

On the Optimization of Innovation and Entrepreneurship Curriculum System in Chinese Universities: Evidence from the Finance and Economics Majors

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Abstract

Innovation and entrepreneurship are education to cultivate talents with basic entrepreneurial qualities and pioneering personality. From the perspective of actual background and theoretical research needs, we analyze the main problems in the innovation and entrepreneurship curriculum of finance and economics majors in Chinese universities through literature analysis and questionnaire survey, and then propose corresponding optimization strategies. To a certain extent, it can optimize the innovation and entrepreneurship education methods and systems of related majors in colleges and universities so that the cultivation of students' innovation and entrepreneurship abilities can be implemented. The research conclusion has enlightenment for the setting of innovation and entrepreneurship curriculum systems of related majors. Further, it provides an effective reference for improving the abilities of innovation and entrepreneurship education in relevant universities.

Keywords

Innovation and entrepreneurship; Curriculum resources; Optimize research.

1. Introduction

To improve the awareness and ability of innovation and entrepreneurship of college students, different innovation and entrepreneurship courses have been set up in various colleges and universities, and remarkable results have been achieved. However, there is still an inevitable mismatch between these courses and practice (Guo et al., 2022). At present, China's economic development has ushered in a new round of industrial layout, facing economic transformation and industrial upgrading. The innovation and entrepreneurship ability of finance and economics graduates is very important. Finance and economics majors emphasize social functions, they have significant application-oriented characteristics, and pay attention to the cultivation and training of students' professional knowledge and vocational skills. On the other hand, unlike engineering majors, which can be directly applied to industrial production, it is necessary to provide innovation and entrepreneurship training that is more in line with practice (Pech et al., 2016). In particular, the development of the times has also put forward higher requirements for colleges and universities to carry out innovation and entrepreneurship, and colleges and universities should carry out innovation and entrepreneurship practice education according to their own actual conditions, which not only requires colleges and universities to open entrepreneurship-related courses but also pay attention to the effect of course development. Therefore, how to effectively improve the teaching level and ability of

innovation and entrepreneurship in colleges and universities has become a critical issue that needs to be solved urgently.

Based on the above background, this paper analyzes the main problems in finance and economics majors' innovation and entrepreneurship curriculum in Chinese universities through literature analysis and questionnaire survey, and proposes corresponding optimization strategies. To a certain extent, it can optimize the innovation and entrepreneurship education methods and systems of related majors in colleges and universities so that the cultivation of students' innovation and entrepreneurship abilities can be implemented. The research conclusion has certain enlightenment for the setting of innovation and entrepreneurship curriculum systems of related majors, and further provides an effective reference for improving the level of innovation and entrepreneurship education in relevant universities.

2. The Development Status of Entrepreneurship Education Curriculum Construction in Colleges and Universities

2.1. The evolution of innovation and entrepreneurship education

In 1985, Peter F. Drucker noticed that the current economy had begun from a management-based to an innovation-based economy and will turn into an entrepreneurial one (Drucker, 1985). With the advancement of science and technology and social development in recent years, compared with traditional education, innovation and entrepreneurship education shows their unique advantages in adapting to the development tide of the times and the needs of economic and social development. Its rich connotation shows the following significant characteristics: First, its educational philosophy and model pay more attention to the stimulation of students' awareness of innovation and entrepreneurship and gradually guide students to change their learning concepts and employment concepts, motivating them to change from job seekers who "passively adapt to society" to builders who "actively adapt to society and even challenge society" (Ye, 2022). The second is to focus on enabling students to gain more perceptual experience through imitation and other forms, let students fully contact the whole process of innovation in practice through simulation training and practical exercises, and experience the fun and meaning of entrepreneurship. Third, innovation and entrepreneurship education require teachers and students to take academic research as their internal support. The fourth is to emphasize the development of the curriculum system. Fifth, it can directly induce teachers' and students' innovation and entrepreneurship activities to make more significant contributions to economic and social development.

