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The integration strategy of information technology and primary school mathematics curriculum under the new curriculum standard

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Abstract: With the rapid development of information technology, information technology has brought many conveniences to classroom teaching. Educational informatization is the inevitable trend of educational development in the 21st century. Under the new curriculum standards, the traditional teaching methods can no longer meet the long-term development requirements of students. In the process of innovative teaching, teachers can make full use of the advantages of information technology, deeply integrate information technology with primary education, and promote the digitalization and intellectualization of education. This paper mainly expounds the overview, practical significance, existing problems and effective strategies of the integration of information technology and primary school mathematics curriculum, in order to give new ideas for the rational integration of the two.

1. Introduction

Primary school mathematics is a flexible and abstract course, while primary school students' main thinking form is image thinking, and their logical thinking ability is not very strong. In the process of teaching practice, in order to better convey abstract knowledge to students clearly, teachers must find a more vivid teaching method, and information technology can well meet this teaching demand. The mathematics curriculum standard for compulsory education (2022 Edition) emphasizes the rational use of modern information technology, providing rich learning resources, designing vivid teaching activities, and promoting the reform of mathematics teaching methods [1]. The integration of information technology and primary school curriculum can fully stimulate students' learning enthusiasm, so as to improve the effect of primary school mathematics teaching.

2. An overview of the integration of information technology and primary school mathematics curriculum

The so-called information technology refers to the general term of obtaining and transmitting information, as well as the processing, regeneration and use of information. In primary school mathematics teaching, information technology is often used for teaching demonstration. According to the teaching content, teachers use PowerPoint, geometric sketchpad, flash and other information technology software for classroom teaching. Teachers use multimedia materials such as words, sounds, pictures and animations in teaching courseware to help students understand some complex

knowledge through vivid courseware demonstration. Teachers can also use the physical display for real-time operation demonstration to improve classroom efficiency. As one of the means of education, information technology has been paid more and more attention by educators. Teachers can use the advantages of information technology to improve education.

Professor hekekang pointed out that the integration of information technology and subject curriculum is to reasonably add information technology to the classroom teaching of various subjects, create a new teaching environment, and complete the teaching method with the basic characteristics of independence, research and cooperation, which can not only make full use of the dominant position of teachers, but also reflect the dominant position of students.

The integration of information technology and primary school mathematics curriculum is to apply information technology organically and efficiently to the classroom teaching of primary school mathematics curriculum, and then create a digital teaching environment. With the help of information technology, teachers coordinate and deal with elements such as text content, realize the full integration of knowledge and structure of primary school mathematics textbooks, ensure the achievement of teaching objectives more quickly and efficiently, and promote the growth and development of primary school students.

In China, although the research on the integration of information technology and primary school mathematics curriculum started relatively late, it has developed rapidly. With the deepening of basic curriculum reform, many experts and front-line teachers are more concerned about the practical research of information technology and curriculum integration. Therefore, it is urgent to summarize educational experience and enrich the basic theory of the integration of information technology and primary school mathematics curriculum, so as to promote the reasonable integration of information technology and primary school mathematics curriculum.

3. The significance of the integration of information technology and primary school mathematics curriculum

The deep integration of information technology and education is not only the key way to realize educational informatization, but also an important way to cultivate innovative talents. There is no doubt that the integration of information technology and primary school mathematics curriculum is of great significance.

3.1. Stimulate students' interest in Mathematics Learning

Students are the main body of learning, and their own learning interests have a great impact on the level and quality of teaching. Einstein once said, "interest is the best teacher." Without interest, students don't want to participate in activities. Image thinking is the main thinking form of primary school students. Therefore, pupils are more likely to accept the learning content they can see directly in the process of learning. According to the laws of psychology and the learning characteristics of primary school students, the duration of primary school students' intentional attention is very short. Therefore, in long-term learning, students are easy to lose concentration, which leads to a decline in learning efficiency. With the help of information technology, teachers can optimize the atmosphere of classroom teaching, stimulate pupils' interest in mathematics learning, make them actively participate in future classroom activities, and then improve the efficiency of classroom teaching.

3.2. Effectively break through the teaching focus

Primary school students have strong memory ability, but their understanding ability is

insufficient. Teachers can post micro classes in the class group before the difficult new classes, and students can preview the content to be learned the next day through micro classes. Through micro class learning, students can have a preliminary understanding of knowledge, so that the next day's learning will be relatively simple. Teachers can also use micro classes in class to enable students to master key and difficult problems by self-study. For example, when teaching "understanding parallelograms", the teacher asked the students to watch the key problem of "understanding and mastering the definition of parallelograms" and the two difficult problems of "drawing the height of parallelograms and the corresponding relationship between the bottom and the height" on the micro class completion learning list, and they had a certain grasp of the key and difficult problems. Then, the teacher will make a supplementary explanation according to the actual situation of the students. In the review class, teachers can let students recall what they have learned by watching the micro class, which plays a consolidated role in knowledge. If teachers can reasonably integrate micro classes into their own teaching, it will help students deepen their understanding of knowledge and firmly grasp the key and difficult points of the curriculum. For example, in the understanding of 1-5 in grade one, teachers can show students the writing method of 1-5 numbers through the animation of electronic whiteboard, and use cute little animals to express numbers.

