



Construction and Application of Evaluation Index System of Entrepreneurship Education

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Abstract

Entrepreneurship education evaluation has the function of guiding, motivating and evaluating the development of entrepreneurship education, and the development of effective entrepreneurship education evaluation tools is a hot spot in the field of international entrepreneurship education and evaluation research. This study constructs an evaluation index system of entrepreneurship education in colleges and universities based on Context Evaluation, Input Evaluation, Process Evaluation and Product Evaluation (CIPP) model consisting of 4 primary evaluation indexes, 12 secondary evaluation indexes and 41 descriptive indexes, compiles the questionnaire on the effectiveness of entrepreneurship education implementation in universities, and conducts a survey on the effectiveness of entrepreneurship education for college students in a pilot university in the first round of entrepreneurship education in China as the research object. The questionnaire was tested for reliability using SPSS 25 software, and finally, countermeasures were proposed based on the evaluation results to provide a reference for the research on entrepreneurship education and evaluation in colleges and universities in China.

Subject Areas

Higher Education

Keywords

Entrepreneurship Education Evaluation, CIPP, Innovation and Entrepreneurship Education

1. Introduction

Alain Fayolle *et al.* (2006) built an entrepreneurship education evaluation framework and the Tool for the Assessment of Entrepreneurial Intentions (TPB) based

on the Theory of Planned Behavior, which became the beginning of entrepreneurship education evaluation tools development and research [1]. Professor Vesper built seven evaluation indicators for entrepreneurship education programs through case studies and other methods and they are widely used worldwide. Among which, three evaluation tools, ASTEE, MTEE, and HE Innovate, are widely used in the evaluation of entrepreneurship education in the EU [2]. Purzer *et al.* (2016) conducted a meta-analysis of existing evaluation methods in the literature related to entrepreneurship education evaluation and found 51 evaluation tools in 29 journal articles and conference papers. Of these, survey was the most commonly used assessment method, accounting for 24 of the 51 tools [3]. Nathalie Duval-Couetil (2013) conducted a review of the relevant literature and further concluded that the following problems remain in the assessment of entrepreneurship education: firstly, due to the complexity of entrepreneurship education and the lack of consensus in the academic community on the learning outcomes of entrepreneurship education, few assessment tools can be widely used in the evaluation of entrepreneurship education and standardized assessment is very difficult due to the heterogeneity of entrepreneurship education and students. The second is how to design assessments that meet the desired entrepreneurship education goals. The third is how to create and sustain entrepreneurship education assessments with limited funding or incentives. In addition, Purzer found in the sampled literature that much of the literature suffers from a lack of validity arguments, rigorous structure and research methods. Fiet, Duvali Couetil and others also point out the existence of related problems. All of these issues indicate that entrepreneurship education evaluation is a major difficulty in current academic research in the field of entrepreneurship education.

In December 2021, a fuzzy search of CNKI, a database of academic journals on the China Knowledge Network, yielded 62,027 results for “entrepreneurship education”. A search of CNKI with the theme of “entrepreneurship education evaluation” yielded 1613 results. This indicates that there is a lack of entrepreneurship education evaluation research in the field of entrepreneurship education research, and the number of related articles published only accounts for 2.6% of the number of articles published in entrepreneurship education-related research. The overall trend analysis of the 1613 results was conducted. Since 2007, we found that the number of journal articles published on the topic of “entrepreneurship education evaluation” has been increasing in general. Representative research results include: Ge Li (2014) [4] conducted an empirical study on entrepreneurship education evaluation based on the CIPP model; Wang Zhanren (2015) [5] proposed to build a “broad spectrum” quality evaluation index system for innovation and entrepreneurship education; Chang Sasa (2019) [6] conducted an in-depth study on the evaluation tools of entrepreneurship education in the EU; Xu Xiaozhou (2019) [7] proposes a VPR structure model for the evaluation of innovation and entrepreneurship education; Huang Zhaoxin (2019) [8] designed the Quality Evaluation Questionnaire of Innovation

