

RESEARCH ON THE TRAINING PATH OF INNOVATIVE AND ENTREPRENEURIAL TALENTS IN COLLEGES AND UNIVERSITIES BASED ON THE THEORY OF INNOVATION ECOLOGY

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ABSTRACT

Under the guidance of the innovation ecology strategy, our country's higher vocational education should strengthen the cultivation of innovative talents, so as to provide a large number of high-quality technical talents with an innovative spirit for our country's macroeconomic transformation and industrial upgrading. This paper proposes research on the cultivation path of innovative and entrepreneurial talents in colleges and universities based on the theory of innovation ecology. Firstly, according to the theory of the social-ecological system, it provides a new perspective for innovation and entrepreneurship education. By exploring various environmental systems of social ecology, this paper explores new paths for the development of innovation and entrepreneurship education from the macro, meso, and micro system levels, constructs a model of innovation and entrepreneurship education for college students that can self-manage, grow and correct themselves, establishes an evaluation index system, and uses the fuzzy analytic hierarchy process to evaluate it, the evaluation value is as high as 93.348, provides theoretical and practical guidance for promoting the development of innovation and entrepreneurship education in colleges and universities in our country.

KEYWORDS

Innovation ecological theory; Talent training; Education model; Evaluation index; Fuzzy analytic hierarchy process

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1. INTRODUCTION

The 18th National Congress of the Communist Party of China proposed the strategy of innovation-driven development and the strategy of promoting entrepreneurship to drive employment. Higher vocational colleges should actively respond to the party's call and run innovation education throughout the entire process of higher vocational talent training. Innovative talents are the engine that promotes the transformation of social science and technology into real productive forces, and the power source to promote the transformation and upgrading of regional economies and industries. Vocational colleges should regard cultivating innovative talents as the lofty responsibility and historical mission of the school, deepen the reform of the higher vocational education system from cultural concepts, management systems, and specific teaching practices, and create a good environment for the healthy growth of innovative talents. ecological environment [1].

The cultivation of innovative talents needs the support of a good ecological environment of higher vocational education. The ecological environment of higher vocational education mainly includes the ecological environment of education and culture, the ecological environment of the education system, and the ecological environment of teaching [2]. The educational and cultural ecological environment is used to regulate the world outlook, values, and methodology of the members of the micro-social environment of higher vocational colleges. The cultural ecological environment of higher vocational education that encourages innovation helps to create a good educational and cultural atmosphere for the cultivation of innovative talents in higher vocational colleges. The ecological environment of the higher vocational education system mainly provides an institutional guarantee for the innovative talent training activities of higher vocational education through its normative institutional documents and promotes the promotion of innovative education to a higher level through the mutual matching of high-level systems and low-level systems. The inner values and way of thinking of vocational education are internalized into the hearts of every teacher and student, and finally promote the formation of a cultural environment advocating innovation in higher vocational colleges [3]. The teaching ecological environment of higher vocational education is the product of its cultural ecological environment and institutional ecological environment acting on specific higher vocational teaching activities. Based on the teaching platform created by the teaching ecological environment, teachers and students in higher vocational colleges can jointly promote students' personalized growth and innovative ability training through interactive teaching activities [4]. Innovative talents usually have the typical courage to explore unknown fields, have the innovative spirit of seeking new and different, have the mind of careful thinking and strong energy, have the ability to be proficient in specific fields of expertise, and have a wide range of disciplines. quality of talents.

Literature [5] believes that innovation and entrepreneurship education should be evaluated from three aspects: comprehensive ability, innovation and entrepreneurship ability, and professional ability of college students. The evaluation mechanism should

be executable, but a clear index system has not been established. Literature [6] believes that the evaluation system of innovation and entrepreneurship education in colleges and universities is a measure of the level of innovation and entrepreneurship education, and it is also a way to control the quality of innovation and entrepreneurship education development, emphasizing the importance of individual evaluation. Literature [7] believes that the quality evaluation system of innovation and entrepreneurship education in colleges and universities should be evaluated from five parts: system construction, teaching system, cultural atmosphere, management organization, and evaluation feedback. Literature [8] proposes that innovation and entrepreneurship education should be evaluated from the aspects of resource input and the operation mechanism of innovation and entrepreneurship education, without constructing a specific index system. Literature [9] constructs an evaluation system for innovation and entrepreneurship education in colleges and universities from three aspects: environment, educational input, and educational output, including the three levels of society, colleges, and students, but does not specify the weight of each level of indicators. Literature [10] believes that the innovation and entrepreneurship education evaluation system should be constructed from two modules: curriculum system and base construction, in which the curriculum system is the basis for cultivating talents, and the practice system is an important part of cultivating students' innovation and entrepreneurship ability. Evaluation System. Literature [11] believes that the mission of innovation and entrepreneurship education in colleges and universities is to cultivate innovative talents, and the evaluation system should closely focus on six aspects: policy, curriculum, platform, and teachers. Based on the above, it can be seen that the current academic research on the evaluation of innovation and entrepreneurship education mainly focuses on theoretical discussion, and there is less research on the evaluation system.