2.2. The current characteristics of the innovation and entrepreneurship education curriculum system of domestic and foreign universities

Innovation and entrepreneurship education in foreign developed countries started early. Many countries and regions regard innovation and entrepreneurship education as one of the important driving forces to promote economic growth, promote scientific and technological progress and expand the creation of social employment opportunities. The innovation and entrepreneurship education curriculum system has been relatively perfect after long-term exploration and accumulation (Saji and Nair, 2018). Among them, the innovation and entrepreneurship education curriculum in the United States takes innovation and entrepreneurship teaching as the core feature, and American universities have built a curriculum system covering the whole process of entrepreneurship according to the needs of college students' innovation and entrepreneurship, and have successively formed typical models such as the "aggregation model" of Harvard University, the "magnet model" of Baisen Business School, the "radiation model" of the University of Illinois, and the "industry-

university-research integration model" of Stanford University (Kerr, 2013). For example, Germany, as a world-class manufacturing country, pays special attention to the transformation of scientific and technological achievements into productivity and economic benefits, German universities carry out the practical teaching links of innovation and entrepreneurship education with a pragmatic attitude and exercise and enhance students' innovation and entrepreneurship ability through multidisciplinary cross-integration of entrepreneurship competitions, and the pertinence and practicality of the curriculum system are relatively strong. The British "Innovation and Entrepreneurship Education Framework" builds a hierarchical college innovation and entrepreneurship education curriculum system from four aspects: connotation definition, essential requirements, top-level design and advanced path of innovation and entrepreneurship education, forming an innovation and entrepreneurship model of "whole chain" development (Harkema et al., 2008). Compared with European and American countries, Asian countries generally highlight the characteristics of cultural shaping. For example, innovation and entrepreneurship education in Japanese universities is universal, not limited to cultivating entrepreneurs, but also pays more attention to developing students' "entrepreneurial spirit" and realizes the full coverage of innovation and entrepreneurship education to basic education and higher education with "systematic" course modules. Innovation and entrepreneurship education in Korea adheres to the goal of joint development of universities, regions, and society, strengthens the development of innovation and entrepreneurship education curriculum system, and cultivates integrated talents that meet the needs of enterprises (Pech et al., 2016). Singapore has incorporated innovation and entrepreneurship education into the framework system of the entire national education, which has formed typical characteristics of systematization of innovation and entrepreneurship policies, systematization of innovation and entrepreneurship education courses, modernization of innovation and entrepreneurship education resources, and industrialization of innovation and entrepreneurship education achievements.

From the perspective of the development of innovation and entrepreneurship education in domestic universities, the entrepreneurship education courses carried out by Chinese colleges and universities mainly promote fast and widespread popularity. Since Tsinghua University first opened the innovation and entrepreneurship course in 1997, innovation and entrepreneurship education in China's colleges and universities have successively experienced four development stages: spontaneous exploration by colleges and universities (1997.2-2002.4), diversified exploration guided by education administrative departments (2002.4-2010.4), comprehensive promotion under the guidance of education administrative departments (2010.4-2015.5), and in-depth promotion by unified national leadership (2015.5-present).

Chinese universities are student-centred, based on innovative knowledge and improving students' comprehensive quality, generally set up innovation and entrepreneurship education courses, and built an innovation and entrepreneurship practice platform that is more in line with students' learning characteristics according to local conditions. The primary way to make the curriculum system is to cultivate students' entrepreneurial quality in professional education, set up special innovation and entrepreneurship courses, and set up innovation and entrepreneurship lectures and innovation and entrepreneurship competitions (Zhu et al., 2017). The curriculum system of innovation and entrepreneurship education has successively formed the "science and technology park training" model represented by Tsinghua University and Zhejiang University, the "combination of first classroom and second classroom talent training" model represented by Chinese Minmin University, the "innovation education as the foundation of entrepreneurship education and emphasizing basic quality training" model represented by Shanghai Jiao Tong University, the "practical entrepreneurship model" represented by Beihang University and the "entrepreneurship college" model described by

Yiwu Technology and Business School, etc., and innovation and entrepreneurship education has achieved good results (Ma et al., 2020).