and Entrepreneurship Education including teacher and student papers, and conducted research in 1,231 universities nationwide to recover 201,034 student and teacher questionnaires to conduct an empirical study on the evaluation of entrepreneurship education in Chinese colleges and universities, etc. In general, the main directions of the current research on entrepreneurship education evaluation in Chinese colleges and universities include theoretical research on the evaluation of innovation and entrepreneurship education in colleges and universities based on various theoretical perspectives such as the integration of specialization and innovation, school-enterprise cooperation and ecological system., the construction of evaluation index system and the development of evaluation tools based on mathematical modeling methods such as CIPP and AHP (Analytic Hierarchy Process) hierarchical analysis, comparative research on evaluation of entrepreneurship education in domestic and foreign universities, etc. There is a lack of research on the evaluation of innovation and entrepreneurship education in colleges and universities with hierarchical classification to adapt to local development, and the empirical type of research is even scarcer. In view of this, constructing a local entrepreneurship education evaluation index system and conducting the empirical investigation have strong theoretical and practical significance for the development of entrepreneurship education in Chinese colleges and universities.

2. Theoretical Basis and Literature Review

The CIPP evaluation model is a management-oriented model proposed by Stufflebeam in 1966, also known as decision-oriented or improvement-oriented evaluation model [9]. It includes four aspects: Context Evaluation, Input Evaluation, Process Evaluation, and Product Evaluation [10]. Zhang (2011) and others proposed that the CIPP model allows for a systematic examination of social and educational programs in a dynamic manner, where the goal of evaluation is not to prove, but to improve. Since its introduction in 1966, the model has played an important role in the evaluation of educational programs in the United States, initially for promoting the quality of teaching and learning in inner-city schools in the United States, and has since been extended to more areas and used worldwide, becoming one of the most widely used evaluation tools [11]. It has become one of the most widely used evaluation tools.

The international use of the CIPP evaluation model is closer to Stufflebeam's CIPP evaluation concept, and the research is not aimed at forming a complete evaluation index system model as the final goal, but conducting separate investigation studies for background evaluation, input evaluation, process evaluation and result evaluation links, such as Henry Eryanto *et al.* to evaluate the effectiveness of entrepreneurship education practice projects, Sri Lestari *et al.* evaluated college students' entrepreneurship based on the CIPP model. Such studies play the core functions of the four evaluation links in the CIPP evaluation model, and have the advantages of combining formative and summative evaluation

and highlighting the improvement effect, but have the limitations of a large research workload, being suitable for small projects or case studies not having the value of replication.

The research on entrepreneurship education evaluation based on CIPP evaluation model in China is mainly divided into two types of ideas: the first type is to take background evaluation, input evaluation, process evaluation and result evaluation as the primary evaluation indexes, and build secondary and tertiary evaluation indexes on this basis to form the final complete evaluation index system. For example [4] Ge Li and Liu Zeyuan (2014) construct an evaluation system of entrepreneurship education capability in colleges and universities based on CIPP model, and Zhang Shumei and Liu Zhen (2017) construct an evaluation system of innovation and entrepreneurship education in higher education institutions. The advantage of this type of research is that the argumentative link of index selection is logical and theoretically solid, and the disadvantage is that no empirical research has been conducted, which cannot bring into play the improvement function of CIPP evaluation model and it is difficult to determine the reliability and validity of the evaluation index system. The second category is the empirical investigation based on the construction of the index system. For example, Liu Lei and Deng Yiwen (2020) constructed the evaluation index system of public welfare entrepreneurship education in colleges and universities and analyzed 10 typical colleges and universities, and Xiaoli Shi (2018) constructed the evaluation index system of university entrepreneurship education capability and conducted an empirical study using Renmin University of China, Tsinghua University, Wuhan University, and Heilongjiang University as examples. Compared with the first category, this study verified the validity of the evaluation index system and brought into play the evaluation function of the CIPP model. Through literature reading, it was found that the studies related to CIPP evaluation model in China have the problem of poorly defined background evaluation. According to Stufflebeam's introduction about CIPP evaluation model, the core of background evaluation lies in target evaluation, while most of the scholars in China define the core of background evaluation as environmental evaluation, some scholars evaluate from three aspects of regional environment, knowledge base and technology base, some scholars evaluate from three aspects of organizational leadership, institutional guarantee and practice platform. In conclusion, the core bias of contextual evaluation is a common problem in related domestic studies.

