Some Thoughts on the Teaching of Mathematics in Colleges and Universities

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Abstract: Based on the reality, this paper analyzes the existing problems in teaching according to the characteristics of college mathematics courses and the current situation of students, and some suggestions are put forward to improve the teaching quality of mathematics classroom for the reference of the peers.

Keywords: Classroom teaching; Teaching mode; Teaching quality

1. Introduction

Tao Xingzhi, an educator, said, "Teaching is teaching students to learn." How to teach students how to learn, how to teach students how to learn mathematics well, improve the quality of college mathematics classroom teaching, this is an eternal topic [1-3].

College mathematics, as a public basic course in Colleges and universities, is closely related to the specialized courses of science and technology, economy, management, finance and so on. It is the basis of learning these specialties well. Through the study of this course, students can get training in logic, reasoning, calculation, synthesis and other abilities, which play a great role in cultivating students' creativity.

In order to enable students to better learn university mathematics and improve the quality of classroom teaching, the author combines his years of teaching experience, and in view of the actual situation of contemporary college students and the current development of international education, analyses some problems in the teaching of University mathematics, and raises the number of universities. Some suggestions are put forward in the course of teaching [4-5].

2. Problems in the Teaching of University Mathematics Course

At present, the content of university mathematics course is abstract, there are many concepts and theorems, the method of solving problems is complex, and the method of proving is unique. Each knowledge point and the method of solving problems are closely related. At present, we mainly adopt the traditional teaching mode, the means are single, generally silent and question-and-answer classroom, teachers speak, students listen, occasionally teachers ask questions, students answer, teachers speak very input, very systematic, very complete, but teacher-centered. Sometimes teachers don't pay much attention to students' feelings, and the classroom atmosphere is dull from beginning to end. In addition, contemporary college students have rich and colorful extracurricular life, which leads to students not having enough time to systematically study relevant theories and to be unable to grasp mathematical problem-solving ideas. Over a long period of time, students are not active in learning, their sense of learning responsibility is weak, and their spirit of active learning is poor, so students will lose their initiative in learning. The interest in learning this course, such courses often have little effect, which leads to the quality of university mathematics teaching worrying.

3. Some Suggestions on Improving the Quality of Mathematics Classroom Teaching in Colleges and Universities

3.1. Transforming the teaching model and improving the quality of classroom teaching

In the teaching of College mathematics, we need to firmly grasp the main line, sort out the knowledge points of the subject, grasp the relationship between the knowledge points, find the most appropriate entry point and the way of the problem, and determine the key and difficult points according to the requirements of the syllabus and the situation of the students. Students will not talk about what they can see and understand. Tell students what they can't understand, what they can't find, and what they can't. On the basis of textbook arrangement, the curriculum system should be optimized so that students can better understand and master knowledge.

College mathematics curriculum system has been relatively perfect, but teachers in the teaching process can combine their own life and research background, design teaching cases. In the process of teaching, we can interpose links with other disciplines, compile guidance, and guide students to learn. Strive to achieve: a thorough understanding and integration of professional

knowledge. The deeper the understanding, the more concise and thorough the explanation.

3.1.1. Using various teaching platforms to develop mixed teaching mode

In the teaching of College mathematics, how should we mobilize students' enthusiasm for participation, stimulate their thinking and cultivate their abilities?

Firstly, teachers should be student-centered, aim at improving self-learning ability, cultivating innovative thinking and activating classroom atmosphere, take process assessment as the baton, flexibly use various teaching platforms, and use the concept of "flipping classroom".

