THEORY OF INVENTIVE PROBLEM SOLVING TECHNOLOGIES AS A MEANS OF DEVELOPING CREATIVE ABILITIES OF PRESCHOOLERS

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https://doi.org/10.5281/zenodo.7184023

Abstract. *The trial and error method, the Robinson method, the system operator Theory of inventive problem solving games and other methods are also used. Thus, as a result of free activity, classes with the use of theory of inventive problem solving elements, children's feeling of stiffness is removed, shyness is overcome, thinking, imagination, fantasy of children develops, preschoolers show creativity, non-standard thinking. Theory of inventive problem solving allows teachers to present knowledge in a fascinating and interesting form for children, ensures their solid assimilation and systematization. Theory of inventive problem solving develops such moral qualities as the ability to rejoice in the successes of others, the desire to help, the desire to find a way out of a difficult situation. As a result of learning, children have a positive emotional attitude to classes, cognitive activity and interest increase; children's answers become non-standard, liberated; children's horizons expand, there is a desire for novelty, for fantasy; speech becomes more imaginative and logical, knowledge of theory of inventive problem solving begins to "work" in other classes and in everyday communication.*

Keywords: ***c****reativity, learning, education, solutions, development, task, ability, preschool, technology.*

ТЕОРИЯ РЕШЕНИЯ ИЗОБРЕТАТЕЛЬСКИХ ЗАДАЧ (ТРИЗ) ТЕХНОЛОГИИ КАК СРЕДСТВО РАЗВИТИЕ ТВОРЧЕСКИХ СПОСОБНОСТЕЙ ДОШКОЛЬНИКОВ

Аннотация. *Постепенно сочинения становятся всё более интересными, увлекательными. Данный метод хорошо использовать в работе с небольшим количеством детей (от двух до пяти). Также используется метод проб и ошибок, метод Робинзона, системный оператор тризовские игры и другие методы. Таким образом, в результате свободной деятельности, занятий с применением элементов ТРИЗ у детей снимается чувство скованности, преодолевается застенчивость, развивается мышление, воображение, фантазия детей, дошкольники проявляют творчество, нестандартность мышления. ТРИЗ позволяет педагогам преподносить знания в увлекательной и интересной для детей форме, обеспечивает их прочное усвоение и систематизацию. ТРИЗ развивает такие нравственные качества, как умение радоваться успехам других, желание помочь, стремление найти выход из затруднительного положения. В результате обучения у детей возникает положительное эмоциональное отношение к занятиям, возрастает познавательная активность и интерес; детские ответы становятся нестандартными, раскрепощенными; у детей расширяется кругозор, появляется стремление к новизне, к фантазированию; речь становится более образной и логичной, знания по ТРИЗ начинают «работать» на других занятиях и в повседневном общении.*

Ключевые слова: *творчество, обучения, образования, решения, развития, задача, способность, дошкольный,технология.*

INTRODUCTION

In the decree of the Government of the Republic of Uzbekistan. The goal of the strategy is to radically increase the effectiveness of the ongoing reforms, create conditions for ensuring comprehensive accelerated development of the state and society, implement priority directions for the modernization of the country and liberalize all spheres of life.

As noted in the document, a comprehensive analysis of the stage of independent development passed by Uzbekistan, as well as the changing conjuncture of the world economy in the context of globalization require the development and implementation of "radically new ideas and principles for further sustainable and advanced development of the country" [1].

MATERIALS AND METHODS

Preschool age is unique, because as a child is formed, this will be his life. That is why it is important not to miss this period for the disclosure of the creative potential of each child. The mind of children is not limited by the "deep way of life" and traditional ideas about how everything should be. This allows them to invent, to be direct and unpredictable, to notice things that we adults have not paid attention to for a long time.

Practice has shown that using traditional forms of work it is impossible to fully solve this problem. It is necessary to apply new forms, methods and technologies.

Theory of inventive problem solving technology came to kindergartens in the 80s. But, despite this, pedagogical technology remains relevant and in demand even now. Adapted to preschool age, theory of inventive problem solving technology allows you to educate and teach a child under the motto "Creativity in everything".

