Pedagogical innovation processes have become the subject of special study by scientists since about the end of the 50s in the West and in the last two or three decades in our country. The interest of the world pedagogical community in them is manifested in the creation of special innovative services, publications, magazines, information publications. In particular, UNESCO has a Center for Pedagogical Innovations for the Development of Education, which summarizes pedagogical innovations in various countries of the world and informs the pedagogical community about them together with the International Bureau for Education on the pages of special printed publications.

Pedagogical technology is strictly scientific design and accurate reproduction of pedagogical actions that guarantee the success. Since the pedagogical process is based on a certain system of principles, the pedagogical technology can be considered as a set of external and internal actions aimed at the consistent implementation of these principles in their objective relationship, where the personality of the teacher is fully manifested. This is the difference between pedagogical technology and teaching methods and educational work. If the concept of "methodology" expresses the procedure for using a complex of methods and techniques of teaching and upbringing without regard to the person who implements them, then pedagogical technology presupposes the addition of the personality of the teacher to it in all its various manifestations.

Hence, it is obvious that any pedagogical task can be effectively solved only with the help of adequate technology, implemented by a qualified professional teacher. Pedagogical technologies can be presented as teaching technologies (didactic technologies) and educational technologies. The most significant features of such technologies can be identified:

- the technology is developed for a specific pedagogical concept, it is based on a certain methodological, philosophical position of the author. Therefore, we can distinguish between the technology of the transfer of knowledge and technology of personality development;
- the technological chain of pedagogical actions, operations, communications is built strictly in accordance with the target settings, which have the form of a specific expected result;
- the technology provides for the interrelated activity of the teacher and students on a contractual basis, taking into account the principles of individualization and differentiation, the optimal implementation of human and technical capabilities, dialogical communication;
- the elements of pedagogical technology should, on the one hand, be reproducible by any teacher, and on the other, guarantee the achievement of the planned results (state standard) by all students;
- an organic part of pedagogical technology is diagnostic procedures containing criteria, indicators and tools for measuring performance results.

Pedagogical technology is interconnected with pedagogical excellence. Perfect mastery of pedagogical technology is skill. Pedagogical excellence, on the other hand, is the highest level of proficiency in pedagogical technology, although it is not limited only to the operational component. Among teachers, the opinion is firmly established that pedagogical skill is purely individual, therefore it cannot be passed from hand to hand.

However, proceeding from the ratio of technology and skill, it is clear that pedagogical technology, which can be mastered, like any other, is not only mediated, but also determined by the teacher's personal parameters. One and the same technology can be carried out by different teachers, where their professionalism and pedagogical skills will be manifested. Modern researchers have proven that scientifically grounded and well-developed educational technologies help the teacher to achieve the planned result of professional activity with the maximum degree of approximation.
But in the field of education (as opposed to production), a lot also depends on the person who uses this or that technology. Therefore, the personality of the teacher, his culture, professionalism, intuition - all these are the conditions for the successful application of any educational technology. Equipping a teacher with the skills of independent analysis of his activities, as well as analysis, selection, development of educational technologies is an important scientific and methodological problem. According to the stages of solving the pedagogical problem, regardless of their content and time frame, one can distinguish between interrelated general and particular technologies.

Private - these are technologies for solving such problems of teaching and upbringing as pedagogical stimulation of students’ activities, monitoring and evaluating its results, and more specific ones - such as analyzing the educational situation, organizing the beginning of a lesson, etc. One of the decisive conditions for the successful course of the pedagogical process is its design, which includes analysis, diagnosis, determination of the forecast and development of the project of activity. At this stage of solving the pedagogical problem, one can single out closely related types of teacher's activities, which are relatively independently aimed at constructing the content, means and programs of action for their own and students.

Accordingly, the technology of constructing the pedagogical process can be represented as the unity of the technology for constructing content (constructive-meaningful activity), constructing material or materialized means (constructive-material) and designing activity (constructive-operational).

The technology of direct implementation of the pedagogical process can be represented as a set of consistently implemented technologies for transferring information, organizing educational and cognitive and other types of developmental activities, stimulating the activity of pupils, regulating and correcting the course of the pedagogical process, its current control. The central place among them is occupied by the technology of organizing activities, which is, in essence, the implementation of the concept and project of the functioning of the pedagogical process. The content of the teacher's activity at the stage of the implementation of the pedagogical process can be represented by an interconnected system of such pedagogical actions as setting goals for pupils and explaining the tasks of the activity; creation of conditions for the acceptance of the tasks of the activity by the collective and individual pupils; application of the selected methods, means and techniques for the implementation of the pedagogical process; ensuring the interaction of the subjects of the pedagogical process and creating conditions for its effective course; the use of the necessary techniques to stimulate the activity of students; establishing feedback and timely adjustment of the course of the pedagogical process.

