

Study on the Construction of Entrepreneurship Course System for University Students in Science and Engineering

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Abstract. As a systematic project, entrepreneurship education has its own openness. Although it mainly relies on colleges and universities, it has direct or indirect relations with the society. For innovation and entrepreneurship education of science and engineering university students, it contains multiple correlation factors, such as professional education and entrepreneurship education, scientific knowledge and humanistic knowledge and so on. Moreover, entrepreneurship education has close relations between scientific and technological innovation, personnel training, technology transfer and industrialization of scientific and technological achievements and economic and social development. As an extension of entrepreneurship education knowledge course and an important way to realize the goal of entrepreneurship education, entrepreneurship practice course plays a decisive role in shaping entrepreneurs. Based on education features of science and engineering students, this paper explores the problems in the construction of entrepreneurship course system for science and engineering students, and proposes specific solutions to the problems.

Keywords: science and engineering, entrepreneurship course, system construction.

1. Introduction

Since premier Li Keqiang put forward the call of "mass entrepreneurship and innovation" in 2015, innovation and entrepreneurship are attracting wide attention from all sectors of the community, and their impact on China's and even the world's economic development has reached an unprecedented level. At the 19th CPC national congress, the state emphasized the importance of innovation and entrepreneurship. In 2018, the state council issued 'The State Council's Opinion on Promoting High-quality Development of Innovation and Entrepreneurship to Create an Upgraded Version of "Double Innovation"', which shows the country's emphasis on innovation and entrepreneurship and the strength of promoting innovation and entrepreneurship. Innovation and entrepreneurship education has become an important part of talent cultivation goal, and offering innovation and entrepreneurship courses is the basic way to achieve this goal. However, there are still many problems in the construction of innovation and entrepreneurship courses in Chinese universities, especially the lack of studies on the entrepreneurship courses of university students in science and engineering universities. In order to further deepen the innovation and entrepreneurship education of university students in science and engineering, it is urgent to strengthen the construction of entrepreneurship courses and its curriculum system.

2. Analysis of the Connotation of Entrepreneurship Course

Entrepreneurship education is a comprehensive education method that teaches students the basic knowledge, methods and significance of entrepreneurship, guides students to form entrepreneurship awareness, enhances students' entrepreneurship skills and improves students' entrepreneurship. Entrepreneurship education is a comprehensive education method that teaches students the basic knowledge, methods and significance of entrepreneurship, guides students to form entrepreneurship awareness, enhances students' entrepreneurship skills and improves students' entrepreneurship. Entrepreneurship course is the main carrier and link of entrepreneurship education. Through the development of entrepreneurship education course, the goal of entrepreneurship education can be effectively guaranteed. Entrepreneurship course can be regarded as the concretization and depth of quality education, which is a course combining the cultivation of college students' innovation

consciousness and entrepreneurship skills, and reflecting the diversified mode and concept of talent cultivation[1].

In 'The State Council's Opinion on Promoting High-quality Development of Innovation and Entrepreneurship to Create an Upgraded Version of "Double Innovation"', it is clearly pointed out that "strengthening education training for innovation and entrepreneurship of university students, promoting entrepreneurship tutor system in colleges and universities nationwide, incorporating the innovation and entrepreneurship education and practice courses into the compulsory courses system of colleges and universities, and allowing students to apply for the dissertation defense with the entrepreneurship achievements. "[2].It is pointed out that education should strengthen students' innovation and entrepreneurship awareness education and innovation and entrepreneurship ability cultivation, bring the innovation and entrepreneurship education and practice courses into the compulsory course system, and highlight the country's emphasis on the innovation and entrepreneurship course education again.