This paper proposes research on the cultivation path of innovative and entrepreneurial talents in colleges and universities based on the theory of innovation ecology. First, understand the current situation of college students' innovation and entrepreneurship education, and build a model of innovation and entrepreneurship education. Through the investigation and research on the current situation of college students' innovation and entrepreneurship development, the analytic hierarchy process is used to determine the weights of indicators at each level in the evaluation system, and a relatively complete set of evaluation systems of innovation and entrepreneurship education in colleges and universities is obtained to provide reference for promoting the development of innovation and entrepreneurship education in colleges and universities.

2. INNOVATION ECOLOGICAL THEORY

2.1. BIOLOGICAL METAPHOR

Biological metaphor is the basic assumption of innovation ecosystem theory, which looks at socio-economic organizations and phenomena from the perspective of biology, identifies the producers, consumers, and decomposers of innovation, and the interaction between innovation subjects and between subjects and the environment. role [12]. Because of their special resource endowments, university think tanks will gradually develop into important structural holes in the innovation network, that is, nodes of multi-party relationships and information dissemination. From policy innovation to knowledge innovation, organizational innovation, and institutional innovation, from policy network to knowledge dissemination network, cultural derivative network, and ideological interaction network, an innovation ecology is formed [13].

Similar to natural ecosystems, there are also different types of species, ethnic groups, and communities in the innovation ecology of university think tanks. They interact and interact with environmental elements such as culture, knowledge, technology, policy, and capital to form an innovation ecosystem. It exhibits ecological characteristics of diversity, symbiosis, dynamic stability, and evolution [14]. From an external point of view, university think tanks and various ecological entities compete, cooperate, and collaborate on the basis of innovative environmental elements; from an internal perspective, university think tanks comprehensively utilize funds, policies, systems, and other elements to continuously innovate, providing more microscopic innovation entities. Appropriate micro-ecology promotes the spiral development of knowledge innovation[15].

2.2. INTERNAL (MICRO) INNOVATION ECOLOGY

In the internal innovation ecosystem, university think tanks assume the role of the innovation ecological environment [16]. It is different from traditional university scientific research institutions. Based on its unique talent allocation, research funding, management system, research methods, and evaluation methods, it has formed a special innovation "greenhouse", which promotes, guarantees, and supports the micro-innovation subject - research talents. The training path carries out knowledge innovation, organizational innovation, and institutional innovation [17].

First of all, from the perspective of creation, the essence of think tank products is that researchers integrate and process data, materials, and information, combine their own invisible knowledge, and use appropriate research methods to create a knowledge innovation process of valuable new ideas, new viewpoints, and new suggestions. The reason why university think tanks have a relatively high efficiency of knowledge innovation is that they have the advantages of a complete theoretical

system, rich experience, and sufficient talents, and have established a data-based research methodology system. The procedure specification is studied, and the conclusion is strong neutrality and less subjective color [18]. Second, university think tanks take the establishment of an open and collaborative think tank brand and organizational culture as the basic principles of institutional setup, so they mostly adopt a flat organizational structure and a goal-driven organizational strategy, weaken the color of administrative management, and focus on projects rather than departments. Axis flexibly combines research teams and promotes the ice-breaking integration of philosophy, social sciences, and natural sciences from personnel to institutions in the process of interdisciplinary and inter-institutional research [19]. Third, university think tanks are innovating in the management system. In terms of talent, a competitive talent introduction system, a dynamic talent utilization system, and a humanized employee management system are adopted, such as the chief researcher responsibility system, the revolving door system, and the specially-appointed researcher system. There are obvious differences in management methods; in terms of finance, the management system of scientific research funds of university think tanks is generally not contrary to the financial management system of parent universities, but in terms of culture and value orientation, it pays more attention to the intellectual contribution of people; the think tank's own database, research report pool, and experimental equipment can be opened to all researchers to explore the sharing of intellectual property rights[20].

2.3. (MACRO) INNOVATION ECOLOGY

In the external innovation ecosystem, university think tanks assume the function of the main body of the innovation ecosystem and compete, cooperate, and collaborate with ecological main bodies such as official think tanks, social think tanks, parent universities, interest groups, media, and data/investigation companies to form policy recommendations and public opinion, trying to influence and guide decision-makers and the general public.

