
Mechanisms for Blurring Pedagogical Processes Aimed at Creative Thinking of Students

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Annotation: This article provides detailed information about the ways and stages of development of creative abilities in students and the mechanisms of designing pedagogical processes in the educational process.

Keywords: creativity, pedagogical mechanism, creativity, will, attention, thinking.

It is known that creativity is a complex psychological process related to a person's creation and discovery of socially significant innovations in science, technology, production, culture, and other fields. Human thinking, memory, imagination, attention, and will are active. participates, knowledge, experience, talent are shown in creativity. One of the great thinkers, Abu Nasr Farabi, described that "creativity is such a great quality in the process of knowledge that a person must use all his other qualities to acquire it." In fact, in the process of creation, a person searches, observes, conducts research, analyzes the results and draws logical conclusions. Whether the conclusion is correct or incorrect is tested in an experiment.

Creative thinking is the most basic and active form of manifestation of independent thinking qualities in a person. Despite the fact that all tariffs differ sharply from each other, it is possible to point out some common aspects. First, the quality of the product obtained as a result of creative thinking should be innovative; secondly, that these aspects were not present in the initial foundations of Creative thinking; and thirdly, any creative thinking activity is determined by the fact that it requires intellectual research.

Creative thinking activity in students can be classified according to the following signs:

- *type of creativity (technical, technological, organizational, economic, social, spiritual, pedagogical, didactic, among students, mixed);*
- *level of creativity (mono creativity, multi creativity, mega creativity);*
- *scope of creativity (field of knowledge, interdisciplinary, national, regional, interregional, international);*
- *duration of creativity (short-term, medium-term, long-term);*
- *form of creativity (innovative, educational, investment, mixed);*
- *according to general aspects (implementation of new ideas; promotion of new solutions in principle; practical application of innovation);*
- *According to the meaning and complexity of the created creative product (rationalization proposal; invention; discovery).*

The analysis showed that the student's creativity is manifested by his independent thinking in problem situations related to solving problems, writing essays, experimental work, and

completing educational assignments. In our opinion, the student's creativity is the ability to relate the acquired knowledge to evidence and events in practice, to correctly evaluate and analyze the obtained results, and to be able to generalize with the previously acquired ones.

Creative activity is complicated by insufficient psychological preparation of teachers and students for this process. Relying on a certain method, form, and means on a regular basis leads to the inability to adapt to new situations and the inability to work in unexpected situations. As a psychological condition, this can be manifested in various forms, including: not accepting the opinions and opinions of others at all; strict defense of the generally accepted point of view; applying old methods to new content and tools; preservation of old methods in new methods; such as using traditional methods to solve a completely new problem.

Students should take into account two interrelated tasks when organizing creative thinking activities. The first of them is the development of students' independent thinking in the activity of creative thinking, their desire to acquire knowledge, and the formation of their scientific worldview; the second is determined by teaching to independently apply acquired knowledge in education and practical activities.

The following indicators were proposed as criteria for the formation of creativity competence in students: independent decision-making; confidence in one's own abilities; active research; speed of thinking; flexibility of thinking; originality of the idea; perfection of the idea; positive orientation of the idea; ability to process and target information; imagination; being able to connect distant thoughts; to be able to evaluate the weight of an idea; the elegance, grace and simplicity of the solution; to be able to generate many ideas; validity of the idea. Tests, problem assignments and experimental methods are used to evaluate these quality indicators.

One of the important aspects of pedagogical technologies focuses on the formation of a stable orientation to the activities of future students of the whole group. These activities are mainly carried out in the form of trainings, and the organization of practical activities on this basis has confirmed the development of students' skills to solve problematic situations related to activities. Our goal was to justify the effectiveness of pedagogical technologies developed on the basis of the methods of learning and evaluating creativity competence in students, as well as determining and applying the criteria for the formation of creativity competence.

