on some priority original author's idea. It is essential that the combined didactic technology may have qualities superior to the qualities of each of its member technologies.

Usually, the combined technology is called according to the idea (mono technology), which characterizes the main modernization, makes the greatest contribution to the achievement of learning objectives. The following groups of technologies can be distinguished in the *direction of modernization of the* traditional system:

a) N pedagogical technologies based on humanization and democratization of pedagogical relations. These are technologies with procedural orientation, priority of personal relations, individual approach, non-rigid democratic governance and bright humanistic orientation of the content.

These include the pedagogy of cooperation, the humane-personal technology of Sh.A. Amonashvili, the system of teaching literature as a subject, a formative person. Ilyin and others;

b) n pedagogical technologies based on the revitalization and intensification of students' activities. Examples: gaming technology, problem-based learning, learning technology based on abstracts of reference signals V.F. Shatalov, communicative learning E.I. Passov et al .;

c) Pedagogical technologies based on the effectiveness of the organization and management of the learning process. Examples: programmed learning, differentiated learning technologies (VV Firsov, N.P. Guzik), learning individualization technologies (Inge Unt, V.D. Shadrikov), prospective-anticipatory learning using reference schemes with commented control (S. N. Lysenkov), group and collective ways of learning (I. D. Pervin, V. K. Dyachenko), computer (information) technologies, etc .;

d) pedagogical technologies based on methodological improvement and didactic reconstruction of educational material: the consolidation of didactic units (UDD) P.M. Erdnieva technology "Dialogue cultures» B. C.Bibler and S.Yu. Kurganova, system "Ecology and Dialectics" L.V. Tarashva, technology for the implementation of the theory of the phased formation of mental actions Volovich et al .;

e) period-like, using the methods of folk pedagogy, based on the natural processes of the child's development; training by L.N. Tolstoy, education of literacy according to A. Kushnir, technology M. Montessori and others;

f) Alternative: Waldorf pedagogy of R. Steiner, technology of free labor S. Frene, technology of probabilistic education A.M. Pubis;

g) to the complex polytechnologies (of the most well-known - “School of self-determination” by A. N. Tubelsky, “Russian School” by I. F. Goncharov, “School for All” by E. A. Yamburg, “School-Park” by M. Balaban and others).

Technology and content of education. AT Nowadays, in pedagogy the idea of the unity of the components of the educational system has been established: the goals, content, methods, forms and means of education. The content of education, being entities as part of educational technology, largely determines its procedural part (set of methods and tools). In the process of improvement and variations of pedagogical technologies, various components exhibit varying degrees of conservatism. Most often, the procedural aspects of training vary, and the content varies only in structure, dosage, and logic. However, fundamental changes in methods entail equally profound transformations of goals, content and forms, and a fundamental change in goals and content leads, in turn, to a revision of the procedural aspect of training. In this way, technology and educational content adequately reflect each other.

Between the technological process and the content of education there is another mediating component (the most important didactic tool) - a textbook that plays a crucial role in the realization of the unity (adequacy) of the content and technology of education.

The local scale of the term "technology", denoting the way to achieve operational learning and educational tasks, for example, "technology of forming concepts", "technology of creating a situation of success", is probably appropriate, but strictly speaking, contradicts the pedagogical pattern about the integrity of the educational result. There is no didactic or educational technology, but there is a single educational technology, which can be technologies of various types of CIP. It is impossible to form a concept separately; in the course of this pedagogical activity, naturally, the process of the formation of a personality is realized. Therefore, the systematization of technology in pedagogy can be correlated with the number of types of pedagogical processes.

Based on the proposed M.N. Skatkin types of educational process: dogmatic, explanatory (contemplative), productive, are added in accordance with the levels of assimilation of educational content suggestive and personal, and explanatory, called reproductive, are divided into formal and essential subtypes.

