# Research on the Current Situation of the Combination of Numbers and Shapes in the Middle School of a Primary School in Changsha City

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Abstract: The revision of the Compulsory Mathematics Curriculum Education Standards (2011 Edition) adds arithmetic model thinking ability. innovation consciousness, and geometric intuition to the six core vocabulary in the original curriculum standard, such as number sense, symbol sense, spatial concept, statistical concept, application consciousness, and reasoning ability, and puts forward clear requirements for the combination of numbers and shapes. Abstract truths are important, but they should be seen and felt by students, especially for those in the lower grades of primary school. The combination of numbers and shapes is a good method, which is not only a problem-solving method but also я mathematical idea in intuitive abstraction. which runs through the whole mathematics learning career of students. Based on this, this study focuses on the primary school mathematics classroom. focuses on the of implementation of the combination numbers and shapes, and uses the literature questionnaire method. method and observation method to find the problems in the combination of numbers and shapes in the lower primary schools, analyze the causes of the problems, and put forward improvement strategies.

## Keywords: Lower Primary School, Combination of Numbers and Shapes, Mathematics Teaching

Students in the lower primary school are generally 6-8 years old, and children's thinking at this stage is single, mainly figurative thinking. Such characteristics make them more hands-on and better at reading intuitive graphics. Their thinking is often limited to concrete things and the surface of things. It can be seen that the idea of combining numbers and shapes runs through the whole process of mathematics in our primary school. For the sustainable development of students, teachers should make full use of intuitive models or draw graphs in the classroom to help students understand mathematical abstract concepts and help students clarify quantitative relationships.

# 1. Significance of the Study

The combination of numbers and shapes is of great value to students in lower grades, on the one hand, it provides methods and strategies for teachers to teach abstract concepts, which is helpful for the improvement of teachers' teaching ability. On the other hand, the combination of numbers and shapes will help understand knowledge, students thereby reducing students' difficulties in learning mathematics, helping to enhance students' interest in mathematics, and thus transforming it into lasting and effective intrinsic learning motivation. It is difficult for students in the lower grades to understand many mathematical concepts because of their low level of cognitive development, and their understanding is often superficial, or even misunderstood, on the one hand, because of the abstract nature of the mathematical concepts themselves, and on the other hand, because of the constraints of students' cognitive development level. The combination of numbers and shapes represents abstract textual concepts and principles in an intuitive form, which helps to cultivate students' mathematical thinking ability, and is conducive to students' multi-angle viewing, problem solving, and problem-solving ability.

#### 2. Survey Results on the Current Situation Of the Combination of Numbers and Shapes in the Lower Grades of Primary School Mathematics

Students in the lower primary school are still in a state of incomprehension of learning, they

cannot fully understand what learning is, their ability to accept new things is also limited, and the concept of combining numbers and shapes is extremely unfamiliar to them. When the teacher teaches the concept of combining numbers and shapes, they will not learn because they are unfamiliar, and with the lack of concentration, it will be more difficult to grasp the knowledge. Concentration in the whole class is a major problem faced by primary school students, poor independent learning ability, pioneering thinking development is not strong and other common problems of primary school students are the difficulties encountered in the penetration of numbers, shapes and ideas.

#### 3. At the Teacher Level

Some teachers are inexperienced, and in the survey, it was found that although about 50 percent of the teachers are experienced, young teachers have been engaged in education for a short period of time, and there are still many ideas and methods that need to be improved and perfected in teaching. Teachers lack the awareness of the educational value of the combination of numbers and shapes, and the application or non-application of this method seriously affects the students' mastery of the combination of numbers and shapes.

Lack of excavation of students' thinking ability, students in the process of learning new knowledge, the impression left in the brain is very shallow, so many students have been learning but always can't remember the knowledge points, at this time it is necessary to repeatedly deepen the impression of a knowledge point, in order to make it permanently stored in the brain. When the teacher himself explains the knowledge, he perceives the knowledge point from his own perspective to be easy to understand, and fails to think from the perspective of the student, which is a new and difficult knowledge point for the student.

#### 4. At the School Level

The support of the school is a prerequisite for the smooth implementation of educational ideas. The survey found that the specific requirements of the school for teachers to apply the combination of numbers and shapes in teaching are not very clear, but the guidance direction of the school is the goal of teachers' teaching and discussion, and the school has not paid too much attention to the combination of numbers and shapes, and the time for seminars on corresponding topics is also very small.