There are three levels of relationships in the macro university innovation ecosystem: the first is the relationship between university think tanks and the government. One of the most fundamental organizational goals of university think tanks is to influence government behavior through professional analysis and advice and to serve the scientific and democratic decision-making of the party and the country. Therefore, university think tanks and the government are a typical supply and demand relationship. The government is the demander for consulting services such as policy alternatives, evaluation opinions, and policy recommendations. University think tanks are the supply side, and both parties are dominated by the demand-side market. This is the emergence of the think tank industry. Economic foundations of development. The second is the relationship between university think tanks and other innovative subjects.

1. University think tanks often cooperate with interest groups or official think tanks, and use the social networks and data information resources of interest groups (such as regional chambers of commerce and industry associations), as well as the internal reference information and reporting channels of official think tanks, to jointly complete countermeasures and suggestions to influence Government decision-making to form a certain social policy [21].
2. University think tanks and social think tanks will independently choose the mode of competition or cooperation based on their respective research expertise and resource capabilities; at the same time, both parties will also cooperate more with the media to achieve the goal of shaping public influence, discovering social problems, and promoting policy ideas. There is no absolute leader in the three-party relationship, but the game is played according to the best-choice strategy at the time. The relationship model may change at any time, but it is impossible for either party to be expelled from the market, which fully reflects the characteristics of system self-organization and dynamic stability of the innovation ecology [22].
3. There is a deep coexistence relationship between university think tanks and parent universities. The parent university supports the university think tank in terms of intellectual resources, research funds, and relational networks; the university think tank provides feedback to the parent university in terms of social influence, scientific research propositions, research methods, and reputation. The third is the relationship between university think tanks and the general public. There is a two-way supply and demand relationship between university think tanks and the general public, and the two sides exchange value around information dissemination. On the one hand, the general public is both a provider of information and a demander of information; on the other hand, university think tanks form political views and convey them to the general public by collecting the needs and opinions of the general public. The innovative knowledge, innovative methods, and innovative culture upheld are also disseminated [23].

3. INNOVATION AND ENTREPRENEURSHIP EDUCATION MODEL CONSTRUCTION

3.1. ECOSYSTEM THEORETICAL BASIS

The construction of an innovation and entrepreneurship education system for college students should follow the principle of reciprocity, interaction, and mutual adjustment between individual development and social needs, establish a corresponding ecosystem model, and realize the training goals for students based on this. The ecological model was proposed by Jerman and Guiterman in the 1980s. This model emphasizes that the individual cannot be separated from the field of life, and

must pay attention to the relationship between personal life experience, development period, living space, and the ecological environment. Environmental barriers are individual problems. important factor. Another theoretical ecological system theory proposed at the same time as the ecological model to specify social work, that is, the social-ecological system theory considers that the individual and society are whole, and can be divided into micro-system, mesosystem, and macro-system according to the size and characteristics of the group, individuals can be in any system at the same time, but the relationship between individual behavior and social environment is interdependent and mutually restrictive.

The social environment, which Pinks and Minahan think can be divided into the primitive system, formal system, and social system, should be considered a dynamic system. Therefore, when building an innovation and entrepreneurship education model for art college students, each individual student should be integrated into the social environment, and the solution to individual student problems should be understood and judged in the social environment [24].

3.2. INNOVATION AND ENTREPRENEURSHIP EDUCATION MODEL CONSTRUCTION

The innovation and entrepreneurship education model of college students should be constructed based on the above-mentioned ecological system theoretical basis, in order to achieve the coordinated development of individuals and society and achieve the training goals of higher education for students [25]. Based on the perspective of system ecology theory, the main bodies of the micro-system, meso-system, and macro-system in the construction process of innovation and entrepreneurship education model are students, teachers, and society respectively. Figure 1 reflects the relationship between the three in the innovation and entrepreneurship education model.

