

# *Strategic Analysis of Constructing Visualized Teaching Mode of Mathematics Thinking in Junior Middle School*

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**Abstract:** Over the years, the visualized teaching mode of mathematics thinking in junior high schools has received extensive attention in the field of mathematics teaching. The visualized thinking teaching mode is dedicated to mobilizing students' thinking, allowing students to understand knowledge through active thinking in mathematics classes, have a deeper understanding of knowledge, and achieve the teaching goal of analogy. Extensive teaching practice has proved that the application of visualized thinking teaching mode in junior high school mathematics teaching can achieve the goal of promoting students' mathematical thinking ability training and mathematics learning ability, and can also promote students to have a deeper knowledge of mathematics in the new era environment Understanding and mastery. This article mainly starts the research from the concrete strategy of constructing the visual teaching mode of mathematics thinking in junior middle school.

## **1. Introduction**

Cognitive learning theory believes that learning is essentially a kind of thinking activity, a kind of thinking activity that teachers and students participate together. When junior high school mathematics teachers educate students, they should pay attention to the assimilation of thinking in the learning process of students and take reasonable ways to enrich Cognitive schemas in students' minds and allow students to conduct in-depth mathematics learning. In the modern society with the rapid development of information technology, mathematics teachers can fully reflect the knowledge system of mathematics in mathematics classroom teaching, and allow students to transition from knowledge mastering to thinking training, and realize the improvement of students' abstract logical thinking ability. Of course, in In such an environment, teachers should strive to create a new type of mathematics classroom, in a continuous, efficient and systematic way to promote the development of students' mathematical thinking ability and the transformation of abstract logical thinking ability. This fully proves the importance of constructing a visual classroom of mathematics thinking in junior high schools [1]. The original meaning of the visualized thinking teaching mode is to make

knowledge clearer and clearer. As a means of education and teaching to simplify complex information and be quickly understood by people, the visualized thinking mode can maximize students' understanding of graphics. The way of perception and materialization deepens students' understanding and experience of knowledge. And because thinking is a kind of advanced cognitive activity possessed by human beings, through the realization of thinking visualization, unforeseen and unseen thinking structures and ways of thinking can be taught to students, and knowledge can be presented through a combination of diagrams or graphics and words. Show up. Extensive educational practice has proved that the visualized thinking education model can improve students' comprehensive literacy, help the free growth of life forms, and play a more important role in building a knowledge system and improving knowledge construction. The facts also fully verify the visualized thinking and the cultivation of learning thinking ability is complementary and mutually conditional [2].

### **2.1. The Meaning of Visualization of Mathematics Thinking in Junior High School**

First of all, the construction of a visual classroom in junior middle school mathematics thinking can simplify the classroom teaching process. Education and teaching procedures have a great impact on students' learning. In traditional junior high school mathematics teaching, some teachers are accustomed to putting their own explanations throughout the classroom process, and try to use their own knowledge and problem-solving ideas as much as possible. It is all taught to students. This teaching method of clearly specifying each step will make students keep taking notes. The whole class seems to be more harmonious. The students seem to be engrossed in learning knowledge, but for many knowledge students, it is not. Understand, the actual teaching effect is not good enough. Using the construction of visualized thinking classrooms, teachers can let students have a deeper understanding of the entire classroom teaching system, and promote the improvement of students' understanding ability through the simplification of procedures.

Secondly, the application of visualized thinking classroom can promote students' thinking development and realize in-depth communication between students. In mathematics teaching, if students want to significantly improve their mathematics thinking ability, teachers must guide students to communicate and communicate continuously, and realize the collision of thinking through their own language guidance and other methods. In traditional mathematics classrooms, the limitations of teaching time and the achievements of teaching methods have seriously affected students' learning. Therefore, in the new era, junior high school mathematics teachers must explore a way for students to communicate and communicate, and focus on visualized teaching methods [3]. To simplify the complex knowledge and make the abstract knowledge specific, through the design of focusing problems and classroom presentations, students can show the dynamic changes of their thinking and promote the cultivation of students' mathematical thinking ability.

In addition, the teaching mode of thinking curriculum reflects the requirements of the new curriculum reform standards. Under the guidance of the new curriculum reform concept, teachers of various disciplines must correctly position the roles of teachers and students. Teachers, as organizers and guides of classroom teaching, and participants must play an important role in the classroom, guiding students to conduct knowledge the active participants and creators of the classroom understand learning methods not only as learners, but also as experiencers of classroom learning, and the way of visualizing thinking goes from shallow to deep. In the process of their own thinking, and gradually reveal their knowledge, as a means of fun and showing themselves, the visualized thinking education mode allows students to understand the nature of mathematics in the

classroom, and also allows teachers to better stand up. The educational goal of Deshu people is to promote the all-round development of students. On the basis of relying on the cultivation of mathematical thinking ability, it leads students to realize breakthroughs in thinking and fully explain important and difficult points.

