



Forming Students' Creative Thinking

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Abstract: *The article presents concepts related to the psychology of students' creative thinking, ability to solve problems and development of knowledge, role of modern approaches in students' creative thinking, ability to get out of problematic situations and development of knowledge.*

Keywords: *student, creative thinking, attitude, education, training, non-traditional issue, reform, intellectual potential, development, perfection, demand.*

The development of the state and the development of the society are largely determined by its intellectual potential. Because a country with a highly developed scientific potential is always advanced in all fields.

The future of our country depends on the fate of the reforms and their results, how well the level of education of our people corresponds to the demand and development of the time, and what kind of specialists they will supply and take our place. Therefore, the leadership of our country is paying great attention to the fundamental reform of the education system.

Today, the quality and effectiveness of all activities related to the development of creative intellectual potential are not at the required level. Based on the requirements of society and the state, first of all, the development of intellectual creative potential of students during their studies in higher education institutions it is necessary to carry out their work successfully. This requires the application of psychological-pedagogical technologies to the educational process, and the creation of a completely new education system at the level of the times. Because only mature personnel can work with students studying at school.

Therefore, it is necessary to approach each student based on his personal characteristics, starting from the institution of higher education. Applying a psychological or pedagogical method to the educational process in order to develop the intellectual and creative potential of each student is a complex process. But this is the demand of the times. In order to form the creative thinking of students, creative thinking must first be formed in the teacher himself.

The dictionary meaning of the word "creativity" is similar to the words "to create", "to discover something new". Creativity appears in various situations of activity. Curiosity includes the process of inspiration, aspiration, etc., from the emergence and manifestation of creativity in the highest form in the human mind. The need for activity in a person is an aspiration that has not previously been set as a goal in the activity, and is not considered a means of resolution. Creativity (lat., eng. "kreate" - to create, "creative" creator, creator) - describes the readiness of a person to produce new ideas and expresses the meaning of creative ability that is part of talent as an independent factor. Creativity is the process of human activity that creates qualitatively new, material and spiritual wealth.

Creativity represents the ability of a person manifested in work. Work can be creative as it creates a new reality that satisfies various social needs based on knowledge of the laws of the objective world. Types of creativity are determined by creative activity: inventor, organizer, scientific and artistic work, etc. Opportunities for creative activity depend on social relations. Today, the educational reforms carried out due to independence depend on the training of highly qualified



personnel who have a creative approach to their work and contribute to the rapid development of science, technology, art, and production. Accordingly, it is important and necessary to educate every student in the spirit of creativity, based on the students of social development.

Psychologist and scientist N.D. Levitov proved that creative activity is created based on the following criteria:

- ✓ independence of thinking;
- ✓ assimilation, speed and consistency of educational material;
- ✓ the speed of mental reasoning (ingenuity) in solving non-standard tasks;
- ✓ to be able to distinguish the important from the unimportant by going deep into the essence of the phenomena being studied.

The conditions for the formation of students' creative activity are first of all understood the process of emergence, realization and development of these conditions. They consist of:

1. The knowledge, skills and qualifications that students should acquire in this regard when forming their creative activities.
2. The relationship between theoretical knowledge and practice in the formation of creative activity.
3. Training on the formation of creative activity, creating heuristic problem situations.
4. Technological approach to formation of students' creative activity. These conditions apply as follows:
 - ✓ The following requirements are set for the knowledge, skills, and abilities that students should acquire in the formation of their creative activities.
 - ✓ to what extent the program has mastered the materials;
 - ✓ mastering the basic concepts and rules of the subjects;
 - ✓ being able to independently complete tasks on the chosen topic;
 - ✓ to understand the main problems in the studied topics;
 - ✓ to be able to use educational materials and technical tools, information technology in the performance of tasks;
 - ✓ to show his ability and develop it;
 - ✓ able to set achievable goals, make plans and evaluate results;
 - ✓ to be able to prove his opinion when studying subjects;
 - ✓ being able to recommend one's own option, etc. These requirements give the teacher the opportunity to learn about the students' interests in learning, their educational activities, and individual tendencies, and help to determine the structure of the educational process in this regard.