3. Construction of Evaluation Index System of Entrepreneurship Education in Colleges and Universities

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Through literature review and preliminary research on the first batch of pilot universities of entrepreneurship education in China, the evaluation index system of entrepreneurship education in colleges and universities, which consists of 4 primary evaluation indexes, 12 secondary evaluation indexes and 41 descriptive indexes, including background evaluation, input evaluation, process evaluation and result evaluation, was constructed after expert consultation.

3.1. Background Evaluation Indicators of Entrepreneurship Education in Colleges and Universities

The core value of contextual evaluation is the goal, which mainly evaluates the adaptability of entrepreneurship education goals. The goal of entrepreneurship education evaluation is influenced by policy and regional educational and economic environment, and based on Andang Heryahya (2020) *et al.*'s study, three indicators of policy, regional context, and goal program are selected in the context evaluation session [12]. Entrepreneurship education in China's colleges and universities has been developing rapidly with government-driven support, from the joint support of multiple departments for college students' innovation and entrepreneurship policies to the promotion of pilot work to the introduction of specialized policies, China's entrepreneurship education policy orientation has experienced the expansion from "innovation with creation" to "mass entrepreneurship and innovation". "Local governments have responded to the call of the State Council to help the reform and development of entrepreneurship education in colleges and universities. As the implementer of the national entrepreneurship education policy and the guide of the development of entrepreneurship education in colleges and universities, local governments play a key role in carrying on the development of entrepreneurship education. Therefore, whether the local governments in the regions where universities are located have clear requirements for entrepreneurship education, whether there are relevant policy documents that set standards for entrepreneurship education in universities and the implementation and support of local governments for entrepreneurship education in regional universities affect the entrepreneurship education-driven development of the region, and the interpretation and research of the policies by the university authorities affect the specific implementation of entrepreneurship education. Domestic and foreign scholars generally agree that college students' entrepreneurial behavior is influenced by regional contextual factors, and regional context is a general term for various regional conditions of entrepreneurship education activities in colleges and universities, including internal regional context and external regional context. According to Ge Li (2014) and others, the regional economic level and entrepreneurial activity have an impact on the regional context, which affects the development of regional entrepreneurship education [4]. The core of the goal program lies in how the school formulates entre-

preneurship education development goals, and Jiang Guoyong (2007) proposed that school development goals have a hierarchy, including long-term goals, planned goals, and instrumental goals [13]. Long-term goals refer to the school's vision of the future. Long-term goals refer to the school's planning of the general development direction in the future, which is reflected in the concept of entrepreneurship education in colleges and universities. The plan goal is to make specific development goals for the school according to the current situation of school development, which is reflected in the substantive decision-making aspect of school planning, such as the selection of talent training programs for entrepreneurship education. The means goal serves the plan goal and is a more specific goal, which is reflected in the entrepreneurship education talent cultivation program of secondary colleges. According to the pedagogical theory, from macro to micro and from abstract to concrete, the degree of matching between the school-level entrepreneurship education philosophy and talent cultivation goals and the entrepreneurship education talent cultivation goals of secondary colleges and students' needs is examined.

