

Design of Performance Evaluation System of College Students' Innovation and Entrepreneurship Education Based on AHP Method

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Abstract. Based on the interviews with experts and scholars, entrepreneurs, and the personnel in charge of the application-oriented college enrollment and employment department, this paper makes a preliminary determination of the Performance Evaluation Index of Innovation and Entrepreneurship education for college students. On this basis, through combing the characteristics of innovative entrepreneurship education in universities in the applied, using the analytic hierarchy process (AHP) to determine index weight, from double gen environment and double input and double the output of a three-level of constructing applied universities entrepreneurship education innovation performance evaluation index system, the performance evaluation of innovation and entrepreneurship education mechanism to boost the development of entrepreneurship education innovation.

Keywords: Innovation and entrepreneurship; Performance evaluation; Applied colleges and universities

1. Introduction

With the development of higher education in recent years, the increasing number of college graduates makes the employment situation of graduates very serious. In today's economic globalization, the competition between big countries has been transformed into a talent competition. China is entering the fast lane of rapid development, which requires colleges and universities to provide more innovative and compound talents. College students have the most innovative spirit and entrepreneurial potential and are the main force in building an innovative country and an innovative society. Strengthening innovation and entrepreneurship education for college students is an important way to build an innovative country, and we must attach great importance to the development of innovation and entrepreneurship education.

2. Ask questions

In December 2020, the Ministry of Education, Ministry of Finance, National Development and Reform Commission jointly issued by the construction of "double top" effect evaluation method (try out) ", made clear that "innovation entrepreneurship education into one of the comprehensive indexes for evaluation of talent cultivation", this means that innovation entrepreneurship education plays an increasingly important role in higher education reform. Especially during the 14th Five-Year Plan period, the transformation and development of ordinary undergraduate universities into application-oriented universities in the direction of the national education reform. In the Guiding Opinions on Guiding Some Local Ordinary Undergraduate Universities to Transform into application-oriented universities jointly issued by the Ministry of Education, the National Development and Reform Commission, and the Ministry of Finance, it makes clear that the guiding principle for ordinary undergraduate institutions to transform into application-oriented universities is to "enhance students' ability to find jobs and start businesses".

At present, Innovation and entrepreneurship education in colleges and universities in China has made certain achievements. However, looking from the present situation, the university student

starts a business not to be optimistic. First, from the proportion of college student's entrepreneurship, the current proportion of college student's entrepreneurship after graduation is gradually increasing. According to the 2020 Employment Report on Chinese College Students, the proportion of Chinese college graduates starting their own businesses has been on the rise, with 1.6 percent of college graduates and 3.4 percent of vocational college graduates starting their own businesses. Although this proportion is increasing year by year, it is far from 20-30% of the total number of graduates in western developed countries. Secondly, from the perspective of the success rate of entrepreneurship, the success rate of entrepreneurship of college students in China is relatively low. According to state authorities, the success rate of college students starting businesses is only 2% nationwide, which means only five to six out of every 10,000 college students in China start businesses and succeed. There are three low phenomena of "low entrepreneurship rate, low quality, and low success rate" in college students' entrepreneurship. More and more people from all walks of life have raised doubts about the significance and role of college students' innovation and entrepreneurship education. How to effectively evaluate the effect of entrepreneurship education has become an urgent problem to be studied and solved. This article selects the systematized evaluation index system and the Scientific Demonstration Research Method, comprehensively and comprehensively evaluates the effect of innovation and entrepreneurship education of undergraduates in application-oriented universities, intending to further promote the development of innovation and entrepreneurship education in China's application-oriented universities to provide reference and support.

3. Content of innovation and entrepreneurship education for application-oriented college students

Due to the particularity of the group, college students' entrepreneurship education is different from other education methods in content, method, and purpose. The content of college students' innovation and entrepreneurship education includes three aspects: first, the promotion of the awareness of innovation and entrepreneurship, through the innovation and entrepreneurship education of college students to enhance the awareness of independent innovation and entrepreneurship; The second is the cultivation of innovation and entrepreneurship ability. Through innovation and entrepreneurship education, students' innovation and entrepreneurship ability are cultivated according to the ability required by innovation and entrepreneurship. The third is the cultivation of innovative spirit, cultivating students' pioneering, innovative and independent spirit in terms of innovation and entrepreneurship.

