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The Construction of Evaluation Index of the "Connection between Enterprises and Universities" Policies implementation: Based on Delphi and AHP Method

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Abstract

With the continuous advancement of economic globalization and scientific and technological progress, the connection between industry and education has become increasingly close, and the connection between enterprises and universities has become a hot topic in the field of education research. In the report of China's 19th National Congress, it was clearly pointed out that we should deepen the integration of industry and education, and strive to enhance the contribution of vocational education and higher education to economic development and industrial upgrading. With the increasing attention paid to the connection between enterprises and universities in China year by year, there has been a significant improvement in both the number of studies on the connection between enterprises and universities and the concrete implementation of the integration of industry and education in various places. On the basis of traditional research methods, this study aims to evaluate the effect of the implementation of connection between enterprises and universities policy in higher education by using economic management tools such as Delphi expert method and AHP. By constructing the evaluation index system of the implementation effect of the connection between enterprises and universities policy, the evaluation mechanism of the connection between enterprises and universities policy is more scientific and objective, and the operability and applicability of the evaluation mechanism are effectively enhanced. On the basis of relevant researches at home and abroad, by combing the work requirements of relevant documents in China in recent years, this study initially constructed an index system for the connection between enterprises and universities, and consulted the weights of the three levels of indicators and each indicator dimension through three rounds of Delphi method and three rounds of AHP analytic hierarchy process. On the basis of feedback, the indicators were modified and supplemented. Finally, the evaluation index system of connection between enterprises and universities policy implementation is constructed. The index system includes 5 first-level indicators, 20 second-level indicators and 43 third-level indicators, among which the first-level indicators include jointly school, Student practice and training, staff exchange and study, joint construction and innovation and entrepreneurship support. This index system has high expert validity, only enriche the theory connotation of connection between enterprises and universities, but also provides clear and effective suggestions to improve the implementation of connection between enterprises and universities policy.

Key words: *connection between enterprises and universities; Policy; Evaluation of policy implementation;; AHP hierarchical analysis*

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Introduction

China's economy accelerated after 2000, going from a GDP of US $1 trillion in 2000 to US $18 trillion in 2022, and climbing from sixth to second place globally to become the second biggest economy. As China's economy has grown quickly, so too has its industrial structure, which has steadily shifted from heavy industry to a service-oriented economic development model. For the first time in 2013, the tertiary industry eclipsed the secondary industry to take the lead as the main engine of China's economy.

The paradox of China's shortage of professionals and technical workers has gained more attention at the same time as China's fast economic expansion. A significant number of high-caliber professionals and technicians have developed in sectors including advanced manufacturing, new materials, new energy, modern agriculture, biotechnology, modern information technology, artificial intelligence, and other new development fields as a result of China's economy's growth. In the service sector, where professional requirements are high and service skills are strong, there are many talent gaps in fields like kindergarten, nursing, health care, housekeeping, and other related fields. The old higher education paradigm has increasingly fallen short of meeting society's demands as a result of its fast development. China continues to support the connection between enterprises and universities in the reform of vocational education in order to address the issue of the imbalance between the supply and demand of talents in various industries during the process of rapid social and economic development. This is done by effectively enhancing the degree of vocational education's alignment with the labor market through the association of schools and businesses. Utilize professional instructors' scientific research skills at higher vocational institutions to support businesses, encourage business transformation and improvement, and help businesses adjust to shifting market demands.

The connection between enterprises and universities is an important way to cultivate high-quality technical talents and "great artisans". China and the governments of provinces, municipalities and autonomous regions have successively promulgated a series of policies on the connection between enterprises and universities to promote the implementation of the connection between enterprises and universities. Although the implementation of the connection between enterprises and universities policy has achieved remarkable results, there is still a gap between the results of its talent training and the actual demand for talents in industrial upgrading. Therefore, from the perspective of effect evaluation, the paper examines the implementation of Chinese government policies, summarizes the experience gained and analyzes the remaining problems, which can provide theoretical and practical reference for the further improvement of the connection between enterprises and universities policy in China's higher education.