3.2. Input Evaluation Index of Entrepreneurship Education in Colleges and Universities

The core value of input evaluation is resources, which mainly evaluates the condition security degree of entrepreneurship education, generally, human, material and organizational security are the most important resources. Henry Eryanto (2019) *et al.* set four evaluation indicators in the input evaluation session: participants, guidelines, mentors and infrastructure [14]. Participants refer to the staffing of entrepreneurship education and evaluate whether it meets both individual and group needs. The organizational system of entrepreneurship education in China has a top-down character, and the most important participants in entrepreneurship education are school leaders, and the importance of entrepreneurship education by the principal or a hand directly affects the quality of entrepreneurship education in schools. Therefore, the participant indicator is changed to principal leadership indicator in our context. Evaluate whether entrepreneurship education is a handy project, the importance principals or school handlers place on entrepreneurship education and the intensity of its implementation. For example, the principal's integration of resources such as human resources for entrepreneurship education, the structure level and number of participants, and the implementation of rewards and punishments for entrepreneurship education. Entrepreneurship education in our context is government-led and top-down, with the government providing support and guidance for entrepreneurship education and the school entrepreneurship education system guaranteeing the specific implementation. Therefore, replacing the guideline indicators with institutional guarantee, Jinyan Hu proposes that entrepreneurship education should be incorporated into discipline construction, and entrepreneurship education institutional construction should be carried out from reforming teaching management, reconstructing curriculum system, and

strengthening incentives and constraints. The degree of improvement of the construction of entrepreneurship education curriculum system, teaching management system and entrepreneurship education evaluation and incentive system is evaluated in the link of institutional guarantee. Entrepreneurship education is a comprehensive discipline, and teachers of entrepreneurship education should not only have high professional quality and lecturing skills, but more importantly, they should have the ability to guide entrepreneurial practice. Guo Feng (2014) and others proposed that entrepreneurship mentorship should have the characteristics of close contact between mentors and trainees and comprehensive guidance of students by mentors based on the cultural roots of entrepreneurship education [15]. In the selection and recruitment of mentors, firstly, the mentors should focus on the moral quality of the mentors who are willing to devote their time and energy to the training of students, and then have certain entrepreneurial knowledge and ability to provide students with better entrepreneurial-oriented advice and suggestions, and finally, the selection of mentors should be open to the society, using a variety of resources to make up for the lack of resources of mentors on campus. Therefore, the evaluation of entrepreneurship education instructors is carried out in terms of the structure of instructors, their practical guidance ability and their involvement in guiding students' entrepreneurship. Specifically, it includes the construction of full-time teachers for entrepreneurship education, the situation of professional teachers teaching innovation and entrepreneurship courses to guide students' innovation and entrepreneurship practice, the number of part-time mentors from enterprises outside the university, and the number of innovation and entrepreneurship-related training for teachers. With the support of supporting funds, the five-in-one innovation and entrepreneurship education system for college students, including curriculum platform, innovation training platform, entrepreneurship training platform, competition platform and management platform, is built. The degree of perfection of physical facilities for entrepreneurship teaching and practical teaching experience infrastructure such as classrooms, multimedia facilities, professional-based innovation labs or maker spaces, entrepreneurship parks, industrial parks, incubation bases, virtual platforms and the construction of entrepreneurship internship bases are the basic guarantee for entrepreneurship courses and practical learning.

3.3. Evaluation Indexes of Entrepreneurship Education Process in Colleges and Universities

The core value of process evaluation lies in action and mainly evaluates the effectiveness of entrepreneurship education tasks. Shamsa Aziz (2018) *et al.* argue that process evaluation sessions include classroom teaching and course activities [16]. The evaluation content of classroom teaching and entrepreneurship practice activities of entrepreneurship education refers to the evaluation index of the construction of demonstration schools of innovation and entrepreneurship education reform of the Ministry of Education. In September 2020, the General Of-

