

## Research on the Application of Micro-course in the Teaching of Higher Vocational Mathematics

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**Abstract:** Higher vocational education should provide services for employment. Higher vocational education belongs to the cultural curriculum. The curriculum content is dominated by monotonous graphics, dry rationality and concept. In order to realize the connection between cultural courses and professional courses, students' job competitiveness and adaptability can be improved. In view of the fact that micro-courses can create a pleasant, harmonious and harmonious mathematics learning environment, make up for the lack of students' basic knowledge, explore the potential of mathematics, and enhance the will and motivation of learning. To develop mathematical thinking and mathematical literacy. Therefore, this research is based on the study of the habits of students, the foundation of mathematics, and the ability to supervise the micro-courses, and the use of comprehensive and multi-disciplinary teachings to make micro-classes, focusing on the application of micro-courses in the teaching of higher vocational teaching.

### 1. Introduction

The micro-course was proposed by David Penrose, a "one-minute professor" at San Juan College in New Mexico, USA. The core concept is to require teachers to closely link teaching objectives with teaching content to produce a kind of "A more focused learning experience." Micro-course is an effective supplementary form of classroom teaching. It is not only suitable for the dissemination of knowledge in the era of mobile learning, but also suitable for the individualized and deep learning needs of learners. The earliest proposal for micro-teaching in China was Hu Tiesheng of the Foshan Municipal Education Bureau. He pointed out that the "micro-course" is a teaching process to record the wonderful teaching process of teachers in the classroom teaching process.

In the past two years, micro-classes have rapidly warmed up in the field of domestic education as a new way of teaching. Many front-line teachers are busy with micro-courses, such as participating in various micro-curriculum classes and micro-curricular competitions, and making courses related to their own teaching courses. Micro-class and try to apply it to the actual teaching and so on. Therefore, it is necessary to explore the application of micro-courses in mathematics teaching in higher vocational schools.

### 2. The Advantages of Micro-Teaching

First of all, the rational use of micro-courses to implement teaching can control the teaching time, interact with students and stimulate their enthusiasm for learning. Secondly, the micro-teaching teaching is free from the traditional single teacher-based teaching mode, but with students as The Lord can better show the focus of teaching and give students more space for autonomously; once again, the main auxiliary equipment computer for micro-teaching contains a wealth of resources, students can choose the information they want to explore, and actively carry out with teachers. Communication and communication, timely consultation in the teaching of questions. The use of micro-courses in higher vocational mathematics can objectively improve the computer skills of teachers, build a novel teaching platform, share knowledge with students, and communicate in a timely manner to better teach.

First of all, in the vocational mathematics teaching, the micro-classes are embedded in the classroom to meet the individual needs of the students. Higher vocational mathematics teachers

upload relevant micro-courses that are well prepared in advance to relevant websites (such as boutique course websites). For students with weak foundations, they can play the micro-course videos repeatedly after class and play them at any time according to their actual situation. , pause, until you understand the relevant knowledge points, to check the lack of trapping. For students with better foundations, after deep understanding of relevant knowledge points, and then carry out corresponding exercises, it can play a role in strengthening and consolidating knowledge.

Secondly, applying the micro-course to the teaching of higher vocational mathematics can alleviate the pressure of lack of class time. Due to the different foundations of students, the ability to accept is also different. Some students with the same knowledge point can quickly master it, and some students have to listen to it several times. Applying micro-courses to the teaching of higher vocational mathematics can avoid repeated explanations by teachers and greatly improve the efficiency of teaching.