Innovation and entrepreneurship education for college students is to cultivate their innovative spirit, entrepreneurial consciousness, and entrepreneurial ability. It is necessary to make students actively acquire knowledge, actively accept new knowledge, and create new knowledge, transform knowledge into personal value and social value, and finally achieve the maximum improvement of self-value. Innovation and entrepreneurship education is essentially a practice education, education way is given priority to with campus education channel, the purpose of education is to cultivate students' innovative entrepreneurial spirit and ability, and in the face of the entrepreneurial opportunities to have the basic quality of a business, rather than the education for students undertaking a single result, pay attention to is the effect in the process of education. The education idea and practice of cultivating innovative talents with entrepreneurial personality must cultivate students' knowledge, ability and psychological quality through innovation and entrepreneurship education for college students.

4. Enhance the value of innovation and entrepreneurship education performance for application-oriented college students

At present, the early efforts of innovative and entrepreneurial educators have a good foundation of Education and evaluation in the innovative and entrepreneurial education in China's universities. However, on how to further promote the development of innovation and entrepreneurship education in universities and improve the effectiveness of the quality of innovation and entrepreneurship education in universities. In many universities, there is no clear index and evaluation system for the effectiveness of innovation and entrepreneurship education. It also allows students not to attach great importance to innovation and entrepreneurship education in practice, the lack of practice. Although more and more attention has been paid to entrepreneurship education, only entrepreneurship education has been paid attention to by college students. Therefore, it is urgent to improve the effectiveness of innovation and entrepreneurship education feedback. Its significance includes two aspects.

4.1 Significance of promoting innovation and entrepreneurship education in colleges and universities

Innovation and entrepreneurship education cannot be equal to cultivating innovative talents. If the direction is not accurate, a systematic education system cannot be formed to meet the educational objectives and students' needs. Therefore, innovation and entrepreneurship education for college students can only be taken for granted, and the effectiveness of innovation and entrepreneurship education is the decisive factor. By studying the effectiveness of innovation and entrepreneurship education in colleges and universities, the reform of teaching courses and textbooks will be promoted. Strengthen the construction of multi-level teachers and exploration of diversified teaching models to further improve the quality of personnel training. It can also make up for the shortcomings of innovation and entrepreneurship education in colleges and universities, prompting colleges and universities to improve the innovation and entrepreneurship education system for college students and establish a professional and accurate education mode. Therefore, improving the effectiveness of college students' innovation and entrepreneurship education is of great significance to the development of college education.

4.2 Significance for the government to improve the effectiveness of policies

The role played by the government in the whole process of college students' innovation and entrepreneurship education determines that it is very important. Only by improving the effectiveness and effectiveness of innovation and entrepreneurship education can we increase the number of innovative talents of entrepreneurial talents in the process of national economic development. Carrying out innovation and entrepreneurship education can not only ease the employment pressure but also is the path for college students to create wealth quickly. At present, China's social and economic development has entered a period of structural transformation, from Made-in-China to Made-in-China. In this transformation process, many talents with innovative spirit and creativity are needed. The efficient cultivation of innovative talents is the main problem that the government needs to face. The way to solve this problem is to formulate effective policies for application and guidance. Therefore, improving the effectiveness of entrepreneurship education for college students is of far-reaching significance to promote the effectiveness of government policy formulation and implementation.

5. Analysis on the performance evaluation of innovation and entrepreneurship education for application-oriented college students

The theoretical and practical research on the quality evaluation of innovation and entrepreneurship education at home and abroad is becoming mature. On the theoretical basis of empirical investigation, scholars construct the quality evaluation index system of innovation and entrepreneurship education to carry out the quality evaluation research of innovation and entrepreneurship education in colleges and universities. However, there is a lack of difference in the quality evaluation of innovation and entrepreneurship education in colleges and universities, and there is a phenomenon of constructing universal quality evaluation indicators of innovation and entrepreneurship education. The evaluation of the quality of innovation and entrepreneurship education in application-oriented universities has not been fully studied. Therefore, the one-size-fits-all evaluation standard is not conducive to the development of innovative entrepreneurship education in application-oriented universities. At present, the performance evaluation of innovation and entrepreneurship education for application-oriented college students still has the following deficiencies.

