

# *Research and Exploration on Double Creative Education for College Students – A Case Study of Mechanical Engineering Major*

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**Abstract:** With the reform and development of higher education and the quality requirements of society for professional talents, the double creative education for college students has become an indispensable teaching content in colleges and universities. Cultivating high-quality professional talents with good innovation and entrepreneurship ability being suitable for social needs has become the social responsibility that colleges and universities must undertake. This paper first introduced the connotation of double creative education, and then made a comprehensive analysis on the current situation of the above-mentioned problems for the students majoring in aircraft manufacturing in CAFUC, and put forward the countermeasures for carrying out entrepreneurship and innovation education, the strategies for developing double creative talents and the countermeasures for universities to implement entrepreneurship and innovation driven.

## 1. Introduction

The continuous development and progress of today's society are mainly attributed to the deep innovation of all walks of life. Among them, taking the mechanical engineering as an example, the college students, as the main force of the wave of entrepreneurship and the main force to promote social development, constantly continue to inject fresh vitality into social progress [1]. At present, the increasingly severe employment situation has led to more freshmen students to choose to start their own businesses, which some entrepreneurs are motivated by their own interests and hobbies, and some are helpless under the huge employment pressure [2]. In short, college students' entrepreneurship has set off a new upsurge, and this enthusiasm has gradually spread among junior students. Therefore, to improve the success rate of college students' entrepreneurship, it is very important to improve the basic quality of college students' innovation and entrepreneurship (also known as double creation) education.

The independent entrepreneurship of fresh college students should be carried out under the correct guidance of the national double creation policy. As the cradle of cultivating college students, the colleges and universities should also set up double innovation curriculums, so that college students who want to start a business can receive the guidance of basic double creative education in advance.

The purpose of double creation education is to improve the basic quality of college students and enhance their innovative consciousness [3].

From the perspective of the existing entrepreneurial situation, there are few people who really succeed in college students' entrepreneurship. Most entrepreneurial teams fail due to lack of experience, lack of funds and other factors. The establishment of double creation education in colleges and universities does not require everyone to choose to start a business. Instead, it is aimed at college students with entrepreneurial intention to enhance their ability to solve problems in the process of entrepreneurship through the basic double creation education, so that students can continue to move forward with more experience in the adversity of double creation, and improve the success rate of independent entrepreneurship of fresh students.

## **2. Problems of cultivating mechanical students in double creative education**

### **2.1 Lack of clear cognitive orientation**

At present, mechanical colleges and universities have insufficient understanding of double creation, no solid theory, and no senior practice. The school's understanding of the entrepreneurship education rests only on the graduation and employment rates, completing the indicators and improving their reputation, rather than establishing entrepreneurship education on the basis of guiding students to find themselves and achieve themselves. They attach great importance to utilitarian, so helping students to accept entrepreneurship education is not implemented by colleges and universities [4]. Double creative education is a part of college students' learning, especially entrepreneurial students. Only by correctly understanding the importance of the goal and value orientation of entrepreneurship education, can we understand its internal real development significance.

### **2.2 Lack of systematic curriculum system**

Most mechanical colleges and universities are present in the initial stage of the construction of double creative courses. The practice-based double creative curriculum system is not perfect, and the content of the corresponding courses is mostly related to the development of competition or employment guidance, which is insufficient to improve the entrepreneurial ability of college students [5]. In order to cultivate double creative talents and improve its education quality, it is necessary to combine theory with practice. And the targeted, purposeful and systematic training and all-round assessment shall be conducted for students through double creative courses, meanwhile, the amateur education outside the major should be avoided. We should not only look at students' scores and rankings, but also combine other knowledge and professional knowledge to develop across boundaries.

### **2.3 Lack of favorable environmental atmosphere**

Environmental factors play a very important role in double creative education. From the current point of view, the entrepreneurship education system for the majority of mechanical colleges and universities is not complete, which result in college students do not have a good environment [6]. However, the main reasons for the lack of environmental atmosphere are the lack of well-developed double innovation system, good cultural atmosphere, correct evaluation guidance and so on.

### **3. Countermeasures for the Development of double creative Education**

#### **3.1 Guiding students to improve themselves**

Self-employed college students can choose courses related to double creative education to enhance their own innovate and entrepreneurship ability. It is easy to set up a company, but to run a enterprise and become a boss with the level of operation and management, the full understanding of the enterprise operation mode is especially necessary. Based on this, the mechanical institutions can provide a systematic theoretical education to stimulate students' interest in entrepreneurial knowledge, while schools should also encourage students to conduct market research and fully understand market rules [7].

Entrepreneurs need to be calm and think carefully about the direction and value of their industry. For example, entrepreneurs are interested in a certain field, they can find enterprises in related fields, and practice in this field in advance to fully verify your orientation. Of course, the conditional schools also provide a basic practice platform for entrepreneurs to enable them to receive guidance in internships or training [8]. At the same time, students should learn about national and regional entrepreneurship policies in advance. In short, entrepreneurship is difficult, entrepreneurs need to have a strong spirit, solid theoretical knowledge reserves and enough innovative practice ability.

