

## RESEARCH ON MATHEMATICS INFORMATION-BASED TEACHING IN PRIMARY AND MIDDLE SCHOOL

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### ABSTRACT

During the epidemic period, the Ministry of Education issued a call for "Suspension of classes without suspending school", requiring "one school, one policy". Most schools choose to use the Internet and modern educational technology to conduct distance teaching in apps such as "Ding Talk", "Tencent Meeting", and "Learning through". This kind of information-based teaching is different from the traditional teaching in the past. It is neither restricted by location nor time. Information-based teaching develops with the development of science and technology modernization. The application of information technology can effectively promote the implementation of teaching links and improve the quality of teaching. Mathematics as a basic subject, if we can join in the application of modern education technology, it will be more powerful.

**Keywords:** Information-based teaching; traditional teaching; online teaching; interactivity.

### Statement of the problem

The outbreak of COVID-19 requires home prevention and control. Schools are postponed to start school. Students cannot attend school during normal school hours. The Ministry of Education attaches great importance to this. Education departments and schools around the country are required to do a good job of "Suspension of classes without suspending school" during the extension period, providing learning resources and learning support services to students to help them solve practical difficulties. In order to actively respond to the call to "Suspension of classes without suspending school", do a good job in online teaching, most teachers adopt the method of recording courses and live broadcasting. Mathematics is a basic subject for elementary and junior high school students, so related activities are also carried out. This article takes this as an opportunity to study the application of information-based teaching in primary and middle school mathematics.

### The advantages of information-based teaching

(1) Information-based teaching can use modern information technology to optimize classroom teaching and build a bridge between the abstractness of knowledge and the visualization of thinking. Mathematics knowledge is abstract, but in the teaching process, the knowledge can be visualized by using modern information technology, which is conducive to students' understanding, allows students to grasp the knowledge in a short time, and can save teachers' repeated teaching work, greatly improve the teaching efficiency.

(2) Information-based teaching can change the way students learn. Appropriate learning methods can be described as "multiple effects with half the effort" for the study of mathematics. Through the use of modern information technology, we can fully create a variety of learning situations, use students' curiosity, and guide students to think, study, and solve problems from different angles and different ways. And let students learn to use modern information technology to search for knowledge, search for resources, from many aspects to understand the corresponding knowledge points, expand their insights, experience

the relevant culture. In this way, while improving old learning methods, it can improve learning efficiency and arouse students' interest in learning.

(3) Information-based teaching is helpful to promote the modernization of education. General Secretary Xi Jinping once said, "There is no modernization without informatization, and educational informatization drives educational modernization." Modern educational technology provides theoretical and technical support for educational informatization, and various new types of education and teaching models. So as to make education develop in the direction of modernization. The next generation of learning should be based on electronic smart devices, personalized, self-inquiry learning. Information-based teaching can train talents of all aspects to advance with The Times for the information society.

### **The Application Status of Information-based Teaching in Mathematics in Elementary and Middle Schools**

(1) At present, the information-based teaching is mainly carried out in the mixed mode of online and offline. In most of the mathematics teaching nowadays, it is mainly combined with PPT, video and virtual experiment tools to project on the electronic whiteboard to display the content, and the teacher is responsible for explaining. There are also a small number of schools that require students to download "XINHUAMEIYU" and other apps to submit assignments online. But in the overall teaching process, the proportion of information technology applications is actually not large.

(2) The mode of information-based teaching is single. The current information-based teaching methods are generally carried out through multimedia, class recording, and live broadcasting. The time taken is still classroom time, and new knowledge is still learned in the classroom, and practice thinking after class. This is easy to cause students to rely on the classroom, which is not conducive to cultivating students' mathematics long-term ability.

(3) The interactivity of information-based teaching is weak. Information-based teaching is flexible teaching, and teaching methods can be selected according to different situations, and can even be conducted across time and place. However, in the current information-based teaching, there is a common problem: the lecturer is only responsible for speaking, the listener is only responsible for listening, and there is no communication and interaction between speaking and listening. The lecturers cannot know whether the content and links in the course are reasonable or not, and the listeners cannot ask questions and discuss with the lecturers in time. For example, in some science courses, simulation experiments are needed. In order to ensure the safety of experiments and reduce the harm, pictures and videos are adopted to show the experiment process. This way, the interaction is relatively weak, which is not conducive to the cultivation of students' observation ability and exploration ability.

### **Suggestions for improving information-based teaching**

(1) Change the concept of informational teaching of teaching staff and strengthen relevant knowledge and skills. Science in progress, technology in development, if want to incorporate information technology and teaching, it is essential to have a team of teachers who master the application of modern educational technology. The first thing teachers in the information age have to do is to change their traditional teaching concepts, possess the education and teaching concept of the information age, apply the learning theory and teaching methods of the information age, and apply the consciousness of innovative teaching of information technology to carry out information-based teaching. At the same time, teachers should also have the knowledge and skills to use modern educational technology to carry out teaching, including obtaining information-based teaching resources from many aspects, using information-based teaching tools, using the networked environment, designing teaching links, constructing teaching models, innovating and publishing Content etc. This depends not only

on the efforts of teachers themselves, but also on the support of all sectors of society.

(2) Strengthen the interactivity of information-based teaching. The teaching form of "YIYANTANG" is wrong, and the information teaching of "YIYANTANG" is not advocated. The dominant position of students cannot be ignored. In information-based teaching, the use of modern educational technology is to cultivate students' ability to learn effectively, and to enable students to live a productive life, and to make teaching more effective. Therefore, in the process of information-based teaching, we should pay attention to the interactivity of teaching, such as the use of concept map, thought map, cognitive map and other ways to carry out data visualization, knowledge visualization, information visualization, thinking visualization. Visualization is a typical interaction processing theory, approach, and technique. In addition, interactive game is well worth trying. Enhancing interactivity can not only help learners to understand knowledge and information, but also attract students and make students have a strong interest in learning.

(3) Expand information-based teaching resources. Information-based teaching resources are not limited to teaching courseware, teaching materials, it also includes teaching materials, online courses, educational games, special learning website, virtual reality system, micro-class, MOOC courses and so on. Abundant information-based teaching resources can help teachers improve their information literacy. Choosing materials, teaching tools and teaching mode in accordance with the needs of learning situation can not only effectively achieve the teaching objectives, but also cultivate students' ability to apply modern education technology.

## CONCLUSION

Information-based teaching is the development trend of education. If we do informatization teaching well, education can get rid of the restrictions of fixed places, fixed time and other factors and take a big step forward. However, the completion of this work is not easy. It still needs the joint efforts of all relevant personnel. In the information age, there should be information-based teaching.

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