office of the Ministry of Education formulated the Self-evaluation Form on the Effectiveness of the Construction of Demonstration Schools of Deepening Innovation and Entrepreneurship Education Reform in the phase summary work of the demonstration universities of deepening innovation and entrepreneurship education reform, and each school combined with the index conditions in the self-evaluation form, combined with the school's own development. Each school, taking into account the actual situation such as the school's own development plan, school characteristics, discipline and professional advantages as well as the regional economic and social development needs, systematically comb through the phased achievements since the construction of the demonstration school, seriously summarize the characteristic highlights and typical experiences of the construction and development, and objectively analyze the shortcomings and reasons. The indicators related to entrepreneurship education classroom teaching in the self-evaluation table include two secondary evaluation indicators: curriculum construction and teaching innovation. Curriculum construction mainly evaluates the development of high-quality freshman seminar courses, disciplinary frontiers, entrepreneurship foundation and other compulsory and elective courses for all students, the creation of specialized curriculum modules for innovation and entrepreneurship education, the independent construction of online open courses for innovation and entrepreneurship education and the scale of the number of students taking them, the construction of special innovation and entrepreneurship integration characteristic demonstration courses and the construction of independent teaching materials and entrepreneurship case library for innovation and entrepreneurship education. Teaching innovation sets up special innovation and entrepreneurship education teaching reform projects to evaluate teachers' exploration of entrepreneurship education teaching reform and innovation of classroom teaching methods, such as extensive use of heuristic, discussion and participatory teaching, active promotion of small class teaching, hybrid teaching, flipped classroom, construction of online and offline teaching modes, reform of assessment contents and methods, and exploration of implementation of non-standard answer examinations. Entrepreneurial practice training evaluates the enthusiasm of college students in implementing college students' innovation and entrepreneurship training program, carrying out "Youth Red Dream Building Journey" activities, participating in Internet+ college students' innovation and entrepreneurship competition, and establishing innovation and entrepreneurship associations and entrepreneurship clubs. In addition, the enthusiasm of students to carry out entrepreneurial practice activities in entrepreneurial practice platform and entrepreneurial internship units can also effectively reflect the learning situation of students in entrepreneurial practice.

3.4. Evaluation Indicators of Entrepreneurship Education Outcomes in Universities

The core value of outcome evaluation lies in the results, which mainly evaluates

the satisfaction of entrepreneurship education development and the implementation of entrepreneurship education objectives by measuring, judging and interpreting entrepreneurship education results. The results of entrepreneurship education include educational teaching results, practical teaching results and social benefits. The “Implementation Opinions of the General Office of the State Council on Deepening the Reform of Innovation and Entrepreneurship Education in Higher Education” points out the overall goal of establishing a sound system of innovation and entrepreneurship education in colleges and universities that integrates classroom teaching, independent learning, combined practice, guidance and support, and cultural leadership, significantly improving the quality of talent training, significantly enhancing students’ innovation spirit, entrepreneurial consciousness and innovation and entrepreneurial ability, and significantly increasing the number of students who engage in entrepreneurial practice. The goal of entrepreneurship education in colleges and universities is to enhance students’ innovation spirit and entrepreneurial consciousness; the goal of entrepreneurial practice teaching is to let students learn by doing and improve the level of entrepreneurial ability; the social benefit mainly plays a cultural leading role. Gautam and Singh suggest that entrepreneurship education is a catalyst for socio-economic change, and through entrepreneurship education in colleges and universities, it can improve the regional entrepreneurial culture environment and drive the regional economic change and growth, and at the same time, it can also be applied to entrepreneurship education in local colleges and universities. This will form a virtuous development cycle. Therefore, three secondary indicators of teaching effect, practice effect and social benefit are set in the evaluation of results. The evaluation standard of teaching effect is the improvement of students’ innovation spirit and entrepreneurial consciousness, and the innovation spirit is reflected by the indicators of entrepreneurial personality psychological characteristics. The focus is on the characteristics of innovation, building relationships, communicating information, leading others, mental toughness, adapting to change, and driving success. Entrepreneurial awareness is evaluated by the increase in the number of people who engage in practical activities such as entrepreneurial projects and competitions. The evaluation criteria of practical achievements include implementation of entrepreneurial projects, winning entrepreneurial competitions, construction of startups in the industrial park of the entrepreneurship park and transformation of entrepreneurial achievements. The social benefits are reflected in the employment of fresh graduates, including the employment rate and employment quality of fresh graduates, the entrepreneurship of students within five years of graduation, including the number of entrepreneurial students and the number and quality of entrepreneurial companies, and the number of outstanding entrepreneurial alumni compared with other universities in the same region.

