

On the Study of Higher Mathematics Teaching Reform Based on Professional Background

Jiutao Ding

Yunnan College of Business Management, Kunming, Yunnan, China, 650106

E-mail: 516535808@qq.com

Keywords: Professional background; Higher mathematics; Teaching reform

Abstract: As an important basic course for students majoring in economics, management, engineering and medicine, higher mathematics plays an important role in imparting basic knowledge of mathematics to students, in terms of inheriting mathematical culture, enhancing students' mathematical literacy, cultivating students' ability to observe, analyze, generalize and solve problems. This course is offered for different majors in college. Whose teaching purpose aims to enable students to observe, Abstract, summarize and study things quantitatively through the study of knowledge carrier; to cultivate students' logical thinking ability; to improve students' application ability of mathematical knowledge, to understand the scientific consciousness of the real world, and to further study and apply modern mathematics for students according to their work needs. But at present, the problem in Higher Mathematics Teaching lies in students' enthusiasm is not high and the curriculum provision is unreasonable. Which restricts the development of higher mathematics teaching? In the long run, these problems restrict this restricts the cultivation of excellent professionals to a great extent. Which is not conducive to the development of society based on the analysis of the previous study of higher mathematics teaching, this paper aims to explore its teaching reform under the professional background.

1. Problems in Higher Mathematics Teaching under the Professional Background

1.1 Lack of scientificity in curriculum design

According to the results of the survey, there are many unreasonable problems in curriculum structure in Colleges nowadays, which are mainly manifested in the following aspects: firstly, the teaching of higher mathematics has a strong pertinence, but some of the curricula in Contemporary Colleges is not reasonable, mainly without specific goal in curriculum design. Higher mathematics is a basic course. Many non-mathematics majors regard it as one of the compulsory courses, which reflects its importance to a certain extent. However, not enough class hours have been arranged. In the personnel cultivating program, credit is given according to the class hour mathematics course. Which leads to a part of the teaching plan of higher mathematics cannot be completed normally. Secondly, there is not a normal set of teaching model can be widely spread in Colleges, especially the deficiency of teaching model applied for different major. Different teachers have different understandings of mathematics knowledge and its application in their majors, which will lead to the same application of higher mathematics knowledge and lack of professional characteristics among students of different majors; Different teachers of the same major with different teaching models will lead to obtain different aspects of mathematics knowledge for students of the same majors. Moreover, in the process of higher mathematics teaching, the obvious problem lies in attaching importance to theoretical teaching while neglecting practical application. From the current curriculum setup in Colleges, it's obvious that some of the main contents of higher mathematics teaching still remain at the basic level, such as the understanding of formula concepts, etc. , Practical use is naturally neglected. We all know that practical application is of great significance to the study of higher mathematics. Current curriculum setting lacks rationality and can not be closely linked with professional curriculum. Based on the reform of higher mathematics teaching under the background of profession, more attention should be paid to practical application in curriculum

design, the combination of curriculum and specialty, and the application of mathematics in specialty and life. This kind of teaching reform can enable students to use the advanced mathematics knowledge they have learned to solve some problems encountered in their life and professional learning, with professional knowledge, integration of real life and higher mathematics.

1.2 Problems of Students

There are many serious problems in present higher mathematics teaching, one of which is that the comprehensive quality of students is not very high. A series of educational policies and measures, have been introduced, and the threshold for students to enter higher education has been lowered. On the one hand, it can improve the comprehensive quality of students and implement the policy of popularization of education, so as to achieve educational equity. On the other hand, it also exposes a problem, that is, the quality of students has been reduced to varying degrees, which has brought some difficulties to the teaching of higher mathematics in their learning process, have also brought serious challenges to the teaching of higher mathematics, due to the loss of interest in learning. Higher mathematics teaching has a very high demand for their learning. If the students' enthusiasm and interest in learning are affected by the previous foundation, which will inevitably affect their learning efficiency, difficulties in Higher Mathematics teaching will arise as well.

