

Teaching Reform of Applied Mathematics in Higher Vocational Colleges and Cultivation of Students' Applied Mathematics Consciousness

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Abstract: Among the traditional teaching courses, mathematics is an important subject. With the development of modern education reform, the classification of mathematics is also increasing. There is an internal relationship between mathematics and many disciplines. Using mathematical knowledge can promote many problems to be dealt with, which affects people's daily life to a great extent. If higher vocational colleges want to promote the efficiency and quality of applied mathematics teaching, they should further carry out the reform of applied mathematics teaching and strengthen the cultivation of students' applied mathematics consciousness. This paper analyzes the necessity of setting up applied mathematics in higher vocational colleges, puts forward the problems existing in the teaching reform of applied mathematics in higher vocational colleges and the cultivation of students' applied mathematics consciousness, and formulates the measures for the teaching reform of applied mathematics in higher vocational colleges and the cultivation of students' applied mathematics consciousness.

1. Introduction

In many courses of higher vocational colleges, mathematics is in an important position. Further strengthening the work of mathematics teaching can help students better deal with practical problems, and also help the construction of mathematical knowledge system. Therefore, in the process of carrying out the teaching reform of applied mathematics, the majority of teachers should pay more attention to mathematics reform activities and help students form good learning habits in specific teaching activities.

2. Necessity of Setting Up Applied Mathematics in Higher Vocational Colleges

The independence of applied mathematics is more prominent. Compared with the traditional pure mathematics, there are essential differences in research direction and subject pertinence. With the rapid development and progress of society and economy, information technology has been widely used in various industries. The traditional mathematical theory is difficult to scientifically guide practical activities. Mathematics contains many branches and applied mathematics is one of the branches, playing an important role. Applied mathematics pays more attention to the relationship between mathematics and practice, which is conducive to the improvement of students' professionalism, and can also play a guiding role in specific practice. Therefore, it is necessary to set up the course of applied mathematics in higher vocational colleges. In the teaching activities of applied mathematics in higher vocational colleges, we should strengthen the cultivation of students' application consciousness based on the specific situation of students' mathematics learning.

Using the course of applied mathematics can play a good guiding role in mathematics teaching in higher vocational colleges. The teaching of applied mathematics can improve students' autonomous learning ability and level, strengthen students' problem-solving ability, and enhance students' comprehensive quality. At the same time, the use of analytical activities of applied mathematics can also play a good role in training students' thinking and make their thinking more rigorous. The

learning activities of applied mathematics can also better guide the learning of other disciplines. For most majors, applying mathematical knowledge can strengthen students' professional learning ability, and reduce the difficulty coefficient of some students' professional learning. In the development process of modern society, applied mathematics is an inevitable development path. Applied mathematics can make the relationship between disciplines become closer, and promote students' mathematical thinking ability.

3. Problems in the Teaching Reform of Applied Mathematics and the Cultivation of Students' Application Consciousness in Higher Vocational Colleges

3.1 Problems in Teaching Content

In terms of teaching content, in many colleges and universities, the teaching content is equivalent to the teaching content of pure mathematics discipline, and does not pay attention to making scientific distinction between relevant contents, which affects the clarity of students' learning of mathematical theory knowledge. It is difficult to ensure the completion of the construction activities of discipline association between the study of mathematics theory knowledge and professional subjects, and then affect the application of mathematical theoretical knowledge in professional practice and research. If it develops for a long time, it is easy to reduce students' initiative in mathematics learning.

3.2 Problems in Teaching Methods

In the traditional teaching of applied mathematics in higher vocational colleges, most teachers use the lecturing method. The teacher dominates the whole classroom and is responsible for explaining the relevant theoretical knowledge. The students only accept it passively, and the teaching method is relatively simple. The content of applied mathematics knowledge is more abstract and complicated, so in the teaching process, teachers tend to focus on the explanation of theory, and do not pay attention to further research and analysis of the essence of knowledge, which is difficult to reflect the main role of students and is not conducive to the cultivation of students' applied mathematics consciousness.

3.3 Problems in Faculty

In the higher vocational learning stage, applied mathematics is a key subject, which can create good conditions for the students' other major learning activities. In the teaching activities of applied mathematics in higher vocational colleges, teachers have an important guiding role, and the teaching effect of the subject will be directly affected by the teachers' professional ability and comprehensive literacy. In the current teaching of applied mathematics in higher vocational colleges, most vocational colleges have arranged special teachers who have certain theoretical knowledge content, but lack the ability of discipline practice, so it is difficult to closely link theory with practice operation, which affects the improvement of students' applied mathematics consciousness.

4. Teaching Reform of Applied Mathematics in Higher Vocational Colleges and Measures to Cultivate Students' Applied Mathematics Consciousness

4.1 Improve Teaching Content

In the process of teaching reform of applied mathematics in higher vocational colleges, we should base on the teaching content and use the improvement activities of teaching content to speed up the cultivation of students' applied mathematics consciousness. The improvement of the teaching content of applied mathematics is mainly reflected in two aspects.