In order to produce a specialist who meets the requirements of the times, not only knowledge and understanding is enough, but also the need for creative thinking. Our goal is not limited to imparting knowledge, but to teach students to approach each issue creatively. The development of students' ability to think creatively depends on their interest and hobby.

Psychologists say that when teaching mathematics to students, it is necessary to develop their creative approach to the problem, because without this, it is impossible to form a knowledge



system that will give them the opportunity to independently penetrate into the unexplored aspects of the science in the future.

Creative thinking, as an individual characteristic of a person, is manifested in the subject's attitude to events and events in the environment, in the ability to solve various problems using unique methods. Creative ability cannot be formed just by memorizing definitions, theorems, and formulas.

The formation of creative thinking is a process that is carried out through an individual approach to each student.

One of the most important ways to develop creative thinking is to involve students in solving non-traditional problems at different levels, to teach them to find unique and unique solutions.

In the process of developing creative thinking, the following types of non-traditional problems can be used:

- solving problems with conflicting or erroneous information. For this, students should perform mental actions such as analysis and comparison;
- issues with excessive information. In this case, the student is required to select the most necessary and important information, and he will have to analyze it in depth;
- issues with insufficient initial information. Solving such problems requires the student to search, to create connections between different parameters;
- issues with unclear questions. Through such issues, it is possible to develop students' creative thinking, to create a search for understanding the nature of unknown or unclear information;
- problems with a limited solution time help to train thinking speed more. In order to find a solution to the problem during the given time, it is possible to quickly put forward different ideas and justify it.

In order to activate the thinking of students in finding solutions to non-traditional problems, questions should be aimed at activating thinking and memory.

The following control methods can be used for this:

Verbal control. Mathematical puzzles, crosswords, chainwords play a key role in this. For example: "Mathematical scientists", "Mathematical terms" crossword and "Think of" puzzle can be recommended.

Technologicalization of heuristic activity is as necessary and legal process as children's creative ability. It takes place on the basis of a single training session, systematic training of the training course, heuristically oriented activity. The creation and development of heuristic situations is a way to ensure the results of the creativity of technological activities.

Written works based on basic phrases.

Their thematic structure is appropriate. For example: we recommend the following basic expressions on the topic "Checking a function": function, derivative, increase of a function, decrease of a function, extremum, critical point, maximum, minimum, asymptote, value of a function at a point. When answering the questions, special attention is paid to the level of application of each mathematical concept. As a result, the student has to look at several topics and literature, and conditions for creative research are created.

Distribution of test questions and answer sheet.



In this case, questions should be made in different options, but in the form of correct answers. The correctness of the given answers requires great responsibility from the student, which is the basis for independent thinking. Solving problems.

Creative issues for the student are not memorizing formulas, but using these formulas, finding ways to explain them, and forcing them to think, relying on their own knowledge. The use of non-traditional problems to independently come up with methods of solving problems makes it possible to correctly apply the learned formula to determine knowledge in this field. In this case, the students are given problems that require solving methods unknown to them.

The used control methods not only increase the effectiveness of the educational process, but also provide the basis for creative research, creative thinking, and in-depth mastery of mathematics. It is also appropriate to use interesting and problematic, logical task educational methods and games in the development of students' creative activities. In this way, the productivity of the educational process increases, the independent thinking process of students is formed, students' passion and interest in knowledge increases, skills and competences are formed to master knowledge and use it freely in practice. Such tasks should be carried out taking into account the abilities, opportunities and needs of students.

The recommended methods help to develop all cognitive processes of students - perception, memory, thinking and imagination. This brings up such qualities as striving for the goal, perseverance, and demandingness in the student. The intellectual intelligence of a person can be awakened, developed and matured only in a well-organized educational process. Every pedagogue should find a way to maximize the intellectual potential of students.

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