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ANALYSIS OF FACTORS INFLUENCING INNOVATION AND ENTREPRENEURSHIP EDUCATION BASED ON ANALYTIC HIERARCHY PROCESS

Abstract: Innovation and entrepreneurship education (IEE) is a crucial pathway to enhance college students' innovation abilities and entrepreneurial spirit. This study employs the Analytic Hierarchy Process (AHP) to quantitatively analyze key factors influencing IEE in higher education, including policy support, teaching methods, teacher quality, student entrepreneurial motivation, and the external environment. The primary objective is to accurately calculate the weights of these factors and provide specific reference data. Our results show that government funding support is the most critical factor, followed by policy orientation, teaching methods, project-based learning, and teacher entrepreneurial experience. These five indicators account for 72% of the total weight of all factors. By quantifying the importance of these key factors through the AHP model, our findings validate existing research and offer specific scientific data for policy-making and teaching method optimization. This quantitative approach enhances the accuracy and reliability of results compared to previous studies, highlighting the importance of systematic and scientific analysis for understanding and optimizing complex educational systems. This study underscores the core role of government funding in IEE, providing new perspectives for future policy-making and educational strategies. It makes significant contributions to the field of IEE and emphasizes the importance of global educational innovation and reform.

Key words: higher college, innovation and entrepreneurship education, analytic hierarchy process, policy support

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Introduction

With the rapid development of the global economy, innovation and entrepreneurship education is gradually taking an important place in higher education (Nabi et al., 2017; Kruss et al., 2015; Sánchez et al., 2016). In recent years, universities around the world have incorporated innovation and entrepreneurship education into their curricula, aiming to cultivate students' innovative thinking and entrepreneurial abilities (Wang & Ma, 2022). In recent years, universities around the world have incorporated innovation and entrepreneurship education into their curricula, aiming to cultivate students' innovative thinking and entrepreneurial abilities. Innovation and entrepreneurship education is an important way to cultivate talents with innovative abilities and is a key factor in promoting economic and social development (Drucker, 2016).

Innovation and entrepreneurship education has received widespread attention, but its impact varies due to multiple factors. Research shows that factors affecting the effectiveness of innovation and entrepreneurship education include educational policies, teaching methods, teacher quality, students' entrepreneurial motivation, and the external environment (Liu et al., 2019; Ma et al., 2020). These factors intertwine and collectively influence the effectiveness of innovation and entrepreneurship education.

Academics and policymakers are exploring the best methods for innovation and entrepreneurship education. However, current research mostly remains at the qualitative analysis stage, lacking systematic quantitative analysis to evaluate the relative importance of various influencing factors. This study aims to fill this gap by systematically quantifying the key factors affecting innovation and entrepreneurship education in universities using the Analytic Hierarchy Process (AHP), including educational policies, teaching methods, teacher quality, student entrepreneurial motivation, and the external environment.

The advantage of the Analytic Hierarchy Process (AHP) lies in its ability to break down complex decision-making problems into multiple levels, each containing several independent criteria. By using expert scoring to construct judgment matrices, it quantitatively analyzes the relative importance of various factors to derive scientific and objective conclusions. Among many research methods, the AHP can systematically analyze and prioritize complex issues, making it widely used in the field of educational research. AHP can not only help identify and assess the key factors affecting innovation and entrepreneurship education but also provide scientific decision support for education administrators and policymakers.

This paper determines the weights of various factors through expert surveys and data analysis, thereby providing concrete scientific evidence for optimizing innovation and entrepreneurship education methods. Through this study, it is possible to validate key points in existing literature, systematically analyze the multiple influencing factors and weights of innovation and entrepreneurship education in universities, reveal the key factors affecting innovation and entrepreneurship education, provide theoretical support and practical guidance for improving education quality, and offer new perspectives for future research.