Type of	Achievable result	Cognitive student activity	Typical teaching methods
Suggestive	psychological readiness	neutral activity	
Dogmatic	surface orientation	learning	reporting
Formal Reproductive	formal knowledge	understanding, reproducing activity	explanatory and illustrative
Essential Reproductive	skills	thinking, interpretive activity	reproductive, problem solving
Productive	creative thinking	independent search, creative activity	problem training
Personal	personality	collective search	solving problems with personal life meaning

DOGMATIC type, taking its name from the dogmas (dogmas), in the form of which the mastered learning content is presented, is a long history of education. Medieval catechism, monastic cramming are the classic form of its manifestation. However, the recurrence of dogmatic learning occurs to this day, when emphasis is placed on the pure memorization of definitions, rote memorization without an understanding of the meaning.

Dogmatic training became the first type that was widespread: it took quite a lot of people who were literate, able to count, write, but not think. Any deviation from dogma was immediately stopped. Units of ten thousand made their way through the thickness of the cramming to their own opinion, to the truth.

With the development of the means of production, the complexity of the work process and the tasks solved by the worker, it was not the execution of routine actions that was required, but skillful activity, the use of labor methods in various situations; instead of an appendage of the machine, an employee of understanding became necessary.

REPRODUCTIVE learning, aimed at the most rapid mastering of experience by an individual, does not require explanations, these are our traditions. Curricula, textbooks, the usual style of interaction with the student, established forms of education and, above all, the lesson itself, the organization of classrooms and the entire educational building - all of this is today most adapted to the requirements of this type of educational process. The reproduction was prepared by a competent worker, but an artist who is not able to create something new. The response to the social order was the promotion of problem-based learning, and later, of active learning methods. There is no need to prove

the need for a productive type: on everyone's lips development of creativity, activation of cognitive activity. It should only be soberly acknowledged that the entourage of today's school has not changed since the time of the founder of didactics. Lesson, extremely clumsy from the standpoint of creative activity, is recognized as the "main organizational form of education. This fact cannot be regarded as a disadvantage of pedagogical practice: it follows from it, according to another regularity of education, that the arrow of social need does not yet indicate a graduate-creator and a productive type cannot be massive.

Nevertheless, the PRODUCTIVE type is a requirement of time, a logical step in the development of teaching practice. Its characteristic features are independent, rather than teacher-organized cognitive activity of the student and creative thinking as a key element of the result of education. It is clear why all modern recommendations for improving the learning process converge on developmental learning and the use of active learning methods.

Interconnected reproductive and productive activities are different stages of the same learning process. In turn, both reproductive and productive activities can be divided into smaller stages. So, V.P. Bespalko proposes to consider mastering as a process consisting of four levels.

Level 1 (student) - the easiest level of reproductive activity. At this level, all components of the problem are known (goal, situation and actions to solve it). The student is only required to give an opinion on the compliance of all three components in the structure of the task.

Level 2 (algorithmic) - a more complex level of reproductive activity. In tasks designed for this level, only the goal and the situation (conditions) are set. The student is required to apply previously learned actions to solve it.

Level 3 (heuristic) is the first level of productive activity. In the task of this level only the goal is set, nor the situation (conditions), the actions that need to be used to achieve the goal, are not specified and are unclear. The student is required to clarify (speculate) the situation and choose which of the previously learned actions may be suitable for solving this atypical problem.

Level 4 (creative) is the most difficult level of productive activity. The activity of this level is characterized by the absence of tasks as such. The student sets a goal for himself, formulates it, details it and further searches for possible situations (conditions) and actions. leading to their chosen goal.

Personal type of educational process.

The name does not mean that a person's public image (guise) is formed here, it was in any type of education, but that the formation of knowledge, ways of working, thinking is used as a means of educating the individual, self-growing it in close contact, cooperation with others . A product of this type is a person not with an imposed moral person, but an individuality that has built itself up in creative social interaction with others.