As a result, the following tasks were successfully solved:

- *based on the analysis of the content of the continuous education system, theoretical information on the formation of students' creative thinking during the educational process was studied and summarized;*
- *The methods of learning creative thinking, as well as the criteria for the formation of creativity were determined;*
- *with the help of questionnaires, the level of students' mastery of the main concepts of creative thinking was determined;*
- *the recommendations developed in the research work on the development of creative thinking qualities in students were tested;*
- *Didactic conditions necessary for the formation of creative thinking of students of general secondary educational institutions and the effectiveness of the didactic model of the system of formation of important qualities of a creative person in students were evaluated.*

Similar criteria and methods were selected for creative, educational and problem-situation tasks developed on the basis of the educational content in forming the level of students'

creative thinking. The procedure for evaluation and monitoring of mastery indicators of the process of formation of creative thinking among students was determined and tested. The analysis of the obtained results showed that training sessions based on pedagogical technologies in the process of forming important qualities in students have achieved high effectiveness in forming creative thinking in students. Theoretical and practical exercises, knowledge that serves to form important qualities of students in the performance of tasks with problematic situations, and to strengthen skills. ensured that.

Creative thinking is a type of activity that serves to ensure the strength and perfection of students' acquired knowledge, to form active and independent thinking personality traits in them, and to develop their mental abilities. This situation is especially important in mastering the fundamentals of science for future specialists, and then introducing approaches based on creative thinking in students while directly leading this process. From the point of view of research, we clarified the concepts of creative thinking knowledge, skills, and abilities specific to the personality of the student. Including: Knowledge of creative thinking - a systematic reflection in the human mind as a product of cognitive activity of concepts and imaginations required for the development of a new solution; It was determined that creative thinking skills represent a person's level of rapid and complete implementation of mental process stages in goal-oriented creative activity. Creative thinking skills mean the level of a person's ability to perform creative activities in a partially automated manner, understanding only the first stages of the mental process.

Factors for the development of students' creative thinking should be the basis of educational activities in every subject and every lesson. As the activity of creative thinking covers all aspects of teacher and student activity, we believe that its effective organization serves to ensure the quality of the entire educational process. Acquaintance with scientific and technical information plays an important role in the development of creative thinking. It serves as an important resource to provide readers with newsletters, information on scientific terms, and information on invention and patent science materials. Close cooperation with experts in the field of information technology and patent studies, regular familiarization with periodicals related to these fields will give positive results.

It requires the formation of an important source of innovative ideas and technologies in qualified students, along with the training of creative specialists. In this work, the concept of creative thinking was adopted as an activity process aimed at creating a product of creative thinking as an intellectual property based on the integration of knowledge, skills and abilities of students with scientific and technical knowledge and education-science-production.

In our opinion, general secondary school students should be prepared for innovative activities on the basis of creative thinking, master the mechanisms of updating production and industry technologies, imagine the dynamics of their future activities, understand the importance of acquiring practical knowledge, It creates opportunities to clarify the direction of one's further activities, gain experience in active practical work, and develop skills for working with scientific information. In the process of interaction with students, the teacher must take into account their value system, their desire for creative self-development in students, and their level of consciousness. As long as a person is not based on high values and ideas, he does not understand the importance of personal qualities and the processes of developing students' creativity, as a result, the creativity of the teacher and the student in mutual cooperation may not be fully realized.

One of the important factors of individual development of a person is his age-related characteristics. Because each age stage of development has its own development factors, laws and changes, which have a direct impact on a person's character, temperament, abilities and cognitive processes. Adolescence is the most complex and at the same time important stage of development among the young periods of a person. The new conditions of the life and

activities of schoolboys and girls, their active educational, social and labor activities will have an impact on the formation of future specialists. Limiting attention to only one, the most basic feature in the organization of personal creative thinking does not allow to achieve the set goals. For this reason, it is necessary to look at the activity indicators of the adolescent in all areas as a general set, and pay the main attention to increasing the weight of the required characteristics.