Literature Review

The Theoretical Foundations of Innovation and Entrepreneurship Education

The theoretical foundations of innovation and entrepreneurship education mainly include innovation theory and entrepreneurship theory. Schumpeter first proposed the innovation theory, emphasizing that innovation is the core driving force of economic development. Innovation includes technological innovation, organizational innovation, market innovation, and institutional innovation. Innovation theory provides a theoretical basis for innovation and entrepreneurship education (Tzeng, 2009; Gilbert, 2006). Entrepreneurship theory focuses on the study of the entrepreneurial process and entrepreneurs. Zhang (2021) pointed out that the core of entrepreneurship education is to cultivate students' entrepreneurial awareness, entrepreneurial abilities, and entrepreneurial spirit. Entrepreneurship education should include the imparting of entrepreneurial knowledge, the training of entrepreneurial skills, and the support of entrepreneurial practice (Marcotte, 2014). Entrepreneurship theory provides concrete practical guidance for innovation and entrepreneurship education (Dushime et al., 2021).

Factors Influencing Innovation and Entrepreneurship Education

The effectiveness of innovation and entrepreneurship education is influenced by multiple factors. Educational policies are a crucial factor affecting innovation and entrepreneurship education, the support of government and school policies is the fundamental guarantee for the smooth implementation of innovation and entrepreneurship education. Research shows that government policy orientation and financial support play an important role in the promotion and implementation of innovation and entrepreneurship education (O'Connor, 2013; Ghina, 2014).

Teaching methods have a significant impact on the effectiveness of innovation and entrepreneurship education. Traditional teaching methods are difficult to meet the current needs of innovation and entrepreneurship education. Rasmussen (2006) pointed out that innovation and entrepreneurship education requires the use of innovative teaching methods such as experiential learning, project-based learning, and cooperative learning to enhance student engagement and practical skills. Research shows that courses using innovative teaching methods can significantly improve students' innovation capabilities and entrepreneurial intentions (Balan & Metcalfe, 2012).

Teacher quality is also an important factor affecting the effectiveness of innovation and entrepreneurship education. Teachers need not only professional knowledge and teaching ability but also an innovative spirit and entrepreneurial experience. Joensuu-Salo (2020) believe that teachers with entrepreneurial experience can better guide students in entrepreneurial practice, thereby enhancing students' entrepreneurial abilities. Research shows that teachers' entrepreneurial background and teaching ability have a significant impact on the effectiveness of innovation and entrepreneurship education (Jiang et al., 2022; Hämäläinen et al., 2022).

Students' entrepreneurial motivation and the external environment are also important factors affecting innovation and entrepreneurship education. Students' entrepreneurial motivation directly affects their enthusiasm and effectiveness in partic-

ipating in innovation and entrepreneurship education. Wu (2020) pointed out that students' entrepreneurial intentions are influenced by entrepreneurial attitudes, subjective norms, and perceived behavioral control. Research shows that students with strong entrepreneurial motivation perform more actively in innovation and entrepreneurship education and achieve more significant results. The external environment includes social culture, economic environment, and technological environment. Research shows that a favorable external environment can stimulate students' entrepreneurial enthusiasm and promote the development of innovation and entrepreneurship education (Shwedeh et al., 2023; Rivero & Ubierna, 2021).

Evaluation Methods of Innovation and Entrepreneurship Education

In evaluating the effectiveness of innovation and entrepreneurship education, scholars have adopted various methods. Quantitative research is one of the commonly used evaluation methods. Azemi (2022) evaluated the impact of entrepreneurship education on students' entrepreneurial attitudes and intentions through large-scale surveys, research shows that entrepreneurship education can significantly enhance students' entrepreneurial intentions and behaviors.

Case study method is also one of the commonly used evaluation methods. Kállay (2022) explored the reasons for the success and failure of various entrepreneurship education projects by analyzing their specific implementations, research shows that successful entrepreneurship education projects often have clear objectives, systematic curriculum design, and strong support measures.

Mixed research methods combine quantitative and qualitative data to obtain more comprehensive research results. Ewijk et al. (2020) evaluated the effectiveness of entrepreneurship education through a combination of reviews and empirical research, research shows that mixed research methods can provide more comprehensive and in-depth analysis results, helping to better understand the impact mechanisms of entrepreneurship education.

These methods reveal factors influencing innovation and entrepreneurship education to some extent, but the research lacks systematic and hierarchical analysis, making it difficult to fully uncover the interrelationships and relative importance of these factors.

