

# *Research and Practice of Innovative Teaching Mode of Mathematics in Higher Vocational Colleges under the Internet plus Initiative Environment*

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**Abstract:** In the Internet Plus initiative environment, the teaching mode of mathematics in higher vocational education is developing in a diversified direction. In today's information age, the information-based teaching model can make students interested in mathematics learning and have a profound impact on the changes in teaching structure. Therefore, higher vocational mathematics teaching mode needs continuous innovation. So as to form an efficient higher vocational mathematics teaching system. The teaching mode in the Internet Plus initiative environment is a way to develop education and teaching by using multimedia information technology under the guidance of modern educational concepts. The wide application of information technology and the rapid development of the Internet have made the teaching methods of mathematics in higher vocational colleges more diversified, resulting in more new teaching methods, such as inquiry teaching mode or hierarchical cooperative teaching mode.

## **1. The impact of Internet Plus on Higher Vocational Mathematics Teaching Mode**

With the development of science and technology, the information age is coming quickly. Under the background of Internet Plus initiative, many modern education and teaching are integrated with multimedia and communication technology. As a new type of modern teaching method and method, it has a great influence on the teaching method of mathematics in higher vocational education. and influence. At present, in order to further promote and develop, many higher vocational colleges will continue to expand the scale of enrollment. In the development process of higher vocational colleges, changes in the source of students will also have an impact on the overall education quality and level of the school. In the previous teaching method, teachers gave lectures and students were responsible for listening, ignoring the differences in individual quality of students, and lack of communication between teachers and students. However, higher vocational mathematics is a logical and abstract subject, and students often feel difficult in the learning process, and even cannot understand the key points and difficulties in the textbook, which leads to the inability to improve the quality of mathematics teaching and further restricts the development of higher vocational

mathematics education. Therefore, we must firmly grasp the current Internet Plus initiative, teaching environment, innovate and practice the mathematics teaching mode of higher vocational education, so as to better improve the comprehensive ability of students.

## **2. Analysis of the Current Situation of Mathematics Teaching in Higher Vocational Colleges under the Internet plus Initiative Environment**

### **2.1 The Effect of Quality Education is not Good**

The purpose of quality education is to cultivate compound talents, which has a profound impact on the growth and development of students. In higher vocational mathematics teaching, the effect of quality education has not reached the ideal state, and the cultivation of students' comprehensive ability has been neglected. Higher vocational mathematics teachers pay attention to students' academic performance and ignore the students' learning process. In fact, the learning process is more important than the learning outcome. Blindly paying attention to students' academic performance is not conducive to the improvement of students' practical application ability, and may lead to the mismatch between students' theoretical level and application level, thus affecting the effect of students' learning.

### **2.2 Students' Learning Initiative is not Strong**

Higher vocational education is more liberal than students' previous forms of education, and its teaching form is not compulsory. It is precisely because of this characteristic that many vocational students gradually lose their awareness of learning, have a perfunctory learning attitude, and do not focus on learning. Especially in the subject of mathematics, it is difficult to learn, they will not take the initiative to learn, resulting in low teaching efficiency, and students do not really learn useful knowledge.

### **2.3 The Teaching Mode is Single**

In the Internet Plus initiative environment, many mathematics teachers in higher vocational colleges still have a single teaching mode, relying only on the application of multimedia courseware, which is not significantly different from the traditional teaching mode. According to the original multimedia courseware description, some teachers occupy most of the classroom time in classroom teaching, and the main role of students is not brought into play, which affects the effect of students' learning. The content of mathematics knowledge in higher vocational education has a certain depth. If students lack thinking and are in a passive state, they cannot really learn mathematics knowledge effectively.

## **3. Practice and Research on the Teaching Mode of Mathematics in Higher Vocational Colleges under the Internet plus Initiative Environment**

### **3.1 Hierarchical Cooperative Teaching Mode**

Due to the uneven foundation of higher vocational students, there is a certain gap between self-learning ability and knowledge comprehension ability, so the teaching mode combining hierarchical group teaching, group cooperation and mutual assistance is adopted. Divide students

into groups after teaching and testing. Design different teaching cases according to different levels. Learning in groups and learning from each other. Teachers teach at different levels according to different people. So as to improve students' motivation to learn and enhance their awareness of knowledge acquisition.

