

Research and Practice on Reforming Higher Mathematics Teaching in Independent Colleges — Based on the South China Business College of Guangdong University of Foreign Studies

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Abstract. Based on analysis of the factors affecting the teaching and reform of higher mathematics in independent colleges, this study proposes basic rationale and measures for reforming the teaching of higher mathematics in independent colleges and clarifies the reform objectives to be achieved.

Keywords: Independent college; higher mathematics; teaching reform.

1. Introduction

Independent colleges are part of higher education in China. The orientation of independent colleges is to cultivate applied talents. The advanced mathematics course is an important basic course for many undergraduates of independent colleges. In addition to its high degree of abstraction, rigor and application, it also has the characteristics of more content, difficulty, broad foundation and strong skills. It is an undergraduate course. The key points and difficulties. The teaching reform of higher mathematics courses is also a difficult task in the teaching reform of independent colleges.

2. Factors that Constrain the Teaching Reform of Higher Mathematics Courses in Independent Colleges

1) The teacher does not know enough. Many mathematics teachers have insufficient understanding of the application-oriented training objectives of independent colleges. In teaching, they also adopt traditional teaching methods, pay attention to the systematic and logical knowledge, do not pay attention to the application of knowledge, and do not understand the higher mathematics and professional courses. Contact, and the application and role of advanced mathematics in the taught profession. They only pay attention to imparting knowledge on mathematics textbooks, which makes students' purpose of learning advanced mathematics unclear, and can't explain the specific role of higher mathematics in professional learning.

2) The teaching content is outdated. Although the content of higher mathematics teaching is comprehensive in theory, it is still the teaching content of the discipline system that has remained unchanged for decades, and there is no practical application content that is closely related to the profession. Teachers only pay attention to imparting systematic knowledge. Students who can't learn the knowledge that effectively combines with practical and professional problems will feel the uselessness of learning advanced mathematics, which is not conducive to the cultivation of students' innovative ability. This is in line with the training of applied talents in independent colleges. The positioning does not match.

3) The teaching model is outdated. Although teachers use multimedia teaching in teaching, there is basically no change in teaching mode. All students in the same major use the same mathematics teaching materials in the same mathematics textbook. In the classroom, they still use full house irrigation and injection, and only pay attention to basic knowledge. The teaching, not paying attention to the cultivation of students' ability, lacks interaction in the classroom. The consequences of students' passive acceptance of knowledge are the inertia of thinking, the inability to think independently, and the ability to explore and solve problems.

4) Teaching practice is lacking. In the higher mathematics class, because of the reduction of class time, the theoretical class time is not enough. Therefore, there are very weak practical teaching links,

and there are more phenomena of learning more and less, mainly in the inability to open mathematical modeling and mathematics experiment classes, teaching practice. Lack of.

5) The teaching object is worrying. The independent college students have low entry scores. The average mathematics level of students entering the school is far lower than the average level of key universities. The students' mathematics learning ability, learning foundation and learning consciousness are poor. Students' motivation for learning and interest in mathematics are not good. Unconstrained and fearful emotions are common, plus less class time, faster progress, less classroom exercises, etc., all of which cause difficulties in learning mathematics.

6) Teaching evaluation is old-fashioned. The examination methods for higher mathematics examinations are relatively simple. Most of them only use closed-book paper-based examinations. They cannot fully test the overall situation of mathematics that students have learned, and the teaching evaluation system is not perfect. The teacher only evaluates the learning effect based on the final exam, and does not pay attention to the evaluation of the student's learning process. Therefore, the student cannot adjust the learning method and promote learning at any time according to the evaluation result.

3. The Measures for the Teaching Reform of Higher Mathematics Courses in Independent Colleges

1) Transform the concept of mathematics teachers and strengthen the understanding of the objectives of higher mathematics teaching.

The teaching objectives of the independent mathematics curriculum of the independent college are to serve the students and serve the profession. There is still a big gap between the independent college students' ability to acquire knowledge and the key college students. The expectations of teachers for students should not be too high. With the application of talents as the training goal, the teaching requirements should be adjusted in higher mathematics teaching, the basic concepts and basic principles should be taken as the focus of teaching, and the concept teaching should be strengthened to allow students to master some basic questions and reduce the requirements of some theorem proofs. .

