Reform and Practice of College Mathematics Teaching Model
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Abstract. In order to motivate students to study hard daily, and improve the marks of the graduate entrance examination, this paper put forward the reform program by small module teaching mode on the public basic courses of college mathematics teaching, this paper also designed the modules which is characterized by the final test of each module.

Significance of the Research
It is the need of national development strategy to improve the teaching quality of mathematics public basic course in Colleges, and it is also the urgent requirement of school development. The national medium and long term educational reform and development plan (2010 - 2020) put forward the strategic goal of improving the quality of higher education. In June 2013, the Ministry of Education proposed that it is an urgent requirement for the development of higher education to adapt to the industrial upgrading and cultivate high-quality applied talents, in the established Conference of China Applied Technology University (College) alliance and the transformation and development research center of local colleges and universities which held in Tianjin University of technology. Mathematics has penetrated into all fields of human society, and it is the foundation of all science and technology. The common courses of college mathematics is a compulsory basic course for students majoring in science and engineering, economics and so on, it can provide the necessary mathematical knowledge and common mathematical methods for students when they solve practical problems in specialized courses. At the same time, through the teaching of mathematics courses, students can gradually develop abstract thinking ability, ability to generalize problems, logical reasoning ability, and the ability to use the knowledge to analyze problems and solve problems. In addition, the higher mathematics is a compulsory subject for most postgraduate entrance examination. Therefore, the quality of mathematics teaching in Colleges and universities has a crucial impact on the quality of college students, as well as their further study, employment and so on, so it plays an irreplaceable role in cultivating advanced talents with innovation and pioneering spirit.

Related Research of Higher Mathematics Teaching Reform at Home and Abroad
In order to improve the quality of mathematics teaching in colleges and universities, educational experts have put forward a variety of advanced mathematics teaching reform program. Such as hierarchical teaching, modular teaching and so on. The application of module theory in the field of teaching is the combination of knowledge and ability items with similar functions in a discipline into knowledge modules or ability modules. After the introduction of modular teaching in China in 1993, it was first applied in vocational education, which produced great vitality. In module teaching reform, there are many ways to divide modules according to different principles. However, it is found that most of the reform of higher mathematics teaching aims at the reform of the teaching process. Some people divided it into three teaching modules, namely mathematical theory, mathematical experiment, mathematical modeling and so on, its feature is comprehensive, but it did not truly motivate students. Some people divided it according to the knowledge system, but it's still a simple integration of the existing knowledge. There is no module division divided from the form of examination.

Current Situation of the Public Basic Courses Teaching of College Mathematics
Although the class hours increase or decrease, the public basic mathematics courses in colleges and
universities are basically the same. Taking the mathematics course for economic specialty in our university as an example: Higher Mathematics I is opened in the first semester of the first year, 78 class hours, the teaching content contains function limit and continuity, differential calculus of one variable function, integral calculus of one variable function, there is one graduation examination only; Higher Mathematics II is opened in the second semester of the first year, 64 class hours, the teaching content contains multivariate function calculus, multiple integral, infinite series and ordinary differential equations, graduation examination 1 times; Linear Algebra is opened in the first semester of sophomore year, 32 hours, the teaching content contains determinant, matrix, vector space and so on, a total of 4 chapters, graduation examination 1 times; Probability Theory and Mathematical Statistics is opened in the second semester of sophomore year, 48 class hours, the teaching content contains 30 class hours of Probability Theory and 18 hours of Mathematical Statistics, graduation examination 1 times. There are many malpractices in teaching, such as: Each course contains lots of content, but there is only one graduation examination, students lack learning pressure and the resulting power; The final test contains a semester's content, and students' final review work is heavy, which affects the marks of the examination; some students don't review until the exam, that caused many of them failed the exam; Students will forget the knowledge of Higher Mathematics after a semester, but Probability Theory needs it, thus student's learning of Probability Theory is affected; Mathematics teaching cannot give consideration to public foundation and postgraduate entrance examination.

