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Construction of an Entrepreneurship and Innovation Education Curriculum System in Applied Undergraduate Colleges Based on "Professional Integration"

Taking an Applied Undergraduate College as an Example*

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***Abstract*—In recent years, applied undergraduate colleges have attached great importance to entrepreneurship and innovation education. Although such education has played a certain role in promoting graduates to start a business or get offer, currently in aspect of entrepreneurship and innovation education, most colleges and universities still set up general education or single major, and it is needed to improve the combination of entrepreneurship and innovation and the major as well as the interdisciplinary integration. This paper analyzes the status quo of entrepreneurship and innovation education in applied undergraduate colleges; and taking the construction of an entrepreneurship and innovation education curriculum system in applied undergraduate colleges in Xiamen as an example, a "1235" entrepreneurship and innovation education curriculum system model based on "professional integration" is proposed in this paper.**

Keywords—applied undergraduate colleges; professional integration; entrepreneurship and innovation education

I. INTRODUCTION

With the further deepening of the innovation and entrepreneurship boom, under the guidance of relevant documents on the reform of national innovation and entrepreneurship education, colleges and universities, especially applied undergraduate colleges, should gradually promote the construction of an innovation and entrepreneurship education curriculum system and enhance the organic integration of professional education and innovation and entrepreneurship education, based on the demand for characteristic economic development of the region, and in combination with the professional talents cultivating orientation and innovation and entrepreneurship education objectives of the college. In recent two years, under the guidance of relevant documents of the State Council and the Ministry of Education, colleges and universities have also tried all possible methods and introduced relevant reforms, such as incorporating the entrepreneurship and innovation education curriculum into the curriculum system, and encouraging students to participate in the innovation and entrepreneurship competitions at all levels, and has achieved some effect. However while implementing the entrepreneurship and innovation reform in colleges and universities, there is a commonality, namely some institutions are only limited to the breakthrough in single field such as embedding relevant courses and promoting competition activities; few institutions treat entrepreneurship and innovation education as a system to construct the integration of courses, profession, field, resources and other elements.

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II. STATUS QUO OF INNOVATION AND ENTREPRENEURSHIP EDUCATION IN APPLIED UNDERGRADUATE COLLEGES

"Applied undergraduate university" is an educational model combining undergraduate education with higher vocational education. Compared with traditional higher education, applied undergraduate education is featured by "application", focuses on cultivating students' technical application ability, and pays more attention to the integration of universality, application and innovation. In recent years, applied undergraduate colleges have attached great importance to innovation and entrepreneurship education. They are all trying to get innovation and entrepreneurship practically combined with “application”, incorporate some Innovation and entrepreneurship courses into the teaching plan and credit system. Although such education has played a certain role in promoting graduates to start a business or get offer, it is not sufficient in the combination of innovation, entrepreneurship and profession, and interdisciplinary integration. For institutions transformed from traditional higher education to applied undergraduate colleges, influenced by the concept of subject orientation, their setting of majors emphasizes more on the systematic nature of

professional knowledge, neglecting the interdisciplinary integration; for institutions upgraded from higher vocational colleges to applied undergraduate colleges, affected by the concept of vocation orientation, their setting of majors emphasizes more on the standardization of the ability of working on post of the corresponding major, ignoring the creativity in work. Most students have weak sense of innovation, single knowledge structure, insufficient application ability, lack of cross-domain ability, and weak ability in making practice and innovation so that most projects stay in the stage of creative conception and are difficult to be put into practice. Therefore for applied undergraduate colleges, it is impossible to truly enhance students' ability to innovate and start a business only by opening relevant public courses on innovation entrepreneurship or organize students to participate in various competitions or activities. Applied undergraduate colleges should change their concepts, fully integrate school resources, and break the professional restrictions from an overall point of view, and use "professional integration" and "cross-domain cooperation" as the guiding ideology to construct an innovation and entrepreneurship curriculum system suitable for the institution.