3. Problems in the Construction of Entrepreneurship Education Courses in Colleges and Universities

3.1. Questionnaire results

To deeply explore the demand for innovation and entrepreneurship courses by finance and economics students in Chinese universities and the problems existing in the course system, the survey subjects were conducted on finance and economics students from relevant undergraduate colleges and universities where the author works. An online questionnaire survey was carried out using the "Questionnaire Star" tool, and 252 questionnaires were collected. The questionnaire mainly involves the investigation of college students' familiarity with innovation and entrepreneurship education, development form, curriculum setting, existing problems and related suggestions. Next, the results of the questionnaire survey on the main topics are introduced and analyzed.

Figure 1 shows that most students have no entrepreneurial experience, and the leading innovation and entrepreneurship experience comes from innovation and entrepreneurship competitions. The attitude of students towards the school's innovation and entrepreneurship curriculum is shown in Figure 2, where Figure 2(a) shows the majority of students (88.1% believe that schools must offer innovation and entrepreneurship courses; Figure 2(b) shows that 57.14% of students want to introduce innovation and entrepreneurship education courses as a compulsory course, and Figure 2(c) shows that 88.1% of students want to study innovation and entrepreneurship courses at the university level.

Figure 3(a) shows that most students are unclear about the effectiveness of the innovation and entrepreneurship curriculum (50%), and only 38.1% of students think it is effective, which is a very interesting result. Figure 3(b) shows that 76.19% of students want a hierarchical setting of innovation and entrepreneurship courses; Figure 3(c) shows the proportion of students who wish to study courses at different levels, roughly the same as the grade of the survey respondent. Figure 4 shows the problems existing in the current school innovation and entrepreneurship education courses, among which the teachers of innovation and entrepreneurship courses are not optimized enough, and lack of innovation and entrepreneurship practice courses account for the highest proportions, which are 69.05% and 61.9%, respectively.

Figure 5 shows the proportion of three effective innovation and entrepreneurship education channels, such as systematic learning of theoretical and practical knowledge related to innovation and entrepreneurship (40.48%) through the establishment of innovation and entrepreneurship courses and innovation and entrepreneurship education through lectures and workshops (23.81%), focusing on innovation and entrepreneurship practice, and innovation and entrepreneurship practice activities can be converted into corresponding credits (35.71%).

Question 9: Your entrepreneurial experience: [Multiple choice questions]

Option	Subtotal	Proportion
Have entrepreneurial experience	15	5.95%
No entrepreneurial experience	32	12.69%
Experience in entrepreneurial competitions	205	81.3%

Figure 1. Entrepreneurial experience survey

Question 10: Do you think it is necessary for the school to offer innovation and entrepreneurship education courses? (single choice) [single choice question]

Option	Subtotal	Proportion
Yes.	222	88.1%
No.	12	4.76%
I don't know.	18	7.14%

(a) Whether schools need to offer innovation and entrepreneurship education courses?

Question 11: Do you think it is necessary for the school to offer innovation and entrepreneurship education courses as compulsory courses? (single choice) [single choice question]

Option	Subtotal	Proportion
Yes.	144	57.14%
No.	78	30.95%
I don't know.	30	11.9%

(b) Whether students want to make innovation and entrepreneurship courses compulsory?

Question 12: Do you want to study innovation and entrepreneurship related courses at the university level? (single choice) [single choice question]

Option	Subtotal	Proportion
hope	222	88.1%
Do not want	18	7.14%
I don't know.	12	4.76%

(c) Whether students want to study innovation and entrepreneurship courses at the university level?

Figure 2. Survey on the attitude of schools to set up innovation and entrepreneurship COURSES

Question 18: How do you evaluate the innovation and entrepreneurship education courses already offered by the school? [multiple choice question]

Option	Subtotal	Proportion
effective	96	38.1%
invalid	30	11.9%
I don't know.	126	50%

(a) Whether the innovation and entrepreneurship courses currently offered by the school are effective?

Question 19: Do you think it is necessary for the school to stratify the innovation and entrepreneurship courses? After offering general courses that meet the needs of all students (the first level), combined with the characteristics of students' majors, an innovation and entrepreneurship course that combines majors (second level), and an entrepreneurship deepening course that cultivates the ability of entrepreneurial leaders (third level)? (single choice) [single choice question]

Option	Subtotal	Proportion
It is necessary	192	76.19%
No need	36	14.29%
I don't know.	24	9.52%

(b) Whether it is necessary for schools to have a layered setting of innovation and entrepreneurship courses?

