Research on College Mathematics Teaching Method based on Computer Modeling Thought

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Abstract. Mathematics exists in all aspects of human society, which plays an important role in production and life. With the application of computer technology, mathematical computing ability has been greatly developed, which can also be used to calculate more complex social problems. Therefore, solving practical problems through mathematical methods has become the most important way. Mathematical modeling is a tool to solve practical problems, which is also an important basis for computer application in various industries. Through the idea of modeling, we can solve many practical problems. Therefore, college teachers should make rational use of the idea of modeling in mathematics teaching, which has important theoretical and practical value. By cultivating students' awareness of discovering, analyzing and solving problems, colleges can cultivate students' observation ability, abstract ability and cooperative spirit, which will improve students' ability of applying mathematics. Firstly, this paper analyzes the important ways of mathematical modeling. Finally, some methods are proposed.

Keywords: Computer, Modeling Ideas, College Mathematics, Teaching Methods

1. Introduction
Mathematical modeling is a process of building mathematical models for real life problems and solving them numerically through computer media. In college mathematics teaching, we should take various effective teaching methods to promote the integration of modeling ideas, which will improve the creative thinking and ability of college students [1]. By providing a good development environment, we can promote students' innovation ability. In college mathematics teaching. We must infiltrate the idea of mathematical modeling, which is essentially a quality education [2-4]. The main purpose of mathematics education is to improve students' ability to analyze and solve practical problems by applying mathematical ideas, which is the main application of modeling ideas. With the development of computer, human society has gradually embarked on the direction of informatization and digitization, which is more widely used in daily life [5-6]. Mathematics teaching is mainly to cultivate students' innovative thinking ability. Through mathematical modeling, we can set up mathematical models for various types of practical problems, which will solve various practical problems [7].
2. Thought of mathematical modeling

2.1. Steps of mathematical modeling
When we set up the model, we don't have a fixed model, which is generally related to the characteristics and purpose of the problem. Therefore, mathematical modeling will go through the same process, as shown in Figure 1.

![Figure 1. The steps of mathematical modeling.](image)

2.2. The principle of integrating modeling thought into mathematics teaching
The idea of mathematical modeling is a tool method, which needs to be integrated into the mathematics classroom. In mathematics teaching, we must follow certain principles in design and operation, so as to ensure the controllability of the implementation of modeling thought teaching, as shown in Figure 2.

![Figure 2. The principle of integrating modeling thought into mathematics teaching.](image)
3. Teaching design of integrating mathematics into modeling thought
The integration of mathematics into modeling requires innovative teaching design in Colleges, which needs to be transformed from many aspects, as shown in Figure 3.

Figure 3. Teaching design of integrating mathematics into modeling thought.

3.1. The transformation from "examination oriented education" to "quality education"
In the teaching of higher mathematics, colleges must change many ideas, which can meet the requirements of quality education. First of all, colleges need to change the teaching purpose. With the improvement of the quality of students pursued by quality education, colleges must pay attention to the development function of education, which is not simply the function of examination and selection. Secondly, what colleges need to change is the concept of teaching. Quality education pursues the development of human brain resources, which is the development of all students. Therefore, teachers should pay attention to mathematical theory in teaching, which requires the whole process, such as occurrence, development, application and so on. Therefore, we need to implement the teaching of mathematical activities. Therefore, students should "do" and "use" in mathematics, which is to master mathematics in the process of "doing" and "using".

3.2. The transformation from "basic education" to "applied education"
The thought of mathematics education needs from a few mathematics to the mass mathematics, which can be from studying the mathematics knowledge in the textbook to learning the necessary mathematics. The basic idea of "Applied Mathematics" is that everyone needs to learn mathematics. By learning mathematics, everyone can apply mathematics to life. Popular mathematics is an educational thought, which is mainly reflected in basic education. Therefore, mathematics education should be "everyone", which is not just for a few mathematical talents. We need to believe that everyone can learn mathematics for survival. By learning mathematics, we can teach people how to think. By imparting intelligence, we can improve our quality.