The Application of Analytic Hierarchy Process in Innovation and Entrepreneurship Education

Some studies have used AHP to construct models of innovation and entrepreneurship education systems. For instance, Wu (2022) constructed a system encompassing educational objectives, content, methods, and environment through AHP and validated the model's rationality through empirical research. Regarding the design of innovation and entrepreneurship courses, Guo (2020) found through AHP analysis that course content, teaching methods, and practical sessions are the main factors affecting the effectiveness of innovation and entrepreneurship courses and proposed corresponding improvement suggestions. In terms of evaluating educational effectiveness, Tang (2021) used AHP to construct an evaluation system including indicators such as student satisfaction, teacher quality, course quality, and resource support, and validated the system's effectiveness through empirical surveys in multiple universities. AHP has also shown its advantages

in evaluating the capabilities of teachers and students. Liu et al. (2022) used the AHP method to analyze key competency factors of teachers in innovation and entrepreneurship education, such as teaching ability, research ability, and practical experience, and proposed corresponding teacher training suggestions. Xu (2021) constructed a student innovation and entrepreneurship capability evaluation model using AHP and found that students' practical ability and innovative thinking are key factors determining their innovation and entrepreneurship capabilities.

In conclusion, innovation and entrepreneurship education, as an important educational practice, has received widespread attention and research. Although existing research has revealed various influencing factors of innovation and entrepreneurship education, further empirical research is needed to verify and improve these findings. As an effective research method, the AHP can help identify and assess the key factors influencing innovation and entrepreneurship education, providing scientific decision support for education administrators and policymakers.

Material and Methods

This study uses the AHP to evaluate and analyze the key factors affecting innovation and entrepreneurship education in universities. The AHP method can systematically analyze and prioritize complex issues, combining qualitative and quantitative data to provide scientific solutions for multi-factor decision-making problems. This section provides a detailed introduction to the research design, data collection, implementation process of AHP, and its analytical methods.

Data Collection

The study selected experts in the field of innovation and entrepreneurship education from domestic and international universities as research subjects, including professors, associate professors with rich teaching and management experience, and heads of university innovation and entrepreneurship centers. The principle of sample selection was to ensure that experts have a high level of professional knowledge and rich practical experience to ensure the reliability and validity of the data. A total of 124 questionnaires were distributed, and 34 experts were interviewed. The questionnaire design included two parts: the first part collected basic information about the experts, including educational background and work experience; the second part focused on evaluating the importance of factors affecting innovation and entrepreneurship education, including educational policies, teaching methods, teacher quality, student entrepreneurial motivation, and external environment. The questionnaire used a Likert five-point scale (1 = very unimportant, 5 = very important) to measure the importance of each factor. Semi-structured interviews were conducted to further collect experts' specific views and suggestions on each factor, supplementing the questionnaire data.

Implementation of Analytic Hierarchy Process

Based on the literature review and expert opinions, a hierarchical structure model affecting innovation and entrepreneurship education in universities was constructed, as shown in Table A1 and Figure A1. The model is divided into three levels: the goal level (key factors affecting innovation and entrepreneurship education in universities), the criteria level (classification of influencing factors), and the indicator level

(specific influencing factors). The goal level is the highest level, representing the ultimate purpose of the study. The criteria level is the middle level, representing the categories of influencing factors, and the indicator level is the lowest level, representing specific influencing factors.

After constructing the hierarchical structure model, experts were invited to conduct pairwise comparisons of the factors at each level to establish a judgment matrix. The construction of the judgment matrix is based on the subjective judgments of experts, using the 1-9 scale method to rate the importance of each factor. The rating scale is shown in Table A2: 1 indicates that two factors are equally important, 3 indicates that the former is slightly more important, 5 indicates that the former is obviously more important, 7 indicates that the former is very important, 9 indicates that the former is extremely important, and 2, 4, 6, 8 indicate intermediate values between these judgments.

Due to the partial understanding and perception of issues by experts, it is necessary to conduct a consistency check to ensure the rationality and consistency of the judgment matrix, the specific steps are as follows:

Calculate the maximum eigenvalue and the corresponding eigenvector of the judgment matrix.

