

# *Research on the Current Situation and Intervention Strategies of the Cultivation of Mathematics Core Literacy of Rural Primary School Students*

**Huang Lingxia**

*Teachers' College of Xi'an University, 710065*

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**Abstract:** Primary mathematics is an important part of the primary education system in China. The number of primary school students in rural areas of China is huge.

At the moment, compared with cities, the gap in primary education in rural China is still very obvious in many places on the whole. This paper analyzes the related concepts of mathematics core literacy in primary schools, points out the current problems in the process of cultivating mathematics core literacy in rural primary schools, and finally gives some intervention strategies on how to change this situation.

What is mathematical literacy? What aspects does the primary school mathematics core accomplishment include? This is a widely discussed topic in academic and educational circles. In a broad sense, mathematical literacy refers to a good mathematical mind and mathematical application ability, that is, good at using mathematical thinking to analyze and solve problems. Mathematical literacy is a comprehensive ability quality. It generally includes the mathematics idea, the computation ability, the mathematics ability, mathematics psychology and mathematics thinking and so on. Some scholars summarize mathematical literacy into five parts: mathematical consciousness, problem solving, mathematical reasoning, information communication and mathematical psychology.

The formation of mathematical literacy is a process from quantitative change to qualitative change. It can't be accomplished overnight. On the contrary, the formation of mathematical literacy, the need for long-term self-learning and training, is a step-by-step and gradually perfect process. In the field of the cause of formation of mathematical literacy, experts and scholars at home and abroad have carried out a lot of research and systematic investigation. To sum up, there are mainly the following points of views. The first is that the mathematical core literacy includes congenital conditions and acquired causes. The second is that mathematics core literacy is composed of mathematics behavior and mathematics value, which constitute the key of mathematics core literacy. The third one thinks that the mathematics core literacy is composed of mathematics ability and mathematics method. No matter which theory or viewpoint, they all pay great attention to the important role of "process" in the formation of mathematics core literacy.

Due to historical and objective reasons, there is still a big gap between rural primary education and urban primary education in many aspects. The core mathematical literacy of rural primary

school students has attracted the attention of experts, but the overall situation is still not optimistic.

## **1. Problems in cultivating mathematics core literacy of rural primary school students**

At present, the problems existing in the process of cultivating mathematics core literacy of rural primary school students can be summarized as follows:

### **1.1 The backward concept of teacher education and teaching**

As a result of the condition restriction, our country vast countryside's education teaching condition receives many limits. Rural math teachers have limited access to cutting-edge research. From the beginning of stepping on the job, many teachers of the concept of education and teaching stay at the initial level. The majority of rural primary school mathematics teacher education teaching idea backwardness question has become our country primary school mathematics education teaching development important bottleneck. At present, the education administration has realized the seriousness of this problem, and the related investment is increasing. but overall, the rural primary school mathematics teachers retraining opportunities compared with urban teachers still exist a significant gap. Especially under the information-based conditions, rural primary schools have a great need to make up for both the hardware input and the teacher's soft power.

### **1.2 The unscientific teaching method**

The cultivation of primary school mathematics core literacy needs scientific and rigorous method. At present, one of the biggest problems in mathematics teaching in rural primary schools is the simplification of the teaching process into knowledge explanation. This phenomenon is mainly manifested in the teacher's lack of a comprehensive understanding of the curriculum and the teacher's lack of a deep understanding of the "compulsory education mathematics curriculum standards" concept. In the process of teaching, more attention is paid to the knowledge itself, while neglecting the comprehension of the students' mathematics thought and the accumulation of mathematics activity experience. Some teachers, because of their single knowledge structure, tend to give lectures to students on knowledge points related to textbooks, while skipping over other relevant knowledge points. There is no connection between mathematics knowledge and mathematics and other disciplines, which desalinates the rich and colorful connotation of mathematics itself.

### **1.3 The unscientific appraisal system**

The current assessment system for primary mathematics is not tailor-made for primary mathematics, but follows the traditional examination-oriented system and serves for examination-oriented education. Such an assessment system is neither reasonable nor scientific and has been widely criticized. This kind of assessment only focuses on the assessment of "results", but neglects the assessment of "process", "feelings, attitudes, values", etc. And "process", "emotion, attitude, values" are the key links and factors in the cultivation of primary school mathematics core literacy. This kind of assessment mode has a negative impact on students' mathematics learning, and students tend to take the aim of mathematics learning one-sidedly. The traditional examination system is the most widely used one in the primary school mathematics examination at present, and it is also the most urgent to break.

## **1.4 Teachers' poor comprehensive quality**

Rural conditions are limited, it is difficult to attract high-quality and high-level teachers. What kind of teacher is a good teacher? There are a thousand Hamlets in a thousand people's eyes. As far as the primary school mathematics course is concerned, a good primary school mathematics teacher must first have a more comprehensive knowledge system. At the same time for how to do a good job in primary school mathematics teaching have their own methods and views. Mathematical science is more complex, it requires teachers to have a strong comprehensive quality, and not just limited to the subject of the profession. Still have a point, although our country primary school mathematics teacher is a lot of course class of study mathematics origin but a lot of non-normal school graduate. Therefore, in the education teaching aspect overall existence certain insufficiency. Many teachers are full of wisdom, but they can't exert themselves in teaching. The problem of low overall quality of teachers is not only an educational problem, but also a social problem. How to improve the comprehensive quality of teachers is an urgent problem that the whole society has to face.

