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Exploration on the Cultivation Model of Innovation and Entrepreneurship for the Internet of Things Engineering Profession

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Abstract: Innovation is the soul of social progress, the entrepreneurship is an important way to promote social economic development and improve people's livelihood. Contemporary college students are rich in imagination and creativity, who are the main force of innovation and entrepreneurship. Strengthening innovation and entrepreneurship education is an important measure to promote the comprehensive reform of higher education and improve the quality of talent training. Chinese colleges or universities attach great importance to "Entrepreneurship and Innovation Education" and run it through the whole process of talent training. Taking Internet of things engineering as an example, this paper actively explores the talent training mode under the background of innovation and entrepreneurship education. Professional teachers' pay attention to the development of the second classroom, take discipline competition as the carrier, and actively carry out the effective integration of innovation and entrepreneurship education and professional education, which can continuously improve the quality of higher education, promote the all-round development of students, cultivate students' innovative and entrepreneurial thinking and ideas, improve students' innovative and entrepreneurial ability and practical ability, and improve students' professional comprehensive quality and core competitiveness.

Keywords: Innovation and Entrepreneurship, Talent Training, Subject Competition, Popular Science Activities

1. Introduction

In September 2014, at the summer Davos forum, Chinese Premier Li Keqiang put forward the slogan of "mass entrepreneurship and innovation". With the rapid development of Internet plus, AI, IOT and big data technology, colleges and universities need to actively carry out innovation and entrepreneurship education for contemporary college students in order to better implement the "double creation education".

College students are the new force to implement the innovation driven development strategy and promote mass entrepreneurship and innovation. They should not only seriously and solidly study and master more knowledge, but also devote themselves to innovation and entrepreneurship and improve their practical ability. As people's teachers in Colleges or universities, they have the responsibility to integrate innovation and entrepreneurship education into the whole talent training. At the same time, they can actively carry out teaching and research reform and exploration based on the talent training mode of mass entrepreneurship and innovation education.

Through the above exploration and efforts, we can effectively enhance students' entrepreneurial awareness, innovative spirit and creative ability, cultivate the soil for mass entrepreneurship and innovation, and provide a steady stream of talent and intelligence support for building an innovative country.

2. The Status of Education

In the 1940s, the United States is the origin for the practice

of college students' innovation and entrepreneurship education [7]. Harvard Business School MBA Course "Management of New Business", especially in some developed capitalist countries, such as the United States, Germany and Japan. The United States attaches great importance to the innovation and entrepreneurship education of domestic students, they have formed a fixed development model in the country. It focuses on the reasonable compilation of teaching materials, launches innovative entrepreneurship courses at different levels, emphasizes the cultivation of entrepreneurship and innovation awareness, and then provides a broad practice platform [1].

Since Chinese reform and opening up, although the innovation and entrepreneurship education in Chinese universities has gradually been carried out, it is still in its infancy. At this stage, the major colleges or universities generally have some problems such as weak students' awareness of innovation and entrepreneurship and the concepts. Their ability should be improved, emphasis on theory and practice, weak teaching concepts of dual-creation education, and lack of professional talents.

In the "2014 China College Student Employment Report", the proportion of self-employed entrepreneurs of college graduates in 2013 was 2.3%, 2.0% in 2012, 1.36% in 2011, but the developed countries have reached 20% -30% in U.S. college students. They have been leading the world in innovation and entrepreneurship, while Japanese innovation and entrepreneurship education has gradually formed a coordinated system of production and learning. However, Chinese college students are generally at an intermediate level of innovation and entrepreneurship, and college students generally lack of the innovation consciousness and entrepreneurial ability, imperfect innovation and entrepreneurship curriculum systems, weak faculty capacity, and inadequate guarantee systems.

The cultivation of innovative and entrepreneurial talents [2] is an important strategic measure to promote economic development, technological progress and international competitiveness. Innovation and entrepreneurship education is a new concept of higher education. Colleges and universities should regard training innovative talents as a direction for the direction of university education, catching the development opportunities to carry out innovation and entrepreneurship education, improving the quality of education and the comprehensive quality of college students.

3. Exploration for Innovative and Entrepreneurial Ability

It is a new teaching concept and model, which can promote contemporary college students' innovation and entrepreneurship education. They should actively promote innovation and entrepreneurship education in colleges and universities [8]. It is a great practical significance and long-term strategic significance, which is improving the quality of talent training for promoting the scientific development of higher education and reforming the education

and teaching. At the same time, the awareness and concept of innovation and entrepreneurship should be run through the entire process of professional talent training programs. As a rooted college people's teacher, they should do a better job of teaching and educating people firstly, then they should put innovation and entrepreneurship education in place, and actively carry out exploration of talent training models and methods of "innovation and entrepreneurship" education.