Calculate the Consistency Index (CI) and the Consistency Ratio (CR) using the formulas shown in (1) and (2):

$$CI = \left(\frac{\lambda_{max} - n}{n - 1}\right) \quad (1)$$

$$CR = \frac{CI}{RI} \quad (2)$$

Where λ_{max} is the maximum eigenvalue of the judgment matrix, and n is the order of the matrix. CI is the Consistency Index, and RI is the Random Consistency Index. If CR < 0.1, the judgment matrix is considered to have good consistency; otherwise, the judgment matrix needs to be adjusted.

After passing the consistency test, the weights of each factor are calculated using the eigenvector method. The specific steps are as follows: First, normalize the column vectors of the judgment matrix; second, add the normalized column vectors by rows; finally, normalize the row sum vector to obtain the weight vector of each factor. Based on the calculated weights, rank the factors to determine their relative importance.

After completing the weight calculation, analyze the weights of each factor. First, analyze the weight distribution of the criteria-level factors to identify the main categories affecting innovation and entrepreneurship education, then analyze the weight distribution of the indicator-level specific factors to identify the key specific influencing factors. Through weight analysis, the importance of each factor to innovation and entrepreneurship education can be intuitively understood, providing scientific reference for education administrators and policymakers.

Results Analysis

Criteria-Level Weight Analysis

According to the expert scoring results and the calculations of the AHP method, the weight distribution of the five main factors at the criteria level was obtained. The criteria level includes Policy, Teaching Methods, Teacher Quality, Student Motivation, and External Environment. The weights of each factor are shown in Table A3.

Table A3 shows that Policy, with a weight of 0.574, ranks first, indicating that policy support plays a crucial role in innovation and entrepreneurship education. Next is Teaching Methods, with a weight of 0.243, indicating that innovative teaching methods are crucial for enhancing educational effectiveness. Teacher Quality ranks third with a weight of 0.097, reflecting the central role of teachers in the educational process. Student Motivation and External Environment have weights of 0.05 and 0.036 respectively. Although their weights are lower, they are still important factors that cannot be ignored.

Indicator-Level Weight Analysis

Based on the criteria level, further analysis of the specific factors at the indicator level was conducted, the specific weight distribution of Policy Supporting is shown in Table A4. The judgment matrix for the Policy criterion level includes three indicators: government financial support, policy orientation, and regulatory support. The calculated weights are 0.637, 0.258, and 0.105, respectively. Government financial support has the highest weight in innovation and entrepreneurship education, at 0.637. This indicates that financial investment directly impacts the allocation of resources and infrastructure construction in universities, thereby directly influencing innovation and entrepreneurship education. The weight of policy orientation is 0.258, indicating that the direction and focus of policies in resource allocation and curriculum design can also directly affect innovation and entrepreneurship education. The weight of regulatory support is 0.105, which is relatively lower, but regulatory support ensures the effective implementation of policies.

The specific weight distribution of Teaching Methods is shown in Table A5, the judgment matrix for the Teaching Methods criterion level includes three indicators: experiential learning, project-based learning, and online learning resources. The calculated weights are 0.540, 0.297, and 0.163, respectively. Experiential learning has the highest weight in innovation and entrepreneurship education, at 0.540, indicating that through hands-on activities and practical experiences, students can better grasp entrepreneurial skills and develop innovative thinking. The weight of project-based learning is 0.297, emphasizing the importance of students exercising problem-solving and teamwork skills in real-world contexts. The weight of online learning resources is 0.163, which is relatively lower, but online learning resources provide students with abundant learning materials and flexible learning methods, promoting the improvement of teaching methods.

The specific weight distribution of Teacher Quality is shown in Table A6, the judgment matrix for the Teacher Quality criterion level includes three indicators: entrepreneurial experience, teaching ability, and professional development. The calculated weights are 0.687, 0.244, and 0.069, respectively. Entrepreneurial experience

has the highest weight at 0.687, indicating that teachers with entrepreneurial experience can provide more effective guidance and support to students in innovation and entrepreneurship education. The weight of teaching ability is 0.244, reflecting the direct impact of improved teaching ability on educational outcomes. The weight of professional development is 0.069. Although relatively low, continuous professional development is crucial for teachers to adapt to the ever-changing educational demands and improve their teaching quality.

