

Exploration of Mathematics Classroom Teaching Practice in Middle School under the Concept of Core Mathematics Literacy

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ABSTRACT. *With the rapid development of the social economy, people pay more and more attention to receiving education. The traditional duck-filling teaching model is contrary to the quality education concept of the new curriculum reform and does not conform to the trend of the times. With the deepening of the new curriculum reform, people-oriented teaching ideas have gradually become prominent, teachers in various subjects are trying their best to explore new teaching methods and find differentiated teaching methods. Mathematics is an important setting for middle school courses, and it takes a large proportion in the entrance examination. The core literacy of mathematics is formed in mathematics knowledge skills, but it is higher than mathematics knowledge skills. Based on the background of contemporary education, this article analyzes the value of core literacy and the guiding role of strengthening the core literacy of mathematics in an attempt to add benefits to the effective development of mathematics teaching in middle schools.*

KEYWORDS: *Core literacy of mathematics, Middle school mathematics, Classroom teaching, Teaching thought*

1. Introduction

At present, most teachers have recognized and adopted the teaching concept of the new curriculum reform, which is student-centered, adapting to local conditions, and employing differentiated teaching methods. The implementation of the new concept has not only effectively improved the efficiency of mathematics classroom teaching, but also promoted the comprehensive and healthy development of middle school students. At the middle school stage, the students' logical thinking has just been formed and is not yet perfect, and the knowledge and worldview need to be improved. Math teachers should realize the importance of this period, gradually penetrate the core literacy concepts of mathematics into daily teaching, continuously improve the core literacy of middle school students, help students expand their thinking, establish active learning concepts, and be able to look at mathematics problems from a developing perspective, and can flexibly use mathematical knowledge to solve practical problems.

2. Education Background of the New Era

The new curriculum reform has been implemented for more than ten years, effectively solving the long-standing teaching problems, but the teaching system is not yet perfect. The new curriculum reform emphasizes that teaching should be based on quality-oriented education, but because of the constraints of traditional thinking and the college entrance examination system, all sectors of the society pay more attention to student academic performance than personal ability, making core literacy training often a slogan. In middle school mathematics teaching, teachers tend to focus only on the teaching of mathematical theoretical knowledge, not on students' ability to use mathematical knowledge. The function of mathematical knowledge can only be used to take math tests. Duck-filled teaching methods and question-sea tactics limit students' thinking space, and it is easy for students to form the habit of relying on answer templates, which is not conducive to the expansion of students' thinking. Middle school is a golden period for the growth of students. At this time, the students' brain cells are growing rapidly, they have a strong desire for new things, and have a strong acceptance ability. Infiltrating core literacy at the middle school level can help students develop a mathematical vision, learn to consider problems from a mathematical perspective, and establish correct mathematical cognition.

3. The Importance of Penetrating Core Elegance in Middle School Math Teaching

In recent years, various new teaching methods have emerged, and the cultivation of core literacy has been generally recognized and accepted. Summing up the teaching effect, it is not difficult to find that the integration of core literacy in mathematics teaching is consistent with the trend of educational development. The cultivation of core literacy can help students to establish correct mathematical cognition and form mathematical logic thinking with their own characteristics. When the cognition is correct, interest appears. With interest in mathematics learning, students will continue to improve their mathematics knowledge skills, and then form good learning habits. In the process of forming core literacy, students' logical thinking ability is gradually improved, and their understanding of mathematics knowledge can be transformed from abstract to concrete, and a corresponding mathematics knowledge system can be established to better learn, understand, and apply mathematical knowledge. Mathematics knowledge comes from daily life. Only when students learn to observe life with mathematics, they will find the connection between mathematics and daily life and understand the important role of mathematics.

4. Strengthen the Guiding Role of the Core Literacy of Mathematics

4.1 Throughout the Classroom

The guiding role of the core literacy of mathematics is obvious, which is reflected in all aspects of mathematics teaching. Teachers should pay attention to exert the influence of the core qualities of mathematics to achieve perfect integration with the introduction of teaching. In the initial stage of teaching, we must first attract the attention of students. With students' interest in learning, the attention of the classroom will increase, and the efficiency of classroom teaching will also be significantly improved, so that the 45 minutes of the classroom will be fully utilized. Mathematics is a basic subject. Compared with the mathematics knowledge in elementary school, the difficulty and depth of mathematics knowledge in middle school are significantly improved. In the introduction of the classroom, teachers should pay attention to increase the interest of mathematics knowledge, and firmly lock the concentration of students in the teaching content. Teachers should also pay attention to the diversification of teaching introduction methods. Since the teaching objectives and teaching contents of each class are different, different teaching introduction methods should be used to prevent students from being tired and reducing their interest in learning. With the correct method of teaching introduction, students' interest in mathematics will continue to arise, which will greatly help the improvement of learning efficiency.