5.1 The evaluation index system is not perfect

At present, the quality evaluation of innovation and entrepreneurship education adopts a universal quality evaluation index, which lacks differences, and has not yet formed a consistent, scientific, standardized, comprehensive and feasible performance evaluation index system. The evaluation of the quality of innovation and entrepreneurship education in applied universities has not been fully studied, and the one-size-fits-all evaluation standard is not conducive to the development of innovation and entrepreneurship education in universities. At the same time, there is an unreasonable selection of evaluation indicators, neglect of students' subjectivity, lack of indicators of students' willingness to innovate and start businesses, behavior performance, and satisfaction.

5.2 Lack of process evaluation

At present, the performance evaluation of innovation and entrepreneurship education in application-oriented universities mainly adopts a single method to carry out static evaluation of education quality, which attaches too much importance to the results rather than the process and cannot deeply grasp the development dynamics and trends of innovation and entrepreneurship education. At present, there is no consensus on whether the goal of performance evaluation is to focus on the number of entrepreneurs and entrepreneurial enterprises, or to focus on the evaluation of students' innovation and entrepreneurship consciousness and ability. Therefore, in the evaluation process, the evaluation method and the evaluation content are more confused, it needs to be further clarified.

6. Construction of performance evaluation index system of innovation and entrepreneurship education for application-oriented college students

The performance evaluation of innovation and entrepreneurship education is based on certain innovation and entrepreneurship education goals and scientific and feasible means. The purpose of the performance evaluation of innovation and entrepreneurship education is to improve the quality of entrepreneurship education. The evaluation Index of Innovation and entrepreneurship education can not only be used to measure the process and result of innovation and entrepreneurship education but also guide the whole process of innovation and entrepreneurship education. These standard influences and dominates all aspects of the teaching activities of innovative entrepreneurship education. Educators should construct scientific, reasonable, and measurable performance

evaluation indexes of innovative entrepreneurship education according to the characteristics of innovative entrepreneurship education in application-oriented universities.

6.1 Principles of index design

Four principles should be followed when designing the performance evaluation index system of innovation and entrepreneurship education. The performance evaluation index system of innovation and entrepreneurship education is a systematic project, so it is necessary to establish an independent but interrelated system based on comprehensive consideration of innovation and entrepreneurship education itself. The second is the scientific principle, innovation and entrepreneurship education performance evaluation must be based on objective facts and scientific evaluation and strive to truly reflect the actual status of the evaluation object. The third is the principle of accessibility. In the process of designing the performance evaluation index system of innovation and entrepreneurship education, the actual situation of target groups should be fully considered according to the availability of data and the actual situation. Fourth, quality evaluation is the main, quantity evaluation is the auxiliary. To evaluate the performance of innovation, and entrepreneurship education, we should not only pay attention to the number of entrepreneurs, the number of projects and other quantitative indicators, but also pay attention to the establishment of innovation consciousness, innovation ability, and other indicators that can reflect the quality of innovation and entrepreneurship education.

6.2 Contents of the indicator system

Based on the key performance indicators (KPIs) and the specific tasks and requirements of entrepreneurship and entrepreneurship education in colleges and universities in the Implementation Opinions on Deepening the Reform of Entrepreneurship and Entrepreneurship Education in Colleges and Universities issued by The State Council, this paper constructs the performance evaluation index system of entrepreneurship and entrepreneurship education in colleges and universities from three aspects: entrepreneurship and entrepreneurship environment, investment and output.

According to the characteristics of innovative entrepreneurship education in application-oriented colleges and universities, through interviews with experts and student's entrepreneurs. In this study, the Performance Evaluation Index System of Innovation and Entrepreneurship education for college students was established from three modules: environment, input, and output, nine secondary indicators and 22 tertiary indicators have been established based on the three primary indicators, as shown in Table 1.

Table 1 Performance evaluation index system of innovation and entrepreneurship education for application-oriented college students

