Effective Methods of TRIZ Technology in the Formation of Inventive Abilities of Primary School Pupils

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Abstract

The success of TRIZ originates from the fact that other common techniques are limited in their ability to solve internal problems by the actors' experience and knowledge. That is, TRIZ can stimulate and build problem-solving thinking and expertise. In contrast to other approaches that appear to be conditional and constrained. This article discusses the effective methods of TRIZ technology in shaping the inventive abilities of primary school students.

Keywords: TRIZ technology, abilities, primary school pupils, effective methods, creativity, development.

What is TRIZ, and why is it such a useful tool for creating new products, processes, and innovations in a business? Heinrich Altschuller, a Russian engineer, devised and designed the TRIZ process. The abbreviation TRIZ comes from a Russian word. Since the 1990s, the TRIZ technique has gained popularity in the Western world, and it is now widely utilized as an alternative to traditional integrated methods like brainstorming, six thinking hats, and side thinking.

Altschuller and his successors were brilliant in realizing that the origin of an invention should not be sought in creators' thoughts. As a result, the focus of the analysis was on the inventions and, as a result, on the venues where the inventions were collected and acknowledged, namely the patent office. The results of the research show that the established technology for the development of creative activity, as implemented through the author's course "Lessons of Fantasy," is beneficial. We identified the following conditions that contribute to the development of primary school kids' creative activity based on an analysis of psychological and educational literature and our own experience in organizing creative activity:

- forming a desire for creative activity and an interest in it;
- primary school pupils' mastery of creative activity methods, the development of imagination, dialectical and systemic thinking;
- formation of the ability to plan, self-control, and self-assessment of activities;
- the relationship between participants in the educational process, based on mutual respect and trust in one another.

As a result, the theory of inventive problem solving can be used to carry out work on the development of creative activity in primary school students, which necessitated the provision of special didactic tools that provide an educational process that involves primary school students becoming acquainted with creative activity methods. According to the findings of the real-world pedagogical scenario, all teachers recognize the necessity to work on teaching approaches for solving creative challenges and the development of creative thinking and imagination. Teachers, on the other hand, are the most successful in improving children's performance. At the same time, the ability to perceive problems and pose new ones, to isolate and resolve contradictions, appears to be formed at a low level. Teachers have noted that primary school students' abilities to examine the initial scenario, isolate, and establish a contradiction in solving creative challenges...
are still developing. It's also tough for primary school students to solve non-standard questions. In this case, the learning process is rendered ineffective.

It is recommended to organize special classes that introduce primary school pupils to the TRIZ toolkit and include them in an active search for solutions to non-standard problems in the context of an increase in the volume of content, the dependence of teachers' activities on curricula, the rigidity of time frames, and a lack of time to carry out work on the formation of methods of creative activity. However, such classes must conform to the school's fundamental conceptual ideas and fit into the educational process in a harmonic manner.

If we see the school as a system with a creatively engaged person at its center who is capable of making a decision and taking responsibility for it, then all of its subsystems should be working toward a shared objective while completing a specific set of tasks. The development and testing of the systemic course "Lessons of Fantasy" for children aged 4 to 12 years was an attempt to overcome this discrepancy.

The work on mastering the methods of creative activity by primary school kids, as well as the development of intellectual talents, are the foundations of the "Lessons of Fantasy" course. TRIZ suggests and gives a toolkit for tackling creative difficulties using a redesigned and integrated pedagogical activity experience. In addition to the absorption of techniques for resolving conflicts in non-standard activities by primary school students, particular work on the development of dialectical and systemic thinking, as well as creative imagination, is required.

The "Lessons of Fantasy" course features a modular structure with a defined system of goals, which assures, on the one hand, the integrity of the content structure and, on the other hand, its flexibility. There is a variety of creative challenges to choose from depending on the age of the primary school students, as well as an increasing sophistication of the tools used to assess the innovative scenario and resolve inconsistencies. The "Lessons of Fantasy" project involves solving multidisciplinary challenges, which leads to the construction of a comprehensive, systemic vision of the world.

Technical TRIZ concepts and procedures are currently being applied successfully in elementary schools to foster creativity, creative imagination, and dialectical thinking in students. The purpose of TRIZ is to teach primary school students not just how to develop their imagination, but also how to grasp and think rationally about continuous processes. To educate instructors with a clear practical education in the attributes of a creative person who can grasp the world around them and solve their small difficulties.

The notion of conformance to the nature of education is the beginning point of the TRIZ concept for children in primary school. When it comes to teaching a youngster, the instructor must be true to himself. To have a deeper understanding of this technology, you must first examine the concepts around which the entire system is based.

- The principle of objectivity in the laws of system development - objective laws govern the formation, functioning, and change of generations of systems. As a result, strong decisions are those that follow objective laws, patterns, events, and influences.
- The principle of contradictions originate, intensify, and are resolved as a result of external and internal circumstances. The problem is complicated by a system of hidden and evident contradictions. Contradictions emerge in systems as a result of objective laws, patterns, occurrences, and effects. As a result, strong decisions are those that overcome inconsistencies.
- According to the precision principle, each system, as well as individual members of this class, has characteristics that make modifying a given system easier or more complex.

In short, primary school students are taught through a number of ways. When using these TRIZ methods and strategies to teach primary school primary school kids, it is especially crucial to
consider their level of knowledge and interests. Primary school primary school kids are able to develop more talents, such as invention and creative thinking, as a result of the feedback provided by the TRIZ technique.

**List of references:**


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