To give a simple example, equation operation is the basic content of middle school mathematics. In practical teaching, mathematics teachers can help students explain mathematics knowledge with the help of familiar little stories, and quickly introduce students to classroom learning to attract students' attention. For example, in order to facilitate transportation, chickens and rabbits are packed in a cage. After careful counting, the breeder finds a total of 35 heads and 94 feet. How many chickens and rabbits are there? This math problem will be familiar to many people, and it comes from the famous "sun tzu mathematician". Middle school students have a certain understanding of chickens and rabbits, knowing that chickens have two feet and rabbits have four feet. The solution to the case in "sun tzu mathematician" is to assume that the number of chicken feet is 1 and the number of rabbit feet is 2. If the number of chicken feet and chicken heads are equal, the number of rabbit heads is half of the number of rabbit feet. At this time, the number of rabbits is obtained by subtracting the number of extra feet and the number of heads. If the equation is used for calculation, the number of rabbits should first be assumed to be x , half number of animals should be half of 94 which is 47. The formula is $2x + (35-x)x + 47$, and the value of x is 12. Problem solving is simple and easy to understand. After the students master the method of using the formula, the teacher can adjust the condition variables to check the students' mastery. Help students to strengthen memory, form mathematical thinking ability, and improve understanding ability.

4.2 Guiding Instructional Design

Instructional design is the reference and basis for teachers to organize teaching activities. Teaching design is mainly composed of teaching content design, teaching idea design and teaching activity design, which is an important content of classroom teaching. When teachers make instructional designs, they should use the syllabus as the basis and refine the design to the teaching terms. In this process, teachers should play a guiding role in core literacy, help students develop good habits of independent learning, and then improve the comprehensive ability of the subject.

To give a simple example, middle school teaching consists of two courses, algebra and geometry. Geometry is the foundation of geometry learning, and three-dimensional graphics is a newly added knowledge point in middle school. The geometry includes two parts, front view and top view. After explaining the basic knowledge,

the geometry teacher can guide the students to design the three-dimensional graphics independently. After completion, it is interchanged with the same table, and the plane graphics of the three-dimensional graphics made by the other party are drawn, and the front view and the top view are marked respectively. The final link is the internal evaluation of the class. The controversial issues are decided by the geometry teacher. This teaching method can reflect the student's dominant position and keep the classroom relaxed and happy. The stress-free environment allows students to better learn and understand mathematical knowledge. Geometry teachers should provide a platform for students to play freely, eliminate all restrictions on students' thinking, and give students room for imagination. Freedom makes students feel happy and eager to learn.

4.3 Instruct Students to Solve Problems

Mathematics is a rigorous subject with strong logic. Mathematical knowledge is derived from life and applied to life. All the subjects and things that we have daily contact with can be calculated mathematically. The middle high school students' understanding of mathematics is still superficial. It only involves the mathematics knowledge in the textbook. It is fragmented and unstructured. It is difficult to generalize the logical system from it and cannot form a correct mathematical thinking. In the teaching process, teachers should properly infiltrate mathematical thinking, ingeniously set questions to guide students to think, and help them develop personal thinking and expand personal thinking.

For example, in the third grade, you will learn "Probability Preliminary". During teaching, teachers can use examples of common things in life, such as lottery tickets, to help students understand the meaning and probability of random events, and then explain the calculation method of probability. In the process of explanation, the questions designed in advance should be properly interspersed, and the questions should be used to guide students to think and find solutions.

5. Innovative Teaching Ideas

Mathematics teachers are mainly based on textbooks when designing teaching plans, which have relatively large limitations. Mathematics knowledge is closely related to our daily life. The use of life-style teaching methods in the teaching process can not only enrich the teaching contents, familiar things can also reduce the difficulty of students' understanding, enhance students' ability to integrate theory with practice, and use knowledge to solve problems flexibly. Math teachers should keep pace with the times, arm themselves with the most advanced teaching concepts and teaching ideas, and get rid of the shackles of traditional teaching ideas. Use questions to guide teaching, cultivate students' inquiry awareness and exercise students' inquiry ability, so that they have the core literacy of mathematics.

6. Conclusion

In summary, although the new curriculum reform makes up for the shortcomings in traditional teaching, it is not comprehensive enough, and some teaching problems remain, which are urgently needed to be resolved by teachers in various subjects. Integrating the core qualities of mathematics in the mathematics classroom can fully stimulate students' interest in mathematics and make them willing to actively participate in learning. Mathematics teachers should pay attention to play the guiding role of core literacy and infiltrate it into the whole process of classroom teaching. Strengthen instructional design, create a relaxed teaching atmosphere, organize diverse teaching activities, help students develop the ability of mathematical thinking and independent inquiry, and then improve the quality of teaching.

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