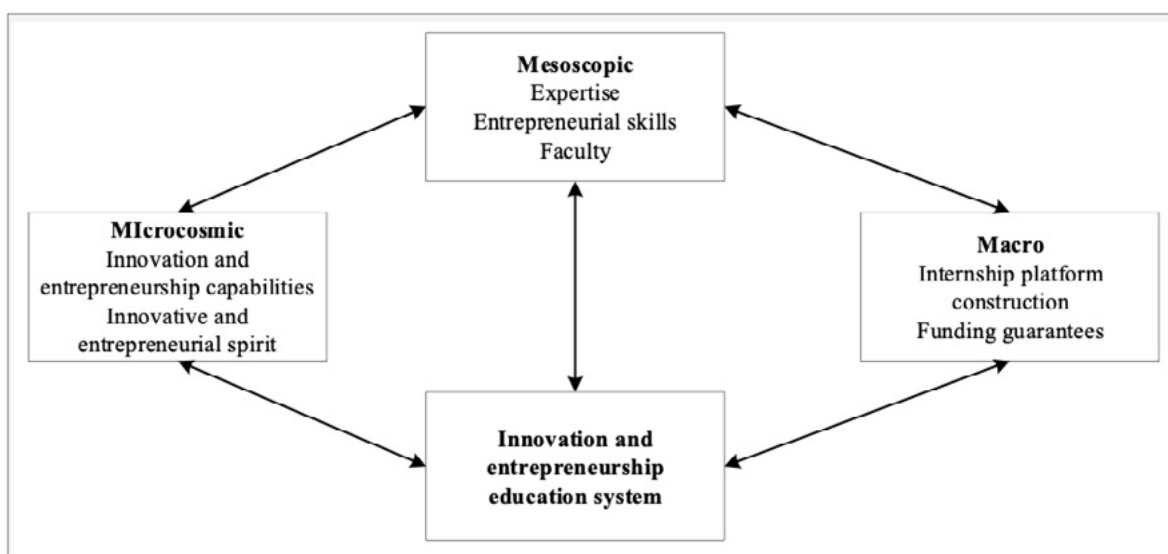


Figure 1. Innovation and entrepreneurship education model

3.3. STRUCTURAL FACTORS OF THE INNOVATION AND ENTREPRENEURSHIP EDUCATION MODEL

Ecosystem theory is the leading theory of innovation and entrepreneurship education model construction, which divides the construction of the model into three sets of successively stacked environmental systems, and these systems influence each other [26]. For the construction of the innovation and entrepreneurship education model for college students, no organization, institution, or individual can complete it independently. It requires the joint interaction of multi-layer systems, synthesizing the constituent factors of each system, and analyzing the structural factors of the innovation and entrepreneurship education model, as shown in Table 1. The model is more scientific and effective.

Table 1. Structural factors of the innovation and entrepreneurship education model

Microsystem Factors	Mesosystemic factors	Macro system factors
Family	Social education	Cultural traditions
School	Knowledge structure	Values
Peer group	Working group	Social media

The influence of the above-mentioned structural factors on the subjects of each system varies widely. Therefore, in the process of constructing the innovation and entrepreneurship education model for college students, we should pay attention to the improvement of self-education awareness, give full play to the function of family entrepreneurship education, and improve the chain of school entrepreneurship education, so as to integrate college students. Innovation and entrepreneurship education have gradually transformed from the educational function of colleges and universities to a kind of social work, which runs through the growth process of each individual. When innovation and entrepreneurship education are transformed into social work, the subjects of each system in the model become the service objects of social work. The service object comes from the system, and social work's intervention in the individual is the intervention in the system, and it is no longer a purely personal problem. In short, the individual and the system are always in a process of dynamic development and balance and finally tend to be perfect.

4. THE CULTIVATION PATH OF INNOVATIVE AND ENTREPRENEURIAL TALENTS IN COLLEGES AND UNIVERSITIES

4.1. CONSTRUCTION OF TEACHING ECOLOGICAL ENVIRONMENT FOR CULTIVATING INNOVATIVE TALENTS IN HIGHER VOCATIONAL EDUCATION

The construction of teaching ecological environment is the basic content of ecological environment construction of higher vocational education for the cultivation of innovative talents. Higher vocational colleges can start from the following aspects.

4.1.1. STRENGTHEN THE HARMONIOUS COEXISTENCE OF THE TRADITIONAL TEACHING ECOLOGICAL ENVIRONMENT AND THE TEACHING ECOLOGICAL ENVIRONMENT THAT SUPPORTS THE CULTIVATION OF INNOVATIVE TALENTS

In order to effectively enhance the necessary inclusiveness of the traditional higher vocational teaching ecological environment for innovative thinking and innovative behavior, higher vocational colleges should strengthen the traditional higher vocational education ecological environment and support the cultivation of innovative talents from the level of the convergence of strategic management concepts. Symbiosis of educational ecological environment. In the process of implementing the normative education management system, higher vocational colleges can give higher vocational education managers certain discretion to implement the system. Leave plenty of strategic living space [27].