In summary, the evaluation index system of entrepreneurship education in colleges and universities proposed in this paper takes into account the existing controversial issues of contextual evaluation in previous related studies. The use

of CIPP evaluation model is closer to Stufflebeam's CIPP evaluation concept, that is, the core value of contextual evaluation is the goal, and the main evaluation is the adaptability of entrepreneurship education goals. The selection of indicators of each link is scientific with reference to previous studies, reference to relevant national policy documents and summarized and refined with field research. The complete three-level evaluation index system finally formed has the role of promotion, enriching China's entrepreneurship education evaluation tool base and providing reference for the development of entrepreneurship education and evaluation research in colleges and universities.

4. Study Design

4.1. Study Object

In this study, a random sample of students from 26 colleges, including College of Chemistry, Chemical and Materials, College of Electronic Engineering, College of Journalism and Communication, College of Arts, and College of Spanish, was surveyed through the online platform of "Questionnaire Star", and a total of 263 valid questionnaires were collected. Among them, 144 male students, accounting for 54.75%, 119 female students, accounting for 45.25%.

4.2. Research Tools

The questionnaire consists of two parts: basic information and scale questions. The basic information includes students' gender, grade, college, etc. The scale questions include four aspects: goal adaptation, condition assurance, task effectiveness and development satisfaction, including 41 specific questions. The analysis of the survey data using SPSS25 software revealed that the Cronbach's alpha coefficient of the total questionnaire was 0.990, including Cronbach's alpha coefficient of 0.939 for goal adaptation, 0.977 for condition security, 0.978 for task effectiveness, and 0.973 for development satisfaction. This indicates that the questionnaire has good reliability and high internal consistency.

5. Study Results

The scale questions of the Questionnaire on the Effectiveness of Entrepreneurship Education Implementation in Colleges and Universities use the Likert scale method to investigate the entrepreneurship education situation of the university in four aspects: background evaluation, input evaluation, process evaluation and result evaluation. As shown in **Table 1**, the survey results show that among the four evaluation aspects of background evaluation, input evaluation, process evaluation and result evaluation, the university scores from the highest to the lowest in the order of result evaluation, process evaluation, input evaluation and background evaluation. It indicates that the university pays more attention to the output of innovation and entrepreneurship education results and the satisfaction of entrepreneurship education development, and should strengthen the improvement in the three aspects of goal adaptation, condition guarantee and task

Table 1. Results of the survey on the effectiveness of implementing entrepreneurship education in colleges and universities.

Evaluation Level	Evaluation Core	Average value	Standard deviation	Sort by
Background Evaluation	Target adaptation	5.228	0.154	4
Input evaluation	Condition security degree	5.228	0.033	3
Process Evaluation	Mission Effectiveness	5.494	0.017	2
outcome evaluation	Development satisfaction	5.515	0.005	1
	Overall impression	5.421	0.053	

effectiveness. In addition, the specific development of each evaluation link is as follows.

The background evaluation of entrepreneurship education in colleges and universities. The core of contextual evaluation lies in target adaptation, and the overall mean value of contextual evaluation is 5.228, which is the lowest score of the four evaluation links, indicating that there are still many shortcomings in the contextual evaluation link. The mean value and variance of each sub-index in the background evaluation were further organized, and it was found that the lowest mean scores were the regional economic level and the regional entrepreneurial activity in the regional context. This indicates that the low level of economic and entrepreneurial environment in the region where the university is located has affected the development of entrepreneurship education in the region's universities.