Literature Review

Research Status and Deficiency

Research Worldwide

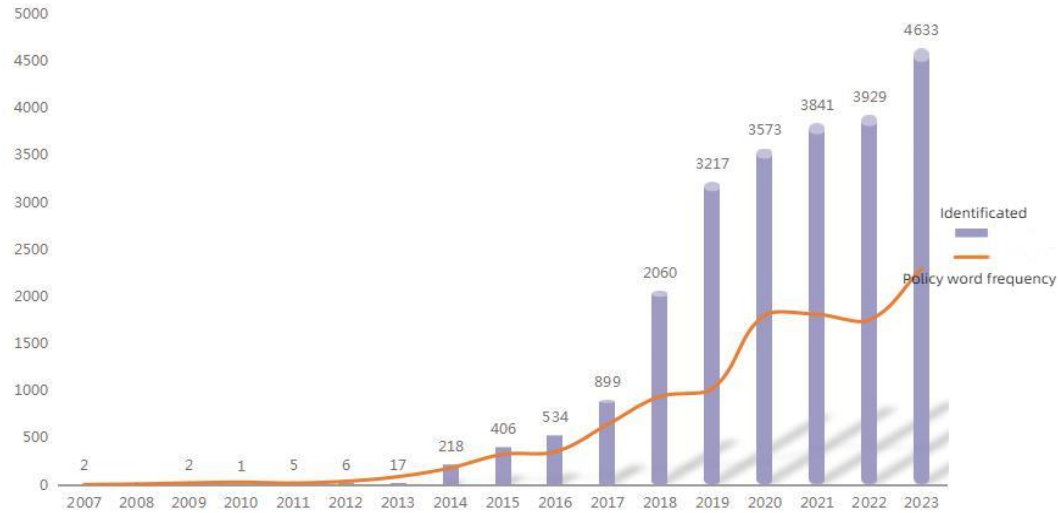
The research on the connection between enterprises and universities policy in the world mainly focuses on two aspects: policy implementation and model analysis. Policy implementation mainly discusses the effect evaluation of policy implementation. For example, in Australian vocational education (Eddington N 2011), the effects of connection between enterprises and

universities policies were evaluated using the separation difference method, and an extended mathematical model was used to construct and actually evaluate measures of connection between enterprises and universities in Dutch vocational education (GZapfel 2012). The model analysis of the unified policy evaluation framework based on causal reasoning mainly analyzes the models of connection between enterprises and universities in various countries. Among them, Germany's "dual-track" model is the most famous. According to literature, in order to cultivate more technical talents suitable for industrialization development, the German government once coordinated the relationship between multiple subjects and established the balance of ecological interests among subjects under the guidance of constantly improving the school-enterprise cooperation policy, forming a "dual system" model with the connection between enterprises and universities as the basic concept (Gunther Kutscha 2004). In addition, there are some examples, such as the "co-education" model in the United States (Harrys 2005) and the "New apprentice" model in the United Kingdom (Stella mcKnight et al., 2019).

Research in China

The discussion of the connection between enterprises and universities in China began in the early 1990s with the Decision of The State Council on vigorously developing vocational and technical education. Earlier research lagged behind practice, but since 2014, relevant research and policy evolution have almost synchronized, which can be roughly divided into three stages.

Figure 1: Number of Publications on Connection Between Enterprises and Universities Topics and Policy Word Frequency in Recent 15 Years.