3.3. Timely feedback information

Teachers can get feedback information in time by using information technology. In the teaching process, teachers use information technology and establish an advanced and effective feedback mechanism to urge students to review and consolidate by doing questions after completing theoretical learning. On the other hand, teachers can reflect and summarize according to students' learning status, efficiency and assessment results, so as to lay a good foundation for the improvement of later learning efficiency and quality [2].

In teaching, teachers can use physical display platforms, interactive electronic whiteboards, tablets, class optimization Masters, etc. to feed back students' classroom learning. The game function of interactive electronic whiteboard is more and more widely used in primary school mathematics. The teacher can edit the knowledge to be mastered into the game and send two students as team representatives to answer the questions in a competitive way. For example, when learning "understanding trapezoids", two students are on one side. Whoever finds out all the trapezoids first and drags them to the corresponding place will win. Through this little game, teachers can understand the students' mastery of knowledge, combine teaching with fun, and make the classroom full of fun.

4. Common problems in the integration of information technology and primary school mathematics curriculum

It is the general trend to integrate information technology into mathematics teaching in primary schools. Although the integration of information technology and primary school mathematics curriculum in China has achieved some results, there are still some problems[3] .

4.1. Lack of systematic guidance

In the teaching of some schools, because the management of the education department does not pay enough attention to information technology, the integration of the two lacks systematic guidance. When teachers apply information technology in teaching, the integration of the two is often too rigid, and it can not reasonably implement the phased education objectives. Information technology and curriculum cannot be deeply integrated, which not only limits the overall level of

integration and teaching quality, but also affects the overall teaching and development trend of primary school mathematics.

4.2. Teachers' outdated teaching concepts

In the traditional teaching concept, teaching should be teacher centered, and the focus of teaching is teachers' teaching, not students' learning. As the implementer of curriculum teaching activities, primary school mathematics teachers master all teaching activities, and students are only passive receivers. Under the influence of traditional teaching concepts, some primary school mathematics teachers still teach with traditional ideas and methods in their daily work, and lack sufficient understanding and attention to information technology. In a word, outdated teaching concepts hinder the integration of information technology and primary school mathematics curriculum.

4.3. Teachers' professional ability is insufficient

Teachers are the implementers of classroom teaching, and their professional ability determines the actual effect and quality of teaching. Nowadays, there are still some teachers who cannot skillfully apply information technology to their own teaching, and the level of teachers' information-based teaching still needs to be improved. Teachers' rational use of information technology in the classroom can effectively improve the efficiency of classroom teaching. Teachers' application of information technology in teaching can strengthen the communication and interaction with students, fully mobilize students' enthusiasm for learning mathematics, and correctly guide students to actively explore and acquire professional knowledge in teaching. In actual teaching, many teachers' professional skills are weak, and they can't reasonably use information technology to develop and apply courses.

4.4. Single teaching method

Traditional teaching is mainly taught by teachers. Decimal mathematics classroom teaching activities are few, the form is single, and students' subjectivity cannot be reflected. In the long run, students' learning enthusiasm is gradually eroded, and they can't raise their interest in learning. Naturally, it is difficult to achieve the ideal teaching effect [4]. Students have their specific learning tasks in each learning period, and students often have difficulties in contacting new knowledge points. Compared with traditional teaching methods, teachers can help students better understand knowledge and learn more solidly by using information technology such as film and animation.

4.5. Lack of effective communication in classroom teaching

In teaching, the level of communication between teachers and students determines the quality of the classroom teaching atmosphere. Some teachers have worked for a certain number of years and teaching experience, resulting in job burnout. In class, they speak directly according to their own courseware and their own preset situation, lacking effective communication with students, and the pace is too fast. These teachers do not start from the teaching materials and learning situation, and the content of class is separated from the students' learning situation, which is not targeted, so the teaching effect is naturally not very good. Teachers should fully listen to students' views and adjust the teaching content according to students' real-time understanding and mastery of the classroom.

4.6. Abuse of information technology

In the process of teaching, teachers sometimes abuse information technology. Information technology often plays a very good role in helping teachers' teaching. Teachers use information technology for better teaching. However, some teachers forcibly use tablet and other information technology in class, which makes classroom teaching very chaotic. In the classroom, teachers and students switch back and forth in various platforms and software, which will make the classroom very fragmented and the key points of knowledge can not be completely grasped. Teachers should not put the cart before the horse, pay too much attention to information technology and ignore the explanation of knowledge points.