Taking into account the technological requirements and characteristics of the activities of children to be organized determines the specifics of relatively independent technologies for organizing the developmental activities of children. In the organization of educational and cognitive activities of students, the technology of teaching them to solve problems of different types is of decisive importance. At the same time, it is characteristic that the number of solved problems for teaching knowledge, skills and thinking is not of fundamental importance. In the holistic technology of organizing educational and cognitive activities, which essentially boils down to managing the processes of solving educational problems by students, an important element is teaching them the culture of defining concepts. In the course of this work, students begin to understand the organizing role of definitions in comprehending the subject as a whole.

The pedagogical requirement is a universal initial method and the basis of the technology for organizing developing activities. The pedagogical requirement does not lose its purpose in connection with the change in the philosophy of education itself, since it is fully consistent with the principle of the priority of the subject - subject relations in the total volume of relations of the pedagogical process.

While mastering the specific technology of organizing the developmental activities of children, it is important to keep in mind that a pedagogical requirement in its development should go through a natural series of steps: from primary to initial, from it to requirement-rule, then to requirement-norm, and finally develop into requirement-principle.

The technology of organizing the developmental activity of schoolchildren according to the type of reflexive control, in contrast to the authoritarian one, involves placing the pupil in the position of an active subject of cognition, communication, labor and social assessment, carried out in the general system of collective work; development of the student's ability to self-government (self-regulation, self-organization, self-control of their own activities); organization of the pedagogical process as a solution to educational and cognitive and other tasks (problems) on the basis of creative interaction (dialogue) of teachers and pupils.
The productivity of pedagogical activity is largely determined by the level of the teacher’s mastery of the technology of pedagogical communication. An analysis of pedagogical practice shows that many serious difficulties in solving the problems of teaching and upbringing arise from the teacher's inability to properly organize communication with children. Whatever classifications of teaching and upbringing methods are proposed, the influence of the teacher on the personality of the student is carried out only through live and direct communication with the students.

Upbringing will be effective if the child has a positive attitude towards what we want to bring up with him. At the same time, this or that relationship is always formed through the established communication mechanism. That is why every teacher is faced with the task of mastering the technology of pedagogical communication. Ignorance of technology leads to the fact that communicative actions are carried out by trial and error.

Pedagogical communication has dynamics that correspond to the logic of the pedagogical process (design, embodiment of design, analysis and evaluation). Hence its stages: - modeling of the upcoming communication in the process of preparing for a lesson or event (prognostic stage);
- organization of direct communication (the initial period of communication) - "communication attack"; - communication management in the pedagogical process; - analysis of the implemented communication technology and modeling of a new one for solving another pedagogical problem. The named stages characterize the phased deployment of pedagogical communication. The first stage of pedagogical communication - its modeling - is associated with the implementation of a kind of planning of the communicative structure of interaction, adequate to the pedagogical tasks, the current situation, the personality of the teacher, the characteristics of individual students and the class as a whole. The second stage of pedagogical communication involves the organization of direct communication, during which the teacher takes the initiative, allowing him to have some advantage in managing communication. For this purpose, orientation is carried out in the conditions of upcoming communication, which may include such moments as the teacher’s awareness of the style of his own communication with students; mental restoration of the experience of his communication with this class; clarification of the communication style in the new communicative conditions. This is where the concretization of the object of communication takes place.

"The development of pedagogical innovation in our country is associated with a mass social and pedagogical movement, with the emergence of a contradiction between the existing need for the rapid development of the school and the inability of teachers to implement it. Recently, the mass nature of the application of the new has increased. In connection with this, the need for new knowledge has become more acute, in understanding new concepts. A particularly noticeable phenomenon was the development and substantiation of various models of the "new school", the introduction of various pedagogical technologies into the educational process.

Pedagogical innovation is an innovation in the field of pedagogy, a purposeful progressive change that introduces stable elements (innovations) into the educational environment that improve the characteristics of both its individual components and the educational system itself as a whole.

Pedagogical innovations can be carried out both at the expense of the educational system's own resources (intensive development path), and by attracting additional capacities (investments) - new means, equipment, technologies, capital investments, etc. (extensive development path).

The current stage of the development of society poses a number of fundamentally new problems for the Russian education system due to political, socio-economic, worldview and other factors, among which the need to improve the quality and accessibility of education should be highlighted. Increasing academic mobility, integration into the global scientific and educational space, creating economically optimal educational systems, raising the level of university corporateness and strengthening ties between different levels of education.

One of the effective ways to solve these problems is the informatization of education. The improvement of technical means of communication has led to significant progress in information exchange. The emergence of new information technologies associated with the development of computer facilities and telecommunications networks has given the opportunity to create a qualitatively new information and educational environment as a basis for the development and improvement of the education system.

The task of technology as a science is to identify a set of patterns in order to determine and use in practice the most effective, consistent educational
actions that require less time, material and intellectual resources to achieve any result.