According to Figure 1, the time period begins in 2014 and ends in 2016. Since the State Council's "Decision on Accelerating the Development of Modern Vocational Education" was released in 2014, proposing to "accelerate the development of modern vocational education and deepen the connection between enterprises and vocational universities," the academic community has begun to pay attention to the formulation of the policy of connection between enterprises and universities. The warming phase runs from 2017 through 2019. Towards the end of 2017, the State Council released a series of opinions to further connect between enterprises and universities. In 2018, the six ministries of the Ministry of Education jointly announced the Measures for Fostering School-Enterprise

Cooperation in Vocational Colleges, and in 2019, the State Council released the Implementation Plan for National Vocational Education Reform. The publication of these three volumes has increased interest in the practice of connection between enterprises and universities among academics. 2020 will mark the climax. Paper production is currently high and rising. The Action Plan to Improve the Quality and Training of Vocational Education (2020-2023) was jointly published in 2020 by the Ministry of Education and nine other ministries and commissions. It proposed to establish and improve the innovation mechanism of connection between enterprises and universities, with businesses acting as the leading role, vocational colleges acting as a crucial supporting role, and key industries acting as the center of core technology research. The Opinions on Promoting the High-quality Development of Modern Vocational Education were published by the State Council in 2021 and included a number of recommendations, such as the creation of a number of industrially significant enterprises, the establishment of a number of benchmarking industries driving the connection between enterprises and universities, and the creation of a number of pilot cities for this integration. Without a doubt, the recent forceful national policy adoption will foster a closer connection between enterprises and universities.

Connotation of Connection between Enterprises and Universities Policy

In order to create a school that functions as an industrial entity integrating talent development, scientific research, and scholastic achievement, colleges and universities (including higher vocational schools) must actively establish industries related to the majors set by the institution or collaborate with businesses in related industries in accordance with the majors set by the institution. Create a model for running schools that integrates and promotes businesses and schools. Higher vocational education has improved exchanges and collaboration with related businesses as part of the effort to advance the connection between enterprises and universities. This has greatly improved the relevance and adaptability of vocational education and made it easier for students at higher vocational schools to meet the demands of social work after graduation. It is better suited to lowering the time and expense associated with staff training for associated businesses, improving the education and teaching levels of higher vocational education teachers, taking into account social needs, the growth of the local economy, and the reform and development of higher vocational education. The precise content of the connection between enterprises and universities is not yet known. This study concludes that the connection between enterprises and universities in higher vocational colleges—with higher vocational colleges serving as the leading unit or the main participating units—primarily entails the following elements: This conclusion is based on pertinent policy documents and various work requirements:jointly school, Student practice and training, staff exchange and study, joint construction and innovation and entrepreneurship support.

Since 2010, the Chinese government has issued a large number of documents on the subject of the connection between enterprises and universities. In the process of formulating the evaluation index system for the implementation effect of the integration of industry and education policies, we have sorted out important documents related to the integration of industry and education since 2010 in order to more accurately define the purpose and requirements of the policy documents. Since the integration of industry and education involves government departments, enterprises and schools, there may be different documents and requirements for each actor, we selected the documents that are most closely related to schools, as shown in the following table:

Table 1: Summary Table of Documents Collation of Connection between Enterprises and Universities in China.

order number	release time	filename
1	On July 29,2010	The Outline of the National Medium-term and Long-term Plan for Education Reform and Development (2010-2020)
2	On June 23,2011	Opinions on Giving Full play to the Guiding role of the industry in Promoting the Reform and development of Vocational Education
3	On August 25,2014	Opinions on carrying out the pilot work of modern apprenticeship system
4	On June 22,2014	The Decision of The State Council on Accelerating the Development of Modern Vocational Education
5	On July 27,2015	Several Opinions on Deepening the Reform of Vocational Education and Teaching and Comprehensively Improving the Quality of Personnel Training
6	On December 5,2017	Several Opinions on Deepening the Integration of Industry and Education
7	On February 5,2018	Measures for Promoting School-Enterprise Cooperation in Vocational Schools
8	On January 24,2019	Notice of The State Council on Printing and Distributing the Implementation Plan of the National Vocational Education Reform
9	On March 28,2019	Implementation Measures for Building Integrated Industry and Education Enterprises (Trial)
10	On July 24,2019	National implementation plan for the pilot project to integrate industry and education
11	On September 16,2020	Action Plan for Improving the Quality of Vocational Education (2020-2023)
12	On October 12,2022	Opinions on Promoting the High-quality Development of Modern Vocational Education
13	On April 18,2023	Notice on the construction of municipal education and industry consortium
14	On July 7,2023	Notice on the key tasks of accelerating the construction and reform of the modern vocational education system

Structure and measurement of implementation effect evaluation of connection between enterprises and universities policy.