3.1. Actively Revising Talent Training Programs

The orientation is employment for IoT Engineering, the guide is student's employment, the instruction is the advanced applied talent training concept. According to the thought of "valuing the foundation, broadening the caliber, focusing on quality, strengthening capabilities, and highlighting characteristics"[9], it is important to emphasize the cultivation of professional practical ability and comprehensive quality. In order to actively respond to the slogan of "mass entrepreneurship and innovation", the teacher should actively explore the training mode of innovative and entrepreneurial practical talents. The innovation and entrepreneurship education should be effectively incorporated into professional education and cultural quality teaching and teaching plans and credit systems, highlighting professional characteristics. The establishment of innovative and entrepreneurial courses must be integrated with the professional curriculum system, and the teaching and practice activities related to innovation and entrepreneurship must be effectively connected with the professional practice teaching [10].

The IoT engineering major has been performing major admissions since 2014. In 2019, admissions have returned to professional admissions. The talent training plan has been revised many times, by active visiting the other colleges in form of investigations and studies. Internet of things engineering pay more attention to school-enterprise cooperation and collaborative education. As professional teachers, who should proactively go deep into the enterprise industry and relate employers, and hold discussions with enterprise engineers, because they often understand the latest technology and the latest developments and frontiers in the field of IoT technology. The professional and technical personnel cultivated as institutions of higher learning and the employment of social enterprises and institutions require that the gap be minimized, and it is best to achieve "zero distance connection", but it is still relatively difficult to achieve it.

Through discussions with companies, it should be constructed scientific and rational of professional curriculum system and knowledge. The innovation and entrepreneurship education should be run through the entire process of educating people. In the first year of university is specially invited to undertake the "Innovation and entrepreneurship education course", who is from the School of Innovation and Entrepreneurship, total 16 hours. Universities could actively understand the relevant principles and characteristics of innovation and entrepreneurship education.

On the one hand, during the process of building a professional curriculum system, the curriculum needs to

consider the completeness and systematization of the curriculum system that closely surrounds the IoT engineering specialty. On the other hand, innovation and entrepreneurship education courses need to be offered in different stages and levels.

In the process of teaching, professional teachers arrange teaching design scientifically and reasonably, fully interact with college students, and fully stimulate college students' passion for innovation and entrepreneurship, deepen communication and exchange, giving students enough space and time to guide students to think and inspiring innovation and entrepreneurship [3].

3.2. Enhancing Innovation and Entrepreneurship Concept

Since 2010, the party and national government have paid more and more attention to the concept of innovative entrepreneurship education in colleges and universities [4]. In the actual implementation process, major colleges or universities and local governments have also provided great help and support, whether it is from the tilt of policies to the reform of college education systems, actively calling for front-line teachers to take the initiative to learn innovation and entrepreneurship education, and strive to effectively integrate innovation and entrepreneurship education with professional education. By the way, although the concept of innovation and entrepreneurship education in China has been relatively short, no matter from the teaching philosophy or the overall quality of professional teachers, there are still some problems, and there is a certain distance from expected expectations.

In order to implement innovation and entrepreneurship better education, our some Chinese universities have set up a college for innovation and entrepreneurship education, the School of Information Science and Technology of the secondary college has set up a steering committee for innovation and entrepreneurship education. Some public elective courses have been added to the entire university for innovation and entrepreneurship education. Professional teachers should actively participate in relevant innovation and entrepreneurship education teacher training classes or teaching seminars. They need to continuously improve teachers' innovative and entrepreneurial education concepts. Professional teachers need to change education concepts, teaching models and methods, and strengthen knowledge sharing among teachers [5].

3.3. Focus on the Development of "The Second Classroom"

According to the demand for talent training based on IoT technology and industrial development, we should establish a curriculum system and talent training plan according to the needs of employers in social enterprises, making the curriculum system more standardized and more scientific. Tightly surround the perception layer, network layer and application layer more reasonable. Students should master core key technologies in the field of IoT, which is tightly surrounded the perception layer, network layer and application layer. Students can provide relevant professional electives

according to their professional interests and professional development plans [6].

We should construct the course platform, such as general education course (group) + subject basic course + professional group (large category) platform course (group) + professional course (group) + specialization (professional direction) course (group) + optional elective course (group), which is open, dynamic and parallel course architecture. We implement total credit control, limit the number of courses, control the number of weekly hours, and increase the credits of any optional course [7].

As a person in charge of the IoT, who should pay more attention to the development of the second class, and actively organize and mobilize students to participate in related subject competition. Discipline competition is an effective means important carrier and platform, which will cultivate the comprehensive professional quality and innovative spirit of contemporary college students. Discipline competition is an very important guiding action, such as creating an innovative and practical education atmosphere, cultivating students' innovative spirit, team spirit, communication skills and practical skills. That is an important guiding role in stimulating students' hobbies and potentials.

First of all, the School of Information Science and Technology continues to host the annual IT Cultural Festival. On the other hand, students should be actively mobilized to participate in relevant national, provincial and municipal related discipline competitions. We can require contemporary college students to actively apply for college student innovation and entrepreneurship projects. Through the active preparation of discipline competitions and the design and implementation of Daiso projects, students will be continuously improved in their practical skills and their ability to comprehensively solve problems.

Figure 1. Robot team participates in the subject competition.

