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Research on the Application of Micro-courses in Advanced mathematics Teaching

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ABSTRACT. *The research is based on the application of micro-courses in advanced mathematics teaching. Firstly, the characteristics of micro-courses and the significance of using micro-courses in advanced mathematics teaching are analyzed, and then the problems of using micro-courses in advanced mathematics teaching are expounded: the simplification of teaching mode and the lack of students' self-learning consciousness. Finally, the application methods of micro-courses in advanced mathematics teaching are summarized. The purpose is to effectively improve the quality of advanced mathematics teaching and teaching effects, hoping to provide reference.*

KEYWORDS: *Advanced mathematics; Mathematics teaching; Micro-courses; application*

As a core basic course in science and engineering colleges, advanced mathematics has many characteristics such as many formulas, many topics, and many theorems, which makes many students feel that it is difficult to learn. Teachers also feel that it is difficult to teach advanced mathematics. As a new teaching method in China's education field in recent years, the micro-course is mainly based on the Internet, and the “micro” teaching video is the main carrier, so as to design a teaching course for a certain knowledge point or teaching link of the course. Compared with traditional teaching, it has the advantages of flexibility and humanity. Gradually applying micro-courses to advanced mathematics teaching can not only effectively stimulate students' interest in learning and enthusiasm for learning, but also improve the quality and teaching effect of advanced mathematics teaching.

1. The characteristics of micro-courses

1.1 Short time

The current situation of advanced mathematics teaching is that teachers not only

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need to pay attention to students' ability to receive knowledge, but also need to organize classroom demonstration activities. When students are listening to teachers, it is difficult to focus for a long time. However, the micro-courses mainly focus on a single key point and difficulty. Therefore, the rational use of micro-courses in teaching can effectively improve students' learning efficiency and quality, and also enable students to fully understand and master mathematics knowledge in a short period of time [1].

1.2 Easy to operate

The micro-courses has the characteristics of short time and small language capacity. Therefore, students can watch the micro-teaching video on the Internet platform, and can also discuss the teaching content with the teacher after the end of the viewing, so that not only can the students learn the content of the video, and also enable students to solve their own confusion about certain aspects of knowledge in the process of mutual communication, so as to achieve barrier-free learning. At the same time, because modern information technology is being widely used in the education system, it not only enables students to stimulate students' interest in learning through micro-courses video, but also effectively breaks the drawbacks of traditional classroom teaching practice, thus improving the quality of teaching.

2. The significance of using micro-courses in advanced mathematics teaching

In the teaching of advanced mathematics, from the promotion of the formation of mathematical cognitive structure, to meet the needs of students at different levels, to deepen the reflection of teachers' teaching, and to rationally use the role and significance of the micro-courses, to conduct an in-depth analysis:

2.1 Promote the formation of mathematical cognitive structure

Because of the strong logic of advanced mathematics teaching, in order to effectively improve students' learning efficiency and learning quality in teaching, teachers need to be able to help students construct a complete and systematic mathematical cognitive structure, which can be realized by means of micro-courses. Promoting students to form a mathematical cognitive structure not only allows students to fully grasp and understand the existing advanced mathematics knowledge, but also helps students to understand the contents of mathematics knowledge points [2].

2.2 Meet the needs of students at different levels

The current state of mathematics teaching is that each student's attitude toward mathematics learning is different, and the ability to accept mathematics knowledge is also different. If traditional “infusion” education is used in teaching, not only can

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each student's needs for advanced mathematics learning be satisfied, but also the lack of pertinence in advanced mathematics teaching. Applying micro-courses to advanced mathematics teaching can further promote the relationship between teachers and students, and also enable students to deepen their understanding of learning priorities and difficulties. In addition, in the teaching of micro-courses, teachers and students can also meet the needs of different students for advanced mathematics by means of data access or teaching activities.

2.3 Help teachers to reflect on teaching

Rational use of micro-courses in advanced mathematics teaching. The teaching of micro-teaching is not only conducive to teachers' reflection on teaching, but also enables teachers to take correct solutions to the problems existing in teaching, and then promote the comprehensive quality of advanced mathematics teachers. Teachers prepare teaching courseware by consulting materials or various software applications during class preparation. After the creation of the teaching courseware, it is necessary to reflect on the courseware produced by ourselves, and carefully watch whether each chapter content in the courseware is consistent with the physical and mental development of the students. Teachers' reflection can not only deepen their understanding and understanding of the teaching content, but also provide a basic guarantee for teachers to carry out teaching activities in the future.

3. Analysis of the current situation of advanced mathematics teaching

According to the current situation of advanced mathematics teaching in China, advanced mathematics content has strong Abstract Tion and logic. Therefore, when students are studying the course, there are often problems such as low student interest or poor quality of teaching. Based on this, a more in-depth analysis of the current situation of advanced mathematics teaching is carried out:

3.1 Teaching presentation form is single

Nowadays, the mathematics teaching mode of most colleges and universities is based on teacher explanation. Although this teaching mode allows students to accurately comb the knowledge of mathematical theory, according to the existing content of advanced mathematics teaching, the theoretical core as the core will make students feel boring in their studies. It may even cause students to appear distracted and sleep during the lectures, which ultimately leads to the improvement of the quality of mathematics teaching. At present, many teachers have not rectified the existing teaching mode, and still use traditional explanations to carry out teaching. The long-term teaching form is simplistic, which not only cannot stimulate students' interest in learning, but also cannot concentrate students' attention for a long time [3].