The connection between enterprises and universities is a kind of public policy. The evaluation and measurement of the effect of connection between enterprises and universities policy implementation mainly refer to the relevant theories of public policy implementation evaluation. Wolmann, a German scholar, believes that as an analytical tool, the primary task of policy evaluation is to provide information on policy process and results for evaluating policy performance. At the same time, policy evaluation is an important stage in the policy cycle and it needs to feed this information back into the policy making process." In his latest article, Wollmann argues that "classical" policy evaluation is the analysis of policy outcomes and failures, and how policy affects the real world. Dutch scholar Bovens et al called this approach of policy evaluation "rationalistic policy evaluation". They conclude that this rationalist evaluation philosophy is rooted in positivism, which aims to separate facts from values and provide an "absolutely objective understanding" of public policy performance. Israeli scholar Nachmias' definition best represents the basic premise of "rationalist policy evaluation." He believes that policy evaluation is an objective, systematic and empirical test of whether policies and public projects achieve their intended goals. At present, the quantitative evaluation index system of public policy implementation mainly relies on three kinds of implementation models. The first is the policy process model proposed by T.B.Smith, which believes that legal, reasonable and feasible policy programs, executive agencies, policy objects and environmental factors are interrelated and affect the effect of policy implementation. The second is the policy system model proposed by Van Horn and Meter, which believes that there are five variables inside and outside the administrative execution system that will affect the transformation

process from policy decision to policy effect, namely, policy objectives and standards, policy resources, attributes of implementer, execution mode and system environment. The third is the comprehensive policy model proposed by Mazmanian and Sabatier, which holds that policy issues are also an important variable affecting policy effects, and policy execution is mainly affected by three factors: the characteristics of policy issues, controllable variables of policy itself and variables outside of policy. According to the summary, due to different scholars' different concepts and understandings of public policy implementation evaluation, the measurement dimensions and contents of public policy implementation evaluation are also different. From the subject of the connection between enterprises and universities, it is obvious that schools and enterprises are the subjects and important objects of policy implementation. With reference to the specific work requirements of the relevant documents of the Chinese government, the specific requirements and targets of the policy, to schools, enterprises, teachers and students, should be fully considered in designing the structure of the evaluation of the implementation effect of the connection between enterprises and universities policy.

Construction of Indicators for Evaluation of Implementation Effect of Connection between Enterprises and Universities Policy

The evaluation index of the implementation effect of the connection between enterprises and universities policy is based on the traditional policy effect evaluation index, according to the requirements of the document sorted out above, excluding the government and enterprises as the main responsible person, and taking various specific requirements and work objectives as the starting point. Based on in-depth research on the implementation intensity and implementation effect of school management, teachers and highly relevant enterprises in the implementation of the connection between enterprises and universities policy, and combined with the opinions of relevant education experts in Guizhou Province, a three-level evaluation index system for the implementation effect of the connection between enterprises and universities policy was established through the optimization of Delphi technology. Finally, the implementation effect of the three dimensions is empowered by AHP, and the evaluation index of the implementation effect of the connection between enterprises and universities policy is established.

The Evaluation Index Dimension of the Implementation Effect of Connection between Enterprises and Universities Policy was Determined

We adopted Delphi technique, also known as expert survey method, to determine the dimensions of the evaluation indicators of the implementation effect of the connection between enterprises and universities policy. In order to more accurately and objectively determine the implementation intensity and effect of the connection between enterprises and universities policy, we disassembled the specific requirements of the above documents, combined with the objectivity and operability of the research, selected various work requirements and objectives mainly for schools, teachers and highly relevant enterprises, and formed the preliminary dimension of the evaluation index of the implementation effect of the connection between enterprises and universities policy. And optimized by Delphi expert demonstration.

