On the Importance of Mathematical Modeling Education to the Quality Training of College Students

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Abstract: At This Stage, with the Continuous Deepening of College Education Reform, Various Modeling Education Models Are Gradually Applied to the Teaching of College Students. However, There Are Certain Imbalances in Such Applications. Compared with the Mass Popularization of the Liberal Arts Modeling Education Model, Science Modeling Education is Rarely Used. in This Regard, This Paper Focuses on the Analysis of the Teaching Connotation of Mathematical Modeling Education and the Importance of College Students' Education, and Puts Forward the Suggestions for the Cultivation of College Students' Quality Education. It is Expected to Help College Students' Quality Education.

1. Introduction

1.1 Literature Review

Mathematical modeling education is actually an educational model based on the new curriculum reform. In order to further cultivate comprehensive quality talents that adapt to the background of the new era, many experts and scholars have carried out research on mathematical modeling education. Song Changming and Zhang Jianlin believe that colleges and universities should establish students' ability to innovate and apply based on “mathematical modeling ability”, and combine practice with theoretical teaching mode to continuously test the quality of college teaching (Song and Zhang, 2016). Wang Yikang and Wang Hangping believe that mathematical modeling is conducive to cultivating college students' interest in mathematics learning and self-learning awareness, which is conducive to cultivating students' imagination and creativity, and is conducive to cultivating students' ability to use mathematics knowledge and computer flexibly. Students work together to solve problems (Wang and Wang, 2012). Teaching mathematics modeling in higher vocational colleges is not only an important way to improve students' practical ability and logical thinking, but also an important measure to cultivate students' innovative ability and innovative thinking (Wang, 2013). Feng Ning believes that mathematical modeling practice activities can not only change the learning style of college students through innovative teaching methods, reform teaching content, and innovative evaluation methods. Hai helps to develop students' innovative ability, which is in line with the current vocational education to cultivate students' professional core competence. Requirements (Feng, 2012).

1.2 Research Purpose

The purpose of China's higher education reform is to implement quality education in an all-round way and cultivate modern and comprehensive compound talents. In the continuous reform of education and teaching, to improve the overall quality of college students, it is necessary to adhere to the teaching philosophy of combining theoretical knowledge with practical ability. Use the scientific teaching mode to cultivate students' good psychological quality and innovative practice ability. At present, the application of quality education in the liberal arts education system in colleges and universities has been commonplace. However, in the science education system of colleges and universities, there are some omissions in quality education. Many educators believe that science-based knowledge and skills can be taught to students without the need for more

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practical teaching. Therefore, mathematics modeling education will become a good supplementary teaching mode in view of the general emphasis on theoretical education and light practice education in colleges and universities. In addition, the application of mathematical modeling education in practical college education plays an important role in improving the overall quality of college students.

2. The Quality Cultivation of Mathematical Modeling Education

Nowadays, the rapid development of modern high-tech, the application of information technology to college education is also constantly improving. As an important supplement to the form of college education, mathematical modeling has expanded to include sociology, ecology, economics, information science, and medicine. The key to the application of mathematical modeling education to the quality training of college students is to use mathematical thinking modes and method skills to solve specific practical problems. Moreover, due to the particularity of science courses in colleges and universities, the application of mathematical modeling usually makes the course have the following characteristics.

The first is a highly abstract generalization. Mathematical modeling education is generally used to solve more practical specific problems. Unlike the liberal arts model, the mathematical modeling focus on the characteristics is destined to be used in different fields. Usually, mathematical modeling is applied to college education. First, it is necessary for college students to understand the practical background of specific problems, and then quantify the different levels of the problem to master the digital science data. Secondly, according to the data obtained from the data, the inherent law of the problem is divided into the importance of the parameters, in order to grasp the key contradictions of the problem. Finally, simplification and certain abstraction are based on key contradictions and then portrayed in a more precise digital language (Mei, 2018).

The second is the comprehensiveness of knowledge capabilities. Mathematical modeling education comes from a variety of problems, and in the actual problem research, it is necessary to grasp the detailed and comprehensive practical factors. This requires not only multiple types of mathematical knowledge, such as probability statistics, planning theory, combinatorial optimization, etc., but also requires high computer information processing capabilities. Only a comprehensive and multi-disciplinary knowledge can better grasp and solve various problems faced in college education. Therefore, the implementation of mathematical modeling education in colleges and universities is actually to help college students better master the system and comprehensive theoretical knowledge of the subject.