Question 20: Which level of course do you think you need to study the most at present? (multiple choice) [multiple choice question]

Option	Subtotal	Proportion
General Studies	150	59.52%
Innovation and entrepreneurship courses combined with majors	162	64.29%
Entrepreneurship Deepening Course	96	38.1%

(c) Which level of course to study is preferred?

Figure 3. Survey on the curriculum of school innovation and entrepreneurship education

Question 17: Do you think the problems existing in the current school innovation and entrepreneurship education curriculum include? [multiple choice questions]

Option	Subtotal	Proportion
The teaching staff of innovation and entrepreneurship courses is not optimized enough	174	69.05%
Lack of innovation and entrepreneurship practice courses	156	61.9%
There is no suitable innovation and entrepreneurship education textbook	102	40.48%
Lack of teaching resources for innovation and entrepreneurship courses	120	47.62%
Innovation and entrepreneurship course teaching method is single	102	40.48%
<input type="checkbox"/> other [Details]	0	0%

Figure 4. Survey on the main problems in the school's innovation and entrepreneurship education curriculum

Question 21: What do you think are the effective ways and methods of innovation and entrepreneurship education? (single choice) [single choice question]

Option	Subtotal	Proportion
Systematically learn theoretical and practical knowledge related to innovation and entrepreneurship by offering innovation and entrepreneurship courses	102	40.48%
Carry out innovation and entrepreneurship education through lectures and workshops	60	23.81%
Mainly focus on innovation and entrepreneurship practice, and innovation and entrepreneurship practice activities can be converted into corresponding credits	90	35.71%
<input type="checkbox"/> other [Details]	0	0%

Figure 5. Investigation of effective innovation and entrepreneurship education approaches and methods

3.2. Summary of existing problems

Through the analysis of the results of the questionnaire survey, it can be seen that the current financial innovation and entrepreneurship course system of China's colleges and universities mainly has the following problems:

First, there is a lack of clear goals for constructing the curriculum system of innovation and entrepreneurship education. The construction of entrepreneurship courses in colleges and universities is mainly based on the purpose of talent training. The school is not only a place to impart knowledge and skills but also an essential platform for cultivating students' entrepreneurial spirit, for some students with entrepreneurial talent to give specific financial support and technical guidance. In addition, attention and attention should be paid to the development of these students. Many colleges and universities in China are unclear about the construction goals of entrepreneurship education courses in talent training. College students' awareness of innovation and entrepreneurship is relatively weak, and college students will have some psychological discomfort in entrepreneurship.

Second, integrating innovation and entrepreneurship education courses with innovation and entrepreneurship competitions is not high. On the one hand, through the survey, it was found that most colleges and universities will open "double innovation" courses in the process of creation and entrepreneurship education. For example, "Fundamentals of Innovation and Entrepreneurship" and "Innovation and Entrepreneurship Education", but there is no teaching on "double innovation" The content of the education curriculum is layered, and there is a gap between the scope of the curriculum and the practice. On the other hand, some universities will carry out practical activities, such as holding various innovation and entrepreneurship competitions. The questionnaire survey results showed that 81.3% of college students have

participated in entrepreneurship competitions, but there is a mismatch between such competitions and course content.

Third, the curriculum structure of innovation and entrepreneurship education is not perfect. Some colleges and universities have not yet included innovation and entrepreneurship education courses as compulsory courses and only as public elective courses. Although many colleges and universities have set up entrepreneurship education courses for relevant document requirements, the awareness and ability of innovation and entrepreneurship required by college students to start a business and the cultivation and incubation of innovation and entrepreneurship need to be further improved. All courses of innovation and entrepreneurship education should be coherent and systematic, cooperate with each other, and run through students' entire university learning stage. In fact, entrepreneurship is a professional, systematic, and comprehensive scientific discipline. In recent years, colleges and universities across the country have gradually begun to pay attention to the entrepreneurial education of college students and have constituted a relatively mature entrepreneurial talent training program. However, there are still some things that need to be revised. For example, the course structure system still needs to be improved, the goal of curriculum construction is not clear enough, there is no systematic knowledge architecture, there is no multidisciplinary integration development, the practical effectiveness of knowledge is not high, and there is no planning to form a systematic and perfect entrepreneurship teaching system, etc., which restrict the development of entrepreneurship course construction in colleges and universities.