Based on the analysis of psychological research, it was determined that the problem of creativity was studied mainly in four directions, namely: creativity as a process; creativity as a result; creativity as a skill; creativity as a personality trait. Systematicity and consistency in the acquisition of knowledge is ensured by the unity of theory and practice, the gradual introduction of State educational standards into the educational process. According to the analysis, it can be considered that the strategy of preparing students for creative thinking activities is implemented in the following directions:

- *draw students' attention to the generality and comprehensiveness of the method used to solve the problem;*
- *teaching students creative ways of thinking is considered not as the goal of the lesson, but as a new way, an opportunity aimed at more effectively solving the task set in the lesson;*
- *new ideas that students draw their own independent conclusions should be considered as the main product of creative thinking classes;*
- *collection, analysis and interpretation of information should be considered as an important aspect of establishing creative thinking;*
- *The cultivation of creative thinking qualities of an individual should be considered as an important issue of the activities held in educational institutions, which in terms of scope goes beyond the lessons and extracurricular activities.*

Design and standardization of educational content in the formation of students' creative thinking qualities, didactic conditions for the development of students' creative thinking, creative pedagogical technologies for the organization and development of students' creative thinking, intellectual activities for the organization and intensification of students' creative thinking it is appropriate to develop training systems. Teaching hours allocated for subjects based on ensuring the integrity of the educational content, paying special attention to the effective use of time by students and teachers, departments that develop the ability of young students to think independently and learn independently , problems and tests should be reflected.

In addition to the creation of guidelines and recommendations, the introduction of innovative approaches aimed at increasing the creative activity of a person in the educational process is important in ensuring the integrity of students' creative thinking. Person-oriented education first of all changes the paradigm of education. Until now, teaching has been considered a priority in the existing education system, but at the same time, in the era of information society, the priority is directed to teaching to read.

Pedagogical technologies based on the person-oriented approach in the educational process have been developed by pedagogic scientists, which consist of the following: person-oriented education; cooperative pedagogy; pedagogical adaptive technology of adaptive communication; game technology; motivational teaching technology; problematic teaching technology; differential education; technology of individual education. At the modern stage of development of pedagogical foundations in the formation of creative thinking, it is shown that there is a need to develop teaching technologies based on a new approach in determining the methodological requirements and didactic conditions for ensuring the competence of students of a general education school. In this case, the didactic conditions for the

development of students' creative thinking are based on the following: the priority of passing theoretical knowledge to practical skills and qualifications; the unity of the educational, educational and developmental environment; encouraging positive motivation for education and creative activity; problematic; the combination of individual and differential approaches; the fact that education is aimed at ensuring personal activity; educational content and didactic materials aimed at developing the student's personality.

A creative problem is not an algorithmic problem, it is similar to a standard problem and not a simple problem, but a non-standard problem aimed at developing a solution that needs to be found. The ideological side of the problem depends not only on finding its solution, but also on the attitude of the subject that satisfies the requirements of a creative approach to the problem. To understand the idea of a problem is to add this problem to the group of problems to be solved. The motivation of the educational process aims to encourage students to be active, cooperative, and participate in all stages of training with a high level of interest. The ability to arouse motivation is considered an important component of the skills of creative teachers.

Motivational pedagogical technologies ensure that students quickly enter the educational process, and on the contrary, the complexity of the assignments given beyond the standard, the abstractness of the obtained results lead to the instability of motivation. Agreeing with the opinion of M. V. Klarin, we approve the distinction between strict and flexible pedagogical technologies. Rigorous pedagogical technologies are characterized by diagnosticity and reproducibility both in relation to the process and in relation to educational results, and it reflects strict requirements for achieving educational goals. In contrast, flexible pedagogical technologies require reproducibility in relation to the implementation of the educational process, but do not require diagnostic determination of teaching results. The specific aspects of the proposed creative pedagogical technology are explained as follows:

1. Not only the entire pedagogical system, but also the orientation of each of its components: the goal, content, organizational forms, methods and educational tools, pedagogical personnel and internal educational environment to the development of individual creativity.
2. The fact that creative pedagogical technology has a systematic description both in the overall educational process and at the local pedagogical stage.
3. Independent determination of the trajectory and content of solution development by students in the performance of creative educational tasks.
4. By guiding students to creative thinking, it is aimed at forming the qualities of flexibility, mobility and a desire to develop an innovative solution in students.