III. CONSTRUCTING A THREE-DIMENSIONAL AND MULTI-LEVEL ENTREPRENEURSHIP AND INNOVATION EDUCATION CURRICULUM SYSTEM

Establishing a specification for cultivating applied undergraduate talents is an important prerequisite for the construction of an entrepreneurship and innovation education curriculum system. Entrepreneurship and innovation education should be systematic, other than a simple addition by only opening innovation course and entrepreneurship course. As is known to all, innovation is the foundation of entrepreneurship, and leads the way of entrepreneurship and promotes entrepreneurship; any business without innovation will finally be replaced. Entrepreneurs can only successfully grasp entrepreneurial opportunities only if they have high quality and innovative ability. Innovation education in applied undergraduate college should focus on cultivating students' ability to get innovative thinking applied and integrated in thinking and solving problems. Entrepreneurship education focuses on cultivating students' practical ability. At the same time, entrepreneurship is not isolated. In order to start a business, college students should combine with their profession, try the best to break the professional barriers, and achieve “profession-based technological entrepreneurship” and “cross-domain-based entrepreneurship”.

Taking the reform of "entrepreneurship and innovation" education curriculum system of an applied undergraduate college as an example, this paper proposes to construct a model of entrepreneurship and innovation curriculum system involving one pilot, two integrations, three course modules and five teacher resources.

A. Setting up Three Course Modules to Build a Full-course, Cross-border and Three-dimensional Entrepreneurship and Innovation Curriculum System

Innovation and entrepreneurship education should be effectively incorporated into the credit system of professional education and extracurricular quality development practice throughout the 4 years in university; and a three-dimensional and interdisciplinary integration featured innovation and entrepreneurship education curriculum system should be established. Three major course modules should be set up and include on innovation and entrepreneurship related general basic courses, professional courses and skill practice courses.

Wherein, the general courses module includes vocational career planning and employment guidance, innovative thinking training, fundamental of starting a business and other general and compulsory courses as opened for college students, as well as humanistic, social, nature, expanded cross-field and other fields of characteristic selective courses as opened to meet the interdisciplinary demands.

Through the opening of the elective courses, it is available to make up for the shortcomings of college students in the single professional knowledge module, and enhance students' understanding of the cross-border fields in the process of innovation and entrepreneurship training.

Entrepreneurship and innovation professional course module refers to the entrepreneurship and innovation theory and practice curriculum that is opened on the basis of the professional foundation of the discipline, has professional theory or technology and can cultivate the skills and qualities of students in the discipline field. It is also known as the “embedded” entrepreneurship and innovation professional course module. This course is established on the basis of various majors. The teacher resources are mainly composed of backbone teachers of various majors or professional and technical personnel from enterprise. When formulating the specifications for talent cultivation, each major should aim at cultivating innovative professionals, and get the future work related or the employment and entrepreneurship of this major related learning contents incorporated into the professional courses throughout the professional talent training program. This module mainly includes core professional courses, major-oriented courses, and project R&D training courses.

Entrepreneurship and innovation skill practice module is a series of courses provided by means of teaching, scientific research, skill training and extracurricular practice, on the basis of the major and featured by cross-domain integration, so as to cultivate innovative and high-quality talents having complete personality, green concept and sustainable development ability. Entrepreneurial information can be dynamically updated through professional knowledge lectures, entrepreneurial presentations, entrepreneurial salons and other forms; students' comprehensive quality can be improved by organizing entrepreneurial student skill competitions; it is also available to boldly try to provide entrepreneurial experience education through industry, enterprises and other cooperation platforms, so as to drive

the established curriculum by entrepreneurial projects to further implement the entrepreneurial incubation.