According to the above documents, we have classified and sorted out the work objectives and requirements of all documents. At the same time, we refer to the research method of balanced scorecard, and combined with the research content and document requirements, we classify the work objectives and requirements of each aspect into input - actual input of schools and enterprises in the work content; operation - institutional and mechanism construction for the

work goal; content - actual work contents and objectives of schools and enterprises; Development - Four aspects of guidance and planning for the objectives of this work. Then, all the specific work requirements and work objectives are classified into each corresponding section, forming the evaluation index of the implementation effect of the connection between enterprises and universities policy (preliminary).

Development of Delphi Questionnaire to Construct the Evaluation Index Dimension of the Implementation Effect of Connection between Enterprises and Universities Policy

In order to test the operability and lack of factors of various indicators, we designed the questionnaire Consultation on the Components of the Evaluation System for the Implementation of the Connection between Enterprises and Universities Policy. The questionnaire adopted the form of Likert scale and proposed modification suggestions for each dimension and the components contained in it. According to the reasonable degree of different dimensions, it is divided into five levels, and the number from high to low represents the reasonable degree of the component element in this dimension. 5 means very reasonable, 4 means relatively reasonable, 3 means average, 2 means unreasonable, and 1 means particularly unreasonable.

The Delphi questionnaire is divided into three rounds, each of which is modified based on the previous round until there is a relative consensus among experts. In each round of expert consultation, the author selected a total of 15 front-line staff (senior teachers), school administrators (middle managers in charge of teaching and teaching research) and education experts (professors of education in colleges and universities) as the consultation objects. The opinions put forward by the experts were classified and sorted out and justified. The evaluation indicators of the implementation effect of the policy of connection between enterprises and universities will be revised and the next round of consultation will be carried out.

Among the experts consulted, the age of 35 to 56 years or older; Teaching experience of less than 10 years to more than 31 years; Professional titles: Professor (senior), Associate professor (Associate senior) and lecturer; The degree covers PhD, master's and bachelor's degree. The specific distribution is shown in the following table.

Table 2: Statistical Table of Delphi Experts on the Connection between Enterprises and Universities.

Feature classification	Number(N=15)	Percentage(%)
Age		
Age 35 and under	3	20.00%
36-45 years old	6	40.00%
46-55 years old	3	20.00%
Over 56 years old	3	20.00%
Teaching age		
10 years or less	2	13.33%
11-20 years	2	13.33%
21 to 30 years	8	53.33%
More than 30 years	3	20.00%
Professional title		
Professor	7	46.67%
Associate professor	4	26.67%
Lecturer	4	26.67%
Educational background		
Undergraduate	10	66.67%
master	3	20.00%
PhD	2	13.33%

The evaluation index dimension of the implementation effect of connection between enterprises and universities policy was determined.

After three rounds of consultation, the experts agree with the decomposition of the first and second dimensions, and put forward some suggestions for further optimization of the third dimension, mainly adding or adjusting the following items: 1. Enterprise investment cooperation projects; 2. Conducting teaching research; 3. Schools and enterprises jointly invest in the establishment of training bases; 4. Jointly establish innovation and entrepreneurship College, research and development center, product center, etc.; 5. Improve the post-evaluation system of innovation and entrepreneurship research in universities and formulate rules for researchers to benefit from innovation and entrepreneurship scientific and technological achievements; 6. Evaluation and upgrading of the actual needs of relevant enterprises as engineering technology research results; 7. Joint development of training plans; . After summarizing the teachers' opinions, we carefully studied the relevant requirements of the document, and found that there were indeed relevant expressions in the document, and after three rounds of feedback, it was supported by the vast majority of experts. After synthesizing three rounds of Delphi expert opinions, the evaluation indicators of the implementation effect of the connection between enterprises and universities policy were finally formed, as shown in the table below.