Cooperation and cooperation in the introduction of creative pedagogical technologies, priority of autodidactic; principles of developmental education are followed. ***Two-way approach to the proposed technology:***

- *research approach based on practical knowledge;*
- *Can be implemented on the basis of the research approach based on theoretical knowledge.*

Creative pedagogical technology is based on the idea of a four-stage productive didactic cycle.

The 1st stage is to acquaint students with new educational material on the basis of problem-based learning, to form a creative motivation in them to learn new material, and to introduce them to the procedure for performing creative educational tasks.

The 2nd stage is the organization of creative thinking activities among students related to the development of the main features of students' creative educational assignments and their solutions.

3rd stage - the student sets independent educational tasks for himself.

The 4th stage is to start the student's independent creative activity. In this, the student learns to justify the product of creative thinking activity designed by him.

It will be possible for them to get to know different fields of labor through practical work, and they will be taught the technologies of production of consumer goods. It should be noted that social humanitarian, natural and concrete sciences mainly prepare for the choice of the field of study in academic lyceums, and technology mainly serves to prepare for the field of vocational field in general education schools.

Modeling the processes of ensuring the continuity of students' creative thinking allows for the development of scientifically based recommendations for optimizing the organization and management of these processes. Accordingly, a didactic model of the system of forming important qualities of a creative person in students was developed. It defined the goals and objectives of the system of forming important qualities in students. Also, the model reflects the process of formation of important qualities in creative students based on motivational, meaningful-informational, operational-activity and control-evaluation levels.

In turn, the didactic conditions corresponding to the motivational, meaningful-informational, operational-activity, control-evaluation levels of the implementation of these tasks were substantiated. The existing qualities were divided into the following groups depending on which students are directly related to the aspects and their influence on the personality of the student: individual-typological qualities; sensory and perceptual properties; attention features; psychomotor properties; mnemonic properties; imaginative features; features of thinking; volitional characteristics. The creative pedagogical technologies developed within the framework of the research are aimed at forming important qualities in students based on the development of creative thinking of students.

The theory of "intellectual limit" proposed by G. Perkins is widely popular, and as a result of many correlative studies, he emphasizes that a necessary and sufficient intellectual level is required to master any type of activity. If an individual's level of intelligence is below the required level, he will not be able to fully engage in this type of activity. Differences in the productivity of people with an intelligence level above the "threshold" are explained by motivation, personality traits and other similar factors, but this difference does not represent a difference in the level of intelligence.

Scientists consider creativity as a general ability of a person, regardless of the field of activity, as a factor that has a great impact on creative productivity. When including intelligence, creativity and learning in the structure of general abilities, we were based on the three-component model of cognitive processes. According to this, any cognitive process should embody the acquisition, application and modification of cognitive experience. The ability to acquire experience can be explained by learning, the efficiency of using experience by general intelligence, and its change by creativity.

In researching the effectiveness of pedagogical technology, attention was paid to the inclusion of pedagogical observation elements in the pedagogical system, that is, the implementation of this educational technology is aimed at forming important aspects in students. Because pedagogical technology based on pedagogical observation determines the limits of possibilities that must be achieved based on its correct implementation. More effective organization of the formation of important qualities in students required the introduction of new exercises and trainings into the educational process. In addition,

pedagogical observation made it possible to eliminate some defects in educational technology.

In the process of using pedagogical technologies, attention was paid to the following aspects in the implementation of pedagogical observation: defining pedagogical observation technologies; determining the effectiveness of the proposed pedagogical technologies; developing recommendations for educational institutions in order to optimize the implementation of pedagogical monitoring; development of a program for the development of important qualities in students.

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