

Exploration on the Teaching Mode of Engineering Students Based on the Cultivation of Innovative Talents

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Abstract: Most of China's colleges and universities focus on professional education, cultivate students' professional ability, and improve students' ability to adapt to society and serve the society. However, the current economic situation makes the entrepreneurial ability of college students become one of the necessary abilities of the current society, in order to start a business, college students must have enough innovation ability, so as to improve the success rate of college students' entrepreneurship. Therefore, colleges and universities must pay attention to students' professional education and innovation education at the same time. Based on the analysis of the current situation of education of college students' innovation and entrepreneurship, this paper hopes to find out the existing problems of college students' innovation and entrepreneurship education in China and put forward development suggestions.

1. Introduction

The idea of innovative entrepreneurship education is mainly to elaborate and study the value of entrepreneurship education. The main goal of this theory is to cultivate the innovative entrepreneurship of college students, and at the same time to cultivate the innovative thinking mode and behavior mode of college students. At present, most universities carry out innovation and entrepreneurship education, but in the process of development, there are still many problems, such as insufficient understanding of innovation and entrepreneurship education, low teaching efficiency, and inconsistent with professional education, all kinds of factors hinder its development. In the process of reform and exploration, local colleges and universities should first solve the existing problems and then develop^[1].

2. Problems Existing in the Cultivation of Practical Innovation Ability of Engineering Students in China

At present, China's higher education is in a critical period of educational transformation. Although many years of education system reform has achieved certain results and made significant contributions to socialist modernization, the knowledge structure, professional skills, comprehensive quality of university graduates, etc. There is still a big gap with the needs of the society. Most students are unbalanced in development, especially in the cultivation and application of innovation ability and practical ability.

2.1. Long-term Educational Philosophy Restricts students' Ability to Innovate

To deepen the reform of the educational system, the key is to renew the educational concept, and the core lies in the reform of the personnel training system. The effect of education should not only depend on whether the students can fill in the standard answers accurately, but also on the students' learning ability, practical ability, innovation ability, whether they have mastered the ability to solve problems and whether they have a high sense of social responsibility. The traditional culture of China for thousands of years is deeply influenced by Confucianism. Its mode of thinking is biased towards intuition, and it does not pay much attention to logic analysis and scientific evidence. This kind of

thinking restricts the cultivation of students' ability and creativity. With the society's desire for talents, the law of human social development will gradually rely on the innovation of knowledge rather than knowledge itself^[2]. Only constant learning and innovation can make people learn to survive and develop in real life. Therefore, the core of education is no longer knowledge itself but the ability and method to acquire knowledge^[3].

2.2. Curriculum Learning form is Single, Selectivity and Autonomy are Less

Each major has its own characteristics, Xijing University is no exception. The engineering, science, economics, medicine and so on of our college have their own professional characteristics. As a school, we should make full use of this advantage of the school and provide more channels for students to choose their own personality. At present, when the school formulates the teaching plan, the students' initiative is not fully utilized. The students of the same major basically implement a unified syllabus, and students of other majors will not participate in other professional courses. Such as: computer science and technology and automation major students rarely have the opportunity to come into contact with the related courses such as medicine, economics, university of four years of study is just to complete the training objectives as described in the syllabus, and no other comprehensive knowledge expansion, the reasons for this problem is first school in formulating training outline when there's a lot of credit limit choice, students less selective and autonomy; Secondly, during the period of study, the teaching courses of students themselves are relatively heavy, which makes it very difficult to learn the backbone courses of this major^[4].

2.3. Problems in the Value Orientation of Students Themselves

College students are the successors of the socialist construction, not only should have innovation enthusiasm, but also should have broad ideal and ambition, but in recent years, many of the students in their value orientation is not clear phenomenon, in their view now social conditions good, rich material conditions, learning knowledge is dispensable, some students even show aversion, far from the spirit of innovation. Although some students have certain enthusiasm for innovation through study and teacher guidance, there is a general lack of hard work and perseverance in practice^[5]. Once they encounter difficulties and setbacks, they will be helpless, frustrated, lack of responsibility, and self-centered. Emotional self-control is bad, emotionally serious, unwilling to be relatives, not doing small things, just wanting to do big things and so on. Nowadays, the interest of college students often changes with time, mood and environment, lack of positive psychological orientation, lack of depth and breadth of basic knowledge, which are a deep psychological reason for lack of innovation.