3. Current Situation of University Students' Entrepreneurship Course System in Science and Engineering

In the era when the country vigorously advocates innovation and entrepreneurship, various local governments have issued many policies on innovation and entrepreneurship of university students, and universities have successively carried out innovation and entrepreneurship education of university students. Since universities attach great importance to entrepreneurship education, curriculum construction has been one of the focuses of colleges and universities at home and abroad. For entrepreneurship education of university students in science and engineering, because of the professional background of technology, it makes colleges and universities develop the entrepreneurship curriculum not only from single entrepreneurial skills, management marketing, etc, but also from single course to diversified course. It not only pay attention to the theoretical system of courses, but also should pay attention to the construction of curriculum practice, thus in the aspect of entrepreneurship, the polytechnic colleges have more or less deficiencies. There are some is the same problem.

3.1 The Course Planning is not Clear for College Students in Science and Engineering

At present, in many science and technology universities, for entrepreneurship education, they neglect the differences of students of different majors, treat students with different knowledge bases without discrimination, and conduct the same entrepreneurship education to the whole students. This kind of curriculum exercise lacking of systematicness and perfection is difficult to achieve the expected teaching effect of entrepreneurship courses. In fact, any innovation, creation and entrepreneurship of students is based on existing knowledge, especially excellent professional knowledge will provide them with direct intellectual support. For education objects of different majors, the design and planning of course content should also be different[3].

3.2 Entrepreneurship Teachers are Scarce and the Teacher Structure is not Perfect

With the continuous development of university entrepreneurship education, the demand for the teachers of entrepreneurship education has increased dramatically, and now there are Less than demand. In universities, the configuration structure of entrepreneurial teaching teams is quite unreasonable, and entrepreneurship education teaching is lack of professionalism. Entrepreneurial education is a subject with extremely strong practicality, theory and rich teaching content. Therefore, it has a very high requirement for the teachers of entrepreneurial education teaching work. Teachers should not only have professional and rich theoretical knowledge, but also have entrepreneurial practice experience. But as a result of scarcity of professional teachers of entrepreneurship education, most of the teachers in universities are engaged in employment guidance and the student affairs department managers or ideological counselors, who did not receive professional training and

entrepreneurship education. They just use the didactic strategy in the entrepreneurship education teaching, and seriously affect the progress and quality of entrepreneurial education.

3.3 The Course Model of Entrepreneurship is Single and Divorced from the Reality of Science and Engineering

At present, most of China's science and technology colleges and universities are applied in the entrepreneurship courses of economics and management or business, that is, the entrepreneurship courses that focus on the cultivation of people's business ability are not fully applicable to university students of science and engineering. The specific professional background of science and engineering depends on different knowledge. The entrepreneurship courses of science and engineering students rely on scientific and technological innovation knowledge and thinking cultivation, while the entrepreneurship courses that generally rely on economics and management or business majors are undoubtedly closely related to economic knowledge. Because of the unclear understanding of this point, some of China's science and technology universities are still implementing entrepreneurship courses according to the entrepreneurial education model adopted by economic management or business majors, while ignoring the characteristics of science and engineering students, which makes them difficult to form features and achieve due results of their entrepreneurship courses. In addition, for China's science and technology institutions, the general practice to carry out entrepreneurship education is to set compulsory courses or elective courses. Some of them also set up entrepreneurship training classes to carry out class activities of entrepreneurship education, and the way to achieve entrepreneurship education is relatively single. In terms of course design and teaching methods, traditional methods are adopted to cultivate students' entrepreneurial ability, which lays particular stress on theory and is seriously divorced from practice, and it cannot meet the practical needs of cultivating innovative and entrepreneurial talents. The content composition of entrepreneurship course is relatively inadequate, such as entrepreneurship awareness training, entrepreneurship knowledge construction, entrepreneurial psychological quality education, entrepreneurial ability training and other aspects of the design.