Table 3: Three Dimensional Indicators for Evaluation of Implementation Effect of Connection between Enterprises and Universities.

1-level indicators	**2-level indicators**	**3-level indicators**		
Joint education	Actual input	The company shares in the school or specialty	Businesses donated facilities to schools	
	operate	Establish and improve school-enterprise cooperation mechanisms	Build a teaching quality supervision system	Establish a professional cooperation mechanism
	content	Businesses join the school council	University-enterprise joint enrollment	Conduct teaching research together
	develop	Attract industry experts to the academic board	Optimize the professional setup according to the market	Jointly develop a culture program
Students practice training	Actual input	Schools and enterprises jointly funded the establishment of training bases		
	operate	Develop apprenticeship management methods	Adopt a flexible academic system or credit system	Course examination and vocational skill appraisal shall be combined
	content	School-enterprise joint development of typical production practice projects	Co-construction and sharing of public teaching resources and training resources	Enterprises accept students for practical training
	develop	Develop student practice training plan		
Faculty exchange learning	Actual input	Schools and enterprises employ each other	Businesses buy services from vocational schools	The enterprise shall set up bases for continuing education of employees in schools
	operate	Cooperative R & D post specification	Teacher guidance practice into the assessment	Introduce a lifelong vocational skills training system
	content	Enterprise personnel to the school to teach	Teachers to the enterprise exercise	Entrust vocational schools to carry out staff training

1-level indicators	2-level indicators	3-level indicators		
	develop	Enterprises are deeply involved in the construction of teaching staff	Develop teacher-to-enterprise training programs	Formulate on-the-job training plans for employees
Consortium construction	Actual input	Joint construction of common technical service platform		
	operate	Establish and improve the joint entity operation mechanism		
	content	Provide technical consultation and service for enterprises in the park	Develop technical skills training services for the society	
	develop	Joint development of training plans		
Support for innovation and entrepreneurship	Actual input	Jointly set up R & D center, product center, etc		
	operate	We will improve the post-research evaluation system in universities	Rules for benefiting researchers' scientific and technological achievements shall be formulated	
	content	Carry out collaborative innovation	We will accelerate the transformation of basic research results into industrial technologies	Schools and enterprises share intellectual property benefits
	develop	Universities take the actual needs of enterprises as an important source of engineering technology research topics		

The evaluation indicators of the implementation effect of connection between enterprises and universities policy are empowered.

The Method of Assigning Dimension Weight to the Evaluation Index of Implementation Effect of Connection Between Enterprises and Universities Policy

In order to more accurately determine the assigned weight of each dimension in the overall evaluation, we use the analytic hierarchy process to assign weights to the identified dimensions. The analytic hierarchy process mainly consists of four steps: establishing hierarchical structure model, constructing judgment matrix, single hierarchical sort and consistency test, hierarchical multi-hierarchical sort and consistency test. In the actual operation process, the consistency test may not pass the situation, we timely feedback the problem to the hands of the corresponding experts, point out the inconsistencies and re-collect. After collecting the opinions of each expert, we summarized the opinions of all experts, and gave feedback to all experts to narrow the opinion gap. Finally, after three rounds of expert consultation, we got a consistent opinion agreed by all the consulting experts. The relative weights of each dimension are obtained by using analytic hierarchy process to calculate the expert opinions.

Development of AHP Questionnaire for Evaluation Index of Implementation Effect of Connection between Enterprises and Universities Policy

In order to effectively compare the relative weights of various indicators, we designed the questionnaire "Consultation on the Weights of the Components of the Evaluation System for

the Implementation of Connection between Enterprises and Universities Policy". The questions in the questionnaire were set using the 1-9 scale method. The meaning of the digital scale is the quantified value of the importance evaluation, and the importance degree of the quantified value is: 1- equally important; 3- Slightly important; 5- Clearly important; 7- Strongly important; 9- Extremely important. Experts need to compare the importance of each level of indicators in pairs. In this round of expert consultation, the author selected a total of 16 school administrators (middle managers responsible for teaching and teaching research in schools) and education experts (professors of education in colleges and universities) as the basic data of AHP hierarchical analysis. The age, teaching experience, professional title and educational background data of selected experts are shown in the following table.