Thirdly, the application of micro-courses to the teaching of higher vocational mathematics can realize entertainment and fragmentation learning. The subject characteristics of higher vocational mathematics determine that the study of higher vocational mathematics is boring and boring. In the micro-course video of higher vocational mathematics, reasonable use of sound, graphics, images, animation and other content, so that the teaching content is full of artistic expressiveness and appeal, making the boring and Abstract mathematical knowledge vivid and concrete, attracting students' attention. Force, let students learn in entertainment. In addition, because the time of the micro-course is short, generally about 5-15 minutes, the content is only a knowledge point, students can use the scattered time to learn related knowledge points, it does not take a long time. Micro-courses enable students to effectively use "fragment time", which is a timely, efficient and convenient way of learning.

### **3. The Status Quo of Higher Vocational Mathematics Teaching**

The mathematics foundation of vocational students is generally poor. Especially the students who have enrolled themselves in recent years, their mathematics foundation is weaker and they are not too interested in mathematics. Most of them are passively learning. In addition, it is usually a large class teaching, some unified recruiting and independent enrollment together, their mathematical foundations have certain differences, and their ability to accept mathematics is different, which brings certain difficulties to the teaching of higher vocational mathematics.

At present, mathematics teaching in higher vocational colleges is mainly knowledge transfer type, with particular emphasis on the integrity and system of the curriculum, universal emphasis on theory, and neglecting the practical ability of cultivating students to apply mathematics to life. Because higher mathematics is always a more Abstract theory of definitions, theorems, etc., and teachers always use the "chalk + blackboard" teaching method, making the teaching mode of mathematics more simplistic, although some teachers have already used multimedia teaching. However, it is only limited to the explanation of theoretical knowledge, and some students will feel boring and bored with mathematics.

Nowadays, the textbooks used in higher vocational mathematics mainly focus on theoretical study, lack of practical knowledge, lack of innovation in teaching content, and excessive emphasis on mathematical theory, resulting in students lacking the ability to solve specific problems in life by mathematics. The connection between mathematics and professional is not very close. At the same time, there are not many mathematics teaching classes in higher vocational colleges. It is also a one or two semester. In a small number of hours, the required teaching workload must be completed. The teaching task is quite arduous, so the teacher almost always explains the lessons in the classroom. In the state of fatigue lectures, due to more knowledge points, they are difficult to digest, it is easy to generate resistance, coupled with the impact of mobile phones on them now, so there will be only a small number of students attending classes, most students are playing with mobile phones The phenomenon of mathematics teaching is difficult to achieve the desired results.

#### **4. The Application of Micro-Courses in Higher Vocational Mathematics**

The teacher can make the new lesson preparations into “micro-courses”. Now they are all students after 90 years. They are all advocates and users of modern high-tech. Today’s students’ mobile phones are not out of hand. You can use this to take new lessons. The content involved is presented in the form of “micro-courses”, which simplifies the Abstract mathematical content, visualizes the boring theory, and gives students an understanding of the knowledge to be learned through the questions raised in the “micro-course”. In order to obtain the initiative to listen to the class, this will stimulate their interest in mathematics and improve their enthusiasm.

The mathematics class is limited and the content is numerous. The students can't fully absorb and absorb in the classroom. Therefore, the teacher can make the heavy and difficult points into short micro-classes, so that the students can understand and learn according to their own specific circumstances, which is very good. Master the mathematics knowledge, keep up with the progress of the teacher's class, especially let some students who are not efficient in class to watch the class repeatedly, and do the teaching according to their aptitude, let the students study and explore the knowledge they have learned in their spare time, and improve the students' autonomy in learning mathematics. And enthusiasm. For example, the difficulty of the students, such as seeking limits, compound function derivation and integral calculation, teachers can make these topics into “micro-courses” and upload them to the students' QQ group or We-Chat group to facilitate students to study anytime, anywhere.

Teachers can conduct regular questionnaire surveys on students to see which students have concentrated reflections, and make the problems or doubts they generally feedback into “micro-courses” topics. Through questionnaires, students can feel the care and respect of teachers. Inspire their enthusiasm for learning mathematics. Teachers can adjust the teaching plan and teaching methods according to the survey results, and make the students' difficult problems into short micro-courses. Students can repeatedly watch and figure out the problem-solving ideas and understand each step. Then understand and master the mathematics knowledge points.