Finally, the application of visual teaching in junior middle school mathematics teaching can develop students' mathematical thinking and achieve the essential goals of math classrooms. Under the guidance of quality education, promoting the all-round development of students has become an important goal of teaching. Junior high school mathematics teachers must pay attention to the importance of promoting the all-round development of students, innovate the quality of mathematical thinking, and improve students' academic quality. At the current stage, when preparing lessons, many teachers have paid attention to the needs of the teaching situation in addition to the needs of teaching materials and students. To realize the full exploration of the teaching situation, teachers must understand the actual learning situation of the students and consider the current situation of the students [4]. At the same time, students are allowed to have a deeper understanding of problems and deeper thinking while mastering the basic knowledge, so as to realize the efficient development of the classroom driven by life-oriented situations and activities. To better achieve this goal, junior high school mathematics teachers should guide students to make breakthroughs in thinking driven by problems, and use thinking visualization under the guidance of teaching goals to enable students to have a better understanding of the essential connotation of science learning. In-depth understanding, a more in-depth analysis of the problem in the perspective of effective context, and through three-dimensional drawing of three-dimensional graphics and thinking perspective diagrams to experience the logic and system of subject knowledge, and strive to efficiently achieve the goal of visualized thinking classroom teaching, and promote The leap development of students' thinking.

## **2.2. Strategies for Constructing a Visual Mode of Mathematics Thinking in Junior High Schools**

### **2.2.1. Building a Support System for the Visualization Classroom of the Thinking Class**

Modern education technology has changed the way of life and production of human beings, and the Internet has brought tremendous convenience to human life. For traditional education and traditional classrooms, the realization and application of educational informatization has also provided great help to teachers' teaching and students' learning. In the process of school modernization, teachers have learned from a blackboard and a chalk 1.0. The era has transformed into a 2.0 era in which modern educational technologies such as projectors and multimedia are used flexibly. In this context, classroom teaching has not stopped developing. Under the influence of more interactive electronic whiteboards and teaching all-in-one learning terminals, personalized learning methods can be realized, and an intelligent learning space can also be used by students. Learning has brought great convenience, and at the same time, this is because the construction of the thinking departmental classroom provides the hardware conditions [5].

Thinking visualization classroom is very important in the new era background. This classroom teaching mode points to the cultivation of students' core literacy. Of course, in the process of applying thinking visualization classroom mode, teachers should also visualize thinking and related hardware in the classroom. In-depth research on software software, with certain equipment and network technology as the support, forms a materialized visual technology, and promotes the construction of a visual classroom of mathematics thinking. Generally speaking, in the process of

junior high school mathematics teaching, the visualized thinking classroom is mainly presented in the form of mind maps. If you want to use mind maps to promote the development of students' mathematical thinking ability, teachers must adopt flexible and diverse methods. , Draw effective mind maps to attract students' interest in learning, and allow students to show strong enthusiasm and initiative in the math class. In addition to conducting in-depth research on my country's education and teaching concepts, junior high school mathematics teachers must also actively understand the relevant tools for drawing mind maps, and use the tools flexibly to maximize the role of mind maps. At the current stage, the tools for drawing mind maps mainly include powerpoint, curtains, and geometric sketchpads.

At the same time, the realization of visualized thinking classroom requires corresponding software support. Generally speaking, multimedia picture language is the visual expression of thinking, and the realization of multimedia picture language requires specific software technology to support. Through software technology, edit text and draw graphics, so that students have a more thorough understanding of mathematical thinking and mathematical knowledge. Students who understand and experience, through process and interactive design, present knowledge in a personalized way. In the new era, thinking visualization includes not only traditional tree diagrams and mind maps, but also concept maps, flowcharts, etc. By creating these simple and rich illustrations, students will have a deeper understanding of knowledge. At the same time, in the 3.0 era of the development of educational informationization, teachers can also use software to present beautiful and large-information icons, and conduct personalized and selective teaching according to the learning ability of students [6]. These works are easy to save and easy to modify. It can promote the cultivation of students' thinking ability.

### **2.2.2. Taking Students As the Foundation, Guiding Students to Understand Mathematics in Depth**

To realize the visualization of thinking and the construction of the classroom, teachers must understand the relevant elements of the visualization of thinking classroom. Judging from the actual situation of the teaching work at the current stage, the relevant elements of the visualized thinking classroom mainly include the leading teachers, the students in the dominant position and the knowledge of mathematics. Knowledge is both explicit and implicit. When educating students, junior high school mathematics teachers must achieve a dynamic balance between the core elements of mathematics teaching. When constructing a visualized thinking classroom, they must also form a relatively stable state through practical research. On the basis of research topics and analysis of the teaching situation, the classroom teaching structure of the company forms a classroom teaching paradigm, and further builds a visual teaching support system [7]. Junior high school mathematics teachers must work hard to perfect the classroom teaching mode in the classroom, and at the same time, provide enough support systems for the visualized learning of students' thinking. Teachers should guide students to build an effective learning paradigm in their minds, to understand the main content of this lesson through the teacher's knowledge, and to develop more in-depth mathematical knowledge in the process of independent exploration and cooperative learning with other students. Explore and excavate to fundamentally understand the essential connotation of mathematics. Teachers can design a mathematics reading and visual example link before the beginning of the class. During the pre-class reading, students can prepare for the class through their own pre-study in advance. With the necessary materials and operating tools, they can visualize their thinking and deepen their understanding of the content of this lesson. understand. At the same time, teachers can also create effective scenarios to guide students in the process of thinking perspective, driven by

