# Discussion on the Methods of Mathematical Modeling in College Mathematics Teaching

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**Abstract:** With the rapid development of the current society, mathematics has become one of the main application contents in various fields of society. Its own role is very large, not only can be used in various disciplines in the natural science, but also applied in daily life. Economic management, military management, and social science, social activities, and other different fields. The development of mathematics also has a very positive impact on social development. To this end, we must constantly improve the quality of mathematics teaching in colleges and universities, and mathematical modeling in mathematics teaching is also one of the most important ways. Using mathematical modeling can solve the practical problems faced in daily work, and can also make After moving to work, students use mathematical modeling to improve their work efficiency. The current society is increasingly demanding such talents, and it is also required that mathematics modeling as one of the main contents of teaching in college mathematics.

## 1. Introduction

The current teaching of mathematics cannot be limited to theory, but also needs to make mathematics a subject that can be applied in daily life. When carrying out mathematics teacher education in colleges and universities, teachers usually take students' interest points as the basic starting point of teaching. To construct a concrete model for this purpose, the essence of the problem is more accurately reflected in front of students, and the use of mathematical modeling also makes the whole Classrooms have become more diverse, and the way mathematics teaching is constantly innovating. Mathematical modeling in colleges and universities enables students to learn mathematics better through mathematical modeling, understand mathematics, and at the same time stimulate their subjective initiative, so that students' interest in mathematics is gradually deepened.

## 2. The Role of Mathematical Modeling Methods in Mathematics Teaching in Colleges and Universities

In the current social development, not only do college students do not understand, but why should they apply mathematical modeling ideas in mathematics teaching, even if there are many college mathematics teachers, they still do not understand why they should apply mathematical modeling ideas in teaching. To this end, we must recognize the role of mathematical modeling in the teaching of mathematics in colleges and universities. Mathematical modeling is the mathematical product of mathematical language and mathematical methods, which are gradually translated through realistic information and then obtained through data. This model has undergone different processes such as deduction, reasoning and solving. The final results and conclusions can return to the real world and become a way of practice testing. At the same time, it can help mathematics complete from theory to practice [1]. From the practical to the theoretical cycle of effective processes, mathematics can be truly combined with everyday life. Using this teaching method, one of the reasons why students can see that mathematics is widely used is that it has sociality and reality, to improve the interest of mathematics students in mathematics learning, and to help students develop their sense of innovation.

One of the reasons why many students are hard to improve their interest in learning mathematics

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is that mathematics is relatively boring. Because of the theoretical knowledge and formulas involved in mathematics, students often feel powerless when they study. However, the mathematical modeling process is in line with the students' cognition, process and related development laws. Using mathematical modeling can improve students' learning efficiency, and let students continuously improve their enthusiasm for learning mathematics while learning mathematics. From the theory of mathematics modeling to practice, or from practice to theory, students can firmly grasp the knowledge of mathematics, and enable students to effectively use mathematical language and mathematical methods to improve their ability to solve real-world problems. Students establish a correct view of mathematics, rather than the past, thinking that mathematics is just a number, and there is no positive meaning in everyday life [2]. It effectively promotes students' interest in learning mathematics. Mathematical modeling makes boring mathematics gradually become a vivid reality case and theoretical knowledge, so that students can clearly feel the importance of mathematics in daily life while learning, and Its enthusiasm, and can also continue to inspire students inspiration in learning mathematics, help students improve their learning efficiency, and promote teachers to improve the quality of teaching and teaching efficiency, allowing students to learn through mathematical modeling ideas , which in turn produces good study habits.

The idea of mathematical modeling is used in mathematics teaching to help students to make mathematics problems more simple and visual, which makes the relatively boring mathematics classroom more vivid and interesting, and directly improve the teaching quality and teaching efficiency of college mathematics.

## 3. Ways of Developing Mathematical Modeling Methods in College Mathematics Teaching

When carrying out mathematics teaching in current colleges and universities, how to cite mathematical modeling ideas and improve the teaching quality of mathematical modeling thoughts has become an important task for many mathematics teachers in colleges and universities. In order to let students master mathematics through mathematics learning The central idea and steps of modeling. Teachers must improve the richness of classroom teaching content, and change their own teaching ideas. Students will be the main body of teaching, and they will continue to adopt a combination of heuristic teaching and practical teaching. Using mathematics knowledge can solve the practical problems faced in daily life, feel the fun in learning, and constantly improve the efficiency of active learning. Mathematical modeling helps students to improve their interest in mathematics learning. To this end, as a mathematics teacher in colleges, there are several ways to help students better learn mathematical modeling thinking.

### 3.1. Learning from the application of the instance

At present, many students lose interest in mathematics when they study mathematics. One of the reasons is that teachers only pass theoretical knowledge to students when they teach, so that students can only learn mathematical concepts, theoretical methods, and formulas. As well as solving problems, etc., these learning contents are relatively Abstract.and boring, and often make students think that learning mathematics is only to solve mathematical problems, but has no meaning for everyday life. As a mathematics teacher in colleges and universities, it should be understood that when teaching students mathematics, they should not only teach mathematics concepts, but should let students understand the methods of learning mathematics and feel the spiritual essence of mathematics. Let them understand that using mathematics can solve the different problems faced in daily life, understand the source of mathematics, understand the daily application of mathematics, and fully teach mathematics culture to students, so that more and more students realize mathematics not only It's just numbers, it's a unique digital culture and digital charm.