The specifics of education at the beginning of the third millennium imposes special requirements on the use of various technologies, since their product is aimed at living people, and the degree of formalization and algorithmization of technological educational operations is unlikely to ever be comparable to industrial production. In this regard, along with the technologization of educational activity, the process of its humanization is just as inevitable, which is now becoming more and more widespread within the framework of the personal-activity approach. The deep processes taking place in the education system both in our country and abroad lead to the formation of a new ideology and methodology of education as an ideology and methodology of innovative education. Innovative learning technologies should be seen as a tool through which a new educational paradigm can be put into practice.

The main goal of innovative educational technologies is to prepare a person for life in a constantly changing world. The essence of such training is the orientation of the educational process to the potential of a person and their implementation. Education should develop the mechanisms of innovative activity, find creative ways to solve vital problems, and contribute to the transformation of creativity into the norm and form of human existence.

The purpose of innovation is a qualitative change in the student's personality in comparison with the traditional system. This becomes possible due to the introduction into professional activity of didactic and educational programs not known to practice, which involves the removal of the pedagogical crisis. Development of the ability to motivate actions, independently navigate the information received, the formation of creative unconventional thinking, the development of children by maximizing their natural abilities, using the latest achievements of science and practice,

— the main goals of innovation activity. Innovative activity in education as a socially significant practice aimed at the moral self-improvement of a person is important because it can ensure the transformation of all existing types of practices in society.

Considering the transition to a global information society and the development of knowledge, one can speak about the adequacy of education to the socio-economic needs of the present and future only if its modernization is based not only and not so much on organizational innovations, but on changes in essence.

— in the content and technologies of personnel training and the preparation of scientific research. As a social institution that reproduces the intellectual potential of the country, education must have the ability to advance development, meet the interests of society, a particular individual and a potential employer

For the development and improvement of the innovation process, a deep analysis of all the problems of educational technologies, generalization of the vast experience of pedagogical innovations, copyright schools and innovators of teachers is necessary.

Progress in certain areas of school work can only be carried out as an innovative process: replacing outdated and inefficient tools with new ones for given conditions and more effective, using new ideas and technologies. In recent years, the developments of Yu.K. Babansky, M.A. Balaban, V.P. Bepsalko, I.P. Volkov, I.F. Goncharov, V.V. A.M. Lobka, L.N. Pogodina, G.K. Selevko, A.N. Tubelsky, D.B. Elkonin, I.S. Yakimanskaia and many other scientists and teachers. Most of them were engaged in designing the development of the school, taking into account the use of their own technologies (innovations).

The combination of intensive and extensive ways of development of pedagogical systems allows the implementation of the so-called "integrated innovations", which are built at the junction of diverse, multi-level pedagogical subsystems and their components. Integrated innovations do not usually appear as far-fetched, purely "external" activities, but are conscious transformations that come from deep needs and knowledge of the system. By reinforcing the "bottlenecks" with the latest technologies, it is possible to increase the overall efficiency of the pedagogical system.

The main directions and objects of innovative transformations in pedagogy are:
- development of concepts and strategies for the development of education and educational institutions;
- updating the content of education; change and development of new technologies of training and education;
- improving the management of educational institutions and the education system as a whole;
- improving the training of teaching staff and improving their qualifications;

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- designing new models of the educational process;
- ensuring the psychological, environmental safety of students, the development of health-saving teaching technologies;
- ensuring the success of education and upbringing, monitoring the educational process and the development of students;
- development of textbooks and teaching aids of a new generation, etc.

Innovation can take place at various levels. To the highest level include innovations that affect the entire pedagogical system.

Progressive innovations arise on a scientific basis and help move practice forward. In pedagogical science, a fundamentally new and important direction has emerged - the theory of innovations and innovative processes. Reforms in education are a system of innovations aimed at fundamentally transforming and improving the functioning, development and self-development of educational institutions and their management system.

Under the conditions of educational reforms, innovation activities aimed at introducing various pedagogical innovations have acquired particular importance in vocational education. They covered all aspects of the didactic process: the forms of its organization, the content and technologies of education, educational and cognitive activities.

According to A.G. Kruglikov, the stages of the innovation process can be considered as discontinuous on the time scale: after a scientific discovery, many decades can pass before it is used when favorable socio-economic conditions appear or when there is a demand for it.

The diffusion of an innovation can also be difficult: periods of rapid adoption in one industry can be accompanied by delays in adoption in other industries. The period of domination of innovation can last an unlimited time. Many of the most ancient innovations are still used by man and there are no prospects for their replacement in the future; this stage may be completely absent when the diffusion of innovation stops with the advent of a more effective alternative. The same applies to the final stage: the use of an innovation may cease, then revive again (except for this revival in a new capacity).

a separate innovation) or remain at any level, regardless of the maximum distribution achieved at the stage.

Thus, education is inherently already an innovation. Applying these technologies in innovative teaching, the teacher makes the process more complete, interesting, rich. At the intersection of the subject areas of the natural sciences, such integration is simply necessary for the formation of a holistic worldview and worldview, innovations include the introduction of ICT in the educational process, software supplied to schools, interactive electronic boards, and modernization projects.

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