First-level indicator A	Secondary index B	Level 3 Index C
A1Double gen environment	B1The system construction	C1Innovation and entrepreneurship education program
		C2Innovation and entrepreneurship education reform system
	B2Organizational support	C3Innovation and entrepreneurship management department
		C4Funding for innovation and entrepreneurship
		C5Infrastructure construction
A2Double gen into	B3Teaching management	C6Coverage of entrepreneurship and innovation courses
		C7Awareness of entrepreneurship policy
		C8Entrepreneurial Policy satisfaction
	B4faculty	C9Number of entrepreneurship and innovation teachers
		C10Entrepreneurship and innovation teachers teaching capacity building
		C11Hierarchical and classified entrepreneurship and innovation courses
	B5Curriculum system	C12Development of teaching platforms for entrepreneurship and innovation courses
		C13Innovation and entrepreneurship Training Base
		C14Project transformation mechanism
		C15Cross-school cooperation coverage
A3Double the output	B7Innovation and entrepreneurship ability	C16Number of student research papers
		C17Number of innovation and entrepreneurship projects
		C18Number of successful alumni
	B8Student satisfaction	C19Satisfaction with entrepreneurship and innovation courses
		C20Business startups and innovation policies
		C21Entrepreneurial Intention of College students
	B9Entrepreneurial intention	C22Entrepreneurship rate of college students

6.3 Determination of the weight of evaluation indicators

This paper adopts Analytic Hierarchy Process (AHP) to determine the weight of performance indicators. AHP is a common method to determine the weight of performance indicators, which is characterized by the combination of qualitative and quantitative. The relative importance of each index is the main basis for ahp to determine the weight. By comparing the same level of indicators in pairs, 9 importance levels and their assigned values can be obtained, and 1-9 is used to scale. This method can transform the qualitative index into quantitative value, make the evaluation index of different nature become more objective and quantitative, and improve the accuracy. Anm is used as the result of the comparison of the importance of factor N and factor M, as shown in Table 2. The judgment matrix is formed according to the pairwise comparison results of the same level indicators.

Table 2 Scale scale

Factor N over factor M	Scale values
Equally important	1
A little important	3
The more important	5
It is very important	7
Absolutely vital	9
When the difference between 2 elements is between 2, the median value 2,4, 6,8 can be obtained by adjacent judgment	

According to the analytic hierarchy process (AHP), the evaluation and scoring are carried out by experts and scholars, entrepreneurs, and the persons in charge of the employment department of application-oriented universities. Experts are allowed to score the evaluation indicators of the performance evaluation index system of application-oriented college students' innovation and entrepreneurship education at all levels, thus forming a judgment matrix. There are 13 judgment matrices including the first-level index, second-level index and third-level index and the weight of each index factor is calculated. According to the actual scoring situation of experts, the judgment matrix formed by the comparison of the importance of the three elements in the first-level index is used to calculate the weight of the first-level index by referring to the steps of the analytic hierarchy process. Similarly, the index weights of judgment matrices at each level are calculated.

The above 13 judgment matrices all pass the consistency test. We calculate the weight distribution of each level index. After we get the weight of each index to the next index, we assign the weight from the first index to the second index and the Third Index. Then, calculate the comprehensive importance degree of each index, and form the performance evaluation index system.

The more important the index is, the higher the weight of the index is in the evaluation system. As can be seen from Table 3, in the performance evaluation index system of innovation and entrepreneurship education for application-oriented university students, the ranking weights of first-level indicators are as follows: A3 entrepreneurship and innovation output (0.47), A2 entrepreneurship and innovation investment (0.28), and A1 entrepreneurship and innovation environment (0.25). The target and subject of innovation and entrepreneurship education in application-oriented universities are still students. The ranking weights of second-level indicators are B7 innovation and entrepreneurship ability (0.23), B2 top organizational support (0.19), B9 entrepreneurial intention (0.15), B3 teaching management (0.14). The number of successful alumni of C18 (0.14), entrepreneurial intention of C21 college students (0.11), infrastructure construction of C5 (0.10), awareness of ENTREPRENEURSHIP policy of C7 (0.07), satisfaction of ENTREPRENEURSHIP and innovation courses of C19 (0.07) and other indicators have higher ranking weight. The key indicators of innovation and entrepreneurship education performance evaluation for application-oriented college students still focus on students as the main body, focusing on improving students' innovation and entrepreneurship consciousness, innovation and entrepreneurship ability and continuous learning ability. At the same time, applied universities' investment in innovation and entrepreneurship education and infrastructure construction of innovation and entrepreneurship education are also key indicators of the evaluation system.