3.3. The transformation from "theory" to "quality and ability"
Colleges must cultivate students' quality and ability, which can be divided into two types. First, through analysis, calculation or logical reasoning, we can solve mathematical problems correctly and quickly, which requires the use of established mathematical models. Second, by using mathematical language and methods, we can abstract and summarize the internal laws of objective objects, which
will construct mathematical models of practical problems to be solved. The traditional mathematics curriculum focuses on solving practical problems. By introducing mathematical model into teaching, we can strengthen the training that people can generalize the internal laws of objective objects. This is a reform experiment of the original mathematics teaching system. Therefore, the teaching design of integrating mathematics into modeling thought provides some fresh and vivid materials for mathematical thinking.

4. Application of modeling thought in college mathematics teaching

4.1. Improve the good development environment

Through computer modeling, we can improve students' creative thinking and ability, which will improve the good development environment. Under the idea of modeling, teachers can cultivate students' choice of college mathematics teaching methods, which can cultivate students' innovative consciousness, innovative spirit and creative ability. Therefore, teachers must create a good development environment. Innovative thinking depends on students' psychological freedom, especially on their ideological freedom, which can create a free, democratic and harmonious teaching atmosphere for students. In the process of selecting teaching methods, teachers need to change the teaching concept consciousness, which is the main body of college mathematics teaching. The goal of teaching mathematics in universities is to set a goal. By letting students fight freely on various mathematical problems, we can freely summarize, diverge and innovate all kinds of mathematical problems, which will enable students to effectively solve practical problems in life. As a guide in mathematics teaching, teachers need to guide, assist and encourage students. At the same time, in college mathematics teaching, teachers should pay more attention to the evaluation of students' innovative thinking, which can provide a good environment.

4.2. Improving the quality of teachers themselves

The idea of mathematical modeling is integrated into college mathematics classroom teaching, which puts forward higher requirements and challenges for teachers. Therefore, teachers need to constantly strengthen their self-cultivation, which can develop and implement the idea of mathematical modeling into classroom teaching practice activities. First, the combination of theoretical knowledge and practical life. Mathematics has the characteristics of abstraction and preciseness, but it is not divorced from reality. Therefore, mathematics can be found in real life, which requires teachers to integrate theoretical knowledge with practical life. Through in-depth life, we can find problems, which will be better for mathematical thinking and analysis. By editing mathematical application problems, teachers can continuously develop new types of mathematical problems. Second, the combination of problem-solving skills and program training. The ultimate goal of learning mathematics is to solve problems. The process of solving problems needs creative and skilled thinking and programmed calculation. For the integration of mathematical modeling thought into classroom teaching, the creation process and calculation process are indispensable, which will jointly serve to solve practical problems. Thirdly, mathematical language and mathematical thinking are integrated. College mathematics can use refined mathematical language to describe complex problems, which can use different solutions to solve the same problem. Therefore, teachers should use accurate mathematical language teaching to stimulate students' thinking and participate actively.

4.3. Analysis of students' learning state

Students with good academic performance generally have the following characteristics. One is the relative stability of learning psychology. They have a long concentration time, stable mood, good learning psychological state and long time to maintain. Second, the regulation of learning psychological state, students with good grades enter the learning state quickly. According to different learning situations and tasks, we can adjust the learning psychological state in time. The third is the coordination of learning psychological state. Students with good academic performance have strong
initiative in learning activities. In the different stages of knowledge acquisition, maintenance, transformation and application, we can formulate corresponding psychological preparation, psychological interaction, psychological monitoring and psychological reflection. Therefore, we must focus on learning state, such as attention state, emotional state, thinking state, motivation state, which will achieve a relatively balanced development. The fourth is the consciousness and subjectivity of learning psychological state. Students with good grades can show their psychological state of learning, which can be monitored and adjusted in time.

5. Conclusion
The integration of modeling thought into mathematics teaching is more conducive to improving students' learning enthusiasm and creative spirit, which is conducive to improving students' individual exploration spirit. Compared with the traditional teaching methods, the modeling idea pays more attention to the process of teaching and acceptance, which will help students to study and explore the open-ended problems boldly. Through the integration of modeling ideas, we can help students become useful, which will be applied to the future work practice.

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