On the Relationship between University Mathematics Competition and University Mathematics Teaching Reform

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Keywords: university mathematics competition; university mathematics; teaching reform; relationship

Abstract: University mathematics belongs to an important course. University mathematics competition has certain influence on the promotion of university mathematics teaching reform. This paper analyzes the characteristics of university data courses, studies the necessity of university mathematics competition for college personnel training, and explores the relationship between university mathematics competition and mathematics teaching.

1. Introduction

University mathematics is an important course in the university, and it is also an important basis for students to learn mathematics knowledge. In order to ensure the teaching effect, it is necessary to pay attention to cultivating students' ability to analyze and solve problems. The main purpose of the university mathematics competition is to cultivate students' ability to analyze and solve problems in the competition, so it has a certain effect on promoting the efficiency and quality of university mathematics teaching.

2. Characteristics of university data courses

Everyone learns the course "Mathematics" during the learning process. Because mathematics belongs to abstract knowledge, it is difficult to understand and master. Students who have graduated successfully still have a fear of mathematics. Some people even said that "as soon as the eyes are closed, the blackboard is full", "I watched as the math teacher calculate a bunch of symbols into a number" and so on. Although these words sound humorous, it can be found in the course of mathematical learning that this is the case with mathematical calculations. This is true whether it is primary school, middle school or university.

The teaching situation of university mathematics can be summed up as the following points:

2.1 The course structure is relatively complete and has many knowledge points

University mathematics teachers in the teaching process, their teaching ideas, teaching methods are too abstract, and strong logic, some students can't understand the content of teachers' explanations, so these students may experience drowsiness, distraction and other situations. For example, in the process of higher mathematics teaching, each chapter will introduce mathematical concepts, theorems, proof, calculation, application of examples and other aspects of the content. In the course of teachers ' teaching, more attention is paid to explaining the limit thought to students in order to improve students' mathematical literacy. One of the main differences between university mathematics teaching and middle school is that the way of researching problems changed and the way of solving problems have also changed. It is more inclined to study the form, nature and application of functions.

2.2 Teaching and learning methods are not scientific

Students do not master the key and important content in the learning process, which will affect students' interest and enthusiasm for learning (some students think that all the knowledge taught by teachers is very important, cannot clarify the primary and secondary relationship of each knowledge

  DOI: 10.25236/icemeet.2019.410

point). However, the key knowledge points of different chapters are different, for example: when learning the limit knowledge point, students should pay attention to how to calculate the limit, the calculation method is more, but the content and calculation method about the limit of binary function is less. The multivariate function has more limit tendencies, so its discussion is more complicated and does not have corresponding laws. It can be seen that the limit of the binary function in this chapter is not the focus of research and learning.

In the process of mathematics teaching, colleges and universities should pay attention to cultivating students 'ability of analyzing and solving problems, which can reduce the certification process and attach importance to students ' understanding and mastery of mathematics knowledge.

2.3 Students have different learning abilities

Many colleges and universities in China according to the specialties set up in the school, the university higher mathematics curriculum is divided into "higher mathematics", "Economic Applied Mathematics", "University liberal Arts mathematics". However, this method has the following problems: students with better mathematics base think that such knowledge is simpler and the depth of the subject is shallower; students with poor mathematics base think that there are more knowledge points and they cannot fully understand, so they are even less able to establish their own mathematical thinking mode. It is precisely because of the different basic level of students and different comprehension abilities that it has added certain difficulties to teachers' teaching activities.

3. The necessity of university mathematics competition to talents training in colleges and universities

3.1 Stimulating students' interest in learning

At this stage, China's research on university mathematics teaching is more important to stimulate students' interest and enthusiasm. As the saying goes: "Interest is the best teacher", only to ensure that students have an interest in learning mathematics knowledge, to ensure that students with full enthusiasm to learn mathematics knowledge, when students understand and master the knowledge of mathematics, students will obtain a sense of satisfaction and self-confidence, which has a certain role in promoting students to learn other subject knowledge. Compared with the textbooks, some of the topics in the university mathematics competition are more flexible. Through the students' answers to these questions, the teacher can fully understand the mastery of the mathematics knowledge and the quality of the students, and at the same time stimulate the students' enthusiasm for learning. For some students who have continued learning expectations, they can exercise by participating in the university mathematics competition. The main reason is that the topics in the university mathematics competition are similar to the mathematics questions in the postgraduate study, which can effectively stimulate the enthusiasm of students to participate in the university mathematics competition. In order to encourage students to actively participate in the university mathematics competition, colleges and universities will also regularly arrange mathematics teachers to conduct pre-match training for students. This will play a certain role in improving students' mathematical literacy and improving their mastery of mathematics knowledge. After participating in the university mathematics competition, its can stimulate students' enthusiasm for learning mathematics, and then actively and proactively study and learn mathematics knowledge in daily learning. After participating in the university mathematics competition, whether or not the students win the prize, they will get a certain experience in the process of participation, and effectively stimulate students ' enthusiasm for learning, improve students ' autonomy. Some of the students who are not involved in the University mathematics competition will gain some experience from the students who have participated in the competition, which is of great significance for the school to create a good learning ethos and atmosphere. It can be seen that the university mathematics competition can enhance students' enthusiasm for learning.

