

WAYS TO TEACH FUTURE TEACHERS TO THINK LOGICALLY THROUGH JAPANESE PUZZLES

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Abstract:

This article describes ways to train future teachers' logical thinking skills through Japanese puzzles. Based on the historical puzzle, students acquire the skills of searching for and separating the necessary information, establish cause-and-effect relationships, build a logical chain of reasoning, and choose and solve the most convenient and effective methods of solving the puzzle based on concrete conditions, competence of educational activity is formed and developed. Through the Hitori puzzle, future teachers will be able to expand their thinking by learning the basic features of the Hitori puzzle and teaching them to students.

Keywords: story puzzle, individuality, independence, readiness to change, independence from society, own thoughts and ideas, self-analysis, independent thinking, creative thinking, self-presentation, self setting your goals, algorithm, unique placements.

Mathematics is the basis of all exact sciences. A child who knows this subject well will grow up to be intelligent, broad-minded, and work successfully in any field.¹

Currently, the reforms being carried out in the field of education in our country and ensuring the implementation of the measures set forth in the decisions and decrees put forward by our president, in particular, the attention paid to the higher education system show that the formation of professional competence of future personnel and improving their skills and experience is of urgent importance.²

In particular, in the improvement of the teaching of mathematics in higher educational institutions, solving problems has become an important component of the teaching of science. After all, it is absolutely impossible to imagine learning mathematics without solving problems. Because solving problems in mathematics classes is the best and easiest way to put theory into practice. Only a dry mathematical theory, without its applications, cannot achieve the goal. However, it should be emphasized that every logical rule of mathematics has a place in practice, and it is important that the applications of this existence appear only with the help of mathematical problems.³

¹ Sh. Mirziyoyev. From his speech at the "Meeting with scientists, heads of research institutions and representatives of the production sector" on 31.01.2020

² Mirzaakbarov, A. (2023). Ways to teach future teachers to think logically through specific subjects.

³ Mamadzhanova M.K. Logical, combinatorics and non-standard problems - Tashkent.: Innovatsion-Ziyo, 2020 -B 32

Studies have shown that learning Japanese puzzles is accomplished by solving many puzzles. The methods used in the process of working on each puzzle should match the interests of the learner. If the teacher wants to teach students a new Japanese puzzle in the lesson, the puzzle should be of a nature that reveals the essence of this concept. Complex puzzles also serve to acquire knowledge, strengthen and perfect the acquired knowledge. Simple and complex puzzles are a useful tool for developing children's thinking skills and usually involve a hidden unknown. It consists of searching for the unknown, requiring the problem solver to independently refer to analysis and synthesis, compare facts, generalize, and so on.

The main features of Hitori puzzle will be:

1. Individuality: Storytelling encourages each person to have unique abilities, thoughts, and characteristics.
2. Self-activity: In the puzzle of Hitori, a person includes his own leadership and decisions, and is influenced by others.
3. Independence: Storytelling observes people mastering their own activities, making their own decisions, and working towards their own goals.
4. Ready to change: Hitori approaches the puzzle, changing himself in his life, mastering his activities and his own development.
5. Independence from society: People are independent in directing their development and goals, changing the norms and rules set by society.
6. Own thoughts and ideas: In solving a story, a person values his thoughts, ideas and acts on the basis of his advice.

There are several ways to explore the independent activities of a story puzzle, to learn about human relationships, to share one's thoughts with others, and to assimilate the knowledge one has learned. It's up to you to think independently, who you know, and how you implement this decision in your own life.

"Self-reflection" (in English "self-reflection") is a process used to analyze one's own human self, to study one's thoughts, feelings, experiences, and to know oneself. It plays an important role in personal development, goal orientation, and independent learning. Some important features of hitori puzzles are:

- Self-Analysis: A story is a good tool to puzzle out, compare yourself to others, and analyze your own thoughts. You learn how to see and share yourself.
- Independent Thinking: This process allows you to ask yourself questions, express your thoughts, and learn to think independently. You think about how you should develop yourself.
- Creative Thinking: Puzzles are a good opportunity to develop new ideas and creative thinking. You think about how to develop yourself and decide what steps you want to take.
- Self-Introduction: A story puzzle will help you explain your thoughts on your characteristics, strengths, and recurring problems. It can help you gain important insights into your personal life.