#### **3.2 Construction of assessment system in personalized selection training**

Constructing a student-centered personalized education evaluation system is an important part of double creative education. It can better promote the reform of university education through scientific evaluation and selection of appropriate talents [9]. During the period of selection and evaluation, the mechanical colleges and universities must abandon the traditional concept teaching, make education more suitable for social needs and students' personality development, and rely on personalized training to meet the needs of students and society. This system can not only improve students' interest, personalized ability and advantages, but also provide more space and lay a solid foundation for their entrepreneurship.

#### **3.3 Reinforcement of double creation practical activities**

Practice is crucial to developing double creative skills. Only the combination of theory and practice can fully train college students' creative ability and promote their individualized development [10]. Therefore, participation in multi-level social practice activities is the main training means for college students, and it is also a way to promote their active participation in scientific research and cultivate their double creative interest. Moreover, a series of incentive policies such as various social practice activities, free trade and trade development have also greatly increased the subjective initiative of students.

### **4. Strategies for the development of double creative talents**

#### **4.1 Constructing the basic system of vocational education**

With the tide of entrepreneurship in the new era such as big data and the internet, the important strategic development orientation of building a modern and innovative country, as well as the important policy instructions for the development of vocational education all emphasize accelerating the collaborative construction of a modern basic system of vocational education [11]. College educators believe that it is very important to closely combine the educations between the double

creative talents in universities and the education of students' ideological, theoretical and political quality, give full play to the guiding and exemplary role of students with the innovative education, and guide students to the correct direction of thinking with the correct scientific outlook on life, values and social values [12]. Taking the education of innovative technology and entrepreneurial talents in colleges and universities as the core, the ideological and political quality education of scholars' entrepreneurship is strengthened, and the basic system of education through university collaboration is constructed, as well as the basic function of "all staff, whole process and all-round" collaborative education of teachers and students in colleges and universities is paid special attention, so as to realize the fundamental task of educating people by virtue.

For outstanding scholars, the ideological, political and cultural education of entrepreneurship should take strengthening the cultivation of their ability between the independent innovation-driven entrepreneurship and entrepreneurial practice as the main educational goal. It should guide students to establish patriotic ideas, learning concepts and practical ideas through relying on theoretical knowledge learning in class and extracurricular practice activities, sharpen their excellent qualities such as hard struggle, self-reliance and perseverance. The students' ability to learn and resist pressure are continuously improved to gradually realize the transformation of freshmen from high school to university, so as to establish correct entrepreneurial concepts, basic professional ethics and pure entrepreneurial motivation, and then enhance its core competitiveness in the future society.

#### **4.2 Cultivating practice-based double creative ability**

Colleges and universities should strive to implement the comprehensive unity of practice and theoretical learning, and take practice as the purpose of learning education [13]. The reason is that practice has absolute advantages in improving students' theoretical level, operation skills and innovation ability. Double creative education requires learning theory and trying to participate in various practical activities such as robot competition, MCU programming competition, intelligent vehicle design competition, etc.

In addition, the school should focus on cultivating students with strong ability, and pay attention to the practical double creative team. While completing the task of double creation, the team should also integrate the spirits of between the helping and guiding and innovative practice into students' learning, life and work, so that students can benefit all their lives and become truly useful to society.

### **5. Measures for the implementation of double creative in school**

Double creative education is an important method to improve the innovative thinking, innovation ability of college students in China, and individuals become more excellent. In order to promote college students to adapt to the current social development and improve their entrepreneurship and innovation ability, colleges and universities should focus on three aspects, as follows:

(1) Improving the awareness of innovation and entrepreneurship, cultivating the idea of independent and desire for double creative innovation

The idea of entrepreneurship and innovation itself is a subjective understanding. All colleges and universities should put all types of talents in the same important and most important position. While cultivating students' double creative ability and promoting students' double creative idea, they can also promote the development of national double creative policy, raise the awareness of the whole people on entrepreneurship and innovation to a new level, and realize the transformation from thinking of double creation to longing for entrepreneurship and innovation [14]. In addition, students should also be deeply aware of the severity and cruelty of the employment situation in the new era. College students must know that the essence of enhancing self-comprehensive quality is to improve them to adapt to the employment competition of society, and to cultivate students to enter the future

complex and changeable social environment plays an important role.

(2) Actively creating important ideas to encourage double creation education

Through newspapers, radio, public numbers and other forms, the college students are told that the national and local government policies and measures to encourage entrepreneurship of college students [15]. Although China's double creative environment is not very good, the national system is not very perfect, but in order to let college students have more knowledge, have a broader vision and pattern, the current national policy is making changes for us, college students should be full of expectations and desire for entrepreneurship.

(3) By visiting small and medium-sized enterprises which is with the characteristics of successful entrepreneurship, college students can more intuitively understand the cases of entrepreneurial failure, and find problems from failure cases to enlighten themselves, and then avoid making the same mistakes in future entrepreneurship [16]. In addition, colleges and universities can also invite successful entrepreneurs to share their entrepreneurial process, and establish a series of incentive systems to encourage double creative deed.

## 6. Conclusion

The development of college students' double creative education is one of the important tasks of cultivating double creative talents in colleges and universities, and is also the guarantee of the quality of employment in colleges and universities. In-depth study of the existing problems of double creative education, countermeasures, development strategies and driving measures can comprehensively improve students' independent innovation ability, effectively solve the problem of students' employment difficulties, better alleviate the pressure of social employment and improve the current employment situation. Therefore, in the process of the development of double creative education, colleges and universities in China should continuously carry out teaching innovation to ensure the smooth employment and good development of current students.

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