3.2 Improving students ' ability of mathematics knowledge application

Different from the middle school mathematics curriculum, the main purpose of the university mathematics curriculum is to explain the basic knowledge of mathematics, cultivate students' mathematical thinking ability and enhance their learning autonomy. University mathematics competition plays an important role in cultivating students' ability to analyze and solve problems. Creative thinking ability belongs to the important component of mathematical thinking ability, which is of great significance to students ' learning in the future. The university mathematics competition not only helps students to consolidate the basic mathematics knowledge they have mastered, but also expands the students' knowledge, enhances students' thinking ability, and cultivates students' divergent thinking, thus improving students' mathematical literacy and laying a solid foundation for students' future study and work. In order to ensure that students can obtain certain achievements in the university mathematics competition, the teacher will train the students. In the training process, it is necessary not only to sort out and explain the definitions of mathematics knowledge points, theorems, etc., but also to train students in the ladder-type method and skills, which is of great significance for expanding students' thinking. Throughout the training process, students can improve the level of understanding of mathematical knowledge points. In this process, students will form their own mathematical ideas, and constantly increase the mathematical problem-solving methods, cultivate students ' innovative consciousness, thinking ability and comprehensive quality. Different from the school exam or the middle school exam, there are more mathematics competition questions in the university, and there are more examination on the students' knowledge points. Therefore, students not only need to master the basic mathematics knowledge, but also need to good at drawing inferences, in the examination process more is to test the student's adaptability. In the process of university mathematics competition, not only can we understand the effect of mathematics teaching in colleges and universities, but also observe the comprehensive ability of students' learning ability and analytical ability.

4. Research on the relationship between university mathematics competition and mathematics teaching

4.1 University data competition can improve and supplement university mathematics teaching

The university mathematics competition can deepen the knowledge of mathematics teaching and fully demonstrate the scientific and rationality of teaching methods and teaching content. By holding a university mathematics competition, it is possible to establish higher mathematics teaching communication channels for colleges and universities. Through the communication between the universities, we can find the problems and shortcomings in the mathematics teaching of the college, and provide the basis for the reform of mathematics teaching in colleges and universities. University mathematics competition is an important part of university mathematics teaching, which belongs to the extension of mathematics teaching outside the classroom. The content of university mathematics competition is not an imitative cognition system. It requires students to find problems in research, discovery and cooperation. Therefore, university mathematics competition is of great significance for improving students' thinking ability and research ability. At the same time, mathematics competition can expand students ' knowledge, so that students can master and flexibly use mathematical knowledge and mathematical methods to improve students ' mathematical literacy.

4.2 University mathematics competition can create a good study style in colleges and universities

Most of the students who are willing to participate in college mathematics competition and participate in pre-match training in colleges and universities are outstanding students (the general students ' willingness to participate is low), but their performance and achievements in the university mathematics competition will receive the respect and attention of the teachers and students of the whole school, which plays an important role in promoting a good learning ethos in

colleges and universities. By participating in the competition, students can stimulate students' interest and enthusiasm in learning mathematics.

4.3 University mathematics competition can enhance the importance and investment of mathematics teaching in colleges and universities

When college students participate in university mathematics competitions, they can fully demonstrate their learning achievements. At the same time, they can also cultivate students' innovative consciousness and improve students' mathematical literacy. The holding of university mathematics competition not only provides students with a platform to show their learning achievements, but also provides a platform for colleges and universities to communicate. The communication and exchanges between the participating universities can effectively enhance the emphasis of the university on mathematics. At the same time, after the university mathematics competition is held, colleges and universities will also increase their investment in mathematics, set up a team of specialized teachers, and increase teaching funds. In order to improve the quality of mathematics teaching and improve the level of mathematics knowledge, colleges and universities have formulated and implemented a series of favorable measures for teaching equipment and human resources management. Although there are not many students participating in university mathematics competitions in colleges and universities, they enrich the campus culture, create a good learning atmosphere, and stimulate students' enthusiasm for learning.