Table 4: Statistical Table of AHP on the Connection Between Enterprises and Universities.

Feature classification	Number(N=16)	Percentage(%)
age		
36-45 years old	8	50.00%
46-55 years old	6	37.50%
Over 56 years old	2	12.50%
Teaching age	0	
10 years or less	2	12.50%
11-20 years	4	25.00%
21 to 30 years	8	50.00%
More than 30 years	2	12.50%
Professional title	0	
Professor	12	75.00%
Associate professor	4	25.00%
Educational background	0	
Undergraduate	4	25.00%
master	4	25.00%
PhD	8	50.00%

The evaluation indicators of the implementation effect of connection between enterprises and universities policy are empowered and determined.

In terms of the empowerment of the dimensions of the evaluation indicators of the implementation effect of the connection between enterprises and universities policy, the entire consultation work was divided into three rounds. After the experts completed the first round of filling in, we carried out consistency test and statistical summary analysis on the data filled in by the experts. In the second round, the research team will synthesize the expert opinions of the first round and submit the consistency problems of the experts in the first round to the experts for the second round of filling. In the third round, the research team will conduct corresponding communication and coordination on the parts with large objections to the comprehensive expert evaluation, fully synthesize the opinions of different experts, and finally form a comprehensive result of all expert opinions and the weight data with good consistency (In the latter two rounds of consultation, in order to better unify expert opinions, the author uses the quantitative value of 2.4.6.8. The importance of an even quantized value is between two adjacent odd quantized values). After calculation, the index judgment matrix and summary weight value table at all levels are shown in the following table. (Due to space limitations, only the judgment matrix and weight summary table of the first dimension are listed) :

Table:5: Judgment Matrix of the First Dimension Weight of the Evaluation Index of the Implementation Effect of the Connection between Enterprises and Universities.

	Joint education	Students practice training	Faculty exchange learning	Consortium construction	Support for innovation and entrepreneurship	Weighted value
Joint education	1	1/3	1/2	1	1/2	10.93%
Students practice training	3	1	2	3	2	36.85%
Faculty exchange learning	2	1/2	1	2	1	20.65%
Consortium construction	1	1/3	1/2	1	1/2	10.93%
Support for innovation and entrepreneurship	2	1/2	1	2	1	20.65%

Table:6: Summary Table of Weights of Three Dimensions of Evaluation Indicators of Implementation Effect of Connection Between Enterprises and Universities

1-level indicators	Weighted value	2-level indicators	Weighted value	3-level indicators	Weighted value
Joint education	10.93%	Actual input	9.99%	The company shares in the school or specialty	80.00%
				Businesses donated facilities to schools	20.00%
		operate	18.50%	Establish and improve school-enterprise cooperation mechanisms	20.00%
				Build a teaching quality supervision system	20.00%
				Establish a professional cooperation mechanism	60.00%
		content	34.51%	Businesses join the school council	16.38%
				University-enterprise joint enrollment	53.90%
				Conduct teaching research together	29.73%
		develop	37.01%	Attract industry experts to the academic board	20.00%
				Optimize the professional setup according to the market	40.00%
				Jointly develop a culture program	40.00%
Students practice training	36.85%	Actual input	32.50%	Schools and enterprises jointly funded the establishment of training bases	100.00%