4.1.2. EMPHASIZE THE INTERACTION BETWEEN THE TRADITIONAL HIGHER VOCATIONAL TEACHING ECOLOGICAL ENVIRONMENT AND THE CONSTRUCTION OF THE HIGHER VOCATIONAL TEACHING ECOLOGICAL ENVIRONMENT THAT SUPPORTS THE CULTIVATION OF INNOVATIVE TALENTS

Vocational teachers should establish a student-centered educational philosophy, restructure course categories, and change course structure by establishing a career-oriented innovative curriculum system, so as to increase students' interest and motivation in acquiring innovative curriculum knowledge. Vocational colleges can

increase the proportion of credits of general courses to the total credits, use general courses to expand the breadth of knowledge that students have mastered and consolidate the knowledge foundation for their associative innovative thinking. The construction of the professional ability training system for innovative talents should also pay attention to the mutual penetration of practical teaching and theoretical teaching. This is helpful to cultivate the innovative thinking ability and systematic problem-solving ability of vocational students [28].

4.1.3. STRIVE TO BUILD AN OPEN HIGHER VOCATIONAL TEACHING ECOLOGICAL ENVIRONMENT THAT SUPPORTS THE CULTIVATION OF INNOVATIVE TALENTS

The curriculum construction of higher vocational colleges should be systematically planned with the goal of cultivating innovative talents. By strengthening the communication and exchange between various majors and courses in higher vocational colleges, and reconstructing the professional curriculum system with modular curriculum construction, the problem of cross-cutting teaching content of each curriculum can be effectively resolved. Higher vocational colleges should optimize the development of curriculum structure, take the work structure as the clue of curriculum structure development, take the knowledge relationship required in the work process as the basic framework of curriculum structure development, and focus on developing modular curriculum knowledge suitable for project-based teaching methods. The system incorporates students' innovative thinking and innovative activities into the specific project teaching process. By introducing the working methods and work content of enterprises and institutions into the project teaching system, students' innovative behaviors can be effectively incorporated into the practical knowledge system of enterprises and institutions, so as to improve vocational students' practice based on real productivity its innovation activities and enhance the effectiveness of its innovation activities [29].

4.1.4. FOCUS ON BUILDING A SOCIAL HIGHER VOCATIONAL TEACHING ECOLOGICAL ENVIRONMENT THAT SUPPORTS THE CULTIVATION OF INNOVATIVE TALENTS UNDER THE GUIDANCE OF THE CONCEPT OF THE UNITY OF KNOWLEDGE AND ACTION

Higher vocational teachers can based on the market demand for higher vocational talents, take school-enterprise cooperation as a platform, take innovative ability training as the core, and penetrate the teaching content of higher vocational knowledge and higher vocational skills, so as to ensure that what students learn is consistent with the production and practice of enterprises. Consistent. Vocational

colleges can develop a path--target-based practice base, which takes the student employment market as a path to establish teaching goals according to students' personalities, and configure practice units according to teaching goals, so as to ensure that students complete their internships on the socialized training platform. The task, and form a comprehensive professional quality with strong practical ability [30].

4.2. EDUCATIONAL EVALUATION METHODS

As an important breakthrough in promoting higher education reform and an important way to cultivate new talents, innovation, and entrepreneurship education has received more and more attention. Therefore, it is of practical significance to establish a scientific and reasonable evaluation system for innovation and entrepreneurship education. The specific steps for evaluating innovation and entrepreneurship education using the fuzzy analytic hierarchy process are as follows:

Establish an evaluation index system for innovation and entrepreneurship education. According to the analysis of the evaluation objects, a scientific and reasonable set of evaluation indicators for innovation and entrepreneurship education is established, the weight of each indicator is determined by the AHP, the judgment matrix is constructed according to the T.L. satty scale theory, and the pairwise comparison method is used to determine the impact of each indicator on the total. The relative importance of the target layer, that is, the judgment matrix is obtained. Determine the weight of each indicator at each level. A certain number of experts were selected to investigate and score the weights of each layer of indicators, and the analytic hierarchy process was used to process the judgment matrix data.

Determine the comment set. According to the quality of the evaluation target, it will be graded, that is, the comment set $V = (v_1, v_2, \dots, v_5)$. For example, the comments can be defined as 5 levels, $V = (\text{excellent, good, medium, poor, poor})$.

Establish a fuzzy evaluation matrix, the formula is:

$$R = \begin{Bmatrix} R_{11} & R_{12} & \cdots & R_{1n} \\ R_{21} & R_{21} & \cdots & R_{2n} \\ \vdots & \vdots & \vdots & \vdots \\ R_{m1} & R_{m2} & \cdots & R_{mn} \end{Bmatrix} \quad (1)$$

Among them, $R_{ij}(i = 1, 2, \dots, m, j = 1, 2, \dots, n)$ describes the membership degree of the j th-level comment made on the i th evaluation index, that is, the membership degree vector.

