

# Analysis on the Reconstruction of Primary School Mathematics Class Based on the Theory of “Thinking Visualization”

Zixi Zhao

Changsha Normal University, Changsha 410000, Hunan, China

**Abstract :** With the continuous advancement of the new curriculum reform, the cultivation of primary and secondary school students' thinking ability has gradually become the focus of education, and the strength of thinking ability will have a profound impact on students' problem analysis and judgment ability. Thinking visualization theory provides important guidance for the cultivation and orderly development of students' thinking ability. The application of thinking visualization theory in primary school mathematics teaching can realize the effective combination of graphics and text, and then present mathematics knowledge and conceptual content to students concretely and vividly, and help students effectively sort out knowledge. To achieve high quality and efficient learning, reduce the primary school students in the process of mathematics problems and difficulties. This research focuses on the reconstruction of primary school mathematics classroom under the theory of “thinking visualization”, and provides ideas and methods from multiple perspectives.

**Keywords:** Thinking Visualization; Primary School Mathematics; Classroom reconstruction

## Introduction

Based on the analysis of the knowledge characteristics and subject characteristics of primary school mathematics, it can be found that the effective integration of thinking visualization theory can realize the combination of graphics and text in mathematics education, and present the original abstract content to the students in an intuitive and clear way. The knowledge will become simple and easy to understand, and the students' learning ideas will also be sorted out, Effectively eliminate the difficulties and challenges encountered in the learning process, continuously improve students' logical thinking ability, and develop the efficiency of mathematics classroom teaching.

### 1. With the help of mind map, clear teaching focus

The concept of exam oriented education has a profound impact on the practice of mathematics teaching in China. The examination results of students are the focus of educators, but the mastery of learning methods and the shaping of learning habits have not been paid enough attention. After completing the teaching task of this lesson, the teacher will prompt the students to complete the preview task of the next lesson, but rarely check the students' preview before the formal teaching of the next lesson, which leads to the “preview in advance” is often difficult to implement. The lack of preview leads to the lack of integrity of students' thinking process. Teachers need to actively change teaching ideas to meet the needs of students' thinking literacy development. Advanced Internet technology and “thinking visualization” theory provide support for teaching. Teachers and teachers can guide students to summarize the teaching content and form mind map in advance, present the key and difficult knowledge and knowledge framework involved in teaching to students, comprehensively check and spot check students' preview before formal teaching, and encourage students to complete the drawing of mind map independently and show it to teachers and students. This will help students more clearly understand the importance of preview, at the same time can effectively improve students' learning efficiency, lay an effective foundation for mathematical knowledge learning. For example, in the teaching of “circle”, the author issued the mind map to the students in advance to guide the students to preview around the mind map framework and the key and difficult knowledge. The students are familiar with the concept, characteristics, radius and diameter of the circle under the guidance of the mind map.<sup>[1]</sup>

### 2. Make use of micro class to break through teaching difficulties

Micro lesson is an important achievement of the application of new technology in the field of teaching. It has the advantages of time length, clear content, accurate goal and so on, which also makes micro lesson get attention and attention in education and teaching. Teachers can use micro lesson to realize the effective combination of text, plane graphics, vertical graphics and dynamic animation, With the teacher's explanation and analysis, the key and difficult points of teaching can be directly presented to the students, giving them all-round and multi angle guidance, and effectively practicing the thinking visualization theory. As a result, the difficulty of mathematics classroom teaching is constantly reduced, students' learning tasks are effectively reduced, students can better understand and master mathematics knowledge, teaching resources and teaching content are presented to students in a more vivid and interesting way, and the task of mathematics education can be successfully completed. In the teaching of “circle”, the author made a micro

lesson in advance to show the students the differences between circles and triangles, parallelograms, squares, rectangles and other figures. The students explored the differences between different figures through careful observation. Then the teacher demonstrated the use of compasses for the students, Shooting from multiple angles makes students have a more intuitive understanding of the use of compasses.<sup>[2]</sup>The simple and vivid micro lesson eliminates the abstract sense of students in the process of mathematics learning. The repeated use of micro lesson can effectively break through the key points and difficulties. Students gradually learn to use micro lesson to solve practical problems. This way plays a crucial role in the process of students' mathematics learning, and students' mathematical literacy has been significantly improved.

### **3. Create mathematical situation and activate students' interest**

The learning of mathematical knowledge is ultimately closely connected with students' life, so that the teaching content can effectively connect with students' life, so that students can learn to recognize the surrounding things through mathematical vision, find students' ability to find, analyze and solve problems, and realize the synchronous development of students' observation and logical thinking. Teachers can actively create life situations and explain mathematical knowledge in teaching, which will make students form a stronger resonance, their familiarity and awareness of mathematics will be effectively improved, and the key and difficult points in the process of learning mathematical knowledge will also be effectively broken through. For example, in the teaching of "percentage", the teacher can take out a watermelon and ask the students how to divide the watermelon into two equal parts? If half of the watermelons are further divided into two equal parts, how to express? If we use percentage instead of fraction, how can we express it? The teacher can leave the students to think and discuss after putting forward the questions, and make serious comments and affirmation on the answers given by the students. The creation of teaching situation can not only better practice the "thinking visualization" theory, but also guide students to effectively find the mathematical problems everywhere in life, effectively realize the complete internalization of knowledge, improve students' cognition and impression of mathematics, and then solve the problems encountered in mathematics, and realize the sustainable development of mathematical literacy.<sup>[3]</sup>

### **4. Construct cooperative group and infiltrate mathematical thinking**

Students' basic level, learning orientation and learning characteristics are different. Teachers should establish appropriate cooperative groups for students according to their common and individual characteristics. When students encounter learning problems, they can analyze, discuss and communicate problems through group cooperation. The visual learning method of mathematical thinking can realize the combination of text and graphics, Help students to establish a correct solution ideas and methods, gradually solve the problems encountered in the process of mathematics learning, quickly make up for the shortcomings of learning. The construction of cooperative group is of great significance to the development of students' independent thinking and exploration ability. Students' mathematical logical thinking ability will be effectively improved. <sup>[4]</sup>At the same time, students' learning enthusiasm and initiative will be continuously improved under the influence of group atmosphere. Students will gradually master the correct learning methods and solve practical mathematical problems.

In primary school education, mathematics teachers should actively use the theory of "visualization of thinking" to complete classroom reconstruction, use a variety of teaching methods to activate students' interest, improve students' learning efficiency and establish mathematical self-confidence, and realize the effective improvement of mathematical literacy.

## **References:**

- 
- [1] Liu Haiping. Exploring the value of teaching materials and cultivating the flower of mathematical thinking -- strategies for cultivating students' mathematical thinking ability in primary school mathematics teaching [J]. *Huaxia teacher*, 2020 (19): 20-21
  - [2] Sun lingcai, Cao Yanping. Teaching strategies of in-depth questioning in primary school mathematics classroom -- meaningful learning based on cultivating high-level thinking [J]. *Modern education*, 2020 (06): 47-49
  - [3] Shen Dongyan, ou Qiaohong, Xu Fangqi, Zheng Ziwei, Hu Zhiwei. Research on the application of mind map in primary school mathematics review class -- Based on the questionnaire analysis of primary school in Wuxing District of Huzhou City [J]. *Scientific consultation (Educational Research)*, 2019 (10): 13-15
  - [4] Guo Xiaoshan. Cultivation of primary school mathematical thinking ability under the background of core literacy -- Taking "graphics and geometry" as an example [J]. *Huaxia teacher*, 2018 (35): 43-44