The initial position of the theory of inventive problem solving concept in relation to the preschooler is the principle of natural conformity of learning. When teaching a child, the teacher should go from his nature. And also the position of L. S. Vygotsky that a preschooler accepts a training program to the extent that it becomes his own.

The purpose of using theory of inventive problem solving technology in kindergarten is to develop, on the one hand, such qualities of thinking as flexibility, mobility, consistency, dialectic, and on the other hand, search activity, the desire for novelty, the development of speech and creative imagination.

Practice has shown that it is impossible to fully solve this problem with the help of traditional forms of work. The mind of children is not limited by the "deep way of life" and traditional ideas about how everything should be. This allows them to invent, to be direct and unpredictable, to notice things that we adults have not paid attention to for a long time. It is necessary to introduce new forms, methods and technologies.

In my opinion, one of the most effective pedagogical technologies for the development of creativity in children is the theory of inventive problem solving (Theory of inventive problem solving). It originated in our country in the 50s, the author is G. S. Altshuler. The theory of solving inventive problems was intended primarily to help engineers-inventors. Today, avoiding the mechanical transfer of techniques from the technical Theory of inventive problem solving, teachers of author's schools are beginning to use it effectively for the development of many non-technical systems. An example is a special section of Theory of inventive problem solving - the development of creative imagination (RTV) or creative features (RTS), where the ability to apply elements of Theory of inventive problem solving is practiced on non-technical tasks[5].

The turn of the authors of the theory of inventive problem solving from the "piece of iron" to the personality, the connection with creative pedagogy, the natural way out to the wise kids, creativity for whom is life itself, is quite justified. Gradually, TRIZ began to be applied in a new field of knowledge - TRTL (theory of creative personality development) [4].

Theory of inventive problem solving is a unique tool for finding original ideas, developing a creative personality. Theory of inventive problem solving technology has been around for more than 60 years and today it seems that it is not relevant. But the development of preschoolers does not stop, and every day new children come who want to know more and be able to. To think independently, to invent new things, to see several options for resolving contradictory situations, to crave search and discovery.

In addition to the above, theory of inventive problem solving technology reveals the development on the one hand of such qualities of thinking as flexibility, mobility, consistency, and on the other hand of search activity, the desire for novelty, the development of speech and creative imagination, i.e. purposeful formation of creative abilities, the development of non-standard vision of the world, new thinking. After all, it is creativity, the ability to invent, create new things that best shapes the child's personality, develops his independence and cognitive interest.

RESULTS

The theory of inventive problem solving methodology can be called a school of creative personality, since its motto is "creativity in everything": in the formulation of a question, in the methods of its solution, in the presentation of material. There are no methods in the usual sense of the word, there is a tool with which educators and parents themselves "invent" their pedagogy, illuminated by the light of children's ideas. There is also no education in its usual meaning, there is a way of mastering skills that allow everyone to live interestingly together and create themselves: both the educator, parents, and children.

Theory of inventive problem solving for preschoolers:

- this is a system of collective games, classes designed not to change the main program, but to maximize its effectiveness.

- this is "a controlled process of creating a new one, combining accurate calculation, logic, intuition," so the founder of the theory, G.S. Altshuller, believed.

When using Theory of inventive problem solving elements, children's creative and mental activity is noticeably activated, since theory of inventive problem solving teaches them to think broadly, with an understanding of the processes taking place and to find their own solution to the problem. Invention is expressed in creative imagination, inventing something that will then be expressed in various types of children's activities - play, speech, artistic creativity, etc[9].

The use of Theory of inventive problem solving in the education of preschoolers makes it possible to grow real inventors out of children, who in adulthood become inventors, generators of new ideas.

Theory of inventive problem solving technology also develops such moral qualities as the ability to rejoice in the successes of others, the desire to help, the desire to find a way out of a difficult situation.

The main difference between theory of inventive problem solving technology and the classical approach to preschool development is to give children the opportunity to independently find answers to questions, solve problems, analyze, and not repeat what adults have said[2].

