Pindus Journal Of Culture, Literature, and ELT
ISSN: 2792 – 1883 **Volume 9**
https://literature.academicjournal.io

Effective ways to Use Triz (The Theory of Inventive Problem Solving) in Elementary School

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Abstract: Developing the creative skills of primary school students has always been a topical issue. This article discusses the modern forms, methods and techniques of developing students' creative abilities using the TRIZ program in primary school

Key words: Creative thinking, ability, education, class, lesson.

Introduction

The TRIZ program appeared in the mid-20th century, and initially it was not even related to pedagogy. In 1946, the former Soviet engineer, scientist and science fiction writer Genrix Altshuller began to study the methods most commonly used by inventors. There were about forty such techniques, and all of them, together with the inventive problem-solving algorithm (IPSA), formed the basis of TRIZ.

During this time, he acquired new algorithms, and in the early 1980s, educators took it as a basis for experimental classes as well as teaching methods in schools.

The goal of TRIZ pedagogy is to develop flexible thinking and imagination, the ability to solve complex problems skillfully and effectively.

In modern pedagogy, the unique methods of working with students, unusual teaching techniques and the TRIZ program are an innovative solution in achieving high results.

Course mode, number of hours. The program is designed for children aged 7-10 and lasts for 4 years.

The number of students is 34.

- 1 year of study 1 hour per week (33 hours in total);
- 2 years of study 1 hour per week (34 hours in total);
- 3-year study period 1 hour per week (34 hours in total);
- 4-year study period 1 hour per week (34 hours in total).

The program is funded by additional study hours.

Venue: It is recommended to conduct the course not only in classrooms, but also in gyms, gymnasiums, playgrounds (depending on the type of educational process).

Types of action:

- Game process (through action games);
- Literary-artistic process;
- Visual process;

ISSN 2792-1883 (online), Published in Volume: 9 for the month of September-2021

- Perform relaxation exercises, develop creative thinking, dialectical systematic, associative, creative, logical thinking, design action.
- The effectiveness and efficiency of the application of the program of the theory of invention in grades I - IV depends on the following conditions.
- The desire to participate voluntarily and to express themselves.
- Form and style of work, novelty and fun.
- The role of the teacher in ensuring the unity of children's initiatives.
- The combination of individual, group and collective action.
- Projects and festivals of different levels, the opportunity to participate in competitions, the presence of purposeful and effective actions.
- Involve children in open, free thinking.

Outcomes of extracurricular learning plans.

Requirements for knowledge and skills in the educational process in the program of the theory of inventive problem solving.

The level of the educational process is determined by the requirements of the general secondary education program of the school.

What students need to know to implement this program:

Must be able to study in the first year.

- What is Creative Thinking (CT)?
- Why is it necessary to develop creative thinking?
- Games for the development of creative consciousness.
- Methods of fantasy through fine arts.
- Imaging algorithm of fantastic objects.
- Playing games aimed at developing creative consciousness.
- Create objects and fantastic objects using the image algorithm.
- Write their history using icons.
- Be able to tell a story using schematic models (pictograms).
- Express your opinion.
- Respect the opinion of others.
- Apply the knowledge and skills acquired under the motto "Do not harm".

In the second academic year, requirements for the knowledge and skills that students should know in the learning process of the theory of inventive problem solving (TRIZ) program.

Must know:

- What is a complex?
- Complex creation algorithm.
- Gianni Rodari's fantasy method.

ISSN 2792-1883 (online), Published in Volume: 9 for the month of September-2021

- The basic concept of the theory of inventive problem solving, the method of fantasy.

Skill:

- Write a reality comic book.
- Playing games aimed at developing creative consciousness.
- Weaving fairy tales, inventing fantasy stories using previously learned fantasy techniques.
- Describe the process in terms of the object.
- Express your opinion.
- Respect the opinion of others.
- Apply the knowledge and skills acquired under the motto "Do not harm".

In the third academic year, requirements for knowledge and skills to be acquired by students in the theory of inventive problem solving (TRIZ) program.

Must know:

- “System Operator”, “Magic Screen”, “Nine Screens”, “System”, “Subsystem”, “Over System”, “Function”, “Past System”, “Next System”, “Antisystem ”,“ Not a system ”, definition of concepts.
- Puzzle weaving algorithm.
- Algorithm for weaving fairy tales and events based on the method of "morphological box".
- Discussion of the logic of the game "Yes - No".

Skill:

- To listen to each other, to express one's opinion, not to speak to each other.
- Ask a question, clear an unknown area.
- Weaving fairy tales and stories using the methods of "Morphological box", "Morphological analysis", "Nine screens".
- Development of games using the method of "morphological analysis".
- Express your opinion.
- Respect the opinion of others.
- Apply the knowledge and skills acquired under the motto "Do not harm".

During the fourth academic year of the theory of inventive problem solving (TRIZ) program, requirements for knowledge and skills to be acquired by students**.**

Must know:

- Define the concepts of "contradiction", "solution of the principles of opposition".
- Define the concept of "problem of creation".
- Define the concept of "field resources".
- “Inversion”, “Heavenly transition”, “transition to another state”, “pre-set pillow”, “Matryoshka”, “shredding-merging”, “jumping”, “turning loss into profit”, “opposite - method of resolving” resistances.

ISSN 2792-1883 (online), Published in Volume: 9 for the month of September-2021

Skill:

- Create a logical connection between the event and the object.
- Solve the problem of "creation" under the motto "Do not harm", eliminate contradictions, strive for the right, apply the acquired knowledge and skills.

During the four years of study, the quality of personality is formed in the knowledge acquired by students in the program of the theory of inventive problem solving in grades 1-4:

- Understanding, creativity, community, activism;
- Willingness to act in non-standard situations;
- Independence (at the time of decision-making);
- Ability to work collaboratively with others, be able to respond to their own decisions;
- Circulation (communication);
- Respect for others, self;
- Personal and joint responsibility.

Conclusion

TRIZ technology can be used as a universal tool in almost all types of activities (both in the learning process, in games and in moments of the regime). This allows you to form a unique, consistent, science-based model of the world in the mind of a school-age child. A successful situation is created, the results of the decision are shared, the decision of one child activates the opinion of another, expands the scope of imagination, stimulates its development. Technology allows each child to show their uniqueness. Teaches children to think outside.

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ISSN 2792-1883 (online), Published in Volume: 9 for the month of September-2021