3. It is Necessary to Develop Science and Technology Competition for the Cultivation of Innovative talents

3.1. Cultivate Students' Consciousness and Ability of Scientific and Technological Innovation

In recent years, the number of competition items of college students in China has gradually increased, and the selection methods of science and technology competitions have also shown a trend of diversification. At present, science and technology competitions are generally divided into two categories: guiding proposition and non-guiding proposition. The science and technology competition of guiding proposition is sponsored by the Ministry of Education, held by provinces and cities or some colleges and universities, and the competition is conducted by a special organizing committee. With the development of market demand, the proposition mode of competition has gradually changed from the original fixed format proposition to the guiding proposition focusing on solving practical application problems, such as mathematical modeling contest for college students, electronic design contest and free-scale intelligent automobile contest, the proposition mode adopted in these competitions is very flexible^[6]. Non-directive proposition competition such as national college students entrepreneurship competition, "challenge cup" national college students extracurricular academic science and technology competition. Either way, they emphasize the use of innovation in competition, new methods, new ideas, or new techniques used by students in their works. Therefore, students are required to pay attention to the cultivation of innovation consciousness

in the preparation stage of science and technology competition, make comprehensive use of what they have learned, and give full play to their innovative thinking, so as to continuously carry out innovative design in the process of competition.

3.2. Cultivate and Improve Students' Ability to Learn Independently

Science and technology competitions can train and improve students' ability to learn independently. Students can complete the knowledge content stipulated in the syllabus, and also improve their knowledge structure through independent learning, and further explore various new problems encountered in the actual design process. Because the science and technology competition has certain depth and the breadth, therefore can inspect the student knowledge systematically comprehensively. In the competition, students need to analyze phenomena in real time, build, design, and produce products, and timely access data for various new problems encountered. Self-study remedies lack knowledge and solve problems themselves. Therefore, students must not only have solid basic knowledge, but also have good autonomous learning ability. At the same time, the science and technology competition not only trains the students' individual innovation ability, but also improves the students' comprehensive quality, arouses the students' study enthusiasm, and provides the help for the students' innovation.

3.3. Enhance Students' Practical Ability and Sense of Teamwork

Science and technology competition itself is also a kind of competitive activity, and this kind of activity needs students to have strong practical ability and good sense of team cooperation. In the form of competition, science and technology competition is different from the study of general theoretical courses or practical practice. The evaluation method of scientific and technological competition is to require students to complete the design of the relevant propositions, the design of the program and the design of the final works within the specified time. For example, the National Electronic Design Competition adopts the national unified proposition and the competition form in the division area. The three students form a competition group. The team members work together to complete the design task. During the competition, students can check the paper or network technical materials^[7]. The members of the team can collectively discuss design ideas, determine the design plan, the division of labor, unity and cooperation, and complete the competition tasks independently within the specified time. This is a great consideration for the students' comprehensive knowledge, practical ability and teamwork. Therefore, science and technology competitions generally require students to participate in a team-based manner. Team members need to have good communication and coordination skills, which has a good effect on students' communication skills and teamwork spirit. At the same time, science and technology competition is often a long process, which is also a good exercise for students' learning will and psychological quality. It emphasizes not only the basic design of theory, but also the hands-on design of practice. Not only the ability of students to comprehensively apply basic knowledge, but also the innovative consciousness of students to think independently are investigated. Therefore, it is in line with the goal of training talents in China in the 21st century to carry out scientific and technological competitions. It is an important method to cultivate innovative talents in colleges and universities. At the same time, the results of the science and technology competition can also reflect the school's teaching level and teaching reform results from one aspect.

4. Measures to Cultivate Students' Innovative Ability with Science and Technology Competition as the Carrier

4.1. Desalination Specialty Restriction to Create a Good Innovation Environment

With the unceasing change of social economic demand structure, discipline and discipline, specialty and mutual infiltration between, between each other, the school when making professional development plan should be form a complete set of teaching management rules, revise syllabus, to a certain extent, played down professional limitation, let the student to cross major, interdisciplinary, and even across the school course learning, credits obtained between various disciplines and schools

recognized each other^[8].Of course, this method involves a wide range of areas, the implementation is more difficult.Therefore, in reality, schools can add different kinds of general elective courses to meet the needs of different professional students, and create a good environment for students to be independent of disciplines and professions.