Build a fuzzy comprehensive evaluation model. It is necessary to comprehensively consider various influencing factors, and combine the orientation of talent training in colleges and universities and the actual laws, select evaluation indicators objectively

and reasonably to ensure the integrity and rationality of the indicators of the evaluation system, and then obtain the weights of indicators at all levels in the evaluation system based on the AHP algorithm to build a scientific and reasonable evaluation index system for innovation and entrepreneurship education.

According to the synthetic algorithm of the fuzzy matrix, its comprehensive evaluation model A is:

$$A = W' \cdot R = (A_1, A_2, \dots, A_n) \quad (2)$$

If $\sum A_i \neq 1$, then $A' = (A'_1, A'_2, \dots, A'_n)$, $A'_j = A_j / \sum A_j$, ($j = 1, 2, \dots, n$).

Determine the score set, set $K = (K_1, K_2, \dots, K_n)^T$, n is equal to the level of the comment set, K_i represents the score of the comment at level i , with 100 points out of 100, then the formula is:

$$K_i = i \times 100/n (i = 1, 2, \dots, n) \quad (3)$$

Calculation and evaluation of results. Inferred:

$$B = A \times K \quad (4)$$

Or

$$B = A' \times K \quad (5)$$

Formula (4) and formula (5) are used as the scores of the evaluation objects, and the quality of innovation and entrepreneurship education is evaluated according to the value B .

Now, the fuzzy analytic hierarchy process described in this paper is used to evaluate its innovation and entrepreneurship education behavior and the quality of its achievements, and an evaluation index system for innovation and entrepreneurship education is established, as shown in Table 2.

Table 2. Evaluation index and index measurement table

Main target	First-level indicator	Secondary indicators	Indicator measure
Evaluation of Innovation and Entrepreneurship Education in Colleges and Universities(A)	Government level (B ₁)	investmentB ₁₁	Proportion of innovation and entrepreneurship education funding to total education funding
		Governing bodies and systemsB ₁₂	According to whether the government or school has set up a special innovation and entrepreneurship education management institution and its management system, the innovation and entrepreneurship education shall be specially managed and scored (0~100)
		Policies and Preferential MeasuresB ₁₃	Score (0~100) according to whether the government has issued relevant preferential policies and measures related to innovation and entrepreneurship and their implementation effects.
		School philosophy and planningB ₂₁	Score (0~100) according to whether you have a good innovation and entrepreneurship education school running concept and teaching plan
	school level (B ₂)	Curriculum system settingB ₂₂	Scoring according to whether a sound innovation and entrepreneurship education curriculum system is set up and its effect(0~100)
		FacultyB ₂₃	Score according to whether it is equipped with high-quality innovation and entrepreneurship education teachers and their teaching ability(0~100)
		Campus cultural environmentB ₂₄	Score (0-100) according to whether there is a positive campus cultural environment for cultivating innovation and entrepreneurship, such as rich campus innovation and entrepreneurship activities, etc.
		Educational facilities and practice basesB ₂₆	Score (0~100) according to whether the school has built a complete innovation and entrepreneurship education training, practice base and facilities
	Social dimension (B ₃)	Social reputationB ₃₁	Score (0~100) according to whether the school's innovation and entrepreneurship education is approved and recognized by the society, and whether it cultivates high-quality innovation and entrepreneurship talents for the society.
		Social atmosphereB ₃₂	According to whether a good atmosphere and environment for innovation and entrepreneurship has been formed in the society, and whether it actively supports innovation and entrepreneurship education in colleges and universities (0~100)
		Business groupB ₃₃	According to whether enterprises and related groups in the society support innovation and entrepreneurship education in colleges and universities, provide necessary positions and practice bases, etc. (0~100)
		Research abilityB ₄₁	Scores (0-100) according to students' ability to participate in scientific research, such as enthusiasm for participating in scientific research and ability to complete projects independently

	Student level (B ₄)	Innovative achievements B ₄₂	The number of articles published by students and the results of participating in various activities, which can be selected for one year
		Entrepreneurs hip rate B ₄₃	The proportion of the total number of graduates who start their own businesses, one year can be selected
		Practice B ₄₄	Number of students participating in extracurricular practical activities

Use AHP to determine the weight of each indicator. Construct the index judgment matrix of the layer *B*, and determine the weight of each index of the layer *B*. Through the calculation, the weight of each index of the layer *B*:

$$W'_B = (0.2634, 0.5638, 0.550, 0.1178)^T \tag{6}$$

In the same way, the indicator weight of the secondary indicator layer is obtained:

$$W'_{B_{1j}} = (0.6370, 0.1047, 0.2583)^T \tag{7}$$

$$W'_{B_{2j}} = (0.421, 0.2606, 0.5015, 0.0649, 0.1309)^T \tag{8}$$

$$W'_{B_{4j}} = (0.1175, 0.5650, 0.2622, 0.1047)^T \tag{9}$$

Determine the comment set. Position the comments into 5 grades {poor (<60), poor (60~70), moderate (70~80), good (80~90), excellent (>90)}.