Firstly, on the horizontal aspect, we can seriously carry out the design activities of teaching modules based on the specific needs of different majors, and we can set up the knowledge modules of applied mathematics such as mechanical and electrical, electronic and so on, so as to show the application characteristics of applied mathematics efficiently.

Secondly, on the vertical aspect, we can ensure the completion of the basic - special - application curriculum system construction activities based on the characteristics of each specialty. In view of the basic curriculum system, we should improve the attention of theoretical teaching, connect with the professional needs, and explain some practical cases. In view of the special curriculum system, we can make a decision on the teaching emphasis by means of linear algebra, logical reasoning and other knowledge content based on the specific situation of the major. According to the application curriculum system, we can organize various teaching activities such as experiment and mathematical modeling regularly, to strengthen the students' ability of knowledge application.

4.2 Change Traditional Teaching Methods

In the traditional teaching activities of applied mathematics in higher vocational colleges, teachers use indoctrination in most cases, and the teaching method is relatively simple, which is not conducive to stimulate students' interest in learning. In order to solve this problem, teachers should seriously carry out the improvement activities of teaching methods, and strive to use diversified teaching methods, so as to make students' learning atmosphere more democratic and harmonious. In the process of applied mathematics teaching, teachers should seriously carry out the training activities of students' applied mathematics consciousness, and pay attention to strengthening the students' ability to use knowledge. This requires that the majority of teachers should conscientiously perform their duties and make a further understanding of students' applied mathematics consciousness. In the face of students with low applied mathematics consciousness, teachers should find out the reasons, and use relevant measures to fully mobilize students' interest in learning, guide students to actively participate in learning activities, so that students can fully realize the close relationship between applied mathematics knowledge and real life.

4.3 Strengthen the Construction of Faculty

In the reform of applied mathematics teaching in higher vocational colleges, the direction and quality, or the depth of teaching reform will be directly affected by the knowledge structure of teachers. Therefore, we need to attach great importance to the construction of teachers. In order to promote the comprehensive quality of teachers, vocational colleges can vigorously carry out recruitment activities. Besides professional knowledge, the applied mathematics teachers recruited should have certain practical ability, and then increase vitality for the reform of applied mathematics teaching. As for the current teachers, the relevant departments of schools should also vigorously carry out education and training activities, help the majority of teachers master more educational theories, information education technology and other contents, realize their own professional literacy improvement, and promote the efficient development of teaching work.

4.4 Further Strengthen the Teaching of Mathematical Modeling

Mathematical modeling is to simulate and depict the essential attributes of specific things through mathematical knowledge. This activity can not only explain some objective phenomena, but also make scientific prediction of the development law of some things. In the process of mathematical modeling activities, relevant researchers need to deeply analyze the objective problems and master more mathematical knowledge. In the teaching of applied mathematics in higher vocational colleges, we can build a scientific problem model based on the professional characteristics of higher vocational colleges and closely linked with the content of professional knowledge. On this basis, we can carry out the teaching of mathematical modeling, promote the students' ability of applying mathematical knowledge, and help them solve problems better. For example, in the production practice, differential and definite integral have a very wide range of applications. The knowledge content explanation activities can be connected with the construction of mathematical model. After the classroom explanation, students can also be asked to collect relevant information, carry out research activities through mathematical knowledge and methods, and construct quantitative relationship to ensure the completion of mathematical model construction activities.

5. Conclusion

In the mathematics teaching activities of higher vocational colleges, applied mathematics has a certain guiding role, and the majority of teachers attach great importance to the cultivation of students' application consciousness. At this stage, there are still some defects and deficiencies in the teaching of applied mathematics in higher vocational colleges. In order to properly deal with these problems, we should vigorously reform the teaching of mathematics. In the teaching reform of applied mathematics, we should be based on the specific needs, continuously improve and optimize the teaching materials, teaching methods and other aspects, fully reflect the main role of students, enhance students' applied mathematics consciousness, and lay a better foundation for students' follow-up study and work.

References

- [1] Yang Yi. Research on Methods of Cultivating Students' Awareness and Ability of Applied Mathematics in College Mathematics Teaching. Science and Technology Information, vol.18, no.22, pp.87-89, 2020.
- [2] Zhang Cuifang. Teaching Reform of Applied Mathematics in Colleges and Universities and Cultivation of Students' Applied Mathematics Consciousness. Test Questions and Research, no.12, pp.60-61, 2020.
- [3] Yang Yun. On the Cultivation of Students' Awareness and Ability of Applied Mathematics in Higher Vocational Mathematics Teaching. Rural Ideas, no.24, pp.225-226, 2019.