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Research on Strategies to Stimulate Higher Vocational Colleges Students' Interest in Higher Mathematics

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ABSTRACT. *In the last couple of years, the education situation of our country is becoming better, and brings great changes to every stage education. Higher vocational colleges, as the main place for the cultivation of skilled talents, have attached increasing importance to teaching quality and reform, and have also taken a series of measures to reform their teaching status. However, the actual effect is not obvious. The advanced mathematics can be cited as an example. Specifically, the fundamental status quo has not changed, although higher vocational colleges have adjusted the teaching methods. In some colleges, there are still single courses, old and rigid teaching methods, and the students' learning goals are not clear enough. Therefore, in response to various problems in higher mathematics learning in higher vocational colleges, colleges need to improve the curriculum and renew teaching devices to stir up students' interest in learning, so that the level of mathematics teaching in China's higher vocational colleges can be improved.*

KEYWORDS: *Interest in learning, Higher vocational colleges, Advanced mathematics*

1. Introduction

In higher vocational colleges, higher mathematics is a basic subject. Compared with elementary mathematics, advanced mathematics content is more complicated, mainly including calculus, derivative, and multivariate functions, etc, with strong abstraction and logic. Moreover, the continuous social development has made the application area of mathematics be, little by little, expanding. Many vocational colleges in China have treated advanced mathematics as an important course for cultivating students' thinking ability and stimulating students' interest in learning, and gradually cultivated students' thinking consciousness in mathematics teaching and logical ability, to help students flexibly use mathematical knowledge to solve various problems in real life to hance the quality of students in all aspects.

2. The Present Situation of Higher Mathematics Teaching in Higher Vocational Colleges

At present, some higher vocational colleges are still influenced by traditional advanced mathematics teaching concepts, which mainly focuses on theoretical knowledge, and ignores the practical application abilities training and skills for students. It is absolutely difficult to stimulate students' study interest. At the same time, some students are not accurate enough to grasp the advanced mathematics learning goals in the actual learning process, which results in more difficulties and obstacles in the learning process, making students less interested in mathematics learning. In this regard, higher vocational colleges need to deeply analyze the reasons about the problems, improve teaching strategies in mathematics teaching in time, and stimulate students' enthusiasm for learning.

2.1 The Relatively Simple Curriculum

For quite some time, China's higher vocational colleges have been expanding the scale of running schools and students quantity, facing to the educational reform. However, in recent years, the setting and planning of subjects such as higher mathematics have been ignored in the educational reform, which makes the setting of higher mathematics courses a single phenomenon and lack of curriculum characteristics. This is mainly because teachers are accustomed to paying too much attention to the teaching schedule in the class arrangement process. As a result, the class hours are distributed unreasonably. However, calculus, function relationship and other contents have not been added to the class to explain in detail. Students are in a class setting that is difficult to accept the imbalance of details and omissions. It can be sure that students' interest in learning will be partly affected. At the same time, students' optional courses of higher vocational colleges are arranged in the first

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academic year as a rule, which makes the theoretical knowledge of students not solid enough. At the same time, teachers often make students' learning interest be loss by occupying the time of students' elective courses in the long term, aiming to teach the theoretical knowledge.[1]

2.2 The Teaching Concepts Are Older

In the mathematics teaching process, teachers are extremely vital, for they not only need to teach students theoretical knowledge, but also create a good practice learning environment for students, so as to improve comprehensive quality of students. However, the teaching ideas of some teachers are relatively old at present, and they have little understanding of the background knowledge of advanced mathematics courses. In actual teaching, students do not combine mathematics knowledge and professional ability. At the same time, mathematics teachers use the most traditional tools, textbooks and blackboard writing in their daily teaching. They often complain that students mastering the mathematics knowledge faces many difficulties, but still use the excuse of “regret that his offspring does not live up to his expectations” to cover up the improper teaching methods, making students pay less attention to mathematics learning. In addition, most teachers still use the indoctrination teaching method. In addition, mathematics teaching is based on mastering the principles of formulas, and enable students to learn by rote, thereby being in a passive learning state for a long time. Therefore, it is quite difficult to stimulate students' study interest.