Through the analysis of the current situation of courses setting of the public basic college Mathematics, the research on the reform of mathematics module teaching in colleges and universities at home and abroad, the investigation of some ordinary colleges and universities students, and teaching practice, we find that the existing division of knowledge modules is too rough to improve the quality of teaching greatly. In the actual teaching of college mathematics, students still say that it is difficult in mathematics learning, their interest is not high, the learning results is unsatisfactory.

**Design Concept and Design Scheme of "Small" Module Teaching Reform of the Public Basic Courses of College Mathematics.**

In view of the shortcomings in teaching, we should adhere to the following ideas in the design of college mathematics teaching reform, it can reduce the difficulty of learning and reduce students' fear to mathematics, can motivate students to learn, can give students more learning pressure daily and then form a driving force, can meet the different needs, it also should be enough for professional learning or postgraduate entrance examination. On the basis of many years of college mathematics teaching practice, drawing lessons from the experience of public mathematics teaching reform at home and abroad, the research group put forward the teaching reform by "small module" of the public mathematics. Specific practices are as follows:

**Two Parallel Courses: Compulsory Course (for Public Foundation) and Elective Course (for Graduate Entrance Examination).**

According to the function, the public basic courses of mathematics can be divided into two parallel courses.

**Compulsory Course:** Set up the public basic course of college mathematics, aiming at students in compulsory, taking students' professional needs and mathematical literacy as the goal, the content is based on the principle of sufficiency for their future professional learning. Cut the complex theoretical reasoning and operation to reduce the difficulty in public mathematics courses and improve students' confidence and interest in learning mathematics.

**Elective Course:** Set up advanced mathematics courses, aiming at students who are interested in postgraduate entrance examination and further study, taking graduate entrance examination and the expanding applications of mathematics, methods and others as the goal. Deepen calculation, proof, mathematical methods in the teaching to improve the marks of postgraduate entrance examination.
Module Design of Compulsory Courses

According to the different knowledge system, the public basic courses of mathematics is divided into 9 required modules, Namely: limit module, differential module, integral module, multivariate function calculus module, differential equation module, series module, linear algebra module, probability theory module, mathematical statistics module. Each module is about 20 - 30 class hours, and each module has independent teaching objectives, syllabus, teaching materials, final test and so on. After students complete a module of learning, the final test will be carried out, and their marks of the module will be registered, then they can start the next independent module. The division of modules contributes to the following:

Decompose the Learning Content. The college mathematics curriculum is divided into 9 independent modules, which can give students a "small target", so it is easy for students to complete their homework in time.

Stimulate Students Learning Motivation. After 20 - 30 class hours, there is the final test, so students must study daily.

Decompose Students’ Review Pressure. The next module will no longer assess the completed modules, the burden is reduced in the process of learning and examination, so as to improve their marks.

Module Design of Elective Courses

In accordance with the required module, we get the corresponding 9 elective modules for elective courses which are ready for all students. In order to adapt to the postgraduate entrance examination and other further learning, the elective module will not repeat the compulsory module, It deepens and expands the corresponding required modules from the aspects of knowledge, calculation and method. Elective modules and corresponding required modules are opened at the same term, but the elective module is about two weeks later. Such elective modules contribute to the following:

Improve the Mathematics Marks of Graduate Entrance Examination. It can meet the needs of the students who have further study plan from the beginning, so that they can prepare as early as possible and lay a good foundation. At the same time, it also provides necessary guidance for the seniors who are preparing for the postgraduate entrance examination.

Convenient Elective. Because the modules is small in content, it is convenient for students to take these elective courses.

Feasibility of the Reform on Public Mathematics Teaching in Colleges and Universities

These modules designed by the research group can be carried out on the basis of the original teaching task, it does not require additional hardware, teachers and other investment. It has the characteristics of small and easy, small and flexible, mall and refined in teaching.

In a word, this reform can improve the teaching quality, and meet the individual needs of college students, it has important practical significance and theoretical significance for the cultivation of high-quality talents.

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Reference