Taking the discipline competition as the carrier [9], the instructor should actively carry out practical research on the deep integration of modern information technology and professional curriculum teaching reform. Instructors effectively integrate information technology into the teaching process of the curriculum and create a new type of teaching environment, which can realize a teaching and learning

method characterized by "autonomy, inquiry and cooperation", which can give full play to the leading role of teachers and fully reflect the status of students. So as to give full play to students' initiative, enthusiasm and creativity. Radically changing the traditional "teacher" -centered curriculum teaching model.

3.4. Carry out a Series of Science Popularization Activities

With the rapid development of science and technology, the competition of the comprehensive national strength of all countries depends on the competition of the level of scientific and technological development. The investment in science and technology is also the main energy of each country to maintain and promote development; the generation and creation of science and technology are inseparable from human intelligence and hard work. If the national science and technology wants to further develop and achieve major breakthroughs, it still needs infinite exploration and creation of talents from all walks of life. For this reason, countries around the world attach great importance to the cultivation of innovative and entrepreneurial talents.

***Figure 2.** Participation of enterprises in curriculum design.*

***Figure 3.** Participation of enterprises in curriculum design.*

In order to promote the scientific spirit, popularize scientific knowledge, and publicize scientific thoughts. Colleges or universities should comprehensively improve the comprehensive quality and scientific and technological capabilities of college students; actively adopt the form of science popularization activities. Colleges or universities should regularly invite well-known entrepreneurs or successful entrepreneurs in the industry to take the initiative to enter the "college", into the "classroom", and actively carry out a series of theme science popularization activities. Colleges and universities should actively carry out a series of theme science popularization activities and share ideas and experiences of innovation and entrepreneurship. Contemporary college students can use their smartphone apps

to learn or understand relevant scientific developments at any time and place. They can gradually improve their professional literacy, reading and learning related to innovation and entrepreneurship knowledge and theory, professional core related technologies. Finally, their innovation and entrepreneurship awareness and ability should be enhanced their innovation and entrepreneurship awareness and ability.
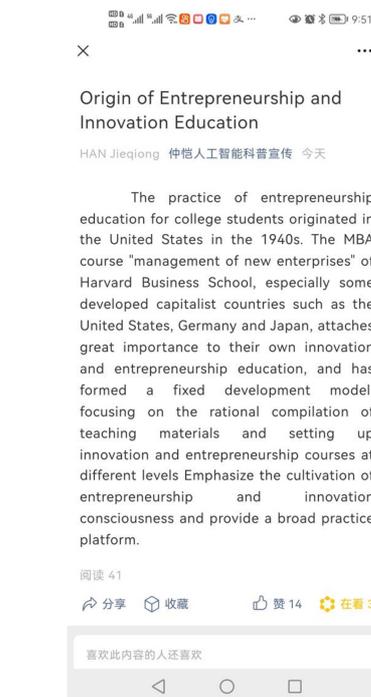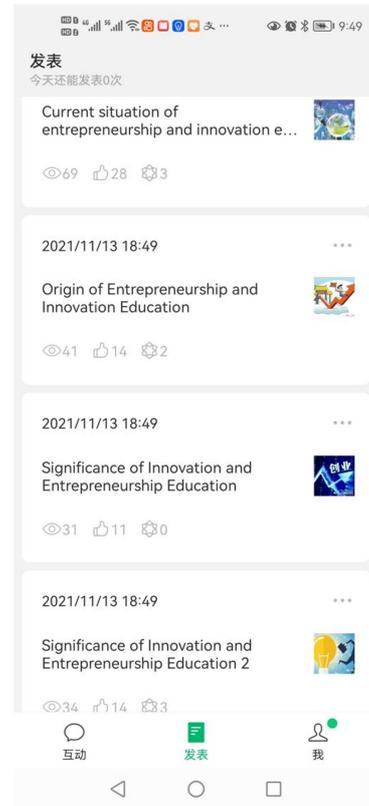

***Figure 4.** Public Account Popularization Science.*

4. Conclusion

As college students in the new era，they should inherit the characteristics of the school's "supporting agricultural workers. Focusing on practice", in order to establish the innovation and entrepreneurship consciousness and concept of "Internet +" thought.

Colleges and universities should cultivate interdisciplinary, intercollegiate, interdisciplinary, multidisciplinary and interdisciplinary comprehensive talents, and improve the talent training system and model for innovative and entrepreneurial education in colleges and universities.

Colleges and universities should improve students' innovation and entrepreneurial literacy and ability to meet the needs of technical talents in employers, improve the innovative ability and entrepreneurial ability of contemporary college students, improving their professionalism and competitiveness, solving the employment problem of graduates, and alleviating the pressure of social contradictions.

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Biography

Jieqiong Han is an associate professor in computer science and technology, Zhongkai University of Agriculture and Engineering, China. She received the M.D. in computer application technology from Guangdong University of technology. Her main research direction is intelligent control, intelligent mobile robot and application of Internet of things technology. She has already obtained more than 90 computer patents and software copyrights.

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