1-level indicators	Weighted value	2-level indicators	Weighted value	3-level indicators	Weighted value
				Develop apprenticeship management methods	14.29%
		operate	12.51%	Adopt a flexible academic system or credit system	42.86%
				Course examination and vocational skill appraisal shall be combined	42.86%
				School-enterprise joint development of typical production practice projects	10.96%
		content	35.62%	Co-construction and sharing of public teaching resources and training resources	30.92%
				Enterprises accept students for practical training	58.13%
		develop	19.37%	Develop student practice training plan	100.00%
Faculty exchange learning	20.65%	Actual input	15.75%	Schools and enterprises employ each other	53.90%
				Businesses buy services from vocational schools	29.73%
				The enterprise shall set up bases for continuing education of employees in schools	16.38%
		operate	8.83%	Cooperative R & D post specification	16.38%
				Teacher guidance practice into the assessment	53.90%
				Introduce a lifelong vocational skills training system	29.73%
		content	48.24%	Enterprise personnel to the school to teach	40.00%
				Teachers to the enterprise exercise	40.00%
				Entrust vocational schools to carry out staff training	20.00%
		develop	27.18%	Enterprises are deeply involved in the construction of teaching staff	60.00%
				Develop teacher-to-enterprise training programs	20.00%
				Formulate on-the-job training plans for employees	20.00%
Consortium construction	10.93%	Actual input	13.61%	Joint construction of common technical service platform	100.00%

1-level indicators	Weighted value	2-level indicators	Weighted value	3-level indicators	Weighted value
		operate	11.52%	Establish and improve the joint entity operation mechanism	100.00%
		content	46.87%	Provide technical consultation and service for enterprises in the park	50.00%
				Develop technical skills training services for the society	50.00%
		develop	28.00%	Joint development of training plans	100.00%
Support for innovation and entrepreneurship	20.65%	Actual input	12.76%	Jointly set up R & D center, product center, etc	100.00%
		operate	34.72%	We will improve the post-research evaluation system in universities	33.33%
				Rules for benefiting researchers' scientific and technological achievements shall be formulated	66.66%
		content	38.29%	Carry out collaborative innovation	10.96%
				We will accelerate the transformation of basic research results into industrial technologies	58.13%
				Schools and enterprises share intellectual property benefits	30.92%
		develop	14.23%	Universities take the actual needs of enterprises as an important source of engineering technology research topics	100.00%

Discussion and Prospect

In the process of constructing the evaluation index system of the implementation effect of the connection between enterprises and universities policy, based on the key documents of the connection between enterprises and universities policy issued by the Chinese government since 2010, the author selects the job requirements that are highly relevant to higher vocational schools and uses the Delphi expert method to optimize and verify them, thus forming the evaluation index of the implementation effect of the connection between enterprises and universities policy. Finally, the weights of each dimension index are determined by AHP. During the whole system construction process, more than 30 different experts were consulted, including front-line teachers, administrators in charge of teaching and teaching research in schools, and pedagogical experts in universities. In order to make the consultation results more objective and fair, the author adopted the method of separate correspondence to avoid the mutual influence of the opinions of experts, so that the opinions of experts are more

independent and objective in this study. In the process of AHP, because there are 5 first-level indicators, 20 second-level indicators and 43 third-level indicators, there is a large number of indicators, resulting in poor consistency of the results of the first round of expert evaluation and large differences of opinions among different experts. In view of the problems in the first round of expert consultation, the author fully studied and discussed and solicited the opinions of experts, and timely feedbacks to all experts about the consistency problem and the summary opinions of all experts. Finally, after three rounds of consultation and communication and coordination, a survey result with a high degree of consensus and good consistency was formed.

After the empowerment of the entire index system was completed, the author carefully analyzed the situation of indicator empowerment. Combined with the expert opinions of Delphi and AHP in several rounds, it can be seen that the proportion of co-construction of practice and training bases, faculty exchange and learning, and innovation and entrepreneurship support is the highest. It can be seen that in the eyes of education experts, the importance of practice is far greater than that of formalistic cooperation. Whether it can create internship and training conditions for students, whether it can let school and enterprise personnel flow to each other, whether it can form new productivity through joint innovation is an important reference indicator that experts agree that whether it can truly achieve actual results in the implementation of the connection between enterprises and universities policy.

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