Theory of inventive problem solving technology, as a universal tool, can be used in almost all types of activities (both in educational and in games, and in regime moments). This makes it possible to form a unified, harmonious, scientifically based model of the world in the consciousness of a preschool child. A situation of success is created, the results of the decision are exchanged, the decision of one child activates the thought of another, expands the range of imagination, stimulates its development. Technology gives every child the opportunity to show their individuality, teaches preschoolers non- In the arsenal of Theory of inventive problem solving technology, there are many methods that have proven themselves well in working with preschool children.

The following Theory of inventive problem solving methods are used in kindergartens:

- The method of brainstorming. This is an operational method of solving a problem based on stimulating creative activity, in which the participants of the discussion are invited to express as many possible solutions, including the most fantastic ones. Then, from the total number of ideas expressed, the most successful ones are selected, which can be used in practice.

- Catalog method. The method allows to solve the problem of teaching preschoolers creative storytelling to a greater extent.

- The method of focal objects. The essence of this method is to transfer the properties of one object or several to another. This method allows you not only to develop imagination, speech, imagination, but also to control your thinking.

- The "System analysis" method. The method helps to consider the world in the system as a set of elements interconnected in a certain way, conveniently functioning among themselves. Its purpose is to determine the role and place of objects, and their interaction for each element.

- Method of morphological analysis. In working with preschoolers, this method is very effective for developing creative imagination, imagination, overcoming stereotypes. Its essence lies in combining different variants of the characteristics of a certain object when creating a new image of this object.

- The method (modeling by little men). This method is aimed at giving children to visually see and feel natural phenomena, the nature of the interaction of elements of objects and substances. It helps children to form dialectical ideas about various objects and processes of living and inanimate nature. It also develops children's thinking, stimulates curiosity and creativity.

The essence of the theory of inventive problem solving method is that it represents all objects and substances consisting of many Small People . In the understanding of us adults, these are molecules, but attention is not focused on this word, information is given to children in the form of a fairy tale "Little Men". It becomes clear to children that, depending on the state of the substance, Little People behave differently (in solid – they hold hands tightly, in liquid – they just stand next to each other, in gaseous – they are in constant motion) [12].

- Thinking by analogy. Since analogy is the similarity of objects and phenomena by any properties and signs, it is necessary first to teach children to determine the properties and signs of objects, to teach them to compare and classify

- Typical fantasy techniques . To develop a child's imagination, six wizards are introduced to help. The goal of wizards is to change the properties of an object. Magic techniques: increase-decrease, division-unification, transformation of signs of time, revival-petrification, specialization-universalization, on the contrary.

Theory of inventive problem solving the system in teaching children is a practical help for a child to find the best solution to a given task or in a given situation. The principle is: "There is a problem — solve it yourself," but not by trial and error, but by an algorithm of reflections that lead the child to a better solution.

The main methods of theory of inventive problem solving technology used in working with children are the following:

1. Brainstorming.

Brainstorming involves setting an inventive task and finding ways to solve it by sorting through resources, choosing the ideal solution. It should be borne in mind that inventive tasks should be accessible to children by age.

Brainstorming topics can be as follows:

• How to protect grandma from the gray wolf;
• How to escape from the rain if there is no umbrella;
• How to put out a fire if there is no water in the house;
• How to escape from the heat on a summer day.

Brainstorming Rules:

1. Exclusion of all criticism;
2. Encouraging the most incredible ideas;
3. A large number of responses, suggestions;
4. Other people's ideas can be improved.

The educator should offer children their original solutions to the problem, which allows them to stimulate their imagination and arouse interest and desire for creative activity.

This method allows children to develop the ability to analyze, stimulates creative activity in finding solutions to problems, gives awareness that there are no hopeless situations in life.

2. Synectics (empathy method)

a) Personal analogy (empathy).

The child is asked to imagine himself as an object or phenomenon in a problematic situation. For example:

• Picture a kettle that is boiling;
• Show the gait of a small child who is learning to walk;
• Pretend to be an angry cat;
• Meow the song "A Christmas tree was born in the forest..." etc.;

b) A direct analogy.