B. Deepening the Entrepreneurship and Innovation Reform to Achieve Effective Integration Between Disciplines, Professions and Entrepreneurship

Entrepreneurship and innovation education should be integrated into the professional training program, and cannot be separated from the professional education. Applied undergraduate colleges should gradually realize a two-integration mode (namely the integration between professionalism and entrepreneurship, and the integration between disciplines, professions and entrepreneurship) under the effective guarantee system of the college.

It is necessary to promote the "embedded" integration between professionalism and entrepreneurship to enhance the integration between entrepreneurship education and professional education, and add entrepreneurial teaching content based on the features of each major under the guidance of the talent training program; the curriculum design should highlight the features of the major and be an Innovation and entrepreneurship education curriculum system covering professional technical practice. It is also necessary to try a cross-professional joint model that integrates disciplines, professions and entrepreneurship. This model should take advantageous major of the college as the leading major under the institutional and policy support of the college, and adopt matrix-based management method to conduct relevant professional joint cultivation on the basis of specific project and shared excellent resources of the whole school.

For example, it is available to get the resources of the college's advantageous majors such as design, Internet of Things, and test integrated together, and set up an industry-university-research center to drive the innovative and entrepreneurial projects with scientific and technological content and market value. Cross-border and cross-domain organic integration will be an effective model for deepening the reform of entrepreneurship and innovation.

C. Forming a Pilot Entrepreneurship Class to Promote the Transformation of Entrepreneurship and Innovation Education Skills

In the absence of an independent entrepreneurship school in the college, it is available to construct a entrepreneurship quality model to screen such students as having entrepreneurship potential in the whole school to form a virtual pilot entrepreneurship class, and implement entrepreneurship project incubation and promote the skill transformation of entrepreneurship education, taking multi-professional and interdisciplinary integration as the presupposition, taking project as the driving force, taking entrepreneurship practice platform as the carrier, replacing credit into guarantee and taking general course and interdisciplinary course combination as the guidance.

D. Promoting the Construction of the "Five Teacher Resources" to Enhance the Quality of the Entrepreneurship and Innovation Teacher Team

As entrepreneurship education has wide range of content, strong practicality and frequent intersections between different disciplines, Innovation and entrepreneurship education teachers should not only have a relatively comprehensive knowledge structure, but also have rich experience in entrepreneurial practice. The stability and quality of teachers is also a major pain point for most applied undergraduate colleges in promoting the course of entrepreneurship and innovation education. Thereby, it is especially important to strengthen the construction of entrepreneurship and innovation teacher team and form a stable teaching team. Firstly, it is needed to select excellent teachers from the existing teacher team of the college to do part-time job in enterprises and participate in special trainings, and thus form a basic "entrepreneurship and innovation professional teachers" team in the college. Secondly, it is needed to introduce entrepreneurs and industrial experts having rich experience in providing entrepreneurship guidance and having certain technical foundations to serve as part-time "entrepreneurship lecturers", "venture capital tutors" and "entrepreneurship tutors" in the college according to the teaching requirements. Thirdly, it is needed to establish a system of entrepreneurship mutual help by fellow students, and hire entrepreneurial seniors to serve as part-time “entrepreneurial pilots” to promote the entrepreneurial radiation effect on students in the college. Through the construction of the five teacher resources (“entrepreneurship and innovation professional teachers” team in college, “entrepreneurship lecturers”, "venture capital tutors" and "entrepreneurship tutors" from the outside of the college and "introducing entrepreneurship teachers"), a team of excellent teachers who can cooperate with each other can be constructed.

IV. CONCLUSION

Innovation and entrepreneurship education is an important way to cultivate high-quality applied talents. The entrepreneurship and innovation education in applied undergraduate colleges can not only provide general education in the whole college and the innovation and entrepreneurship of a single major or a single discipline, but make an overall design for entrepreneurship and innovation education from the perspective of talent cultivation based on its school-running orientation and in combination with its advantageous majors and resources and the advantage in production-teaching integration, to gradually create an interdisciplinary entrepreneurship and innovation model with characteristics.

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