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Importance of Creative Thinking Technology in Pedagogy

I.A. Uzakov
associate professor, candidate of pedagogical sciences, Department of "Pedagogy and Psychology"
non-state higher education organization "ALFRAGANUS UNIVERSITY"

Abstract: Creative thinking helps us find unusual solutions to problems. However, we should not confuse it with critical thinking, but rather see it as complementary in solving impossible problems. This article talks about the importance of creative thinking technology in the pedagogical process.
Key words: technology, cognitive, mono-subject, reproductive environment, hypothesis, fantastic, empirical, classification, judgment, conclusion.

Today, in higher education institutions, great attention is being paid to strengthening scientific potential, further development of science, engaging talented students and young people in scientific activities, and training qualified pedagogues. Innovative teaching technologies are widely used, especially in the educational process. The innovation of teaching with the help of technologies leads to the achievement of high efficiency in the process of teaching. When choosing innovative educational methods and technologies, it is appropriate to choose based on the didactic task of each lesson.

Since 1946, the work on the creation of the technology of scientific creativity has been started. This new technology is called TRIZ (Teoriya reshenia isobretatelskih zadach). The first information about TRIZ appeared in the press in 1956. G. Altshuller (born in Tashkent in 1926) held the first TRIZ training seminar in 1958. This method is highly active in the tendency to creativity, the ability to create something new, and it has its own importance in any form of human activity.

The main goals of IVENn are research, the theory is to find a creative solution to problems, knowledge is a tool in the process of creative work, and the secrets of discovery are expressed.

The main place in the theory of IVEN is occupied by the issue of development of creative ideas (ITP). IVEN is based on problem-based research methods, which are considered developmental educational technology. Specific principles of the theory of solving inventive tasks include:

active approach to teaching; direction to form theoretical conclusions; two-way communication between teacher and student; application of problematic issues and problematic situations in the educational process.

IVEN - turns production, new technical ideas into an exact science, helps to solve inventive problems.

IVEN is a rejection of the old in education. Elements of IVEN can be used not only in technical fields, but also in the fields of education and natural science. Every subject in life and nature, every substance, phenomenon, incident, the existence of the secret of duality, the existence of contradictions will make the students aware of what is good and what is bad, useful on the one hand, harmful on the other, halal on the one hand, secondly, it arouses interest in the fact that it is necessary and prompts to find it. With this, they will have the opportunity to easily master some materials that are difficult to master through the elements of IVEN.

The TRIZ methodology is used in educational practice and relies on the characteristics of human thinking on the basis of research and research education methods. The TRIZ approach focuses on the

application of algorithms and models to research education and the implementation of problem-oriented projects.

In this, learning is focused on facilitating human thinking, memorization, and practical use.

The purpose of pedagogical technologies based on TRIZ is to teach creative methods.

Purpose of use:

- search for gpoyas,
- identifying and solving many creative problems;
- choosing promising solutions,
- development of creative thinking, - formation of a creative personality.

TRIZ technology helps to find answers to these goals.

The formation of knowledge and skills in classes using TRIZ can be seen in practical actions.

Creativity gives an opportunity to express oneself, create, strive for new things, develops the need for knowledge.

It allows research and introduction of promising technological directions that meet modern standards, systematic thinking, communication, self-organization, creativity of students, design-technological and research culture in the personality of the student. Research consists in describing and explaining one or another events and processes, revealing the mechanisms and laws of their operation.

TRIZ technology (theory of solving inventive problems) includes different types of activities with children: frontal, individual, groups, including the joint actions of all students under the guidance of the teacher.

Creative thinking is finding innovative (new, innovative, original, non-standard, unusual, etc.) and effective (practical, effective, economical, optimal, etc.) solutions, acquiring new knowledge, developing and evaluating ideas aimed at effective expression of imagination. and the ability to effectively participate in the improvement process.

Creative thinking helps us find unusual solutions to problems. However, we should not confuse it with critical thinking, but rather see it as complementary in solving impossible problems.

The main verbal methods of achieving the goals of TRIZ technology are: "Visual teaching", "Conversation", "Dialogic", "Trial and error", "Brainstorming" (brainstorming), in which the teacher carefully guides students to understand new material by setting a system of thoughtful questions. During the heuristic conversation, the teacher, relying on the knowledge and practical experience of the students, leads them to understand and assimilate new knowledge, to formulate rules and conclusions.

In TRIZ technology, special attention is paid to discussion forms such as "Trial and error method", "Brainstorming", because these concepts bring the theory of solving inventive problems closer.

This technology uses a number of methods of working with information sources, information sources and independent work. The main ones are: note-taking, planning of the text, citation (output data), annotation (abbreviated content of the content), review (writing a short comment expressing your reaction to what you read), formal logical model - o creating a verbal-schematic representation of what you read, a thematic set of theses (a section, an organized set of main concepts on a topic), creating a matrix of gpoyas (a comparative description of the same objects, events in the works of different authors), ma reference (information about things obtained after research) and others.

Brainstorming is a method of trying to find a solution to a particular problem by collecting a list of ideas generated by group members. The term was popularized by Alex Faickney Osborne in his 1967 book Practical Imagination.

"Brainstorming" in other words, "Brainstorming" is a method of collecting free thoughts and opinions expressed by students on a problem, and using them to come to a certain solution. In this, students think freely and come up with as many new ideas as possible. All gpoyas are accepted uncritically by the teacher

and then summarized.

When using the "Brainstorming" method, it is possible to involve all learners, including the formation of a culture of communication and discussion among learners. They develop the ability to freely express their opinion. The lack of evaluation of the expressed opinions leads to the formation of different opinions. This method serves to develop creative thinking in students.

The "Intellect map" method is an effective way of thinking, remembering, solving creative tasks, and processing reflected on paper. It is also called mental map and mind map.

Mind mapping was founded by British psychologist T. Busen, and students can use text, line shapes, diagrams, tables, and lists to record their thoughts. In the educational process, the intellectual map can be used in different ways: when writing basic concepts; in solving a problem situation; finding an optimal solution to a certain task; collective problem solving; to summarize the topic; can be used in control work.

The theory of intelligence maps is based on the fact that our thinking is radiant. That is, we think with associations from the center to the side. There is a single central theme, from which the connecting threads run to other associations, and from them to others. It somehow reminds me of a tree. Its body is the central gpoya, and its branches are the imaginations that arise from it. The intellect-map is created on this basis. There is no single rule about how it should be. The main task: defining the main idea, using associations, many connections can be made. With the help of intellectual maps, you can learn new information and solve various problems. So there are several stages of intelligence mapping. The first is to create a main idea or gpoya, and the second is to create first-level themes. The third is the development of the second level of topics. The fourth is clarification. For example, a paragraph in a textbook should be studied with the help of an intellectual map. In this case, the name of the section is taken as the basis. Then, with the help of the first networks, it is divided into several clauses. Then these clauses are defined. These branches may link to previous chapters or topics covered in previous classes. This encourages students to further consolidate their knowledge. Mind mapping can be done both on paper and digitally.

"Visual teaching" method. In this method, visual teaching is used, that is, students must show visual aids (tables, pictures, reproductions of art objects, blackboard sketches, etc.).

Demonstration includes the demonstration of tools, experiments, technical devices, films, presentations, etc., related to the content of the subject being studied and the content of inventive tasks. Students themselves find the necessary information when teachers show technical tools, visual aids, videos, biological objects, etc., to form inventive tasks.

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