1.3 Problems in teaching staff.

Because of the rapid development of higher education in recent years, there are some problems in the faculty, especially in Higher Mathematics teachers. Learning, scientific research and teaching tasks, make most teachers face greater pressure, which affect the quality of teaching. On the other hand, teachers' teaching level is uneven, which greatly affects the quality of teaching. Teachers play a very important role in the teaching process. Teachers' teaching level directly affects the quality of teaching. If the teachers' comprehensive quality is relatively deficient, the teaching mode will be rigid in the process of higher mathematics teaching adhering to the traditional teaching content, without any reform and innovation, will not to integrate professional and daily life with higher mathematics knowledge, will inevitably affected the students' enthusiasm, will affect students' interest, and will affect the classroom atmosphere. Students will not interact to think about solving problems, and the teaching effect. Therefore, improving the teaching ability of teaching staff is the most important thing in Higher Mathematics teaching.

1.4 Single and lagging teaching mode

Teaching mode is particularly important in the process of higher mathematics teaching, especially in Higher Mathematics Teaching based on professional background. But because of the deep-rooted influence of the traditional teaching mode in our country, many higher mathematics teaching methods are still taught by teachers, while students listen and remember. In the classroom, most of the time is for teachers to explain knowledge and assign relevant homework after class so that students can strengthen and understand the learning content. This kind of teaching mode will make students and teachers lack certain communication, without understanding each other's ideas. The student who still have difficulty seldom, have the opportunity to communicate with the teachers timely, leading to students to reduce the enthusiasm and initiative of learning. The students don't know what to ask, and teachers' enthusiasm will also be hit. A large number of experimental data show that there is not much communication between teachers and students in Higher Mathematics teaching. If the communication between teachers and students is close, teachers and students will form a tacit understanding. On this basis, teachers and students will become enthusiastic, and the efficiency of learning will naturally be greatly improved.

2. Measures of Higher Mathematics Teaching Reform under the Professional Background

2.1 Optimizing the Course Structure

As a basic subject, higher mathematics helps to learn basic professional knowledge, but also invisibly thinking ability and problem-solving thinking, so its curriculum must be reasonable and

scientific. In view of the higher mathematics teaching under the professional background, we should optimize the curriculum structure, because it trains the application to professions, so we must pay attention to the scientificity and rationality of the curriculum structure when we carry out the curriculum. This is mainly reflected in the following aspects. First, we must pay enough attention to the selection of textbooks. At present, many colleges choose the textbooks used by some well-known universities, which has certain restrictions, but we should choose the textbooks suitable for ourselves. Higher mathematics teaching based on professional background has an obvious priority. We should choose the teaching materials suitable for our own teaching plan. Because the teaching plan of each university varies a lot, we should analyze the specific situation and choose the appropriate teaching materials on the basis of fully communicating with teachers and students. On the other hand, the syllabus is closely related to the curriculum design, which is the backbone of a subject. Therefore, before carrying out higher mathematics teaching, we must carefully compile the syllabus. In order to make the syllabus combination with the professional background, getting rid of unreasonable components gradually, improving it according to our experience accumulated in teaching.

2.2 Advocating the students' centered principle, improving their self-learning and creativity.

Because of students' regional difference, teaching resources are different in each place, and there are great differences among students themselves. Some students have good foundation, while others have poor foundation. High-level professional ability should be cultivated in terms of professional math teaching. Teachers should regard students as the center in the process of teaching, stimulating their leading role, constantly optimizing their teaching ability, creating diverse classroom environment for students, in order to formulate appropriate teaching plans according to the their otherness . To constantly stimulate students' independent creativity, guide them learn actively, and let them become center of teaching. Because many students learn knowledge under the guidance of teachers in the initial stage of learning, which has created a situation in which students rely largely on teachers. Therefore, we should improve this situation, creating conditions to guide students to study independently, changing students' passive learning habits, and giving full play to their subjective initiative.