The specific weight distribution of Student Motivation is shown in Table A7, the judgment matrix for the Student Motivation criterion level includes three indicators: intrinsic motivation, extrinsic motivation, and peer influence. The calculated weights are 0.625, 0.238, and 0.137, respectively. Intrinsic motivation has the highest weight at 0.625. It is the main factor driving students to participate in entrepreneurship education, as their interest and enthusiasm for innovation and entrepreneurship can significantly enhance their learning motivation. The weight of extrinsic motivation is 0.238. External incentives, rewards, and social recognition significantly impact students' entrepreneurial behavior and can motivate them to engage in innovation and entrepreneurship activities. The weight of peer influence is 0.137. Peer support and influence still play an important role in students' entrepreneurial intentions and confidence.

The specific weight distribution of External Environment is shown in Table A8, the judgment matrix for the External Environment criterion level includes three indicators: social support, technological environment, and industry collaboration. The calculated weights are 0.540, 0.297, and 0.163, respectively. Social support has the highest weight at 0.540. Support from family, friends, and the community can provide emotional encouragement and resource assistance, promoting students' entrepreneurial practices. The weight of the technological environment is 0.297, reflecting the positive impact of technological development and the widespread use of information technology on innovation and entrepreneurship education. A good technological environment provides students with more entrepreneurial opportunities and resources. The weight of industry collaboration is 0.163. Collaboration between universities and enterprises/industries can provide students with more practical opportunities and resource support, promoting their entrepreneurial practices and capability enhancement.

The CR values of the criteria level and indicator level are shown in Table A9. All CR values are less than 0.1, indicating that the judgment matrices have good consistency. The consistency of expert ratings is high, making the judgment results reliable for further analysis and research.

The comprehensive weights of the indicator level are shown in Table A10. Government financial support under policy support has the highest weight, with a comprehensive weight of 0.366, indicating that government financial support is the most important factor, directly affecting the allocation of resources and infrastructure construction for innovation and entrepreneurship education in universities. The comprehensive weight of policy orientation is 0.148, indicating that policy direction plays an important role in the allocation of educational resources and curriculum design. Experiential learning in Teaching Methods has a high weight, with a comprehensive weight of 0.131. Through hands-on activities and practical experiences, students can better grasp entrepreneurial skills and innovative thinking. The comprehensive weight of project-based

learning is 0.072, highlighting its significant role in enhancing students' practical skills and teamwork abilities. The comprehensive weight of teachers' entrepreneurial experience is 0.067. Teachers with entrepreneurial experience can provide more practical guidance and support in innovation and entrepreneurship education. These five indicators account for 72% of all indicators, making the most significant contribution to innovation and entrepreneurship education.

Discussion

This study found that government financial support, policy orientation, and regulatory support in educational policies have significant impacts on innovation and entrepreneurship education, with comprehensive weights of 0.366, 0.148, and 0.060, respectively. Chen and Yang (2019) pointed out that government financial support is a key factor influencing the effectiveness of innovation and entrepreneurship education. However, this study, through the AHP method, not only validated the importance of financial support but also quantified its relative importance, providing more specific references for policymakers.

Experiential learning and project-based learning have been proven in this study to be effective methods for enhancing students' practical abilities and entrepreneurial skills, with comprehensive weights of 0.131 and 0.072, respectively. Jones et al. (2014) also emphasized the importance of experiential learning, believing that it can significantly improve students' practical abilities. Compared to existing research, this study further quantified the relative importance of different teaching methods, providing scientific evidence for the optimization of teaching methods.

Teachers' entrepreneurial experience has been proven to be a key factor affecting the effectiveness of innovation and entrepreneurship education, with a comprehensive weight of 0.067. Rasmussen (2006) pointed out that teachers with entrepreneurial experience can provide more practical guidance. This study quantitatively verified this viewpoint and further emphasized the importance of continuous professional development for teachers. Despite its lower comprehensive weight (0.007), its role in helping teachers adapt to educational demands cannot be ignored.