3.4 The Operating System of Entrepreneurship Education is not Perfect

At present, in most universities in China, the management of entrepreneurship education depends on the cooperation of a certain college, department or several colleges and departments of the school. Such multi-head management and decentralized command are not conducive to the formation of an effective management and operation mechanism, and easy to cause great waste of resources. In terms of the implementation of education, most of China's polytechnics are still adopting the "sanda" method to operate education. For example, the organization of the entrepreneurship competition is not the way to take the project approval, but the way of "temporary organization, which will be scattered after the competition". Therefore, it is difficult to ensure the systematic promotion of entrepreneurship education and get abundant financial guarantee.

4. Construction of Entrepreneurship Courses for University Students in Science and Engineering

The entrepreneurship course system of university students in science and engineering is an open multi-level system. The course system of education for university students in science and engineering is constructed, which not only meets the needs of university students in science and engineering, but also conforms to the reality and vision of university entrepreneurship, and adapts to the requirements of society for university students in science and engineering. It should not only meet the needs of talent training for college students, but also reflect the uniqueness of developing entrepreneurship education for science and engineering students in the course content and implementation.

4.1 Plan the Curriculum for the First Class

The entrepreneurship course system should not be standardized teaching, and the teaching content should adhere to the organic combination of professional education and entrepreneurship education, reflecting the timeliness and practicality. According to professional characteristics of science and engineering discipline, the entrepreneurship course should not only have a basic understanding of entrepreneurship course related courses, such as venture investment, marketing, business management, but also to join professional entrepreneurship characteristics of science and engineering, theoretical innovation of science and technology, the prospect of the related engineering entrepreneurship status at present stage, and so on. That is to make students grasp entrepreneurship knowledge of science and engineering more effectively, and promote the students' innovation consciousness.

Entrepreneurship curriculum system should not exist in isolation. On the basis of opening the class "entrepreneurial foundation", it should make full use of career planning courses and career guidance courses to help students explore themselves and know what is suitable for them. Students should judge whether they are suitable for employment, entrepreneurship or postgraduate entrance examination through career planning courses to position themselves.

4.2 Expand Course Resources for Students in the Second Class

In science and engineering universities, entrepreneurship curriculum system of students should make full use of the new type of courses to deepen the study, such as MOOC, micro-lesson, and so on. For students with entrepreneurial desire, courses should provide related entrepreneurial training course, such as entrepreneurial opportunity identification, marketing and so on. For students without strong entrepreneurial desire, courses should more offer innovative talent training mode and develop to the depth of their major. These students often play the role of technical director in entrepreneurial activities in the future[5]. In addition, the cultivation of scientific and technological innovation and entrepreneurship talents in colleges and universities requires not only the spirit of innovation, entrepreneurial skills and practical ability, but also the noble quality, profound humanistic feelings, acute thinking ability, strong psychological quality and broad knowledge horizon. Therefore, the general knowledge education with humanistic and social scientific knowledge and professional introduction as the main content should also be one of the important courses of entrepreneurship education in science and technology universities[4]. As a supplementary course, it plays a positive role in improving the comprehensive quality of entrepreneurial talents. Generally, these general education courses should be implemented by relying on the courses of humanities, economics and management or business in science and technology colleges and universities. In the absence of education resources of this kind in a school, polytechnics need to adopt a cross-school cooperation approach, and achieve this goal through cooperation with some non-polytechnics.

4.3 Carry out Practical Education Combining Curriculum and Teaching

The social practice resources of college students should be integrated and the combination of "teaching practice, engineering experience and entrepreneurship practice" should be implemented based on the social practice platform of college students. For a long time, social practice activities of university students are popular among teachers and students as their large number of participants and wide range of fields. To give full play to the advantages of college students' social practice, we should take it as a broad platform to carry out entrepreneurial education practice. We should encourage teachers with the teaching task and innovation and entrepreneurship project to take part in to guide students' social practice. At the same time, on the basis of the original practice scope, it is especially important to emphasize the importance of enterprise practice, and strive to promote the good situation of the multiple effects of teacher-student interaction practice, enterprise engineering experience and entrepreneurial apprentice with social practice as the carrier.