problems, have a deeper understanding of knowledge, and achieve efficient thinking visualization classrooms through the innovation of teaching models, and realize students' mathematical thinking. Further improvement of ability.

In order to realize the reasonable application of the visualized thinking teaching mode in junior high school mathematics teaching under the new time environment, junior high school mathematics teachers must pay attention to the actual learning situation of students, and use the visualized thinking teaching mode to help students integrate knowledge in their minds. To enable students to integrate knowledge, realize a holistic understanding of knowledge, link knowledge to learn, use new knowledge to consolidate and review old knowledge, and use old knowledge to expand new knowledge. Junior high school mathematics teachers should refine each link of classroom teaching, build an efficient visual classroom based on students' mathematical thinking ability and knowledge mastery, and give full play to the role of explicit knowledge, allowing students to learn through explicit knowledge. Realize the mastery of tacit knowledge. Before the beginning of the class, the teacher must first clarify the teaching objectives of this lesson and the teaching objectives of this unit, so that students, under the guidance of the overall teaching objectives, construct a knowledge learning system and learn logically [8].

#### Innovative Mathematics Classroom Teaching Methods

It is no wonder that the mathematics teacher in the classroom to realize the classroom must pay attention to the important meaning of guiding students to learn explicit knowledge. Explicit mathematics knowledge plays the role of subjectivity and scaffolding in students' knowledge learning. Junior high school mathematics teachers should be good at guiding students to understand the explicit subject knowledge, clarify the dual subjects of education and teaching, and construct a scientific and effective teaching goal system. In this way, students can clarify the knowledge points, understand the development context of mathematics knowledge and the direction of future learning, and clarify the promotion relationship between knowledge understanding and improving thinking. At the same time, it is also indispensable to integrate and plan the classroom teaching environment and build a support system with students as the main body. Only in this way can the main status of students in the classroom be highlighted, and a reasonable visual teaching medium can be selected as technical support. Under the condition of joint development of teachers and students, an efficient thinking visualization classroom can be constructed.

In addition, junior high school mathematics teachers should also pay attention to the teaching process and the important impact on students' learning, and use effective situation creation and summary expansion to rely on visual media such as courseware and physical scenes to mobilize students' enthusiasm and learning in the classroom. Initiative means that students learn more about the knowledge system of mathematics subjects and the cultivation of mathematical thinking ability in the process of learning knowledge content, and promote their own diversified development [9]. In addition to the teaching method of applying thinking methods in the classroom, teachers can also make good use of personalized learning terminals under the background of education information 3.0, guide students to use exploratory tools, give full play to the role of various visualization media, and develop directions Inquiry activities on core issues, and guide students to discover, analyze, and finally solve problems in the after-class operation process to achieve the improvement of abstract logical thinking ability. Because the students in the junior high school stage are greatly influenced by their peers in the learning process, the teacher can divide several groups in the class so that the students can discuss and exchange knowledge in groups. Through group cooperation, Students' feedback and communication will become more in-depth, and learning outcomes will also be more improved. In the classroom, by guiding students to expand knowledge and express mathematically,

improve students' general thinking ability. In the summary and expansion link, teachers can let students try to make mind maps by themselves, use this visual medium to sort out and summarize what they have learned, and help students build a clear and clear mathematical knowledge system. At the same time, for To provide students with interest in learning, teachers can also introduce the corresponding expansive content of mathematics culture and mathematics subjects into this link to improve students' reflective ability [10].

In the process of applying the visualized teaching mode of thinking, teachers must pay attention to the many shortcomings in traditional education and teaching methods. Under the guidance of the visualized classroom teaching mode of thinking, teachers must guide students to focus on problems, solve problems, and explore problems. , Explore the problem. After the course begins, the teacher must first ask the corresponding question, guide the student to stand from the perspective of the problem, but find knowledge in their own thinking framework and knowledge system, so as to solve the problem. In addition, mathematics teachers can also design an achievement display session. In the achievement display session, students can show their answers to other students to improve their self-confidence in learning.

## 2. Conclusion

In short, in the era of the new curriculum reform, the application of the visualized thinking classroom teaching model is of great help in promoting students' mathematical thinking ability. Junior high school mathematics teachers should have a deep understanding of students' learning conditions, and build an efficient mathematics classroom based on students' learning, so that the knowledge system and logical structure become an important driving force for students' math learning.

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