Suggestio (lat.) - suggestion. It is known that "suggestion is a form of communication in which the suggesgend, passively and involuntarily, without thinking, acquires the ideas expressed by the suggestor and performs without a struggle the motives of its task". This level of neutral activity does not represent a focused interest for organized learning, but actually takes place. The reason for this is the passive state of the student and the unconscious response to what is happening. Something remains in the child's subconscious, and he may subsequently become familiar with the topic. Educational process it can be called only in quotation marks, and yet we denote it as a separate type, as there are examples of its use, for example, in original teaching of foreign languages while quietly whispering to a sleeping person a lesson that he personally will receive in the morning. The use of such states to ensure psychological readiness for any activity can be called SUGGESTIVE technology.

Since pedagogical (educational) technologies are mainly designed to provide the above two functions: guarantee of results and transfer of experience, emphasis should be placed on the requirements for the technological description of experience.

1. Presentation of the lesson's learning goal or its fragment as an activity experience with an indication of the knowledge component; practical action; mental operations that the student must master; motives included in this activity. At various levels of mastering the content, components have a qualitative originality and a key element.

2 The activity of the learner, as central to technology, should be described on the basis of a typical structure in accordance with the theory of learning activities by V.V. Davydova: Mt (motivation) - C (goal setting) - And (perception of information) - About (thinking) - L (planning) - F (implementation) - K (control) - About (assessment).

The listed basic moments of educational technology are both necessary and sufficient for obtaining a similar result in the new conditions, the subsequent ones are more related to the methodological design.

3 The activity of the teacher, described by the methods and forms of education.

4. A very important way to present the material.

5. The logical conclusion of the technological description is the fixation of the control procedures.

In addition to the above listed classification of pedagogical technologies there are:

Subject-oriented learning technologies:

- technology "full learning";
- technology level differentiation;
- technology of concentrated learning;
- university technology training in NGOs, etc.

Student-centered learning technologies:

- technology teaching workshops;
- modular learning technology;
- technology of learning, as educational research;
- collective thinking technology;
- technology of business games;
- technology of educational design, etc.

To develop the complex, we used a combination of these two classes of technologies based on the principle of compatibility and complementarily, taking into account the modern goals of vocational education.

Questions for self-control:

1. What is the difference between the concepts of "technique" and "technology"?
2. What is the purpose of educational technology?

3. Describe the quality of educational technology.

4. Give a description of the types of educational process.

Ii . Technology based on student revitalization

Gaming technology

The principle of activity of the child in the learning process remains one of the main in didactics. This concept implies such a quality of activity, which is characterized by a high level of motivation, a conscious need for the assimilation of knowledge and skills, and effectiveness. Any technology has the means of activating and intensifying the activity of students; in some technologies, these means form the main idea and the basis of the effectiveness of the results. These technologies include gaming technology.

The game greatly contributes to the development of children. The basis of the game is real life. The game has its own laws of development; a certain stage corresponds to each age. Playing along with work and learning is one of the main human activities. The value of the game cannot be exhausted and appreciated by recreational and recreational possibilities. Being entertainment, recreation, the game can turn into learning, creativity.

The lesson is the main component in school education and upbringing, a form of realization of pedagogical influences, where direct and systematic communication of the teacher and students takes place. Nowadays, non-traditional forms of lessons using gaming technology are widespread. In my work, in geography lessons, I use games. The game in the classroom activates students, increases cognitive interest. It causes an emotional lift in children, increases efficiency, which goes into creativity. The new always gives rise to curiosity and curiosity, at the manifestation of which the students strive to obtain new knowledge. The lessons, games are very lively, in an emotionally favorable psychological environment, in an atmosphere of goodwill, freedom, equality, in the absence of constraint. A special communication between the teacher and the students is established.

Experience shows that gaming technology helps students relax, self-confidence appears. Getting into real-life situations, situations of success created by gaming technology, students better learn the material of any complexity.

Most games have four main features:

Free developmental ***activities*** undertaken only at the request of the child, for the sake of pleasure from the process of the activity itself, and not only from the result;

The creative, largely improvised, very active ***nature of*** this activity;

Emotional elevation of activity, rivalry, competition, competition, etc .;

The presence of direct or indirect ***rules*** reflecting the content of the game, logical and temporal sequence.