This study found that intrinsic motivation is the main factor driving students to participate in entrepreneurship education, with a comprehensive weight of 0.031. Jones et al. (2014) also pointed out the important role of intrinsic motivation in students' entrepreneurial intentions. Through comprehensive analysis, this study further verified the importance of intrinsic motivation and quantified the relative importance of extrinsic motivation and peer influence, providing a basis for the design of incentive mechanisms.

The importance of social support in students' entrepreneurial motivation and behavior was validated in this study, with a comprehensive weight of 0.019. Chen and Yang (2019) emphasized the role of family and community support in student entrepreneurship. Through quantitative analysis, this study further emphasized the importance of the technological environment and industry collaboration. Despite their lower comprehensive weights (0.011 and 0.006, respectively), their roles in providing practical opportunities and resource support cannot be ignored.

Conclusion

This study conducted a comprehensive and systematic quantitative analysis of the factors influencing innovation and entrepreneurship education in universities using the AHP. The results indicate that educational policies, teaching methods, teacher quality, student entrepreneurial motivation, and the external environment are key factors affecting innovation and entrepreneurship education in universities. Unlike previous studies, this research not only validated the importance of these factors but also quantified their relative importance through comprehensive weight calculations, providing more effective scientific guidance for policy formulation and optimization of teaching methods.

Government financial support was identified as the most important influencing factor, with a comprehensive weight of 0.366, highlighting the key role of the government in promoting innovation and entrepreneurship education in universities. Although existing literature has emphasized the importance of government support, this study further quantified its impact, clearly indicating the importance of policy orientation and regulatory support in innovation and entrepreneurship education. This provides concrete references for the government and educational management departments in policy formulation.

In terms of teaching methods, experiential learning and project-based learning have been proven to be key methods for effectively enhancing students' entrepreneurial skills and innovative thinking. Although previous studies have recognized the effectiveness of these methods, this study quantified the relative importance of different teaching methods through comprehensive weight analysis, providing scientific evidence for universities in designing curricula and teaching methods.

Teacher quality, especially teachers' entrepreneurial experience, has a significant impact on innovation and entrepreneurship education, with a comprehensive weight of 0.067. This finding is consistent with previous research, but this study further emphasized the importance of teachers' entrepreneurial experience through quantitative analysis. Although the weight of continuous professional development for teachers is relatively low, it remains crucial for adapting to changes in educational demands and improving teaching quality.

In terms of student entrepreneurial motivation, this study highlighted the importance of intrinsic motivation, with a comprehensive weight of 0.031. This indicates that interest and enthusiasm for innovation and entrepreneurship are the main factors driving students to participate in entrepreneurship education. This finding is consistent with previous research, but this study quantified the relative importance of intrinsic motivation, extrinsic motivation, and peer influence through comprehensive analysis, providing a basis for the design of incentive mechanisms.

The impact of the external environment, particularly social support and the technological environment, was quantified in this study, with comprehensive weights of 0.019 and 0.011, respectively. Although these factors have relatively lower weights, their roles in providing practical opportunities and resource support cannot be ignored. This finding provides a more specific quantitative analysis.

Overall, the major contribution of this study lies in combining the Analytic Hierarchy Process (AHP) to not only validate the key factors in existing research but also quantify the relative importance of each factor, providing more precise and scientific guidance. This study has not only enhanced the reliability and accuracy of the research results but also provided new perspectives and methods for future research. By deeply analyzing and quantifying the impact of each factor, this study can provide robust scientific evidence for the government, educational management departments, and universities in policy-making and optimizing teaching methods, thereby promoting the sustainable development of innovation and entrepreneurship education in universities.

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Appendix

Table A1. Indicator Model of Innovation and Entrepreneurship Education System in Universities

Target Layer(TL)	Criteria Layer(CL)	Indicator Layer(IL)
Indicators of factors affecting innovation and entrepreneurship education in applied universities	Policy Supporting（PS）	Government Funding Support(GS)
		Policy Orientation(PO)
		Regulatory Support(RS)
	Teaching Methods(TM)	Experiential Learning(EL)
		Project-Based Learning(PL)
		Online Learning Resources(OR)
	Teacher Quality(TQ)	Entrepreneurial Experience(EEX)
		Teaching Ability（TA）
		Professional Development(PD)
	Student Motivation(SM)	Intrinsic Motivation(IM)
		Extrinsic Motivation(EM)
		Peer Influence(PI)
	External Environment(EE)	Social Support(SS)
		Technological Environment(TE)
		Industry Collaboration (IC)