A fuzzy comprehensive evaluation model is established, according to $A = W^T \cdot R$ and normalized to get:

$$A'_{B_{1j}} = W'^T_{B_{1j}} \cdot R_{B_{1j}} = (0.2914, 0.3967, 0.1936, 0.1183, 0) \tag{10}$$

Similarly:

$$A'_{B_2} = (0.736, 0.2556, 0.3564, 0.2144, 0.1000) \tag{11}$$

$$A'_{B_{3j}} = (0.0681, 0.1682, 0.2291, 0.3501, 0.1845) \tag{12}$$

$$A'_{B_{4j}} = (0.1105, 0.2846, 0.3637, 0.2412, 0) \tag{13}$$

So the layer *B* membership vector is:

$$R_B = \begin{bmatrix} A'_{B_{1j}} \\ A'_{B_{2j}} \\ A'_{B_{3j}} \\ A'_{B_{4j}} \end{bmatrix} = \begin{bmatrix} 0 & 0.1969 & 0.4000 & 0.4031 & 0 \\ 0 & 0.2039 & 0.4352 & 0.2045 & 0 \\ 0 & 0.0180 & 0.0270 & 0.0266 & 0.0205 \\ 0.1365 & 0.4068 & 0.4111 & 0.0456 & 0 \end{bmatrix} \tag{14}$$

The comprehensive evaluation model:

$A = W_B^T \times R_B = (0.0161, 0.2157, 0.4006, 0.2283, 0.0893)$, get after normalization:

$$A' = (0.0169, 0.2271, 0.4217, 0.2403, 0.0940) \quad (15)$$

Determine the score set. $K_1 = 20$, $K_2 = 40$, $K_3 = 60$, $K_4 = 80$, $K_5 = 100$ so $K = (20, 40, 60, 80, 100)^T$.

Then, the evaluation values of the method in Literature 6, the method in Literature 7, and the method in this paper are compared and analyzed, and the specific content is shown in Figure 2.