2) Develop an applied mathematics syllabus and write mathematics textbooks for applied cases.

The teaching reform of the advanced mathematics curriculum of independent colleges must first formulate the application-oriented syllabus of higher mathematics according to the training objectives of independent colleges. Before formulating the syllabus, it is necessary to fully study the needs of higher mathematics in various majors, determine the teaching content of higher mathematics courses in various majors, and then form a corresponding syllabus. After that, the application case teaching resource library is written, and the mathematics case with professional knowledge background is interspersed into the textbook of higher mathematics. The selection only involves more elementary mathematics knowledge, can embody the spirit of mathematical modeling, attract students and may apply later. Examples and mathematical modeling problems, such as the establishment of functional models and their applications; such as the most economical materials, the largest capacity, the least money, the highest efficiency, the most profit, etc., such problems in the higher mathematics boiled down to mathematical modeling - Optimization and other issues.

3) Reform the traditional mathematics teaching mode and try new teaching methods.

The traditional mathematics teaching mode is that all students in the same profession use the same mathematics class in the same mathematics textbook. We start from the 18th level and use the leveled teaching from the students' enrollment. The innovative class is mainly for students who have a good foundation in mathematics, are interested in mathematics, want to take a postgraduate degree, and are equipped with teachers who have experience in postgraduate counseling. For these students, the focus is on improving their mathematical qualities so that they can master the ideas and methods of higher mathematics and reach a higher level in the study of higher mathematics. The teaching objectives of ordinary classes are mainly based on imparting basic knowledge. In the process of higher mathematics, the students mainly develop the mathematics computing ability, apply the mathematics knowledge to

solve practical problems, and try to maintain the interaction between teachers and students in the classroom. The way, not only cultivates students' thinking ability but also cultivates students' basic computing ability.

4) Reform the assessment method and optimize the evaluation system

The reform of the examination mode is one of the important tasks in the teaching reform of higher mathematics courses. Specifically, it includes three tasks: reform of examination content, reform of examination methods, and reform of performance evaluation. The examination content mainly examines the basic knowledge, basic concepts, basic calculations of mathematics courses, and also pays attention to the examination of various abilities, such as computing power, reasoning ability, and innovation ability. The examination method is not limited, you can open the exam, or you can take the exam. The performance evaluation includes the usual grades, the unit test scores, and the final exam scores. These flexible and diverse test organization forms make the assessment of student achievement not only limited to the final assessment by the end of the written examination. This assessment includes the evaluation of the learning process. It also includes evaluation of learning outcomes, and enables students to focus on skills training and ability development on the basis of learning the basics.

4. The Ultimate Goal of the Teaching Reform of Higher Mathematics Courses in Independent Colleges

1) Improve the teaching level of teachers, and improve the quality of classroom teaching.

Through the research of this project, the teachers have a deeper understanding and grasp of the mathematics taught, and have a deeper understanding of the taught profession. The teachers of the research group study hard, practice bravely, communicate extensively, and carefully design each class. The teachers are no longer full of halls and infusions, fully mobilizing the initiative of students' learning, and the quality of classroom teaching is obviously improved.

2) Improve students' comprehensive mathematics ability and cultivate students' inquiry spirit.

Through the presentation of questions and the design of questions, teachers attract students to the discussion of problems and create an active classroom atmosphere, from discovering problems to solving problems, experiencing the exploration process, students' logical thinking ability and problem-solving ability. In the process of continuous improvement, but also cultivated the spirit of inquiry.

3) Improve students' employment competitiveness, and the society can obtain the talents they need.

Through the teaching reform of higher mathematics courses, students master the learning methods, their learning ability is greatly improved, and they use mathematical thinking and methods to analyze problems and solve problems, and can adapt to the development needs of society, thereby improving students' employment competitiveness and society. You can also get the talent you need.

The teaching reform of the advanced mathematics curriculum of the independent college is a systematic project. In the future teaching practice, we will continue to explore new ways of higher mathematics teaching reform, so as to continuously promote the teaching reform of our higher mathematics curriculum.

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