Construction and practice of practical teaching model of university mathematics

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Abstract: Teachers transform the mathematics teaching mode to the practice mode, and develop the university mathematics practice course, to enable the students to fully grasp the mathematics knowledge, to achieve a good teaching goal.

1. Introduction

Since a long time in the past, students have questions about how to produce theorems and definitions in the process of learning, also don't know how to specific application known conclusions, students only calculate learned knowledge on paper which lead to mathematics education emphasize on the study of the theory of value, and not pay enough attention to use of enlightenment education and practice. Most of students learn mechanically, and generally lack interest in Abstract and boring mathematics. Therefore, the mode of modern mathematics education should be reformed fundamentally.

In the case of great changes in mathematical concepts, it also drives the rational and positive transformation of mathematical education concepts, and puts the educational level of consciousness, ability, knowledge and other goals on the agenda. But the mathematics question mostly comes from practice, therefore it requests the student to use the practice measure to complete the study, to carry on the verification and the development to the mathematics, through the mathematics practice training, it causes the mathematics thinking training to strengthen, and enhances ability of innovation development and solving problem. That is to take the actual problem as the fundamental starting point, through students' hands-on and design, assisted by computer, to experience the process of solving the problem, and to study, discover and explore the mathematical law in the actual experiment. For this purpose, the relevant practical education of college mathematics is a process of cultivating students' ability of innovation and engineering thinking.

2. The approach of constructing practical teaching model of university mathematics

It is the key of practical teaching and the characteristic of university mathematics education to train the technical applied talents. We must attach importance to practical teaching, strengthen the cultivation of students' innovation ability and practical ability, and change the traditional teaching mode based on theory verification to the new one based on skill training.

2.1 Constructing of targeted practical teaching models.

It includes experiment, training and content of training, which will constitute an organic, mutual integration, mutual crossover and mutual infiltration of the whole. And according to the theory teaching and experiment verification, design innovation ability practice, skill training and so on.

2.2 Practical teaching should be fully considered in college mathematics.

At present, under the circumstance that the higher engineering education in our country changes to the modern engineering activity and the concept of big engineering view, In the talent demand structure aspect, the social identity degree produced the big change, in addition to cultivating the social adapTable talents, it is also necessary to cultivate the new talents with high quality and high

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quality engineering technology who can manage, understand management, have innovative ability and strong practical ability. Therefore, it is necessary to try to apply multi-module and multi-level new teaching mode in practical teaching of mathematics. Such as practical ability and theoretical application ability training module.

3. Analysis of the structure of college mathematics practice course

University mathematics practical education cultivate students' scientific computing, mathematical thinking, data processing ability comprehensively, it teaches students to grasp the method of application thinking, mathematical concepts for visual interpretation problem method, also includes processing of computer simulated mathematical problem, numerical science dealing with complex troublesome problems and symbolic calculus, etc.

3.1 Theoretical application module.

The needs of each major for mathematical knowledge are maximally satisfied with the basis of the theoretical application module in the course teaching content. The theory application module is one of the most important links in practical teaching of mathematics. Educators need to explain in detail, so that students can thoroughly understand and grasp, and from the perspective of the need to solve practical problems and application, from the practical needs of society and the needs of subsequent courses of disciplines, attach importance to the teaching system and content of basic ability, so as to construct the basic knowledge in engineering.

3.2 Cultivating ability module.

It needs to update the reform of mathematical system and teaching content from the perspectives of students' engineering implementation, engineering design, engineering knowledge, social function transfer, value judgment, lifelong learning and other required abilities. It should attach importance to the practical value of students, so that students have a more real, more intuitive feelings of the boring mathematical principles and theories in class, to achieve a better grasp and understand the purpose of practical class content. New feelings and new vision will make students enthusiastic and interested in the study and application of mathematical knowledge.

3.3 The importance of practical teaching course of university mathematics.

In addition to teaching students some practical mathematical tools, practical teaching courses of university mathematics also cultivate students' mathematical quality, thinking, application and innovation ability. To some extent, the cultivation of talent quality in colleges and universities depends on the cultivation and quality of mathematics, which should be fully reflected in the teaching of practical courses of mathematics. Therefore, it is necessary to teach students to apply basic mathematical thoughts and master common mathematical tools in the most basic training of mathematics. In addition to satisfying the mathematical learning needs of subsequent courses, it also teaches students to apply mathematical knowledge to analyze and summarize problems.

4. Analysis on the characteristics of practical teaching content of university mathematics

At present, the contents of mathematical experiment courses are mainly selected from probability statistics, linear algebra and higher mathematics. After linearizing, simplifying and simplifying each link of practical problems, they are finally summed up in a simpler form. In terms of breadth and depth, its content is generally between mathematical modeling and mathematical courses. In the application of mathematics, it is a transitional part, which can be analyzed from different levels.