#### 5. Suggestions for the Combination of Numbers and Shapes in the Lower Grades of Primary School Mathematics

#### **5.1 Suggestions for Teachers**

5.1.1 Concretize the teaching objectives

Mathematics is a rigorous subject, and there should be a specific normative plan for both the teaching objectives and the depth of teaching. Teachers should carefully analyze and study the content of the textbook, and arrange the teaching content of each lesson and even the whole teaching process according to the content arranged by the textbook. In the classroom, the content of the textbook is combined, and the ideas of numbers and shapes are flexibly integrated, so that they can penetrate into the minds of each student as much as possible. Students should set corresponding goals and requirements for homework and exercises inside and outside the classroom, so that the knowledge learned in class can form a deep impression in students' brains.

5.1.2 The depth of teaching varies with the progress

When teachers infiltrate at different stages, they should grasp the infiltration method and angle to maximize the difficulty of knowledge at that stage. When dealing with different knowledge points, analyze the students' acceptance and understanding of the knowledge, and formulate a good penetration method. Most of the students in the lower section have a higher grasp of the former than the latter, that is, in the students' minds, forward thinking is often more acute than reverse thinking, which makes it more difficult for students to analyze numbers than when analyzing shapes. Teachers must understand students' thinking patterns, strengthen the training of students' reverse thinking, and try to guide them with reverse thinking in the process of infiltration.

5.1.3 Follow the teaching rules and improve the quality of teaching

Although knowledge is flexible, and the idea of combining numbers and shapes also needs to be flexibly applied to mathematics, flexibility is also within the norm, not blind and aimless infiltration. The idea of combining numbers and shapes needs to be combined with the laws of natural development, to understand the order of things, dating back to ancient times, the world is the first to have the existence of the form before there is the discovery of the number, in the final analysis, the reason why people have a more intuitive feeling of the shape is influenced by the origin of the world. The discovery of number originates from form, develops from form, sublimation and form, and to learn the idea of combining number and form, we must follow the law of the order in which number and form appear.

5.1.4 Get to know your students and improve your methods

In teaching, "the right medicine" is very important, students at different stages, the attitude towards learning is not the same, the first grade students are still in the transition stage between children and children, the knowledge of learning and the reserve of knowledge is very small, in their eyes play is the most important thing, it is difficult to concentrate for a long time in the learning process, in the process of infiltration, it is necessary to attract their attention in an interesting way, such as inviting students to participate in interaction, giving examples of things they are interested in.

# 5.2 Suggestions for Schools

The guiding direction of the school is the orientation of the teachers' discussion and exchange, and with the support of the school, the educational ideas can be implemented smoothly, and the school plays a vital role in the quality of education.

5.2.1 Actively carry out inter-school exchange activities

Strengthen the exchange and learning between schools, absorb new concepts and knowledge and new educational methods, fundamentally change the traditional teaching concepts of some teachers in the school, strengthen observation, reflection and summary, and make exchanges a platform for learning and improvement.

5.2.2 Do a good job in continuing education for teachers

When students learn knowledge, they habitually imitate the teacher's ideas, which requires enriching the teacher's teaching methods and eliminating the immutable teaching concept. The first way to improve teachers' teaching concepts is to exchange learning, and the second is to continue education. Knowledge will not be eliminated by the society only in the continuous learning accumulation, and the teacher is the guide of students, plays an extremely important role, continuing education has become an indispensable part of the teacher's work, and the timely continuing education provides a guarantee for improving the quality of teaching.

3. Frequently carry out lectures on the combination of numbers and shapes

Lectures on the combination of numbers and shapes are often carried out to strengthen teachers' affirmation of the value of the combination of numbers and shapes, and encourage teachers to flexibly use the combination of numbers and shapes in the classroom, so that the combination of numbers and shapes can be fully and harmoniously integrated into primary school mathematics education.

## 6. Epilogue

In the actual classroom teaching, the teachers are not very good at applying the idea of combining numbers and shapes, especially the young teachers have a weak understanding of the idea of combining numbers and shapes, and they do not have an accurate grasp of the idea of combining numbers and shapes in the classroom, and it is easy to attach importance to the shape and ignore the number. If the idea of combining numbers and shapes can be accurately applied to classroom teaching, the combination of numbers and shapes can give full play to its advantages.

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