2.3 Innovative teaching methods

The traditional teaching method present as the teachers teach in class and students listen and learn in class passively. This kind of teaching method has its own advantages, but with the progress and development of the times, the traditional teaching method has played a great role, but it has not been able to adapt to the development of the times in some aspects. Higher mathematics education based on professional background not only needs to train students' professional knowledge, but also students' ability to learn new things. Multimedia, network platform and other technologies are particularly important applied in the reform of teaching methods. Teachers are required to use modern technology such as multimedia and network platform to conduct classroom teaching, counseling and answering questions after class. It's know to all Higher mathematics teaching is dull because of its content. Students often face greater difficulties in learning. Some students will have the idea of giving up. With the popularity of smart phones, students are more and increasingly tempted in class. They would rather listen carefully than play with mobile phones in class. Moreover, if multimedia technology and mobile phone are integrated into classroom teaching, this situation will be effectively improved. It can not only greatly improve the teaching efficiency, but also make the teaching situation diversified. Students can easily learn the comment of famous teachers through the network and mobile phone. And innovative teaching methods can also make students and teacher communicate frequently, the interaction between teacher and students will inevitably be improved ,which to a certain extent improves students' sense of participation and interest in learning , making higher mathematics teaching more effective.

2.4 Continuously improving the teaching evaluation

Teaching evaluation has always played a very important role in teaching practice. In view of the

reform of higher mathematics with the professional background, it is necessary to strengthen the role of teaching evaluation. Teaching evaluation can not only test the completion of teaching plans, but also urge students and teachers to complete teaching tasks more seriously. At the same time, teaching system reform is being carried out. The mechanism of teaching evaluation must be developed synchronously. Because of the characteristics of higher mathematics teaching, we should not follow the traditional teaching evaluation, to finding an evaluation suitable for higher mathematics teaching mode, strengthen the teaching evaluation mechanism so that teachers and students can better understand their problems in the teaching process and learning, so as to conclude, reflect, and make continuous progress.

3. Reform Thought and Principle of Higher Mathematics Teaching Based on Professional Background

3.1 Specific Thoughts on the Reform of Higher Mathematics Teaching

For higher mathematics teaching with professional background, we must have clear reform ideas. First, we should orientate higher mathematics education in a targeted way, promote students' all-round development based on professional background, so as to improve students' competitiveness and make them stand out from social competition. The reform of higher mathematics teaching based on professional background should be targeted and have a clear orientation with oneself. Secondly, when carrying out the teaching reform, we should analyze the present employment situation, because the higher mathematics teaching based on the professional background has a strong applicability. Under the premise of fully understanding the employment situation in society, we can better apply the higher mathematics teaching to guide students to obtain their professional knowledge, and at the same time, we can help students to learn knowledge and practice better. It's possible for then to lay a solid foundation with the combination of math and their profession field.

3.2 Specific Principles of Higher Mathematics Teaching Reform

Under the background of specialty, the reform of higher mathematics teaching should first follow the principle of "students'-oriented", and then when carrying out the teaching reform, we must regard take students as the focus of the reform, for the professional knowledge. We should not only impart students' professional knowledge, but also cultivate students' comprehensive quality overall. Meanwhile the pertinence of teaching should also be strengthened, so as to teach students in accordance with their majors and aptitude, so as to cultivate more excellent and qualified professional talents.

4. Conclusion

In view of the professional background of higher mathematics teaching reform not can be achieved overnight, we should combine the actual situation of the current scientific and reasonable reform. Only by constantly strengthening the teaching staff advocating, bold reform and innovation, can we continue to make progress, to find an effective reform program, further stimulating their enthusiasm, improving the efficiency of learning. As a result, more and more excellent professionals would have been trained for the society.

References

- [1] Wang Sheng-jun. On the reform of higher mathematics course in higher vocational colleges -High College of Qingdao Technical College as an example[J].Journal of Jiamusi Education Institute, 2016(08) : 272—272.
- [2] WU Hui, SUN Dan-na, LIU Qian. The teaching reform and model exploration on advanced mathematics--To initiate mathematics principle, permeate mathematical culture [J].Journal of

Science of Teacher' College and University, 2016, 04:46-49.

[3] ZHAN Shi-hong, XUE Liang-sheng. Investigation and Analysis on Current Situation of Higher Mathematics Teaching in Higher Vocational Colleges [J].JOURNAL OF TONGHUA NORMAL UNIVERSITY, 2010, 31(2):96-98.

[4] Zhang ji-qiang.The teaching of higher mathematics curriculum reform and Practice [J].Journal of Shandong Agricultural Administrators' College, 2017, 34(12):21-22.