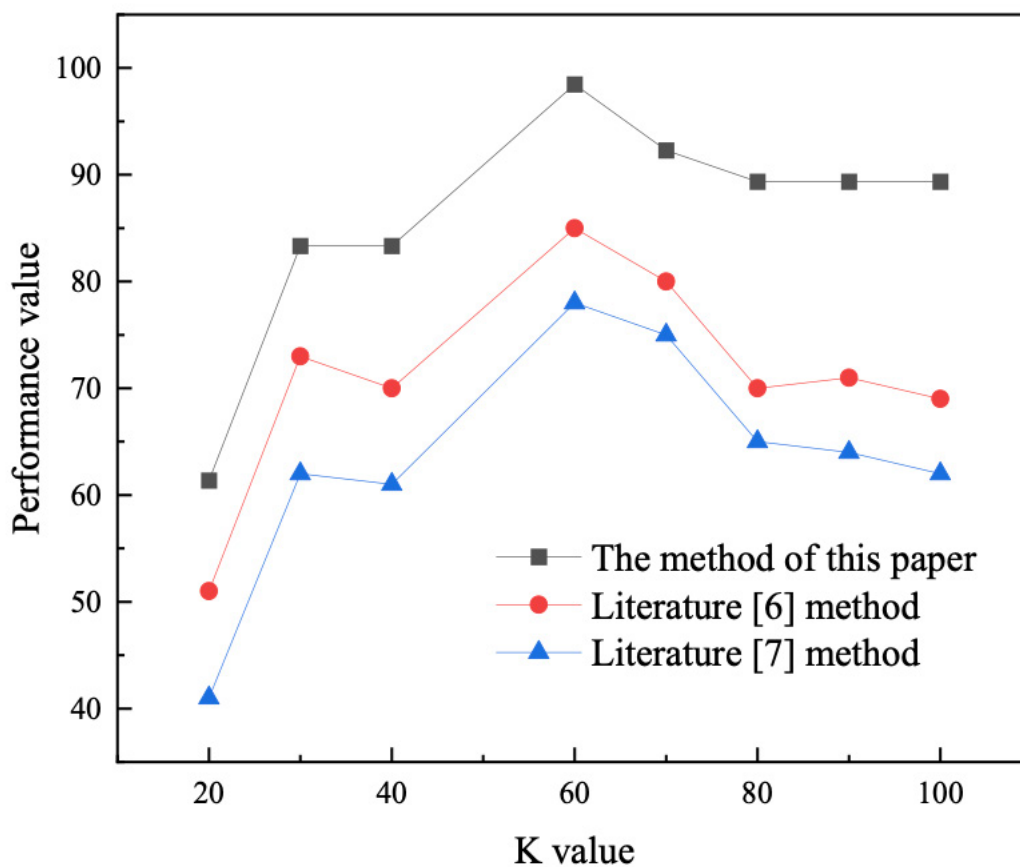


Figure 2. Different methods to evaluate performance

It can be clearly seen from Figure 2 that when the score set is $K_3 = 60$, the evaluation value of the method in Literature 6 is the highest of 85, the evaluation value of the method in Literature 7 is 76, and the evaluation value of the method in this paper is 100. In contrast, the evaluation performance of this paper is highest, thereby greatly improving the level of education. The innovation and entrepreneurship education evaluation system proposed in this paper, as an important tool to measure the development level of innovation and entrepreneurship education in colleges and universities, can provide an important guarantee for the development and improvement of the quality of innovation and entrepreneurship education in colleges and universities and has wide applicability and high advantages.

Analysis of results and suggestions for improvement. In the evaluation index system of innovation and entrepreneurship education in colleges and universities, the weights of the first-level indicators are, from large to small, educational investment, educational process, educational achievement, and educational background, among which educational investment and educational process account for a large proportion in the innovation and entrepreneurship education system. , education investment greatly affects the development level of innovation and entrepreneurship education in colleges and universities. Although the educational background has a low weight, it is still indispensable for the development of innovation and entrepreneurship education in colleges and universities. In the ranking of secondary index weights, the school environment plays a key role in the evaluation of educational background. Therefore, colleges and universities should focus on creating an environment for innovation and entrepreneurship in schools. Among the elements of education investment evaluation, funding investment occupies a more important position, and the intensity of funding investment is an important supporting condition affecting the development of innovation and entrepreneurship education in colleges and universities. In the evaluation elements of the educational process, because the teaching plan can directly affect the quality of personnel training in colleges and universities, it occupies a greater weight. Among the elements of educational achievement evaluation, the social benefits of innovation and entrepreneurship education in colleges and universities play an important role. According to $B = A' \times K$, this evaluation value is calculated as $B = 93.348$. The above results show that the quality level of innovation and entrepreneurship education in this university is relatively high, and the improvement of the quality level of innovation and entrepreneurship education can provide a better environment for talent training.

5. CONCLUSION

The innovation and entrepreneurship education of college students is a systematic, three-dimensional, and long-term project. The ecosystem theory is applied to the field of college students' innovation and entrepreneurship education, and the problem of college students' innovation and entrepreneurship is viewed more scientifically and comprehensively from a systematic perspective. Based on the innovation ecology theory, this paper constructs an innovation and entrepreneurship education model, and conducts a comprehensive evaluation and empirical analysis of the innovation and entrepreneurship education evaluation index system created by the government, schools, society, and students at four levels, and uses the fuzzy analytic hierarchy process. The result is as follows:

1. In the evaluation index system of innovation and entrepreneurship education in colleges and universities, the weights of the first-level indicators are, from large to small, educational investment, educational process, educational achievement, and educational background, among which educational investment and educational process occupy a large part in the innovation and entrepreneurship education system. A large proportion, of education

investment greatly affects the development level of innovation and entrepreneurship education in colleges and universities. Although the educational background has a low weight, it is still indispensable for the development of innovation and entrepreneurship education in colleges and universities.

2. In the ranking of secondary index weights, among the elements of educational background evaluation, the school environment plays a key role. Therefore, colleges and universities should focus on creating an environment for innovation and entrepreneurship in schools. Among the elements of education investment evaluation, funding investment occupies a more important position, and the intensity of funding investment is an important supporting condition affecting the development of innovation and entrepreneurship education in colleges and universities. In the evaluation elements of the educational process, because the teaching plan can directly affect the quality of personnel training in colleges and universities, it occupies a greater weight. Among the elements of educational achievement evaluation, the social benefits of innovation and entrepreneurship education in colleges and universities play an important role.
3. The comments are positioned in 5 grades {poor (<60), poor (60~70), moderate (70~80), good (80~90), excellent (>90)}, and the evaluation value is obtained by calculation It is 93.348, indicating that the education system of this article is very efficient, and the talent training is better. However, in the actual evaluation work, it is still necessary to continuously modify and improve the index system, so as to provide a certain evaluation basis for promoting the healthy and orderly development of innovation and entrepreneurship education in my country.

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