4.4 University mathematics competition to improve the quality of the teaching staff

As an important participant in teaching activities, the quality and professional level of teachers will directly affect the efficiency and effectiveness of teaching. In order to stimulate students' interest in learning and innovation, and promote the reform and improvement of mathematics teaching in colleges and universities, colleges and universities need to establish a high-quality, high-level teacher team. In order to ensure that students can get good results in the university mathematics competition, teachers not only need to conduct pre-match training for students, but also need to adopt reasonable teaching methods in daily teaching to improve students' mathematics knowledge and mathematical literacy. Therefore, college mathematics teachers need to strengthen their study, constantly optimize their teaching concepts, improve their professional knowledge and teaching ability, and improve the professional quality of teachers, so as to ensure the efficiency and effectiveness of mathematics teaching. Only by effectively improving the comprehensive quality level of teachers can we cultivate a large number of talents for the society and the country.

With the continuous development of university mathematics competition, it can not only strengthen the emphasis on mathematics subject in colleges and universities, gradually increase the teaching hours of college mathematics, university leaders will attach importance to and support mathematics teachers' research on teaching in order to stimulate students' enthusiasm for learning, and at the same time, it can also stimulate teachers ' enthusiasm for work. Through the communication and exchange between mathematics teachers in various universities, teachers can find their own inadequacies and correct them, which is of great significance to improve the effect of mathematics teaching. The University mathematics competition can fully show the students ' learning achievement, can also show the teacher's teaching level and teaching quality, through the competition, the teacher can find the shortcomings in his teaching, which is very important to improve the teaching quality of teachers.

4.5 University mathematics competition can promote mathematics teaching reform

The survey found that the number of college enrollments in China is increasing, and the number of college graduates is increasing year by year. Some of the majors set up in colleges and universities have also begun to recruit liberal arts students and science students at the same time, so the mathematics basic level of students in the same class is different. Some students did not lay a good foundation in mathematics in high school, so they felt that mathematics was difficult to understand when they were studying university mathematics, so their enthusiasm for learning was low. Some students liked mathematics in high school and laid a solid foundation, which is full of

interest and enthusiasm when studying university mathematics. Because of the different mathematical foundation of students, teachers need to adopt the most appropriate teaching methods in the teaching process, so as to ensure the efficiency and effect of mathematics teaching (for example, hierarchical teaching methods). In the teaching process, teachers need to reduce the requirements of students with weak foundations, adopt encouraging teaching methods, stimulate students' enthusiasm for learning, and thus improve students' learning effects. For some students with better foundations, teachers should pay attention to cultivating students ' ability of analyzing and solving problems, and cultivate their mathematical thinking ability and innovation consciousness. In order to improve the teaching effect, teachers should encourage students to participate in college mathematics competition in the daily teaching process, and attach importance to cultivating students ' thinking ability and innovation consciousness. In the teaching process, teachers need to increase the technical content appropriately.

Colleges and universities should correctly establish the concept of mathematics, colleges and universities need to correctly understand the main purpose of encouraging students to participate in college mathematics competition is to promote the reform of college mathematics teaching, improve the efficiency and quality of mathematics teaching. Mathematics knowledge, as the knowledge that every student needs to learn, has an important influence on the future development of students. Because the mathematics knowledge is more abstract, the traditional teaching mode cannot fully demonstrate the applicability of mathematics knowledge. Therefore, the traditional teaching method cannot cultivate applied talents. This problem can be solved after the University mathematics competition has been carried out. First of all, the problems in the teaching of teachers can be found in the university mathematics competition, which is of great significance to help teachers improve the teaching mode and teaching methods. Secondly, after participating in the university mathematics competition, the relevant experience is summarized. After the University mathematics competition, colleges and universities can analyze and summarize the successful experiences of outstanding colleges and universities, and study and learn from them, which is of great significance to improve the efficiency and effect of mathematics teaching in the university.

After carrying out the university mathematics competition, the university can optimize the existing teaching content, teaching methods, teaching mode, and increase the practical teaching method, which is very important to improve the teaching effect of mathematics and promote the teaching reform. In order to improve the quality of mathematics teaching, colleges and universities can set mathematics models, mathematics software applications and other courses as elective courses, which has a certain effect on cultivating students' ability to analyze and solve problems and improve students' ability to apply mathematics knowledge. In order to ensure the smooth progress of the university mathematics teaching reform, it is necessary to improve the mathematics teacher's computer application ability and actual ability through training, so as to improve its teaching efficiency and quality.

5. Conclusion

In summary, the university mathematics competition has certain significance for promoting the reform of mathematics teaching. Through the mathematics competition, can improve the teacher's team level, improve its teaching ability. At the same time, through competition, students' ideas can be expanded, their sense of innovation can be enhanced, and students' ability to think and analyze independently can be cultivated.

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