Pedagogical game has the essential features:

- Clearly stated goal of training and education;

- Involvement of all students in the class;

- Management of the game;

- A combination of individual and teamwork;

- summing up and evaluation;

- increase the cognitive motivation of students.

By the nature of the pedagogical process, the following groups of games are distinguished:

- Training, training, controlling;

- Cognitive, educational, developmental;

- Reproductive, productive, creative;

- Communicative, diagnostic, vocational guidance.

The lesson-game can be used both during the passage of new material, and for the final test of knowledge, for generalization and repetition. This necessarily takes into account the age characteristics of students. For middle school students, you can conduct KVN lessons, teleconferences, competitions, auctions, etc. In the upper grades, there are debates, business games, conferences, and elections. Gaming technology is used in the conduct of extracurricular activities. Such games as “Around the World”, “Geographical Fever”, “The Book of the Jungle”, and “Erudite” have become traditional in our school. At the end of the school year, summing up the work done, a ceremony is held to give students the titles of "The Best Geographer", "The Best Connoisseur of the Map", as well as the award of the symbolic title of "Master of Geographical Sciences".

Gaming technology helps students form solid knowledge. Students have an increasing interest in geography. Geographical literacy acquired during school years is the basis of rational, socially responsible human behavior in the outside world.

.Classification parameters of gaming technology

By level of application: all levels.

On a philosophical basis: adaptable.

According to the main factor of development: psychogenic.

According to the concept of learning: associative-reflex + gestalt + suggestion.

According to the orientation on personality structures: ZUN + COURT + SUM + SEN + SDP.

By the nature of the content: all species + penetrating.

By type of management: all kinds - from a consultation system to a program.

By organizational forms: all forms.

On the approach to the child: free education.

By the prevailing method: developmental, search, creative.

In the direction of modernization: activation.

By trainee category: mass, all categories.

Range of target orientation:

Didactic: outlook, cognitive activity; the use of ZUN in practice; the formation of certain skills necessary in practice; development of general educational skills; development of work skills.

Educators: education of independence, will; the formation of certain approaches, positions, moral, aesthetic and ideological installations; fostering cooperation, collectivism, sociability, communication.

Developing: development of attention, memory, speech, thinking, abilities to compare, compare, find analogies, imaginations, fantasies, creative abilities, empathy, reflection, ability to find optimal solutions; development of motivation for learning activities.

Socializing: introduction to the norms and values of society; adaptation to environmental conditions; stress control, self-regulation; learning to communicate; psychotherapy.

Conceptual basics of gaming technology

Psychological mechanisms of gaming activity are based on the fundamental needs of the individual in self-expression, self-affirmation, self-determination, self-regulation, self-realization.

The game is a form of psychogenic behavior, i.e. inherent, immanent personality (D.N. Uznadze).

The game is a space of "internal socialization" of a child, a means of mastering social attitudes (L.S. Vygotsky).

The game is the freedom of the individual in the imagination, "the illusory realization of unrealizable interests" (A. Leontiev).

The ability to join the game is not related to the age of the person, but at each age the game has its own characteristics.

The content of children's games develops from games in which the main content is subject activity, to games that reflect relationships between people, and finally to games in which the main content is submission to the rules of social behavior and relationships between people.

In the age periodization of children (D.B. Elkonin) a special role is assigned to the leading activity, which has its own content for each age. In each leading activity, corresponding mental neoplasms arise and form. The game is the leading activity for pre-school age.

Features of gaming technology

All the following preschool age periods with their leading activities (primary school age are educational activities, medium social benefit, senior school age educational activities) do not crowd out the game, but continue to include it in the process.

Gaming technology in primary school age

Brightness and spontaneity of perception, ease of entering the images are characteristic of primary school age. Children are easily involved in any activity, especially in the game, they independently organize a group game, continue games with objects, toys, non-imitation games appear.