Exhibition of different levels of online and offline hybrid teaching reform. Teachers should be familiar with the depth of the textbooks, the video situation and the learning situation. Especially, they should make great efforts to study teaching problems, keep abreast of the frontier of discipline development, focus on elaborating, have clear ideas and unique solutions to teaching difficulties. We should combine textbooks, mu-lessons, entity classes and general learning, carry out the overall design of teaching reform, in order to truly realize the integration of online and offline, make the courseware concise, and organically combine with blackboard writing and information technology; invest enthusiastically, give appropriate examples, and go deep into the shallow; implement problem-centered heuristic teaching, and stimulate well. Curiosity and thirst for knowledge. Teachers from the current society or students familiar with learning, life, and mathematics teaching related problems, create situations, teachers to provide students with relevant clues to solve the problem, and then students are divided into groups, let students discuss, exchange, through the exchange of different views. Finally, the teacher supplements, amends and deepens each student's understanding of the current problems. Questions should be moderately difficult, with basic requirements and characteristics, and with choices; students should be encouraged to answer more questions to avoid embarrassment; students should be encouraged to answer correctly, regardless of whether their answers are correct; students' facial expressions should be paid attention to in class and adjusted in time.

After class, teachers can stimulate students' thinking through task-driven. On the one hand, according to the purpose and content of mathematics teaching, teachers can carefully consider and put forward appropriate and logical problems for students to explore. Of course, teachers can provide the necessary information, and students can make some assumptions and seek the answers to the questions themselves. So different students may offer different explanations or opinions. Next time, the teacher asks the students to express the conclusion clearly and let everyone discuss it together. Where students don't understand, or don't know, teachers can call appropriately to guide the direction of inquiry. Teachers should pay close attention to the process of discussion and the existing problems, and timely adjust and guide them. On the other hand, teachers can guide students to compare horizontally in the same chapter and vertically between chapters, and ask students to write a sketch of knowledge structure, to summarize, refine and deepen their understanding in the comparison. After class, we should summarize and reflect in time and make continuous improvement.

3.1.2. Integrating mathematical modelling ideas to cultivate the ability to solve practical problems

With the development of society and science and technology, the country needs applied talents with innovative spirit. This requires teachers to combine mathematics teaching closely with the cultivation of students' innovative ability, to overcome the drawbacks of long-term emphasis on theory over practice, on science over technology, and neglect the cultivation of creativity by technical education in traditional mathematics education. Teachers must teach the practical problems and significance behind definitions and theorems. Through the teaching of practical problems, students can understand the whole process of mathematical modeling, such as the raising of mathematical problems, the hypothesis of problems, the establishment of problems and the solution of problems, so as to truly master the ability of analyzing and solving problems, and achieve the goal of cultivating mathematical ability. This requires teachers to actively create a practical teaching system of mathematics, take scientific and technological progress and social development as the background, design the system according to the different stages of students' ability formation and the law of understanding development, and promote the overall optimization of practical teaching. According to the characteristics and contents of specific experimental courses, mathematics practical teaching is carried out. According to the practical teaching methods with students as the main body and teachers as the guidance, the training of students' practical ability, problem discovery, problem analysis and problem solving ability, and cooperative work ability are strengthened in the whole teaching process.

3.2. Strengthen process assessment and promote self-regulated learning

The common problems of traditional assessment methods are: single assessment method; more memorization content; high repetition of test papers.

We should change the way of curriculum assessment: from single intelligence assessment to comprehensive ability assessment, from summative assessment to pro-

cess assessment. The content of the assessment: It focuses on the ability of students to acquire knowledge, to analyze and solve problems with the knowledge they have learned, to practice and to innovate. Then we can adopt the following kinds of assessment methods: written examination, oral examination, defense, test, paper, etc. It can be carried out in many stages: ordinary test, homework assessment, extracurricular reading, social practice, stage assessment and final assessment, etc. It can be carried out in many types: works, classroom training, classroom discussion, social tone, etc. Examination, competition and so on, all-round examination. Distribution of performance evaluation: 40% of the results of peacetime, process and stage assessment, and 60% of the final assessment. Among them, the original record and evaluation of the theoretical class performance in peacetime mainly includes attendance, homework, test, classroom performance, curriculum summary and so on. At the end of the term, according to the specific conditions.

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