Higher vocational mathematics teachers usually adopt the traditional teaching mode, according to the arrangement of the textbooks. In fact, the students' ability to accept, the foundation of mathematics, and the attitude of learning vary greatly. One class has some spare energy, some of them are unclear. Some students only ask for the final exam to pass, and some plans to upgrade to the book, so the teacher can deepen the content of the textbook and appropriately increase the knowledge of the undergraduate. For example, the freshman only mentioned the fixed points in the last semester, but the students who graduated from the college had to take the multivariate function. Partial derivatives, double points, etc., can be made into micro-courses, so that students can freely choose to learn according to their own needs, so that they can make full use of their spare time.

#### **5. The Application Effect of Micro-Courses in Mathematics Teaching in Higher Vocational Schools**

Teaching practice shows that the application effect of micro-courses in mathematics teaching in higher vocational schools is as follows:

It is conducive to improving students' interest in mathematics learning. The teaching of higher vocational colleges basically adopts the traditional "cramming" teaching mode. For the students who grew up in the information age, this model can not attract them, and the combination of curriculum teaching of micro-courses, It can make teachers and students more closely connected and more harmonious, thus increasing their interest in learning mathematics.

It is conducive to students' mastery of difficulties and difficulties. In the higher mathematics teaching class, there are no key points or difficulties to understand. They can't understand the class. They sometimes don't want to ask the teacher because of their face, so they can make these contents into micro-courses. Repeatedly watching, for example, on the composite function derivation, the integral method of indefinite integral, the concept of definite integral, etc., you can use micropoints such as powerpoint, flash, etc. to explain the detailed process to the students, so that students can

more effectively absorb the Learn knowledge.

It is conducive to expanding the learning time and space of students. In the teaching, the teacher breaks down the main content into detailed small knowledge points, and uses each modern knowledge technology to make micro-courses. This can overcome the shortcomings of traditional teaching and improve the classroom teaching effect. Teachers use information technology flexibly and inspire Students' thinking, at the same time, students can choose to study at different times and places, and can watch videos in an unlimited number. Micro-courses can exist like QQ, We-Chat, Weibo, and there are learning resources everywhere, which is good for students. Mastering mathematics knowledge provides a convenient and efficient way to learn and improve their ability to solve problems.

Conducive to the reform of higher mathematics teaching. Higher mathematics is the basis for higher vocational students to learn professional courses. They mainly have insufficient enthusiasm for learning, and the basic knowledge of mathematics is not enough enough to solve the problems in professional courses with mathematics knowledge. This has produced a lot of professional teaching in higher vocational colleges. The troubles also affect the students' efficiency in learning professional courses. Micro-teaching can help students better understand and master mathematics knowledge, and can further learn professional courses. This is also the direction of higher mathematics teaching reform.

It is conducive to teaching students in accordance with their aptitude and meeting the needs of different levels. The mathematics foundation of students in higher vocational colleges is generally weak, and the mathematics level is quite different. For example, some students have a perfect score at the end of the period, and some have only a few points. Most of us are in class teaching, so it is difficult to meet the learning needs of all students. Micro-course is a kind of teaching video carrier, including various teaching resources such as lectures, problem explanations, difficult points analysis, and after-school development, so that different students can get the learning resources they need according to their specific situations. There is no need to explain some of the repetitiveness of knowledge, and it also exercises the ability of students to study independently.

## 6. Conclusion

The micro-course changes the traditional teaching mode and gives students more space for learning and thinking. It can satisfy students' individualized learning of subject knowledge points. As a higher vocational education worker, we should fully recognize the advantages of micro-curriculum, combine the actual situation of students, actively explore, apply micro-courses to the teaching practice of higher vocational mathematics, and promote the teaching reform of higher vocational mathematics courses with practical actions.

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