In the game model of the educational process, the creation of a problem situation occurs through the introduction of the game situation: the problem situation is experienced by the participants in its game embodiment, the basis of the activity is game modeling, a part of the students' activity occurs in the conditional game plan.

The guys act according to the game rules (so, in the case of role-playing games - according to the logic of the role played, in the simulation and modeling games, along with the role position, the "rules" of the simulated reality operate). The game situation transforms the position of the teacher who balances between the role of the organizer, the helper and the accomplice of the common action.

The results of the game appear in a double plan - as a game and as a result of educational and cognitive. The didactic function of the game is realized through the discussion of the game action, the analysis of the ratio of the game situation as a simulator, its relationship with reality. The most important role in this model belongs to the final retrospective discussion, in which students jointly analyze the course and results of the game, the ratio of the game (simulation) model and reality, as well as the course of the training-game interaction. The arsenal of primary school pedagogy contains games that contribute to the enrichment and consolidation of a household vocabulary and coherent speech in children; games aimed at the development of numerical representations, learning to count, and games that develop memory, attention, observation, strengthen the will.

The effectiveness of didactic games depends, firstly, on their systematic use, and secondly, on the purposefulness of the program of games in combination with the usual didactic exercises.

Game technology is built as a holistic education, covering a certain part of the educational process and united by a common content, plot, character. It includes consistently games and exercises that form the ability to single out the main, characteristic signs of objects, to compare, to compare them; groups of games for the generalization of subjects on certain grounds; groups of games, in the process of which younger students develop the ability to distinguish real phenomena from unreal ones; groups of games that bring up the ability to control oneself, speed of reaction to a word, phonemic hearing, ingenuity, etc. At the same time, the game plot develops in parallel to the main content of training, helps to activate the learning process, to master a number of training elements. Compiling gaming technologies from individual games and elements is the concern of every elementary school teacher.

In domestic pedagogy, there are a number of such gaming technologies (Sam Samych, V.V. .

Methods of teaching children the theory of music V.V. Kiryushina. This technique is based on the correspondence to each musical concept of an animated character (the octave is a giraffe, the third is a sister, a dissonance is an evil wizard, etc.). All heroes experience different adventures in which their essential attributes and qualities are manifested. Together with the characters, children from the age of three unknowingly learn the most complex musical concepts and skills, concepts of rhythm, tonality, and the beginning of harmony.

Gaming technology in middle and high school age

In adolescence, there is an aggravation of the need to create their own world, in the pursuit of adulthood, the rapid development of imagination, fantasy, the emergence of elemental group games.

Features of the game in senior school age is the focus on self-affirmation before the society, humorous coloring, the desire to play, focus on speech activity.

Didactic games

Didactic games are not only a means of intellectual development, as well as the development of cognitive mental processes, but also a game form of education.

The following structural components of the didactic game are distinguished:

- didactic task;
- game task;
- game actions;
- rules of the game;
- result.

The didactic task is due to the purpose of the training and educational impact. The game task defines game actions. It is formed by the teacher and reflects his learning activities in front of children in the form of a game plan. Game actions (game fundamentals) are connected with the game plan and proceed from it. How are they more diverse, i.e. the more interesting the game, the more successfully the cognitive and game tasks are solved.

The rules of the game contain moral requirements for the relationships of children, for the fulfillment of norms of behavior and influence the solution of a didactic task - they imperceptibly limit the actions of children, direct their attention to the fulfillment of a specific task of an educational subject. Summing up (result) helps to identify children who have better fulfilled the game task, determine the winning team, etc. The teacher should note the achievements of each child, emphasize the success of lagging children.

The main functions of the didactic game is the formation of:

- sustained interest in learning; stress relief associated with the process of adaptation of the child to the school mode;

- mental neoplasms;

- proper educational activities of the child;

- social skills, educational and independent work;

- skills of self-control and self-assessment;

- adequate relationships and social roles.