4.1 First level characteristics

The mathematics teaching keep the original recitation, classroom teaching, and regular homework each content in the teaching of calculus, combined with the practice to add computer teaching experiment, through applying mathematical software in computer, conduct the integration,

derivative, limit and other aspects of the operation, study changing rules of function deeply, to verify the theorem, draw the curved surface and curve graph, to explore the new law, etc. On the basis of using computer to carry out mathematical experiments, it cultivates students' ability of using computer to calculate and deal with mathematical problems in the future work and study.

4.2 Second level characteristics

Combined with computer mathematics software package, the basic theory, method and concept of the calculation method are comprehensively mastered, so that students have the ability to compile programs and design algorithms, to deal with the convergence of algorithms, and to estimate errors. The reason for this is that mathematical software packages are constantly evolving in the context of computer content, and are not yet fully tolerant of all algorithms. To have a better understanding of the usage and functions of mathematical software packages, it is necessary to master the basic theories and concepts of computational methods. Therefore, it is of great significance to master the mathematical software package skillfully and to calculate and deal with various mathematical problems. At the same time, teachers also need to have the ability to design algorithms and program programs.

4.3 Third level characteristics

The application of mathematical software package, processing of practical numerical method, mathematical modeling, data processing and other specific contents should be taught according to the purpose of cultivating students' innovative ability and thinking ability, so as to provide conditions for practice.

5. Analysis of practical teaching mode of college mathematics

In the traditional mode of mathematics education, the establishment of mathematics practice class is a new challenge, and the transformation of mathematics education concept is its root point. The education method is no longer starting from the concept, but from the problem, from the indoctrination of theoretical knowledge to students to let them find the law by themselves.

5.1 Intuitive characteristic

In the process of practice teaching, teachers need to case teaching very seriously, focusing on the dynamic mathematics teaching reform at home and abroad, especially attaches great importance to mathematics experiment, computer aided teaching, carries on the discussion and research teaching mode of mathematics experiment, use of visual teaching methods to make students grasp practical ability and solid theoretical knowledge.

5.2 Subjective characteristic

Students are the subject of practical operation and learning. To transform the students from the traditional passive acceptance model to the active participation, transform solve problem of textbooks to design problems by themselves. On facing the problem, the new learning method of solving the problem could be inspire to student's seeking knowledge desire, in addition to students review and apply the knowledge, it can also be spontaneously by retrieving data to find the way and the book, to understand content learned from textbooks or other disciplines of knowledge, and then used in the process of experiment, integrates other professional courses with mathematics mutually, causes the student to achieve the purpose of active learning, loving learning, and broad knowledge.

5.3 Practical characteristic

It enables students to establish mathematical models, analyze and deal with practical problems assisted by computers, and master practical operation methods. Therefore, students are required to have Abstract ability, understanding and insight of practical problems, and the ability to establish mathematical models. After the establishment of mathematical models, students can use computers to calculate, compile programs, and analyze and process computational results, so that practical

problems can be solved effectively.

The solution of mathematical model and mathematical modeling are the process of repeated experiments, and the application of computer is more important. After mastering the mathematical software, it can be applied in a large number of mathematical operations, so that the work efficiency is greatly improved. For example, in teaching practice, the application of computer mathematics software, can be more vivid and intuitive to teach the problem. In the process of university mathematics practical curriculum, it is concluded that mathematics practice class should be embarked from the practical problems, do not overemphasize the integrity and systematization of the course, and pay attention to summarize laws in solving problems, in order to cultivate the students' interest, and make them input the positive attitude in learning mathematics knowledge, and have wonderful feeling in mathematics on basic experiment. Mathematics practice class is conducive to the exercise of students' problem-solving ability and the play of their independent thinking ability, so that students' mathematical creativity can be cultivated under the consciousness of innovation.

6. Attaching importance to the training of teachers

Teacher’s teaching way is relatively single in the traditional teaching activities, because of heavy teaching task, less class hour, and cramming education, students have no time to think too much, usually after class, students and teachers are overworked, the students' subjective initiative cannot effectively play, lack of learning motivation, teaching effect is not ideal. In new type of practical teaching activities, it should change the teaching idea, stress the subject status of students, pay attention to and cultivate the innovative ability of students, transform from the cultivation of the exam-oriented education to quality education, emphasize on the consciousness of the main body of students, look for excitement and the breakthrough point, to arouse the students' subjective initiative, and on this basis, carry out extensive communication among students, carry out case education, heuristic teaching, to make their creative ability get full play, fundamentally achieve the purpose of education.

7. Conclusion

Students have great interest in university mathematics practice class, would transform from ever indulge in empty talk and useless, learn mathematics teaching mode into practice model, so the mathematics practice in university courses in the students and teachers are all achieved good effect, improve the teachers' scientific research ability and set up the confidence of the math practice curriculum, make the student fully grasp of mathematics knowledge, at the same time to achieve a good learning.

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