4. Strategies to Optimize the Curriculum System of Entrepreneurship Education in Colleges and Universities

The construction of the innovation and entrepreneurship curriculum system of colleges and universities aims to cultivate the innovative thinking and entrepreneurial spirit of college students, emphasizing knowledge transformation and skill application, so the curriculum must fully consider multidisciplinary according to actual needs, and pay attention to theoretical learning and practical application. General education The combination of education and professional education makes the innovation and entrepreneurship education curriculum system cover and effectively play an influential role in the whole university teaching process.

4.1. Improve the construction of innovation and entrepreneurship education system and build a scientific process evaluation system

First, establish a scientific, reasonable and feasible process evaluation system. The evaluation system mainly includes the evaluation of the tutor's process performance and ability improvement, the student's evaluation of the tutor's satisfaction with the tutor's guidance, the school's evaluation of the tutor's teaching effectiveness, and the school's evaluation of the teacher's and students' innovation and entrepreneurship achievements Through the construction of this series of institutional systems. It is ensured that the implementation effect of teachers and students in the innovation and entrepreneurship education curriculum system is objectively evaluated. Innovation and entrepreneurship learning is a multi-stage development process. The goal positioning of finance and economics majors in colleges and universities based on application-oriented talent training must pay attention to the value-added of students' learning experience, which can be found in learning the Hierarchical design of different modules.

Second, general education courses can enable students to participate deeply in the classroom's theoretical and practical teaching process through "flipped classroom" and "blended teaching" to enhance their innovative spirit and entrepreneurial awareness. The discipline's basic course can improve innovation and entrepreneurship by actively guiding and encouraging students to

participate in innovation and entrepreneurship competitions. Professional skills courses should be based on the virtual simulation practice platform and school-enterprise cooperation and be thoroughly combined with the in-class practice and concentrated practice of professional compulsory courses to improve students' application of what they have learned, discover opportunities, The ability to explore innovation. Concentrated practical courses should encourage students to receive quasi-vocational training, go deep into science and technology innovation centres and innovation and entrepreneurship incubation parks, and personally participate in the planning, managing and establishing enterprises and online stores. I truly feel the whole process of innovation and entrepreneurship.

4.2. Strengthen the integration of entrepreneurship competitions and innovation and entrepreneurship education, and promote the "dual mentor" guidance method

First, strengthen the integration of professional education and entrepreneurship education curriculum system. In the curriculum system, colleges and universities must combine with the current entrepreneurial market form for fine-tuning. The key content of the curriculum system reform is the integration of entrepreneurial quality education and professional education. In the curriculum system reform, find the highlights of entrepreneurship education combined with professional course education, take entrepreneurship and profession as a program to cultivate talents, research new teaching courses, and form a "professional + entrepreneurship" model, which includes basic courses, entrepreneurial training, professional teaching, Integrating entrepreneurial concepts and contents into the implementation of professional education can effectively solve the problem that professional education and entrepreneurship education cannot be effectively integrated and transformed into practice, and improve the teaching quality of higher education.

Second, closely align with economic development needs and build a team of "dual-teacher and dual-ability" dual-innovation mentors. To ensure that the innovation and entrepreneurship education curriculum system achieves practical results in the implementation process. On the one hand, well-known experts and scholars, outstanding entrepreneurs, investment experts, and outstanding alumni are hired as part-time tutors outside the university; On the other hand, we actively select outstanding teachers to participate in various types of innovation and entrepreneurship teacher training at all levels, encourage teachers to go to the grassroots or industry for practical exercise, obtain industry qualification certification, and improve the ability of internal tutors to guide entrepreneurship and entrepreneurship. At the same time, in terms of resource security, it is necessary to strengthen investment in software and hardware, give full play to the advantages of school-government-enterprise linkage in software and hardware such as funds, venues, platforms, and mechanisms, and create a one-stop innovation and entrepreneurship education and practical service chain.