It is based on the search for similar processes in other fields of knowledge (airplane - bird, submarine - fish analogy, etc.) Children find analogies, make small discoveries in the similarity of natural and technical systems;

c) A fantastic analogy.

The solution of the problem is carried out as in a fairy tale, i.e. all existing laws are ignored (draw your joy - possible options: rainbow, flower; depict love - it can be a person, a plant), etc.

Using theory of inventive problem solving technology in the work of preschoolers, it is necessary to take into account the following didactic principles:

• The principle of freedom of choice (to give the child the right to choose in any educational or management action);

• The principle of openness (to give the child the opportunity to work with open tasks (which do not have the only correct solution);

• The principle of activity (any creative task should include practical activities);

• The principle of feedback (the educator can regularly monitor the process of mastering mental operations by children, since there are elements of previous ones in new creative tasks);

• The principle of ideality (creative tasks do not require special equipment and can be part of any activity, which allows you to maximize the opportunities, knowledge and interests of children).

3. Morphological analysis.

The basis of this method is the combination of different variants of the characteristics of a certain object when creating a new image of this object.

The purpose of the method is to identify all possible facts of solving this problem that could have been missed with a simple search. Usually they build a table (two axes) or a box (more than two axes). The main characteristics of the object under consideration are taken as axes and their possible variants are recorded on each axis.

For example, we invent a new game. On one (vertical) axis, you can lay out a part of the body with which you can play, and on the other - devices for the game: hoop, ball, racket, rope, cord, etc.).

Then various combinations of elements of different axes are selected. All possible options are being sorted out.

The more criteria are selected, the more detailed the new image will be described. Huge scope for children's imagination!

Difficulties are caused by the fact that preschoolers do not know how to read well and it is difficult for them to keep in mind a large number of characteristics of the object. Therefore, the educator needs to think over the use of symbols with which he will designate them.

4. The catalog method.

This method allows to a large extent to solve the problem of teaching preschoolers creative storytelling. Creative storytelling is given to preschoolers with difficulty due to a small experience of monologue speech and the poverty of an active vocabulary.

To work, you will need any children's book with a small number of illustrations. It is desirable that the text be in prose. An adult asks children questions on the basis of which the plot will be built, and the children look for the answer in the book, randomly pointing their finger at any place on the page. The words selected by the "poke" method, unrelated to each other, are combined into some kind of story or fairy tale. The educator can transform some parts of speech into others.

According to developmental pedagogy, the kid has great freedom to think independently, but still the key decision is in the hands of the teacher. We illustrate these approaches with an example. Suppose that in kindergarten all children have the same cups. How do I remember my own? The classic approach: the teacher gives everyone an individual sticker, glues it on his cup and asks the children to repeat this action. Theory of inventive problem solving in kindergarten will look like this: to encourage the child to come up with and find the differences on his cup. Does it take more time? Perhaps. However, a child's imagination can strike with its originality and inexplicability, and this will be his personal meaningful decision [11]..

Tips for teachers when using theory of inventive problem solving methods:

Fight the urge to lecture and explain a given situation for a long time. If the child does not understand what you want from him, then it is worth rescheduling this conversation for another time or not returning to it at all. Do not put pressure on the child with words such as "come on soon", "think for yourself", "this is wrong". Theory of inventive problem solving technology in kindergarten implies that any opinion and version are worthy of consideration. In addition, the child learns to think gradually, and the task of the teacher is to help, not force. Don't forget about the praise. Of course, it should be sincere and specific. Let the child feel confident in communication and express his wildest ideas. Rely on the knowledge and concepts that the child has a good command of. To build a chain of hypotheses, you need to have a complete understanding of the problem and the situation[13].

Having already a basic idea of what the theory of inventive problem solving technique is in kindergarten, and remembering these tips, you can safely disassemble some games. They will not only appeal to children, but will also put the whole theory into reality.

