

Research on Advanced Mathematics Teaching Reform Based on the Cultivation of Applied Talents

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Abstract: In the process of carrying out advanced mathematics teaching activities, in order to promote teaching activities to meet the training objectives of applied talents, colleges and universities need to carry out relevant reform and research according to the teaching contents and teaching strategies, so as to improve the quality of applied talents training. According to the specific situation of advanced mathematics teaching in China, this paper puts forward the problems existing in advanced mathematics teaching activities, and formulates the reform measures of advanced mathematics teaching based on the cultivation of applied talents.

1. Introduction

Among so many basic courses of science and engineering colleges, advanced mathematics is a very important subject. The development of advanced mathematics teaching activities is mainly to cultivate students' abstract thinking, logic and imagination ability. It pays more attention to students' ability to analyze and solve problems, whose importance is irreplaceable by other disciplines. Therefore, in order to ensure the successful completion of the training activities of high-quality applied talents, it is necessary to reform the teaching activities of advanced mathematics.

2. Problems in Advanced Mathematics Teaching Activities

2.1 Backward Content of Teaching Materials

In the current advanced mathematics teaching activities, the traditional teaching materials are still used, and the teaching contents and teaching methods are very backward. Most of the advanced mathematics teaching activities are responsible for the cultivation of students' abstract thinking and logical reasoning ability, which seriously affects the students' personalized development. The development of applied talents training activities is mainly to help students better adapt to work. However, in the traditional advanced mathematics teaching activities, the teaching work has a relatively high system, difficult to effectively promote the future progress of students.

2.2 Single Teaching Method

Influenced by examination-oriented education thought, in the current advanced mathematics teaching activities, teachers explain the methods of solving mathematical problems systematically, but rarely explain the mathematical ideas. So, in the face of practical problems, it is difficult for students to properly handle the relevant problems with advanced mathematics knowledge. Advanced mathematics contains a lot of teaching content, but teaching hours are relatively limited. Therefore, in the process of carrying out classroom teaching activities, most teachers still use high school teaching methods, and students just passively accept the relevant content, limiting the development of students' mathematical thinking, and affecting their enthusiasm of learning advanced mathematics to a large extent.

2.3 Backward Teaching Methods

In most of universities, teaching equipment configuration is relatively complete. However, due to the influence of advanced mathematics teachers' own factors, it is difficult for teachers to make full use of teaching equipment in the process of advanced mathematics classroom teaching activities, which leads to the problem of resource waste. Some teachers use multimedia equipment, mainly to achieve the reduction of teaching plan writing, and they don't systematically grasp the functions of teaching equipment, leading to the waste of modern teaching equipment.

2.4 Unreasonable Assessment Method

With the development of quality education reform, in the current advanced mathematics assessment methods, the daily assessment and midterm examination are often used. However, the proportion of final examination in advanced mathematics assessment is very high in most colleges and universities, but daily performance occupies a small proportion. The final examination still extends the traditional post-class example revision form, which greatly affects the development of students. To pass the examination smoothly, most students make a concentrated effort to study key contents quickly before the examination, and do not pay attention to daily learning activities.

3. Advanced Mathematics Teaching Reform Measures Based on the Cultivation of Applied Talents

3.1 Constantly Innovate Teaching Content

In the teaching activities of advanced mathematics knowledge, different majors have different requirements of teaching knowledge points and professional training objectives. In view of the advanced mathematics classroom syllabus, we should carry out relevant teaching activities according to different majors, so as to meet the professional needs and give consideration to the characteristics of the specialty. In the process of designing teaching contents, we should change the traditional content system and teaching mode of advanced mathematics, and constantly improve the teaching requirements of advanced mathematics. After systematically mastering the teaching plans, training objectives and specific application requirements of all majors, colleges and universities can also reduce the systematicness of mathematical knowledge, constantly strengthen the use performance of mathematical knowledge, and transfer the focus of teaching content to the cultivation of students' practical ability.

3.2 Make Full Use of Diversified Teaching Methods

In the classroom teaching activities of advanced mathematics, teachers can adopt diversified teaching methods according to different teaching contents. For example, in the process of carrying out the work of advanced mathematics teaching content, teachers can effectively integrate some knowledge points, and can integrate the relevant knowledge points of differential calculus of one variable function and differential calculus of functions of many variables. According to the same principle, they can also integrate the relevant knowledge points of integral calculus of one variable function and integral calculus of functions of many variables to promote students to understand differential and integral and master the methods, help students have the overall perspective, learn to achieve mastery through a comprehensive study, fully mobilize the students' enthusiasm, effectively play the students' main role. In terms of teaching methods, teachers can also strengthen the training activities of students' mathematics application consciousness through case teaching method. Before the class explanation activities, teachers can carry out serious collection and sorting activities on the cases related to the theory of this chapter or students' major background, strengthen the students' understanding of mathematical theory and improve their ability of analysis and application by listing, analyzing and solving the cases. In terms of teaching means, teachers should make full use

of advanced teaching methods on the basis of traditional teaching methods, and combine the two. When carrying out specific teaching activities, the use of multimedia teaching should be based on the teaching content, so as to enrich the teaching content, make the original abstract theoretical knowledge more intuitive and visual, and help to improve the quality of classroom teaching.