2.3 Students' Learning Goals Are Not Clear

The lack of clear learning goals for students is also an important reason that affects students' interest in higher mathematics learning. There are many reasons for the lack of clear learning goals for students. First of all, the higher vocational colleges are the second best for some students, because they didn’t get good grades in the college entrance examination. Obviously, the cultural foundation itself is not strong enough, and their ability to accept obscure knowledge, such as poor derivative function and calculus. Hence, students learning higher mathematics knowledge become more difficult, which makes it difficult for them to develop interest in mathematics. Next, vocational college education is mainly built upon training the skilled talents. Of course, the ability standard is the main educational principle. Therefore, the college has put its main energy into the teaching of professional courses, and has not paid attention to the mathematics courses. It’s certain to reduce the students interest in the higher mathematics learning. While, the key and professional courses do not drive students keep the subjective initiative to learn mathematics, resulting in students' low interest in learning in mathematics class.[2]

3. Strategies to Stimulate Interest

Currently, the advanced mathematics has been a basic course in the curriculum education. Many higher vocational colleges do so. Thus, most of the higher vocational students have to learn this subject. Specifically, students will master the content of calculus, algebra, and geometry, through the study of advanced mathematics to solve problems in real life and improve employment competitiveness. Therefore, single teaching methods and courses in the higher mathematics teaching course in some colleges has become a big problem. Teachers have to consider the problems, change the educational ideas, innovate the education methods, formulate clear teaching goals, and improve the effect of higher mathematics teaching.

3.1 To Improve Course Setting and Enhance Classroom Effect

For the advanced mathematics teaching of higher vocational colleges, colleges and teachers are responsible to improve the curriculum, and provide high-quality learning carrier for students. Firstly, higher vocational colleges need to optimize mathematics teaching materials. They should let teachers explicit the vocational education features, and very clear about the students' mastery of knowledge, to choose books suitable for students' learning and reference. They can choose textbooks that are easy to understand, with a large number of exercises and problem-solving attached. The life reality fits strongly. Teachers are capable of guiding students to deduce theorems and derivation formulas, so as to solve problems flexibly. Secondly, teachers should reasonably plan the teaching hours occupied by the course. For example, in the chapter on functions and limits, constants and variables, teachers can use two weeks to give students a general introduction, to ensure that the definition is not confused, and then arrange lots of class hours into the chapter on derivatives and integration to make the teaching content detailed and appropriate.[3]

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3.2 To Change Teaching Methods and Stimulate Students' Interest

The proper teaching methods of teachers can effectively drive students to learn. Therefore, teachers should better use modern technology to innovate teaching methods in the process of advanced mathematics teaching. Specifically, mathematics teachers can record videos, visually display the form of function operations and calculus transformation. It's helpful to improve students' understanding ability. Teachers can also take the "micro-class + brainstorming" method to activate the classroom atmosphere. For example, in micro-teaching, teachers could give students opportunities to have free speeches in the form of conferences on derivative function calculation rules and other issues, and then explain and summarize knowledge, which can effectively enhance the learning interest of students. Besides, story is a good form that teachers could use. Especially in the calculus content, teachers can design or adopt directly different story plots for students, including the generation, development, and application of calculus, and teach calculus knowledge to students in a storytelling manner, thereby improving student learning efficiency.

3.3 To Formulate Clear Learning Goals

For higher vocational colleges, there is a problem of vague students' learning goals. In response to this higher mathematics teaching problem, students should correctly view higher mathematics courses, correct their learning attitudes, change the lazy slackness of the past, and comprehensively study advanced mathematics knowledge firstly. Specifically, a small goal can be set first, such as calculus-derivative-calculus-derivative, so repeated continuously can effectively consolidate students' memory and enhance students' interest. Secondly, the division of labor in-class and after-class should be clear to keep a good learning habit. During class, students listening to teachers carefully is a must, and they can actively answer the questions; teachers and other students can also play a supervisory role, and check whether students complete the task of class learning or not, work with students to formulate teaching tasks for the next class, and require students to prepare and solve problems on their own. Over the long term, these ways will benefit students, to help them form good learning habits and maintain a good learning state.[4]

4. Conclusion

With regard to higher vocational colleges, it is worth exploring. In particular, higher mathematics courses have strong practicability, and are a subject that exercises and enhances the innovative thinking of students. In terms of teaching content, advanced mathematics is also a theoretical and logical subject. Therefore, teachers need to adopt diversified teaching methods in teaching to arouse students' interest, effectively enhance the teaching foundation and promote teaching reform.

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