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3.2 Autonomous learning awareness is weak

With the continuous rectification of China's education, the number of students in China is constantly improving. Most students like to learn by rote learning, and because they have long adapted to the cramming method, it is difficult to adapt to the university's teaching methods after entering the university. Compared with the current teaching of higher education institutions, colleges and universities have less mathematics classes but more content. If students do not have a strong sense of independent learning, they can only passively learn mathematics knowledge and continue for a long time. This will not only make students unable to digest the new knowledge they have learned in time, but also make students fearful in learning mathematics.

4. Effective application of micro-courses in advanced mathematics teaching

This article will combine the characteristics of the course, create micro-courses; integrate regular content, apply micro-courses; combine online teaching, resource sharing and other aspects to carry out a more in-depth analysis of the effective application of micro-courses in advanced mathematics teaching:

4.1 Create a micro-courses with the characteristics of the course

In order to apply the micro-courses reasonably in the teaching of advanced mathematics, it is necessary for teachers to use the micro-courses resource library as the basis. Because the courses involved in advanced mathematics teaching are numerous and complex, teachers should conduct detailed analysis and active discussion on the content of advanced mathematics teaching, and then select the teaching content suitable for the teaching characteristics of microteaching. First of all, the choice of the micro-courses theme. Teachers should choose topics with high value and ensure that the selected topics are compatible with video communication. For example, the key points and difficulties in teaching need teachers to achieve the purpose of letting students understand and avoid confusion among students through multiple explanations. Secondly, in the teaching of advanced mathematics, teachers can also integrate the experiments and tasks existing in the teaching. Assuming that a certain teaching subject has a large amount of information, the subject content can be divided into several parts, and then the serialized and thematic micro-teaching mode can be realized. Teachers can also create advanced mathematics micro-courses resources through their own production and teamwork shooting, or they can also use network resources as the basis, and then combine the mathematical content for editing. In the teaching of advanced mathematics, teachers can truly implement the micro-class teaching mode of serialization and specialization. Targeted teaching for students, timely supplement students' deficiencies in learning mathematics knowledge, and then form integrity teaching [4].

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4.2 Integration into regular content application micro-courses

Micro-courses are used in the education community by using micro-video teaching resources. The rational use of micro-courses resources in advanced mathematics teaching also needs to be effectively combined with classroom teaching content. The advantages and functions of the micro-courses can only be reflected in the curriculum assistance. Therefore, teachers need to fully reflect the main position of students to achieve the main purpose of teaching. In addition, instructional design plays an important role in teaching. Teachers should design teaching programs based on the content of the teaching and by means of micro-courses. Only teachers can fully grasp and understand every aspect of the micro-courses, in order to explain the mathematics knowledge points regularly and skillfully in the teaching, and thus improve the quality and teaching effect of advanced mathematics teaching. Micro-courses are not only not subject to classroom teaching time, but also play a unique role in advanced mathematics teaching. Micro-courses can be applied in the process of pre-study, course introduction and course summary, and can also explain the difficulties and key points of the students in detail, so that students can get the desired results in the exam.

4.3 Combining network teaching resource sharing

According to the current teaching situation of higher education institutions in China, many colleges and universities have already created teaching resource pools in their own schools. Each institution can continuously expand its teaching resource pool by mutual reference. Creating a micro-courses platform in each institution not only improves the efficiency of micro-courses, but also allows teachers and students to share knowledge and learn knowledge on the platform. All institutions of higher learning can give full play to the role and value of micro-courses based on the existing teaching resource platform. This article will create a micro-courses platform from the following points in combination with online teaching to ensure the sharing of resources [5]. First of all, colleges and universities need to create a micro-courses platform in their own schools that is in line with their own development, so that advanced mathematics micro-courses can be effectively linked to online teaching. By means of the network resource sharing platform, resources are realized to share and cycle development. Secondly, colleges and universities should also organize a special management team within the school to ensure that the micro-courses platform in each region can be applied by students and teachers, so that the micro-courses resources in each region can also be mutually circulated. Finally, a large-scale platform will be set up in China to promote the communication and exchange of mathematics in all institutions of higher learning. Especially for the backward areas, it can play a complementary role.

5. Conclusion

In summary, the rational use of micro-courses in advanced mathematics teaching

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can not only effectively stimulate students' enthusiasm for learning and rectify students' learning styles, but also play a role in improving teaching quality and teaching effects. Based on this, it is necessary to combine the characteristics of the course, create micro-courses; integrate regular content, apply micro-courses; combine online teaching, resource sharing and other aspects, and apply micro-classes reasonably in advanced mathematics teaching. Fully aware of the advantages and functions of micro-courses, and thus improve students' academic performance and teaching quality.

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References

[1] Si Wei (2017). Application of micro-courses in advanced mathematics teaching in higher vocational colleges. Heilongjiang Science, no.19, pp.141-142.
[2] Xu Jiang (2018). Application of micro-courses in the Teaching of Advanced Mathematics. Journal of Tonghua Normal Uninversity, vol.39, no.12, pp. 115-117.
[3] Chen Chen (2017). Analysis of the strategy of integrating micro-courses into advanced mathematics teaching. Science & Technology Industry Parks, no.6, pp.83.
[4] Lu Fengju (2017). Application of micro-courses in the reform of advanced mathematics teaching. Ming Ying Ke Ji, no.7, pp. 213-213.
[5] Xue Qiong, Chen Aiyun, Xiao Xiaofeng (2017). On the application of micro-courses in the teaching of advanced mathematics. Ability and Wisdom, no.27, pp.158.