In order to improve the quality of teaching, as a mathematics teacher in colleges and universities, it is necessary to combine the curriculum so that students can realize that the data and formulas they learn everyday are never boring, but specific and can be applied in daily life. Any kind of theoretical knowledge has never been a hole in the wind. It has a certain source of development, as

well as summed up in real life, and then derived from the scientifically based wisdom, if the teacher turns this wisdom into a cramming Teaching will encourage students to neither understand the wisdom of this achievement nor understand the culture and meaning behind mathematics. Introducing professional examples and examples from everyday life into the classroom will enable more students to feel the mathematics. Charm, and from the analysis of teaching results, the mathematical strength and mathematical modeling ideas are fully introduced into the classroom, allowing students to understand all the theoretical knowledge in mathematics, and the theory of mathematics itself comes from reality. The ultimate goal of learning mathematics is to mathematics. The theory returns to real life and applies mathematics to solve problems that may be encountered in daily life. The mathematical modeling idea can help students to gradually convert most of the mathematical theory knowledge into concrete mathematical models, let students use this model to understand the practical problems contained in the theoretical knowledge, and apply this knowledge to the daily life. In life, let students understand the meaning and purpose of learning mathematics, help students to improve their interest in learning mathematics, and make students' innovative consciousness constantly cultivated.

### 3.2. Verify the mathematical theorem in real life

Many college mathematics textbooks have been applied in colleges and universities after a large number of tests, and the theorems are Abstracted through different practical problems. However, because of this Abstraction, students feel that the theorems and formulas are too boring when they study, and it is difficult to truly understand the problems involved. To this end, all college mathematics teachers are required to combine the mathematical theorem with the reality when teaching the content of the mathematics curriculum, to tell students the practical application of this mathematical definition and theorem. Through a lot of explanations, students have questions about mathematics. An intuitive impression, combined with the ideas and methods of mathematical modeling, the different conditions of the theorem as a hypothesis of the model in daily life, the teacher can presuppose a situation for the students, let the students apply the mathematics problem in the situation. In this way, students can understand mathematics problems and have a very positive impact on social development and solving everyday problems.

Different scenarios can also help students understand more math problems. In the past, many students could not understand the way mathematics was derived when they were studying mathematics, and why one would derive relevant formulas. One of the reasons was that teachers did not help students to presume a scenario, and did not tell students what the source of the theory was. Why use this theory to solve related problems, and the presupposed scenarios can help students to make all Abstract.theoretical knowledge more vivid and concrete, and also enable students to understand through the study of this theoretical knowledge. To mathematics can be applied in daily life, everyday bits and pieces, can be related to mathematics. In turn, more and more students can understand the unique charm of mathematics knowledge through the situation, let students improve their understanding of mathematics, and help students learn mathematics better, apply theorem to solve practical problems, and let students Feel the practicality of the theorem.

For example, in the continuous function commonly used in learning advanced mathematics, one of the properties of the closed interval is the zero existence theorem, which has a very positive significance for the study of higher mathematics. However, it is relatively difficult for students to accept this theorem. To this end, teachers can tell students that the zero point theorem is very important. One of the reasons is that it can be used in different aspects. One of them is that the existence of the zero point theorem is a theorem to verify the existence of other theorems in mathematics. Second, the existence of the zero point theorem can verify whether there are roots in the interval between different equations. This can also lead students to curiosity about the zero point theorem. Many students will ask the teacher on this basis. Does the hypothesis of the zero point theorem exist for another theorem? It can help students to improve their classroom enthusiasm when they study advanced mathematics. In the classroom, only students improve their attention and enthusiasm, can better reflect on the knowledge that teachers tell, which has a very positive impact

on students' learning of advanced mathematics and mathematical modeling ideas.

### 3.3. Combine professional subjects to strengthen application awareness

In addition, as a higher mathematics teacher, you need to realize that because mathematics is a basic course for many majors, students do not understand the significance of learning this foundation for the profession. As a mathematics teacher in colleges and universities, it is necessary to combine students from different majors to tell them the meaning of mathematics learning in different professional fields and the importance of mathematics for the development of this profession. In order to let students learn the importance of mathematics as a basic course of professionalism, and let more and more students begin to actively learn mathematics. In the past, the high mathematics rate of many colleges and universities was very high. One of the reasons was that students did not learn mathematics thinking, nor did they put mathematics modeling into the process of mathematics learning, and did not understand the influence of mathematics on their own profession. It is believed that learning mathematics does not have any importance and enthusiasm for the development of this profession. As a result, many students are reluctant to learn mathematics, and are unwilling to distract too much energy and time into mathematics learning. As a mathematics teacher in colleges and universities, it is necessary to tell the students the importance of mathematical modeling and mathematical modeling for the profession, or to combine some professionally representative questions with mathematics, and to tell students mathematics learning through examples. The professional development and positive meaning help students understand the purpose of learning mathematics, while mathematical modeling is to let students learn more mathematical thinking.

In the future work, students can use different mathematical thinking to solve more complicated and difficult problems. This not only allows students to recognize the importance of learning mathematics, but also allows students to more actively accept mathematical modeling thinking. Teachers can choose some professionally-specific topics to tell students according to different majors, so that students can understand the enthusiasm and related links between this topic and the professional development. It not only strengthens students' ability to use mathematics, but also enables more students to improve their professionalism while learning mathematics. It is a very positive and important role for students.

## 4. Conclusion

In summary, in the mathematics teaching of colleges and universities, the mathematical modeling ideas are used throughout the teaching content, which not only can improve the quality of students' learning mathematics, but also enable students to gradually increase their interest in learning mathematics. The more students realize the joy of learning mathematics and make students become subjects in the classroom. Mathematical modeling helps students to get in touch with relevant real-world problems, correctly establish the correct concept of learning mathematics, and help teachers improve the overall teaching effect of mathematics classrooms, let students use mathematics knowledge to solve practical problems, and encourage students to actually enter the society. Afterwards, we will achieve self-worth and social value, and make students become the application-oriented talents that society needs.

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