The third is the wide application. The universal application of mathematical modeling education means that it can solve problems in various fields. The mathematics modeling education in colleges and universities can be said to build a bridge of disciplines, which links the various disciplines to theory and practice. From small solutions to small problems in life, the establishment of satellite nuclear power plants requires mathematical modeling, and then the use of computer technology for the phase of usage (Zhao and Cao, 2016). It can be said that mathematical modeling has penetrated into various fields of society, and English solves various practical problems.

3. The Importance of Mathematical Modeling Education in the Cultivation of College Students' Quality

3.1 Helping University Students Broaden Their Knowledge Structure

The speed of knowledge updating is accelerating, and it is difficult for the limited courses to transfer all knowledge to college students. Therefore, colleges and universities do not need to focus on the teaching of students' theoretical knowledge and skills, but also need to pay attention to the exploration and learning of time methods. And mathematics modeling education is not only in the field of mathematics, it has a wide range of applications in more fields. At the same time, because of the extensive characteristics of mathematical modeling education, a lot of knowledge needs to be

consulted temporarily to be better mastered. In the process of teaching, teachers will face a more practical problem. How to obtain relevant knowledge and information through consulting materials and documents, deepen the understanding of college students on the problem, and establish a reasonable mathematical model. The course of mathematical modeling not only requires college students to master the knowledge of mathematics, but also requires college students to understand and master the knowledge of related majors. The course of mathematical modeling can enable college students to cultivate the habit and consciousness of learning new knowledge, broaden the knowledge structure, change from teaching students knowledge to teaching students learning, and complete the leap from knowledge inheritance to knowledge creation.

3.2 Cultivating the Creative Thinking Ability and Spirit of College Students

The development of modern society and economy leads to the development of knowledge and skills which need to experience the evolution of education background, diploma, ability and innovative society. Therefore, the cultivation of college students is constantly changing to innovative talents. In short, if modern college students want to gain competitive advantage in the future society, they need to pay attention to the cultivation of innovative spirit in university education. In this regard, mathematical modeling education needs college students to recombine the original knowledge and skills, so as to form a new perceptual thinking and image, so as to put forward creative thinking. In this context, college students need to fully analyze the data, grasp the contradictions of various problems, simplify the level of various problems, and finally find the best solution. This further shows that mathematical modeling education is a process of creative teaching, which provides college students with corresponding creative thinking ability.

3.3 Helping to Cultivate the Healthy Psychological Quality of College Students

As an art of mind, mathematics modeling education is not always smooth in the expected education modeling. Many times, even after hard mental work, you may still face setbacks and failures, which requires perseverance, patience, diligence, wit and tenacity. The mathematical modeling competition for college students is a process of self challenge, difficulty challenge and failure challenge. This can not only cultivate the spirit of modesty, prudence, preciseness, hard work and continuous progress of college students, but also cultivate the students to overcome difficulties with tenacious perseverance and great enthusiasm. In addition, it is necessary to adhere to educational innovation, deepen educational reform, optimize educational structure, reasonably allocate educational resources, improve educational quality and management level, and comprehensively promote quality-oriented education.

4. Suggestions of Mathematical Modeling Education on Quality Training of College Students

First, practice mathematics modeling course and mathematics experiment. Although college students do not have deep basic knowledge, they have strong imagination and innovative thinking. Therefore, high efficiency can establish some simple and intuitive modeling topics for students to participate in, and at the same time, some modeling competitions can be carried out between schools to improve students' ability by means of competition. It is believed that the development of mathematical modeling activities in middle school teaching will be of great help to the cultivation of students' interest in mathematical learning, the establishment of competitive consciousness, the cultivation of team spirit and the improvement of mathematical quality.

Second, improving the college entrance examination system, a key issue that restricts the cultivation of students' ability, is the only way to change the state of students' learning for the exam. Only in this way can quality education be truly realized. Of course, improving the college entrance examination system is not without an evaluation system. It is not recommended to use a simple examination system to assess the quality of student learning. Instead, a more scientific evaluation system should be used to test students' abilities. At the same time, the role of this system is not only for the two-way choice between colleges and students, it is also a system to help students further understand their abilities and interests.

Third, the following measures should be taken to implement mathematical modeling education. The application of mathematical modeling education in college curriculum needs to highlight the main position of College Students' learning. In this context, the education of mathematical modeling in Colleges and universities also needs to pay attention to the requirements and levels. In short, it is to carry out targeted education according to the individual development of college students, so as to promote the all-round, high-quality and comprehensive development of college students. At the same time, college teachers should also guide students individually and teach at different levels. Because modeling mathematics is facing all kinds of practical teaching problems, modeling education should also be a process of infiltration of mathematical ideas and methods, that is, the idea of gradual infiltration of functions, the idea of combination of numbers and shapes, the idea of equations.

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