● Defining your goals: This process teaches you to identify your goals and where you want to go. What direction do you think you should take?

A hands-on process designed to explore your story, self-actualization, self-understanding, and personal development. You will become more familiar with your own thoughts and feelings, and it can be a good tool to determine if you want to take steps in self-development.

Recommendations for solving the following mathematical puzzle were developed in the research work:

Example: Do the Hitori puzzle.⁴

4	1	4	3	3
4	3	5	5	1
2	1	3	1	3
3	5	1	5	2
1	3	5	3	4

What is this puzzle? We need to enter 2 conditional characters in this puzzle, these are; we can enter fading i.e. black and non-fading i.e. white characters. Now, which cells are white and which are black is abstract, we need to introduce a rule to know this. The basic rule of Hitori is that 1 number is repeated 2 or 3 times in horizontal and vertical directions, we should leave only 1 of those numbers, the remaining square will be white, and the deleted square will be black. and it is the main rule. There is another small rule, and this rule is that we cannot erase 1 more number next to our deleted cell, it will automatically turn red, so we need to protect this cell, that is, we need to make the cells next to it white. So we can only walk diagonally from our black squares.

In our example, since it is complicated to look at our 1st and 2nd lines, we will look at our 3rd line, which is easy for us. Since we have 2 1's in row 3, but only 1 1 in column 4, we delete and hide the 1 in column 2, and white out the 1 in column 4.

4	1	4	3	3
4	3	5	5	1
2		3	1	3
3	5	1	5	2
1	3	5	3	4

Since the number 3 in the 3rd row, 3rd column is white, it automatically follows that we darken the number 3 in the 3rd row, 5th column and protect the sides of this number 3.

⁴ <https://www.puzzle-hitori.com/>

4	1	4	3	3
4	3	5	5	1
2	■	3	1	■
3	5	1	5	2
1	3	5	3	4

In our 4th row, there are two numbers 5, but because the number five in the second column is white, the number five in the fourth column is dark. We darken the number five in the fourth column and protect its sides.

4	1	4	3	3
4	3	5	5	1
2	■	3	1	■
3	5	1	■	2
1	3	5	3	4

In our 5th row, there are also two three numbers, but because the number three in the fourth column is white, the number three in the second column is darkened. We darken the number three in the second column and protect its sides.

4	1	4	3	3
4	3	5	5	1
2	■	3	1	■
3	5	1	■	2
1	■	5	3	4

There are also two fives in our 2nd row, but since one of the fives in the third column is white, we darken the fives in the 3rd column of the 2nd row. We darken the number five in the third column and protect its sides.

4	1	4	3	3
4	3	■	5	1
2	■	3	1	■
3	5	1	■	2
1	■	5	3	4

In our 1st row, there are also two numbers three, but since one number three is white in the fourth column, we will darken and hide the remaining one.

4	1	4		3
4	3		5	1
2		3	1	
3	5	1		2
1		5	3	4

In our 1st line, there are also two numbers four, but since one of them is white, we will darken and hide the other one.

	1	4		3
4	3		5	1
2		3	1	
3	5	1		2
1		5	3	4

With this, we have solved this puzzle, we just need to whiten the remaining cells.

Teaching future specialists to think logically and critically by solving the above-mentioned puzzle will give effective results in the formation of skills, skills and competences in science. Also, It is also recommended to be used in solving and strengthening logical problems in 3-4 grades.

In conclusion, it can be said that teaching to solve the Hitori puzzle will help future specialists to think actively, to solve various problems encountered in everyday life, to form the ability to get out of problematic situations, to find rational ways to solve these problems when overcoming various difficulties will consist of.

List of used literature

1. Sh. Mirziyoyev. From his speech at the "Meeting with scientists, heads of research institutions and representatives of the production sector" on 31.01.2020
2. Mirzaakbarov, A. (2023). Ways to teach future teachers to think logically through specific subjects.
3. Mamadzhanova M.K. Logical, combinatorics and non-standard problems - Tashkent.: Innovatsion-Ziyo, 2020 -B 32
4. <https://www.puzzle-hitori.com/>