Input evaluation of entrepreneurship education in colleges and universities. The core of input evaluation lies in the degree of guaranteeing conditions, and the overall mean value of input evaluation is 5.413, which is in the middle and lower level of the four evaluation links, indicating that there are some shortcomings in the input evaluation link. To further investigate the mean and variance of the sub-indicators in the input evaluation, the lowest score is whether the principal is personally in charge of entrepreneurship education, the principal's attention to entrepreneurship education, and the principal's efforts to promote entrepreneurship education, i.e., the principal's leadership index. It indicates that entrepreneurship education in this school is not a handy project and the principal attaches average importance to entrepreneurship education, which leads to the low importance of entrepreneurship education among teachers and students in this school.

Process evaluation of entrepreneurship education in higher education. The core of the process evaluation is the effectiveness of the task, and the overall mean value of the process evaluation is 5.494, which is in the middle and upper level of the four evaluation links. This means that the university has done relatively well in the process evaluation, but there is still room for improvement. The

mean value and variance of the process evaluation sub-indicators are further organized, and the three sub-indicators with the lowest mean scores are the enthusiasm of college students to carry out entrepreneurship education activities in the entrepreneurship practice platform, the extensiveness of college students to implement the innovation and entrepreneurship training program, and the enthusiasm to carry out the youth red dream building journey activities. These three sub-indicators all belong to the secondary index of entrepreneurial practice in the process evaluation, which indicates that the university still needs to strengthen the aspect of entrepreneurial practice.

The outcome evaluation of entrepreneurship education in higher education. The core of the outcome evaluation lies in the satisfaction of development, and the overall mean value of the outcome evaluation is 5.228. The score is at the highest level among the four evaluation links, which indicates that the university pays more attention to the results and outcomes of entrepreneurship education. The mean value and variance of each sub-indicator in the outcome evaluation link are further organized. The sub-indicator with the lowest mean score is the number of outstanding entrepreneurial alumni, which indicates that the support and influence of the outstanding entrepreneurial alumni of the university on the school's entrepreneurial education is not far-reaching enough, and the power of outstanding alumni should be actively exerted. Promote better development of entrepreneurship education in universities.

6. Suggestions

According to the results of the survey and research, in the background evaluation, the university should clarify the objectives of entrepreneurship education and effectively carry out entrepreneurship education teaching activities to achieve the target effect; In the input evaluation, the university should optimize the entrepreneurship education leadership working group, and in the Chinese context, the university leaders should take the lead in organizing the construction of entrepreneurship education to mobilize the enthusiasm of the whole university for entrepreneurship education; In the process evaluation, the transformation of entrepreneurship education results should be strengthened to encourage; In the process evaluation, we should strengthen the transformation of entrepreneurship education results and encourage students to start practical entrepreneurship project activities; In the result evaluation, we should make use of the power of outstanding alumni and promote the sustainable development of entrepreneurship education in our university through school-enterprise cooperation, enterprises on campus, and alumni associations. In addition, through this study, the following suggestions are made for the evaluation study of entrepreneurship education under the CIPP model in China.

Firstly, the concepts, differences and connections between entrepreneurship education and the four evaluation types of CIPP should be clarified, especially the contextual evaluation link. The core of contextual evaluation lies in the set-