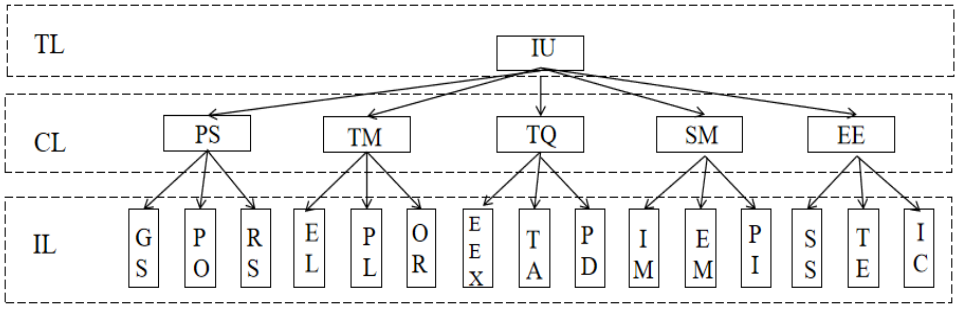

Figure A1. Indicator Model of Innovation and Entrepreneurship Education System in Universities

Table A2. Meaning of Comparative Degrees of Relative Importance

Scale	1	3	5	7	9	2、4、6、8
Meaning (former compared to latter)	Equally important	Slightly more important	Obviously more important	Strongly more important	Extremely more important	Intermediate levels of importance

Table A3. Criteria-Level Judgment Matrix

Target Layer	PS	TM	TQ	SM	EE	W
PS	1	3	5	7	9	0.574
TM	1/3	1	3	5	7	0.243
TQ	1/5	1/3	1	3	5	0.097
SM	1/7	1/5	1/3	1	3	0.05
EE	1/9	1/7	1/5	1/3	1	0.036

Table A4. Indicator-Level Judgment Matrix (PS)

PS	GS	PO	RS	W
GS	1	3	5	0.637
PO	1/3	1	3	0.258
RS	1/5	1/3	1	0.105

Table A5. Indicator-Level Judgment Matrix (TM)

TM	EL	PL	OR	W
EL	1	2	3	0.54
PL	1/2	1	2	0.297
OR	1/3	1/2	1	0.163

Table A6. Indicator-Level Judgment Matrix (TQ)

TQ	EEX	TA	PD	W
EEX	1	4	7	0.687
TA	1/4	1	5	0.244
PD	1/7	1/5	1	0.069

Table A7. Indicator-Level Judgment Matrix (SM)

SM	IM	EM	PI	W
IM	1	3	4	0.625
EM	1/3	1	2	0.238
PI	1/4	1/2	1	0.137

Table A8. Indicator-Level Judgment Matrix (EE)

EE	SS	TE	IC	W
SS	1	2	3	0.540
TE	1/2	1	2	0.297
IC	1/3	1/2	1	0.163

Table A9. Consistency Test

	λ	CI	RI	CR
IU	5.088	0.022	1.12	0.02
PS	3.021	0.0105	0.58	0.0181
TM	3.003	0.001	0.58	0.0017
TQ	3.128	0.064	0.58	0.1103
SM	3.002	0.001	0.58	0.0017
EE	3.001	0.0005	0.58	0.0009

Table A10. Comprehensive Weight Table of Each Indicator

Item	PS	TM	TQ	SM	EE	Weight	Total Ranking
	0.574	0.243	0.097	0.05	0.036		
GS	0.637					0.366	1
PO	0.258					0.148	2
RS	0.105					0.06	6
EL		0.54				0.131	3
PL		0.297				0.072	4
OR		0.163				0.04	7
EEX			0.687			0.067	5
TA			0.244			0.024	9
PD			0.069			0.007	13
IM				0.625		0.031	8
EM				0.238		0.012	11
PI				0.137		0.007	13
SS					0.54	0.019	10
TE					0.297	0.011	12
IC					0.163	0.006	15