## **2. Intervention strategy of mathematics core literacy of rural primary school students**

It has become a focus in the development and reform of education and teaching in China to do well in the cultivation of mathematics core literacy of rural primary school students. In my personal opinion, we should focus on the following aspects to do a good job in rural primary school mathematics core literacy training work:

### **2.1 Constantly updating the educational concept**

From a certain point of view, primary school mathematics education is not only an important stage of a person's education career, but also an important support of the entire social education system. As a primary school mathematics teacher, we should learn the latest teaching theory, understand the related theories of the front of primary school mathematics reform, keep up with the pace of basic education reform, update our own educational ideas and improve our own ideological understanding. We should take the initiative to apply the latest educational concepts to teaching practice. Under the background of the new curriculum, under the guidance of the new curriculum idea and the quality education idea, we should strengthen the innovation of teaching methods and use various modern teaching methods. It not only urges the students to enrich their professional knowledge in mathematics, but also to strengthen their skills, enrich their emotions and form their thinking, so as to realize the teaching goal of improving the comprehensive quality through the cultivation of the primary school mathematics core quality.

### **2.2 Changing the traditional teaching mode of mathematics education in primary schools**

Compared with other subjects, mathematics teaching in primary school is a little dull. At the same time, mathematics teaching in primary school is more abstract, so the teaching is more difficult. Traditional mathematics teaching in primary schools has not been separated from the idea of blackboard chalk, especially in some rural areas where conditions are more difficult. Nowadays, all kinds of high-tech auxiliary education and teaching methods have been widely used in primary school classroom teaching. However, it seems that the research on the innovative application of high-tech means in education and teaching is still lagging behind. Pupils are more interested in new things. The novel education way often can stimulate the primary school student to study the enthusiasm and the initiative. From the application effect of the new technology education teaching

method, the new education method is indeed more advantageous than the traditional method. We should try our best to change the traditional teaching mode of primary school mathematics, combine the tradition with the modern, and completely change the present predicament of education and teaching.

In addition to the improvement of teaching methods, we should also pay attention to the improvement of teaching methods. In the process of teaching, we should pay attention to let students experience various "processes": the process of inquiry, Cooperation, communication and so on. In the process of teaching, we should plan all the links of teaching design well, and be good at observing and finding out the students' problems in operation, communication and practice, self-exploration and emotional experience. It is important to strengthen students' understanding and mastery of knowledge through practice. In these processes, students understand knowledge, form skills, grasp mathematical thoughts and accumulate experience in mathematical activities. And through the process of these activities, students are developed in emotional, attitudinal and values.

In the teaching process, we can adopt the problem-oriented method, take the question as the cut-in point, let the student fully use the knowledge which has learned to solve the realistic problem. In fact, mathematics is one of the most closely integrated disciplines in our lives. Mathematics comes from the real life and serves the real life. Only by attaching importance to the relationship between mathematics and social life, can we learn mathematics well and make good use of it. In classroom teaching, we should consciously guide students to contact with the reality of life. If we are good at guiding students, let them take mathematics as the foundation, contact the life reality, with the knowledge of students to solve the actual problems in life, such a way is particularly easy to stimulate students' learning initiative and enthusiasm.

In addition, we can also make appropriate adjustments and adaptations to the specific materials and data, so as to be closer to the reality of students' lives. In the classroom we can set open-minded topics for students to explore on their own. We can train the students' ability to solve the practical problems through group cooperation, practical operation, and so on.

The cultivation of primary school students' mathematical literacy is a systematic work, which must have a step-by-step process. In this process, teachers should pay attention to the change of students' learning methods, so as to promote the reform of their learning methods.

### **2.3 Reforming the assessment system**

We need to change the current assessment system and adapt it to the ability and process assessment. The assessment mechanism should reflect the diversity of evaluation subjects and methods. This kind of assessment mechanism should include many factors of education, which can combine students' self-evaluation with students' evaluation, parents' evaluation and teachers' evaluation. In addition to the paper-and-pencil test, the method of evaluation can also be used in classroom observation, open-ended questions, investigation and experiment, mathematical diary, growth record bag and other performance evaluation methods. Grades may be considered as part of the assessment, but the proportion should be appropriately compressed. For other ability points, such as process and method, emotional attitude value of the assessment should be gradually increased.

### **2.4 Continuously improving the comprehensive quality of teachers**

Because of the limitation of conditions, there is a shortage of mathematics teachers in the early primary schools in China. Many teachers directly stepped onto the platform after graduation and began their teaching career. Many of them have built up their education from scratch. Although the follow-up of this problem has been a certain improvement, but as a whole, our rural primary school

mathematics teacher comprehensive ability literacy is not perfect. We should open up the way for the improvement of teachers' ability and quality, such as communication and retraining, etc. In this way, teachers can improve their communication and study, have a clear and deep understanding of the development and reform of mathematics in primary schools under the new situation, learn from each other, and then improve the overall level of the teaching team.

### 3. Conclusion

With the development of the economy and the progress of the society, the requirement for the cultivation of qualified personnel in our country is increasing. In the new historical period, how to do well the primary school mathematics teaching and improve the primary school students' mathematics core literacy is not only related to the long-term development of mathematics, but also related to the success or failure of the primary school teaching reform. The cultivation of core literacy can't be realized overnight. It needs teachers to make unremitting efforts to renew educational ideas and explore better teaching methods so that students can become masters of learning and deepen their understanding of mathematics. Let the student solve the actual problem ability to obtain the promotion to feel the mathematics study the pleasure and the value.

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