Table 3 Weight distribution of performance evaluation indicators of college students' innovation and entrepreneurship education

First-level indicator A	The weight	Secondary index B	The weight	Level 3 Index C	The weight
A1Double gen environment	0.25	B1The system construction	0.06	C1Innovation and entrepreneurship education program	0.04
				C2Innovation and entrepreneurship education reform system	0.02
		B2Organizational support	0.19	C3Innovation and entrepreneurship management department	0.03
				C4Funding for innovation and entrepreneurship	0.06
				C5Infrastructure construction	0.10
A2Double gen into	0.28	B3Teaching management	0.14	C6Coverage of entrepreneurship and innovation courses	0.02
				C7Awareness of entrepreneurship policy	0.07
				C8Entrepreneurial Policy satisfaction	0.05
				C9Number of entrepreneurship and innovation teachers	0.02
		B4faculty	0.05	C10Entrepreneurship and innovation teachers teaching capacity building	0.03
				C11Hierarchical and classified entrepreneurship and innovation courses	0.02
				C12Development of teaching platforms for entrepreneurship and innovation courses	0.01
		B6Mechanism to ensure	0.02	C13Innovation and entrepreneurship Training Base	0.04
				C14Project transformation mechanism	0.01
				C15Cross-school cooperation coverage	0.01
A3Double the output	0.47	B7Innovation and entrepreneurship ability	0.23	C16Number of student research papers	0.03
				C17Number of innovation and entrepreneurship projects	0.06
				C18Number of successful alumni	0.14
		B8Student satisfaction	0.09	C19Satisfaction with entrepreneurship and innovation courses	0.07
				C20Business startups and innovation policies	0.02
		B9Entrepreneurial intention	0.15	C21Entrepreneurial Intention of College students	0.11
				C22Entrepreneurship rate of college students	0.04

7. Countermeasures and suggestions

7.1 Build the innovation and entrepreneurship education curriculum group of "General courses + basic courses + Professional courses + independent courses"

Whether the effectiveness of innovation and entrepreneurship education for college students can be realized, first, it is necessary to accurately grasp the direction of innovation and entrepreneurship education. Educators should have an accurate understanding of the actual situation of college students, and according to the actual situation of college students to formulate appropriate innovative entrepreneurship education curriculum content. This paper suggests that a multi-level curriculum system of "general courses + basic courses + specialized courses + independent courses" should be constructed according to the reality of application-oriented universities. With schools as the main body, open relevant general education courses; With the secondary college as the main body, develop and construct basic courses of innovation and entrepreneurship disciplines; To develop and construct professional innovation and entrepreneurship courses with specialty and teaching and research department as the main body; With the help of the advanced teaching method of MOOC, the introduction of independent online courses to enhance students' knowledge.

7.2 Build a 360-degree evaluation feedback system

There needs to be an objective evaluation on the effect of innovation and entrepreneurship education for college students, and the evaluation results should be timely fed back to the innovation and entrepreneurship education to form a virtuous circle to promote the improvement of the effect of innovation and entrepreneurship education. The evaluation of the effect of innovation and entrepreneurship education should be diversified. It includes not only schools, students, teachers, but also the government, employers, to form a diversified evaluation system. On the evaluation of the effect of innovation and entrepreneurship education, the organizer should be the university, and the employer should be the main evaluator. College students should re-evaluate their evaluations. At the same time, the government should be an important evaluator. The evaluation system of the effectiveness of innovation and entrepreneurship education for college students needs to establish a good feedback system at the same time. It is dependent on the establishment of the evaluation system, and the reaction and innovation entrepreneurship education system. In the feedback system of innovative entrepreneurship education, feedback and interaction mechanism should be established between universities and students. Establishing feedback linkage mechanism between universities and employing units. Feedback and guidance mechanisms should be established between universities and the government.

7.3 Establish a "full-time + part-time" entrepreneurship and innovation teacher team

Professional teachers are an important criterion for the success of entrepreneurship education in colleges and universities. The range of teachers referred to here is wide. It includes not only startup teachers on campus, but also industry experts and successful people. They exist as lecturers in the classroom teaching innovative entrepreneurship education. To improve the professional level of teachers, colleges and universities should introduce more professional teachers who are familiar with the theoretical knowledge related to entrepreneurship education and set up teams specializing in entrepreneurship education and research. We should also absorb social forces and establish experienced part-time teachers. At present, teachers in colleges and universities rarely participate in entrepreneurial activities, so they can flexibly absorb social personnel with practical entrepreneurial spirit and experience into the teaching team, which also plays an important role in improving the effectiveness of entrepreneurship education in colleges and universities.

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