4.2. Change Students' Current Assessment and Reward Standards

At present, most colleges and universities evaluate students' awards and awards in the form of annual comprehensive evaluation. That is, within one year, the students' grades and credits are weighted and averaged according to the scores. This evaluation method can reflect the big The performance of some students, but can not fully and objectively reflect the individual quality of students, which is not conducive to the development of students' specialties.For one of the students, all-round development is important, specialty development can show their personal ability and the innovation spirit, more colleges and universities to cultivate the students' goal is the combination of students' basic quality and personality development, among them, the basic quality summary for the students of good moral character and the textbook knowledge can meet performance requirements, personality development summary for each of the students should have their own unique expertise.Therefore, when setting up national scholarships and bursaries, schools should try to consider individual competitions of different levels and different types to encourage students to actively develop their own advantages.Although some students have average academic performance in some courses, as long as they have unique features and expertise in one of the courses, they can also get scholarships through competitions and get opportunities to exert themselves.

4.3. Opening Innovative Experimental Class with Unique Characteristics

At present, the discipline construction of Xijing College has covered the engineering professional group led by intelligent manufacturing, the economic management professional group led by auditing and accounting, and the modern art design professional group with visual communication design as the axis. .There are dozens of classes of different sizes in these disciplines. From the perspective of education, each student's hobbies, personal ideals, and knowledge structure are different, and even some students are admitted to university. I found that my major and personal interests are fundamentally different. I can't find a goal in learning, let alone the cultivation of creativity.Therefore, schools can offer unique innovative experimental classes, classifying different types, different specialized student, send out the beginning ability is strong, solid basic knowledge of students, to work out teaching plans and professional courses, this way to stimulate students' curiosity, curiosity, and inspirational.The creation of innovative experimental classes with unique features can not only stimulate students' enthusiasm for creation, but also train and strengthen students' creative generation of new ideas and methods in cross-disciplines through the integration of different disciplines, so as to stimulate students' inherent creative potential and lay a good foundation for future innovation.

4.4. Improving Teachers' Innovative Educational Ability and Giving Play to Teachers' Leading Role

Instructors should not only use their own professional knowledge, professional skills, research ideas to guide and inspire students, but also psychological counseling for students, especially in the face of the fear of difficulties in the competition of students, the patience of the instructor to persuade and actively encourage students to complete the competition confidence.For example, Freescale's smart car competition involves electronics, machinery, control and other related fields, and controlling a car to drive at a faster speed requires students to have a wide range of professional basic knowledge and rich control experience, especially in debugging^[9]. In the process, because electromechanical performance and software programs involve many factors that affect each other, it is difficult for students to cooperate without the guidance of the instructor.Therefore, the teacher's rich professional knowledge and gradual guidance is one of the key factors for students to participate in science and technology competitions^[10].

4.5. Promoting the Reform of Practical Teaching Mode with Science and Technology Competition as the Carrier

In recent years, students of Xijing University have made certain achievements in various college student competitions of different levels nationwide, and many achievements of these competitions have filled the gaps of the university. Science and technology competition also makes us fully realize the importance of experimental teaching in the cultivation of students' innovative ability, and realize that the reform of experimental teaching is imperative. Therefore, Xijing College students of science and technology competition as an opportunity to further explore and deepen the experiment teaching system, school office according to the requirement of the students of science and technology competition, also the optimization of experimental projects have done a lot of, increase a series of experimental projects for science and technology competition, such as the outline of electronic science and technology major in the experiment, we according to the national electronic design competition of the events, the experiment project and two aspects of the production process of training, on the basis of deepening theoretical knowledge, with the method of multi-channel training, so that students in a professional basis, professional skills and the ability to practice and get plenty of exercise, It greatly improves students' ability of innovation.

5. Summary

Innovation and entrepreneurship education is an important way to cultivate students' innovative consciousness and thinking. Local colleges and universities need to actively carry out innovative entrepreneurship education, reform constantly on the existing basis, perfect the construction of teachers' team, and combine innovative education with professional education. Renew the existing educational concept, so as to relieve the pressure of social employment and transfer more high-quality talents to the society.

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