Creative imagination development classes are an improvisation, a game, a hoax. Children learn to invent their own fairy tales, compare physical and natural phenomena, but in such a way that they do not notice that they are learning, but make discoveries for themselves every minute. Theory of inventive problem solving classes in visual activities include the use of various non-standard materials. Classes on the theory of inventive problem solving method in the complex (music, speech development, familiarization with the environment) and are planned in their free time, in the afternoon, on a walk, in individual work. Elements of the methodology are used in working with children of all age groups. The principle of conducting classes is from simple to complex. Children playing theory of inventive problem solving see the world in all its diversity. Theory of inventive problem solving teaches children to creatively find solutions to problems that have arisen, which is very useful for a child both at school and in adult life[5].

The use of theory of inventive problem solving methods and techniques in the work allows us to note that kids almost do not have psychological barriers, but older preschoolers already have them. theory of inventive problem solving allows you to remove these barriers, remove the fear of the new, unknown, to form the perception of life and educational problems not as insurmountable obstacles, but as the next tasks to be solved.

The conditions for the development of creative imagination of preschoolers are:

• Teacher's knowledge of theory of inventive problem solving technology;

• Building a system of relations between a teacher and children on the basis of cooperation;

• The teacher has non-standard thinking, theoretical knowledge, practical experience;

• The use of theory of inventive problem solving technologies in educational classes, in the organization of independent activities of children, in working with parents.

Theory of inventive problem solving technology allows you to solve the following tasks:

• Education of creative personality qualities in children;

• Correct sound reproduction correction;

• Dictionary formation;

• Development of lexical and grammatical means of language and coherent speech;

• Development of elementary mathematical concepts;

• Development of constructive activity.

Using theory of inventive problem solving technology in the work of preschoolers, it is necessary to take into account the following didactic principles:

• The principle of freedom of choice (in any training or control action;

• Give the child the right to choose);

• The principle of openness (to give the child the opportunity to work with open tasks that do not have the only correct solution);

• The principle of activity (any creative task should include practical activities);

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• The principle of ideality (creative tasks do not require special equipment and can be part of any activity, which allows you to maximize the opportunities, knowledge and interests of children).

DISCUSSION

Before the techniques of theory of inventive problem solving technology could be used in practical activities, how to make theory of inventive problem solving the property of preschoolers, how to introduce its elements into everyday life, into the framework of educational activities, I set a number of tasks:

• Theoretically study the question: what is the theory of inventive problem solving;

• To identify the level of development of creative abilities in children;

• Create conditions for the development of creative abilities of preschoolers through the use of methods of the theory of solving inventive tasks;

• Develop and implement a work plan for the development of creative abilities through theory of inventive problem solving technology.

The main means of working with children is pedagogical search. In my opinion, theory of inventive problem solving occupies a special place among the new pedagogical technologies and methods used in preschool organizations. It turns out that theory of inventive problem solving can be used in working with preschoolers and gives amazing results in terms of the development of imagination, imagination, creativity of children.

The most important goal set by a theory of inventive problem solving teacher is the formation of creative thinking in children, i.e. the upbringing of a creative personality prepared for the stable solution of non-standard tasks in various fields of activity. It requires a certain training of the educator, his sincere desire to create, search and find new, unconventional, seemingly in the ordinary[14].

The trial and error method, the Robinson method, the system operator Theory of inventive problem solving games and other methods are also used. Thus, as a result of free activity, classes with the use of theory of inventive problem solving elements, children's feeling of stiffness is removed, shyness is overcome, thinking, imagination, fantasy of children develops, preschoolers show creativity, non-standard thinking.

CONCLUSIONS

Theory of inventive problem solving allows teachers to present knowledge in a fascinating and interesting form for children, ensures their solid assimilation and systematization. Theory of inventive problem solving develops such moral qualities as the ability to rejoice in the successes of others, the desire to help, the desire to find a way out of a difficult situation. As a result of learning, children have a positive emotional attitude to classes, cognitive activity and

interest increase; children's answers become non-standard, liberated; children's horizons expand, there is a desire for novelty, for fantasy; speech becomes more imaginative and logical, knowledge of theory of inventive problem solving begins to "work" in other classes and in everyday communication.

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