3.3 Carry out Stratified Teaching Activities in Depth

With the expansion of the enrollment scale of colleges and universities, there is a big gap between the students of the same major in mathematics foundation and knowledge understanding ability. In order to help students to achieve certain development, teachers should teach students in accordance with their aptitude and carry out relevant teaching activities at different levels, so as to improve the efficiency of classroom teaching. In terms of advanced mathematics teaching content, teachers should take the training requirements and objectives of applied talents as the basis, seriously carry out relevant combining activities, and build relevant knowledge system to ensure that the needs of students at different levels are met. In the specific teaching activities, teachers can divide the teaching content into two parts, namely the compulsory part and the improvement part. The compulsory part mainly includes two aspects: basic level and application level. The basic theory and method of mathematics require all students to master. In teaching activities, teachers can reduce the theoretical difficulty of teaching content and strengthen the attention of practical application activities. In the improvement part, the deepening level should be included for students who have good mathematical foundation and interest and hope to further carry out learning activities. In the relevant teaching activities, we can add the deep-seated mathematical theory and method, focus on some important knowledge points in improvement part, so as to help students master more mathematics learning methods and promote their mathematical thinking ability and level.

3.4 Innovate Teaching Evaluation Mode

In the specific advanced mathematics classroom teaching activities, the process assessment and evaluation of teaching are crucial. In the process of teaching assessment and evaluation activities, teachers should improve and innovate the next stage of teaching plans and methods based on the relevant classroom teaching effect. At the same time, teachers should optimize the learning methods according to the students' knowledge. To enhance students' enthusiasm in advanced mathematics learning, teachers should strengthen the general assessment in teaching evaluation activities, and effectively use the "N + 1" assessment system. N represents the number of process assessment, which should be less than three times. The process assessment mainly refers to the course report, case explanation, learning notes, quizzes, etc., and 1 represents the final examination, which accounts for 50% of the total score. Adopting the assessment method can promote the daily assessment strength, helping to mobilize students' interest in learning.

3.5 Further Strengthen Mathematical Modeling

Using mathematical modeling can promote students' sense of unity and cooperation, and help to carry out innovative activities. In mathematical modeling, the content of theoretical knowledge can be applied to practical activities, which is conducive to the improvement of students' practice and innovation ability, and accelerate the development of applied talents training activities in colleges and universities. Through mathematical modeling activities, students can personally participate in practical activities to further master the content of theoretical knowledge, and make perception of the relationship between theoretical knowledge and objective reality, which helps to fully mobilize students' interest in mathematics learning and strengthen their application ability of mathematical knowledge. Mathematical modeling platform can effectively promote the development of students' mathematical knowledge inquiry activities, help students break the traditional thinking mode, effectively reflect students' innovation ability, and create good conditions for students' future

development and progress.

4. Conclusion

With the rapid development and progress of the society, the advanced mathematics teaching activities based on the cultivation of applied talents should help students master more knowledge of advanced mathematics, and also require students to use the knowledge to solve practical problems. Therefore, in the process of carrying out advanced mathematics teaching activities, colleges and universities should change the backward teaching ideas, constantly improve and optimize the teaching objectives, help students master the relevant mathematical knowledge, realize the improvement of student's knowledge application ability and level, enhance students' comprehensive quality, and lay a better foundation for students' work and employment.

References

- [1] Li Fang, Liu Dongyan, Liu Guiran. Research and Practice of "Inquiry Teaching" in Medical advanced Mathematics under the Applied Talents Training Mode. *Intelligence*, no.21, pp.88-89, 2020.
- [2] Wang Nan, Yue Xiaopeng, Li Xuechen. Research and Practice of advanced Mathematics Classroom Teaching Reform Based on the Cultivation of Applied Talents. *The Guide of Science & Education (early ten days in a month)*, no.05, pp.39-40, 2020.
- [3] Yu Haibo. Exploration of Hybrid Teaching Reform of advanced Mathematics under the Mode of Applied Talents Training. *Modern Economic Information*, no.22, pp.454, 2019.