Role-playing games

The idea of a role-playing game, taken in its simplest form, is to appeal to someone with a request to present himself or another person in a particular situation. The main elements of this type of game are an imaginary situation, a plot and a role. When planning a role-playing game, the game task must be defined and the conflict underlying the plot and the plot that drives the plot should be outlined. A typical mistake made in practice is the substitution of a role-playing game by a staged game. By itself, this methodical technique is interesting, but it is not a game, since improvisationalism disappears, unpredictability of turns in the development of action, requiring the participants to make independent decisions; not in the dramatization of the emotional state and the relaxed relaxation of the players.

If the plot is chosen successfully, and the roles are distributed correctly, then the game begins to "play itself", you can only plan its tactics. The training to which the game is directed may be direct or indirect: it is connected either with the child's personal participation in the action, or with its observation.

Role-playing is ideal in situations where students need to master new ways of behavior, when students need to master new ways of behavior, to become more aware of their own capabilities and to better understand the positions of other people. It is a game situation, lived in all seriousness and then discussed, that allows the child to gain significant experience.

Role-playing should include the following conditions:

- realistic;

- educational nature (the situation involves the application of knowledge, the development of skills, the study of behaviors);

- the presence of the plot and intrigue for its development.

Place role-playing in the structure of lessons can be very different. It is productive and interesting to invite students to play a real situation before learning a new topic. Fortunately, if it turns out to link the educational content with a case from the life of someone from schoolchildren or acquaintances. Observing the game and a small discussion of its progress are the strongest means of motivating students to study the new topic thoroughly and at the same time introduce them into the problematic. This plot of the plot, introduced in the middle of the lesson, is a way to change the tempo of the lesson, illustrated by a teacher.

If the teacher suggests the specific situation for playing (he finds it himself), then he writes on the cards the roles and information for their effective presentation. Information should be provided to the extent necessary to investigate this problem, and not overload them with unnecessary details or facts. It is necessary to report the main characteristics of the character.

When the game action is completed, it should be discussed. If the teacher sees that not everyone who wishes has spoken, there are emotional problems left, he can ask the students to write an essay on the results of the game at home.

So, the role-playing game has a modeling character: children, playing this or that plot, recreate (model) the relationships of adults, gradually moving from isolating external objective actions characteristic of an adult person to isolating his relationships with other people.

Business games

The business game is used to solve the complex tasks of mastering the new, consolidating the material, developing creative abilities, forming general educational skills, enables students to understand and study the educational material from different positions.

In the educational process, various modifications of business games are applied: imitation, operational, role-playing games, business theater, psycho - and sociodrama.

Stage preparation	Game development	scenario development - business game plan - general description of the game - content of instruction - preparation of material support
	Putting into the game	problem statement, goals - conditions, instruction - regulations, rules - distribution of roles - formation of groups - consultations
Stage holding	Group work on the task	work with sources - training - brainstorming - work with a game technician
	Intergroup discussion	group speeches - protection of results - rules of discussion - the work of experts

The stage of analysis and synthesis		conclusion from the game - analysis, reflection - assessment and self-assessment of work - conclusions and generalizations - recommendations

Stage of the process - the game. With the beginning of the game, no one has the right to intervene and change its course. Only the leader can correct the actions of the participants if they move away from the main goal of the game. Depending on the modification of the business game, different types of participants' role positions can be entered. Positions that are manifested in relation to the content of the group work: the generator of ideas, the developer, the simulator, the erudite, the diagnostician, the analyst.

Organizational positions: organizer, coordinator, integrator, controller, trainer, manipulator.

Positions that manifest themselves in relation to the novelty: the initiator, cautious critic, conservative.

Methodological positions: methodologist, critic, methodologist, problematizer, reflective, programmer.

Socio-psychological positions: leader, preferred, accepted, independent, not accepted, rejected.

The stage of analysis, discussion and evaluation of the results of the game. Speeches of experts, exchange of views, protection of their decisions and conclusions by students. In conclusion, the teacher states the results achieved, notes the mistakes, formulates the final result of the lesson. Attention is paid to the comparison of the used imitation with the corresponding area of the real person, the establishment of the connection of the game with the content of the subject.

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