Analysis of the Fusion of Mathematical Modeling Thoughts Based on Computer Technology and Teaching Practice in Colleges and Universities

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Abstract. High mathematics is the most important course in college mathematics, which is one of the subjects with the highest proportion of College Students' credits. However, mathematical modeling is a method to solve practical problems with models, which has been widely used to solve a variety of practical problems, including economy, industry, medicine, society and so on. With the development of computer technology, we can use a variety of effective computer modeling software for complex mathematical modeling, such as MATLAB, one of the most common mathematical modeling software. Therefore, colleges and universities must actively use computer technology, integrate the idea of mathematical modeling into mathematical practice, which can better integrate mathematical resources and teaching media. By constantly improving the way of mathematics learning, college students will better improve the efficiency of mathematics learning, which can also improve students' thinking consciousness of applying mathematics to work. First of all, this paper analyzes the important role of mathematical modeling based on computer technology in mathematical practice. Then, this paper puts forward some questions. Finally, some suggestions are put forward.

Keywords: Mathematical Modeling, Thought, Mathematical Practice, Advanced Mathematics, Computer Technology

1. Introduction
With the development of science and technology, mathematical modeling has been widely used in many fields, which has become more and more important. Mathematical modeling is a very practical tool, which is mainly used to solve practical problems. Through the establishment of mathematical models, we can study social problems, which has become the most important mathematical model. Therefore, it is of great significance to integrate mathematical modeling into mathematical practice courses. Through the mathematical knowledge, we can abstract the actual research, which can extract the actual mathematical model. Through the integration of mathematical modeling ideas, college students can learn more complete mathematical system, which will lead students to break through the abstract theory. Through the cultivation of mathematical modeling ideas, students can understand the real life problems more deeply, which will cultivate students' strict logic. Therefore, we must integrate
the idea of mathematical modeling into the practice of mathematics, which is of great significance to
the cultivation of students' mathematical thinking.

2. The importance role of mathematical modeling thought in Mathematical Practice
The idea of mathematical modeling plays an important role in Mathematical Practice, as shown in
figure 1.

2.1. Improve students' interest in Mathematics
Mathematics is a very professional and boring science, which is difficult to arouse students' interest in
learning. At the same time, some college students think that mathematics is useless, which can not be
applied to their future life. Therefore, it is difficult for them to be interested in learning mathematics.
However, mathematical modeling can guide students to solve practical problems through
mathematical methods, which will improve the fun of students' learning. Through the idea of
mathematical modeling, students can better solve practical problems, which improves students' interest
and initiative in learning mathematics[1].

2.2. Promote the growth of Teachers
Through the contest of mathematical modeling, teachers will help students solve practical problems
with mathematics, which can promote the research of mathematical modeling. Through mathematical
modeling, teachers can improve their thinking, which will improve their professional ability.
Therefore, the integration of mathematical modeling ideas into college mathematics practice can
promote the growth of teachers.

2.3. Improve the level of mathematics curriculum construction
Mathematical modeling activities will promote the reform of mathematics curriculum, which will urge
colleges and universities to establish mathematical laboratories. Through mathematical modeling
activities, colleges and universities can improve the mathematics teaching environment. Through the
training of mathematical modeling thought, mathematics teachers will use mathematical modeling
theory in the curriculum, which will strengthen the level of curriculum construction.

2.4. Improve the status of Mathematics Curriculum
It is an important reform direction to integrate mathematical modeling into mathematics teaching,
which will enhance students' interest in learning mathematics. Therefore, by improving the ability of
students to solve professional curriculum problems with mathematics, colleges and universities have
virtually improved the status of mathematics curriculum. Therefore, colleges and universities will pay
more attention to mathematics learning, which improves the status of mathematics curriculum.
3. The development of mathematical modeling in Colleges and Universities

This paper is based on the field survey. 800 formal questionnaires were sent out, 765 effective questionnaires were sent out, and the effective rate was 95.625%.