ting of objectives. However, there are few studies on CIPP-based entrepreneurship education evaluation in China that involve goal setting in the contextual evaluation. In the context of “mass entrepreneurship and innovation” and “double first-class” construction of universities, and the gradual standardization of professional accreditation of various disciplines, the state has formulated a series of relevant policy documents to promote the professional development of innovation and entrepreneurship education in China, and clearly pointed out that by 2020. The goal of entrepreneurship education in colleges and universities is to establish and improve the system of innovation and entrepreneurship education that integrates classroom teaching, independent learning, combined practice, guidance and support, and cultural leadership, significantly improve the quality of talent training, significantly enhance students’ innovation spirit, entrepreneurial consciousness and innovation and entrepreneurial ability, and significantly increase the number of students engaged in entrepreneurial practice. At the local level, universities in different regions in China have conducted research on the evaluation system of innovation and entrepreneurship education according to the geographical characteristics of different provinces. In early 2016, Sichuan University took the lead in formulating and implementing 18 action plans for the reform of “dual-innovation” education, proposing the decentralization of the university, shifting the center of gravity of management, clarifying the status of colleges as the main school management model for the university’s macro-decision making, departmental coordination and cooperation, and real-time operation of colleges, and implementing a school-college management system based on the work priorities of the year and the characteristics of different disciplines. Different disciplines of the characteristics of the college annual target task book, evaluation indicators quantified and other reform and innovation incentive mechanisms to promote innovation and entrepreneurship education. The Zhejiang Provincial Education Department released the evaluation system of entrepreneurship education in 2017, and the upgrading of innovation and entrepreneurship education in the new era by creating a large platform for the integration of “double creation” and “five education” in Nanjing University in 2019 mentioned that the quality assurance mechanism should be continuously improved. Huang Zhaoxin and Huang Yangjie (2019) concluded through an empirical study of entrepreneurship education evaluation in 1231 colleges and universities across China that meeting the demands of multiple subjects and evaluating entrepreneurship education in colleges and universities in a hierarchical and categorical manner is one of the important goals of the current evaluation of entrepreneurship education in colleges and universities in China. The CIPP evaluation model can be transformed according to the different objectives, and the background evaluation first defines the objectives, then plans the resource input, and finally, process and result evaluation is conducted.

Secondly, importance should be attached to the process evaluation function of

the CIPP evaluation model. Many relevant research papers using CIPP evaluation model in China use background evaluation, input evaluation, process evaluation and result evaluation as the first level evaluation indexes respectively, on the basis of which the second and third level evaluation indexes are constructed to form the framework of evaluation index system based on CIPP evaluation model. The disadvantage is that the evaluation based on the four types of evaluation indicators is still a summative evaluation of each evaluation process, and the four types of evaluation: background, input, process and result are not combined. Although the framework of evaluation index system has been built with a generalization effect, it does not highlight the real-time feedback and improvement function of CIPP evaluation model, but emphasizes the result-oriented evaluation and weakens the advantage of process evaluation of CIPP. Therefore, we should pay attention to the qualitative research of CIPP evaluation model and use the form of qualitative research to evaluate entrepreneurship education in colleges and universities. Although the framework of an evaluation index system with generalized utility has not been formed, the objectives, concepts and approaches of entrepreneurship education in different types of colleges and universities in different regions also differ greatly due to the complexity, time lag and influence of local economy and culture of entrepreneurship education. Even if a scientific and rigorous evaluation index system of entrepreneurship education based on CIPP is formed, it may not be applicable to other regions and types of colleges and universities for adoption and reference. Therefore, using qualitative research methods and applying CIPP evaluation model to evaluate entrepreneurship education in different colleges and universities is beneficial to the development of entrepreneurship education quality and the improvement of education and teaching level in each college and university.

Finally, the evaluation results should emphasize the “improvement” function of the CIPP evaluation model and focus on empirical research and application of results. The core of the CIPP evaluation model is the “improvement” function of real-time feedback, which reflects the evaluation concept of sustainable development. It reflects the concept of sustainable development. The CIPP evaluation model is used to conduct empirical research on the evaluation of entrepreneurship education in colleges and universities and put forward relevant improvement suggestions to promote the quality development of entrepreneurship education in colleges and universities and to drive the virtuous cycle of local entrepreneurship education and economic growth to play an exemplary leading role to radiate the whole country. It will make the entrepreneurship education of colleges and universities and local economic construction realize the sustainable development mode of common development, coordinated development, fair development, efficient development and multi-dimensional development. The sustainability of the evaluation method reflects leading the sustainable development of people and society, and the sustainability of the evaluation results reflects serving the sustainable development of people and society.

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Conflicts of Interest

The authors declare no conflicts of interest.

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