4.4 Cultivate Students' Ability of Innovation and Entrepreneurship with Entrepreneurial Practice

The Science and Technology Innovation and Entrepreneurship Competition is one of the activities that are widely used by science and engineering colleges and universities who like to cultivate students' ability of innovation and entrepreneurship. It has a wide influence and strong appeal among students. In order to attract students to participate in and select outstanding entrepreneurial projects, it is necessary to create a number of competition brands for colleges and universities to develop entrepreneurship education. The college students' science and technology innovation and entrepreneurship competition is very popular among college students because of its novel form, liveliness and wide coverage. For polytechnics, it is necessary to make full use of the university students' science and technology innovation and entrepreneurship competition to mobilize the enthusiasm of college students to participate in innovation and entrepreneurship activities, and further strengthen the campus culture of innovation and entrepreneurship. At present, many universities in China have participated in the national "Challenge Cup" competition and formed their own inner-school science and technology activities and entrepreneurial competition competition brands, attracting a large number of students to participate and have produced a large number of outstanding student science and technology activities and entrepreneurial activities. It should be noted that competition is not the only form of entrepreneurial education practice, it only plays a full role in one stage of entrepreneurship education.

4.5 Strengthen the Construction of the Teaching Faculty of Innovation and Entrepreneurship Course

The construction of the teaching faculty of entrepreneurship education courses is an important part of the construction of entrepreneurship education courses in colleges and universities. Entrepreneurship education courses require teachers to have not only profound theoretical knowledge, but also rich experience in entrepreneurial practice. Only by establishing a stable and high-quality team of entrepreneurial education teachers can we truly realize the effectiveness of entrepreneurship education. The entrepreneurial curriculum teachers in colleges and universities should be divided into professional teachers and practical teachers. Professional teachers refer to the systematic training of teachers from the teacher team with relevant backgrounds of science and engineering and the background of economics and management, so that they can master the teaching knowledge of entrepreneurship education and establish a theoretical teacher team specializing in entrepreneurship education. Practical teachers are engaged in senior entrepreneurs and outstanding entrepreneurs, or who are engaged in part-time entrepreneurship teaching and research. From the perspective of long-term development, the teachers of entrepreneurship education in science and engineering colleges should have the background of corporate work, especially the background of scientific and technological innovation enterprises.

4.6 Construct a Course Guarantee System for College Students in Science and Engineering

Standardized system management and leadership are the basis for the good operation and long-term development of entrepreneurship education. The entrepreneurial education management institutions of science and engineering colleges play an important role in the process of promoting entrepreneurship education in schools. The school's entrepreneurship curriculum is set up, arranged and implemented under the leadership of the Entrepreneurship Institute. It is responsible for setting up a matching entrepreneurship curriculum system based on the professional and student characteristics, and arranging the course content and the order of the courses, the amount of classes, the teachers, and the assessment, evaluation and other work. It also participate in the entrepreneurial education process throughout the whole process, coordinate and communicate with various departments, provide services and organize management to ensure the successful implementation and effectiveness of the course.

5. Conclusion

The construction of entrepreneurship curriculum system of college and university students in science and engineering is not simply to open two courses, but to involve many factors in hardware and software. Relying on the science and engineering background of curriculum construction, professional faculty, multiple practice platforms, high-quality entrepreneurial service support, strong financial support, and strict assessment system, all work needs to be followed up in order to make innovation and entrepreneurship education of college students in science and engineering show the greatest advantage. In short, the implementation of the basic goal of entrepreneurship education and the scientific construction of the entrepreneurship education curriculum system are the only way to cultivate more entrepreneurial talents with entrepreneurial awareness and entrepreneurial ability. According to the characteristics of the university, science and engineering colleges should build a curriculum system for entrepreneurship education and train more innovative and entrepreneurial talents for the development of society.

Acknowledgements

This paper is the result of the thirteenth Five Year Plan project of The Education Department of Jilin Province (Project No. JJKH20170645JY).

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