3.1. Students have no interest in mathematical modeling

College mathematics is a very theoretical subject, so it is difficult for students to study. Therefore, it is difficult for teachers to popularize the idea and method of mathematical modeling, which will make students feel that there is no interest in mathematical modeling. According to the survey results, the main problem is Low interest in learning mathematics, accounting for 72.5%. Then there are Lack of initiative and Lack of mathematical modeling knowledge, accounting for 64.4% and 49.7% respectively, as shown in Figure 2.

![Figure 2. Students have no interest in mathematical modeling.](image)

3.2. Low emphasis on mathematical modeling teaching in Colleges and Universities

Local colleges and universities are gradually transforming into application-oriented ones. However, mathematics is a basic subject, which will face an awkward situation. The management of colleges and universities will invest the funds in the applied subjects, which leads to a very low attention to the teaching of mathematical modeling[2-3]. According to the survey results, the main problem is ignoring the cultivation of mathematical modeling thought, accounting for 66.7%. Then there are Mathematical modeling idea floating in teaching system and Lack of practical mathematics teaching, accounting for 57.4% and 49.3% respectively, as shown in Figure 3.

![Figure 3. Low emphasis on mathematical modeling teaching in Colleges and Universities.](image)

4. The way of integrating mathematical modeling into mathematical practice

4.1. Cultivate mathematical modeling ideology

Schools can invite experts to guide the teaching of mathematical modeling, which will cultivate students' awareness of mathematical modeling. Through mathematical modeling guidance, teachers will accumulate a lot of practical experience. At the same time, colleges and universities should hold
Campus mathematical modeling competitions on a regular basis to cultivate the ideology of mathematical modeling\[1-5\]. Mathematics teachers have a more comprehensive understanding of mathematical modeling, which will enhance the understanding of mathematical modeling ideas. Through the cultivation of mathematical modeling ideology, colleges and universities can improve teachers' mathematics application consciousness and ability. Therefore, the school should create a good mathematical modeling environment, which will better cultivate the mathematical modeling ideology.

4.2. Establish lifelong learning awareness
With the development of the times, teachers should constantly change their own needs. Therefore, teachers must constantly improve themselves. Students should constantly study mathematics knowledge. At the same time, students should connect problems in life with mathematical modeling, which will build up students' awareness of lifelong learning. By changing roles in teaching, students can better innovate mathematics learning, which will improve their independent ability. Students should keep learning new knowledge, which will improve their comprehensive ability\[6\].

5. Conclusion
In a word, it is the development trend of college teaching to integrate the idea of mathematical modeling into the course of mathematics, which is not only the inevitable requirement of the development of science and technology and economy, but also the main way of training compound talents. The use of various computer-based mathematical modeling tools can greatly improve our efficiency in solving practical problems. By cultivating the idea of mathematical modeling and actively using computer modeling technology, colleges and universities can promote the sustainable development of education. Therefore, in the process of mathematical modeling teaching, teachers must be based on students' learning subjects. Through the combination of the social reality of the new era, colleges and universities can make a reasonable and effective teaching program of mathematical modeling based on computer technology, which will improve the students' ability to use mathematics.

References
[1] Han Haifeng. Research on higher mathematics teaching integrating mathematical modeling thought[J]. China training, 2017 (2): 192.
[2] Fu Cui, Guo Zipeng. The trend of mathematics teaching reform in Higher Vocational Colleges -- infiltrating mathematical modeling ideas and methods into higher mathematics curriculum teaching[J]. Times education, 2016 (1): 237-238.
[3] Li Wei. Practice and exploration of information literacy education based on Professional Curriculum Teaching[J]. Information theory and practice, 2014 (4): 117-118.
[4] Wu yunzong. Mathematical modeling and quality education[J]. Journal of Baiyun vocational and technical college, 2011 (1): 15.
[5] Xu Jie. Teaching design of students' professional ability based on mathematical modeling[J]. Nanfang agricultural machinery, 2015, 46 (10): 93-94.
[6] He Zhishu, ye Yin. Penetration and practice of mathematical modeling in Teaching[J]. Journal of Wuhan University of Science and Engineering, 2015, (11): 242-244.