5. Effective strategies for the integration of information technology and primary school mathematics curriculum

In the process of integrating information technology and primary school mathematics classroom, students have a more thorough understanding of knowledge and learn more solidly. How to integrate them better is still an important task for relevant educators.

5.1. Improve relevant guidance documents

In the process of integrating information technology and primary school mathematics curriculum, relevant departments need to formulate relevant guidance documents for it, and clarify the integrated teaching content, objectives and methods, so as to ensure the smooth implementation of daily teaching activities. In teaching, teachers must teach according to the actual situation of students under the guidance of documents, so as to promote the development of students.

5.2. Change teachers' traditional teaching view

The new curriculum standard points out that effective teaching activities are the unity of students' learning and teachers' teaching, and teachers should highlight the dominant position of students in teaching. American science fiction writer ray Clifford said well: "technology will not replace teachers, but teachers who master technology will inevitably replace those who do not master technology[5] ." With the development of information technology, teachers should not stick to traditional educational ideas, but should update their educational ideas in time and actively integrate information technology into their teaching. This is conducive to the development of students, and then improve the effect of primary school mathematics teaching.

5.3. Improve teachers' professional ability

With the rapid development of the times, society has higher and higher requirements for teachers' teaching, which promote the improvement of teachers' professional ability. In the outline of the 13th five year plan for educational informatization, it is emphasized that teachers should pay attention to the close connection between information technology and education and teaching, attach great importance to teachers' ability to apply information technology to education and innovative teaching, and constantly deepen the basic theoretical research of integration with disciplines. Teachers should not be complacent and stick to the traditional teaching methods. Teachers should conform to the development trend of the times and improve the ability of information application. Teachers should actively participate in the information technology training organized by the school, exchange experience with colleagues, improve their information literacy, and better adapt to the

classroom teaching mode of the new era.

5.4. Improve teaching methods

Scientific and effective teaching methods affect the improvement of the overall quality of teaching. Teachers should improve the traditional teaching methods, apply information technology to assist their own teaching, and make the classroom more lively and interesting. Teachers can use information technology to comprehensively process text, image, sound, animation, etc., enrich teaching scenes, and arouse students' interest in mathematics learning. The application of information technology in primary school mathematics teaching can improve the classroom teaching environment, make the teaching atmosphere more relaxed and pleasant, and is conducive to teachers' teaching and students' learning. Teachers can also use the technical support platform to closely combine online learning with classroom teaching, and carry out online and offline integrated teaching.

5.5. Strengthen the interaction between teachers and students

The multi-dimensional interaction between teachers and students is an effective measure to highlight the dominant position of students, and it is also an important way to shape students' autonomous learning ability and mathematical thinking ability. Primary school mathematics teachers should make full use of the interactive nature of information technology, strengthen the interaction with students, and use the advantages of information technology to build a more lifelike and harmonious classroom teaching, so that students can constantly learn and consolidate knowledge in the interactive communication with teachers. Information technology can strengthen the interaction between teachers and students and make the classroom full of vitality.

5.6. Rational use of information technology

Teachers should not be one-sided when integrating information technology in teaching. If it is a relatively simple content, teachers can teach in the traditional way; If it is more abstract content, teachers can use information technology to assist teaching. Mathematical concepts are the basis of primary school mathematics teaching, but concepts are relatively abstract and boring for students, which requires teachers to teach concepts well. Teachers can help students understand these abstract concepts with the help of information technology. For example, when learning the concepts of straight line, ray and line segment, teachers can demonstrate through animation. The teacher first shows a line segment. After removing an end point, the left end has no obstacles and constraints, and can be extended to the left and then extended. Teachers click on courseware dynamic demonstration: this line may pass through classrooms, campuses, cities and other places, and finally shoot into the boundless universe. The teacher helped the students establish the connection between line segments and rays through animation demonstration. Thus, the students really understand the definition of ray, "extending one end of a line segment infinitely will get a ray." The meaning of "infinite extension" in. Teachers' application of information technology in teaching can well transform the abstract knowledge in textbooks into intuitive knowledge, and help students better master knowledge.

6. Summary

The new curriculum standard emphasizes that the position of information technology in primary school mathematics curriculum teaching can not be ignored. With the rapid development of

information technology, information technology is used more and more frequently in primary school mathematics, and the society has higher and higher requirements for teaching quality, which has brought great challenges to schools and teachers. Teachers must keep up with the pace of the times, improve their ability in time, and be able to use information technology reasonably in teaching, so that students can constantly learn mathematical knowledge in a relaxed and pleasant learning environment. Teachers should choose appropriate information technology means to assist teaching according to students' knowledge and ability level and the real-time situation in the classroom, so as to improve the effectiveness of the application of information technology in primary school mathematics teaching. There are still many problems in the process of integrating information technology and primary school mathematics curriculum. Relevant educators should deal with these problems as soon as possible, make full use of the efficacy of information technology, and promote the better integration of information technology and primary school mathematics curriculum.

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