4.3. Improve the content and practice of innovation and entrepreneurship education courses in colleges and universities

First, improve students' entrepreneurial awareness and enrich the curriculum system. Encourage students to actively participate in innovation and entrepreneurship competitions and carry out basic theoretical courses in the first and second years to cultivate students' theoretical knowledge and basic qualities to lay a foundation for students to deepen their professional learning knowledge in the future. Carry out professional courses while integrating curriculum ideology and politics, enhance students' entrepreneurial awareness and equip students with solid professional knowledge. Upper students can improve their entrepreneurial and employability through elective courses. Colleges and universities should set up systematic elective courses to give students with entrepreneurial ideas more opportunities to practice. In

the third academic year, professional skills courses such as technological innovation management, innovation and potential opening training are added to enable college students to pass industry-university-research collaborative training inside and outside the university. Realize the combination of innovation and entrepreneurship education with subject research and social practice, and then improve college students' innovation and entrepreneurship ability. Professional elective courses such as big data analysis and research, blockchain technology and future innovation and entrepreneurship, and industry development trends and opportunities are designed to be from the discipline. The deep integration of scientific research practice and innovation and entrepreneurship stimulates students to master the application paths and methods of project development and research based on subject expertise and participate in innovation and entrepreneurship practices closely related to majors. Cultivate students' interdisciplinary thinking and expand their innovative and entrepreneurial spirit, thought and vision. The fourth academic year is a period for college students to apply theory to practice and transform knowledge into ability. Therefore, the concentrated practical course has become a practical test of students' innovation and entrepreneurship awareness, hands-on ability, and comprehensive innovation ability of scientific research. It is limited to various types such as on-campus innovation and entrepreneurship competitions, project declarations, thesis writing and patent applications, and can also use the school-enterprise cooperation innovation and entrepreneurship practice platform. Let students truly participate in the whole process of actual entrepreneurial practice and improve students' practical skills.

Second, build an open practice platform for students and improve the innovation and entrepreneurship education system. To cultivate students' innovation and entrepreneurship ability and entrepreneurial awareness and promote the combination of entrepreneurship theory and practice, colleges and universities should actively integrate experiential teaching in innovation and entrepreneurship education, simulation training and other practical means. Students can improve their sense of cooperation, risk awareness and coping ability through the practical training platform, simulation sand table, simulation entrepreneurial practice and other media. Students' understanding of innovation and entrepreneurship has been further strengthened by applying theoretical knowledge in practice. Through the survey, we found that many Zhejiang universities have established their own innovation, entrepreneurship network, and simulation operation platform, allowing students to simulate the entrepreneurial process in the network, which can enable students to start early Adapt to future entrepreneurship.

5. Conclusion

This paper takes the innovation and entrepreneurship curriculum design and optimization of college finance and economics majors as the main research question, finds the existing problems through the questionnaire, and obtains students' attitudes and valuable suggestions for colleges and universities' innovation and entrepreneurship curriculum from the questionnaire survey results. Finally, based on the survey results, the optimization strategy of the curriculum system is proposed. The above research conclusions have certain enlightenment for relevant colleges and universities' innovation and entrepreneurship courses, which are mainly reflected in the following aspects.

Finance and economics majors in colleges and universities emphasize social services. They have significant application-oriented characteristics and pay attention to the cultivation and training of students' professional knowledge and vocational skills. On the other hand, it differs from engineering majors and can be directly applied to industrial production. In particular, China's economic development is ushering in a new round of industrial layout, facing economic transformation and industrial upgrading. Therefore, in the construction of the innovation and entrepreneurship education curriculum system, finance and economics majors in colleges and

universities should fully consider the employment direction of finance and economics college students, and give full play to the characteristics and professional advantages of the industry. And take the cultivation of students' theoretical and practical concepts as the construction direction, take the improvement of their innovation and entrepreneurship ability as the construction goal, and consider the cross-integration of multiple disciplines Build an innovation and entrepreneurship education curriculum system that meets the needs of economic and social development.

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