### **3.2 Case Scenario Teaching Mode**

Case-based teaching refers to citing teaching cases or teaching contents from actual situations to assist teaching, and the teaching is vivid, intuitive and efficient. In the Internet Plus initiative environment, the establishment of teaching scenarios is more convenient. In the sharing of network resources, a large number of teaching resources can help higher vocational mathematics teachers to improve teaching methods, establish reasonable teaching scenarios, and help students understand and master the entire teaching content. For example, in the teaching of "maximum value and minimum value of function", a situational teaching can be established first, and video courseware of enterprise production can be introduced to understand the production process of the enterprise, and then situational problems such as "lowest cost", "maximum profit" and "highest benefit" can be introduced for teaching. It is more effective than the traditional teaching mode.

### **3.3 Thematic Project-Based Teaching Mode**

The teaching mode requires teachers to divide the teaching content into relatively independent topics, and each topic has a certain internal connection. Then, according to the characteristics and professional needs of students, the teaching content of the project is combined into a complete teaching content. This teaching mode requires teachers to keep abreast of the cutting-edge mathematical theory and relevant knowledge in practical applications, to understand the latest theoretical achievements of mathematical knowledge, and to guide students to research specific issues of the project; analysis and research. Students prefer the basic teaching model.

### **3.4 Explore the Research-Based Teaching Model**

Inquiry-based teaching mode means that under the guidance of teachers, students actively explore small projects or cases in the course, and conduct applied basic project research to students. Students search for information through the Internet, and teachers provide guidance to students through the Internet. For example, teachers and students can discuss online hot math problems together. Students can integrate and understand web-based information resources to find optimal solutions to problems. The teacher just acts as a guide, giving appropriate hints and guidance to the students. Through the process of research and discussion, students solve projects and cases in the process of inquiry, learn knowledge and network knowledge, draw inferences from others, learn from each other, deepen their understanding and understanding of inquiry problems, make students truly feel the practical application value of mathematics, cultivate The ability to collaborate in inquiry.

### **3.5 Remote Network Teaching Mode**

The teaching mode is network distance teaching. Student learning and teacher teaching are not limited by time and place. This is a teaching that can be done at any time. One class or one class of distance teaching for each class through network or network technology, one class or one class

distance teaching for each class through network or multimedia technology, or teaching of small knowledge points such as voice explanation, is the students' favorite and easy-to-accept teaching mode, which can get twice the result with half the effort.

## **4. The Positive Impact of the Internet plus Initiative Environment on the Mathematics Learning of Higher Vocational Students**

### **4.1 Diversification of Learning Content**

In the **Internet Plus initiative** environment, students can choose learning resources in addition to paper textbooks. Online courses, PPT, electronic question banks, etc. are increasingly used in teaching to diversify and enrich the learning content. The purpose of mathematics teaching in higher vocational education is to cultivate students' ability to use mathematical thinking to solve problems. Diversified learning content will make students realize that there are many aspects of life that can be applied to mathematics knowledge

### **4.2 Diversified Learning Styles**

The traditional teaching mode is blackboard and chalk teaching. It is more difficult for students to understand when faced with abstract knowledge. In the Internet Plus initiative environment, teachers can make some abstract knowledge into animation or electronic courseware, or find relevant courseware on the Internet, which is more convenient for students to understand and master. Convenient teaching also facilitates students' understanding.

### **4.3 Personalization of the learning Process**

In the Internet + environment, students can choose their love orientation through the Internet, study independently, and their study time is completely free. The place to learn is no longer limited to the classroom. They can find the resources they want to learn on the Internet, and meet the requirements of students of different levels and foundations for learning speed and difficulty.

### **4.4 Fragmentation of Learning Time**

Students' weak willpower to study is a common feature of higher vocational students who do not study hard. Teachers can guide students to learn some short and easy-to-understand knowledge points on the Internet, fragment the learning time, and solve one or two small problems in a short period of time, so that students can easily absorb and improve their learning effects.

## **5. Conclusion**

In a word, in the Internet Plus initiative environment, higher vocational mathematics teachers should make full use of teaching resources and give full play to the advantages of information technology, so that students can deeply master mathematics knowledge, so as to improve the quality of classroom teaching. The content of mathematics knowledge in higher vocational colleges is relatively difficult, and it has a great test for students' thinking ability. Teachers should guide students to analyze mathematical knowledge from simple to deep, so that students can master mathematical principles and apply what they have learned. In order to improve the effectiveness of education and teaching, higher vocational mathematics teachers must actively explore advanced

teaching modes, optimize teaching structure, allow students to enjoy high-quality teaching services, cultivate students' comprehensive abilities, and promote students' all-round development.

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