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ARTICLE

## Mode Analysis and Deepening Path of the Collaborative Education between Local Engineering Universities and Enterprises

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ABSTRACT

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At present, China's local engineering universities have basically formed five modes of collaborative education between Engineering Universities and Enterprises, namely the mode relied on university-enterprise alliance, the mode centered on the "Excellent Engineer Education and Training Program", the mode rooted in key disciplines, the mode based on the innovation and entrepreneurship education activities and the mode of carrying out international joint training, etc. However, in the process of university-enterprise collaborative education, there are still some shortcomings such as long-term deficiency, low fit and insufficient system. Therefore, three main ways to deepen the university-enterprise collaborative education are proposed: The first is to improve and implement the local government's policy guarantee system and incentive measures, fully mobilize and stimulate the enthusiasm and initiative of enterprises to participate in university-enterprise collaborative education; The second is to innovate the long-term operation mechanism of university-enterprise collaborative education, and to open up the last mile of educating and employing people; The third is to innovate the university-enterprise joint university-running mode and build a system of engineering talents that integrates innovation and practical capabilities.

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## 1. Introduction

China has a solid foundation for higher engineering education resources. It has a large number of science and engineering universities and a large number of advantageous engineering majors, especially local engineering universities have the historical and geographical cooperation advantages of high-end equipment manufacturing and petrochemical enterprises in the region. Taking Liaoning Province as an example, at present, universities in Liaoning Province have participated in the construction project of excellent engineer education and training programs. Among them, 14 universities have implemented national-level outstanding engineer education and training programs and in conjunction with 54 enterprises and institutions to build a national engineering practice education center, the number of universities and colleges ranked third in the country; 78 undergraduate majors implement the national series of "Excellent Engineers Program", 130 undergraduate majors to carry out the pilot reform of provincial engineering personnel training mode, the practice base of 145 university-enterprise cooperation has become a provincial engineering practice education center and a student off-campus practice education base, and 11 projects have carried out pilot research and practice on the innovation of university-enterprise collaborative engineering talent training system. Therefore, systematically carry out research on the collaborative education of local engineering universities and high-end equipment manufacturing, petrochemical and other well-known enterprises, and cultivate and cultivate engineering talents with rich types and stable quality, which can provide a solid foundation for the improvement of local economic and social development and a first-mover advantage.

## 2. The Main Modes of Collaborative Education between Local Engineering Universities and Enterprises

The typical modes of collaborative education between local engineering universities and enterprises are mainly summarized into five modes:

### 2.1 Carrier-based Collaborative Education Mode

Local engineering universities set up university-enterprise alliances in different fields, focusing on five aspects: collaborative innovation, collaborative education, collaborative employment and entrepreneurship, collaborative services, and collaborative development, conduct organized, distinctive, targeted, and institutional collaborative education. For example, Dalian Jiaotong University has established the "Liaoning Province Rail

Transit Industry University-Enterprise Alliance" under the leadership of "China Rail Transportation Equipment Manufacturing Innovation Alliance". Shenyang University of Chemical Technology, as the chairman unit, has established the "Liaoning Province Petrochemical Industry University-Enterprise Alliance". Liaoning University of Technology, as the chairman of the board of directors, has led the establishment of the "Liaoning Province Auto Parts Industry University-Enterprise Alliance", each of which has established a distinctive "University-Enterprise Alliance Regulations" and "University-Enterprise Alliance Agreement."

### 2.2 Planned Collaborative Education Mode

Local engineering universities center on the national and provincial "Excellent Engineer Education Training Plan", by inviting enterprises to participate in engineering personnel training goal formulation, curriculum system settings, education and teaching quality evaluation, teaching content update and teaching method reform, etc. to develop elite, well-organized, coordinated and guaranteed universities and enterprises to collaborative education. For example, Dalian Jiaotong University, Liaoning University of Petroleum and Chemical Technology, Shenyang University of Technology and Shenyang University of Chemical Technology have formed a three-level management mechanism of "excellence plan" through the improvement of the engineering talent training system and management system of the "Excellence Plan" to ensure that the work of the new mechanism for university-enterprise collaborative education in the "Excellence Plan" is implemented item by item. The first level is to establish a "Excellence Program" leading group at the university level, with a focus on policy, human and financial support; The second level is based on the establishment of the "Special Committee for Teaching Excellence in Excellence" and the "Expert Working Group for Education and Training Program for Excellence Engineers", and employs professors with rich experience in teaching, research and engineering, and senior engineering and technical personnel of the company as members, responsible for guiding and making important decisions in the student development process of the "Excellence Program"; The third level is the establishment of the "Excellence Planning Working Group" in the pilot university, which is responsible for the specific implementation of the collaborative education related work in the "Excellence Plan".

### 2.3 Diversiform Collaborative Education Mode

Local engineering universities carry out order-based, orientation-oriented, and customized engineering personnel training mode and training mechanism reform to promote



the deep integration of university-enterprise supply and demand. For example, Shenyang University of Chemical Technology has set up Jingbo class in chemical engineering and technology, and has cultivated talents with university and enterprise of Jingbo Agrochemical Technology Co., Ltd., and students study in university for three years, in the last year, they go to enterprise to conduct internships. Dalian Jiaotong University carried out the five-year dual-professional compound training mode and practice of "traditional professional + software engineering", send students with certain professional background to the software college for two years.

#### **2.4 Innovative and Entrepreneurial Collaborative Education Mode**

The local engineering universities are based on the whole process of innovation and entrepreneurship education activities, and through the establishment of a fully functional and innovative entrepreneurial activity platform with enterprises, a variety of innovative and entrepreneurial education projects and competitions are carried out, collaborating to build a "big project" talent training system that combines application capabilities with innovation capabilities. For example, Liaoning University of Technology and Jinzhou Wonder Auto Group Co., Ltd. carried out all-round collaborative education, the university and enterprise jointly established the "Wonder Motorcade" university student innovation team. From 2011 to 2017, the Wonder Group sponsored the motorcade more than 1.8 million Yuan. Since the motorcade was established, it has won many achievements in domestic and international competitions. It won the second best result in the 2016 China University Students Formula Electric Car Competition. In 2017, it participated in the Japan International Competition and won the runner-up. In the past three years, the students of the automotive design team have obtained 11 patents, published 7 scientific papers and 4 software copyrights. It has become a powerful and influential university student automotive design innovation team in China.

#### **2.5 International Collaborative Education Mode**

With the implementation of the national "the Belt and Road" strategy and the acceleration of "going out" in universities, some local engineering universities have paid more and more attention to cultivating international engineering talents, and actively cooperate with well-known overseas companies to jointly cultivate international talents in higher engineering fields. For example, Liaoning Petrochemical University and Singapore's Rodrigo Petrochemical Engineering Co., Ltd. jointly established the "In-

ternational Engineering Practice Education Center", and actively carry out students' overseas engineering practice training, employment and engineering design and research and development and other collaborative education activities. Nearly 100 students have gone to Singapore to work. On the whole, the exploration of the collaborative education mode of Liaoning local engineering universities and enterprises has played an important role in demonstrating and guiding the adjustment of engineering personnel training structure, improving the quality of engineering talent training, promoting engineering education and teaching reform, and enhancing the employment ability of engineering graduates.

### **3. Problem Exploration of Collaborative Education between Local Engineering Universities and Enterprises**

#### **3.1 Insufficient Long-term Effectiveness of Collaborative Education between Engineering Universities and Enterprises**

The local government's guarantee system for enterprise interests is still not perfect. The university-enterprise collaborative education lacks a strong and close interest bond, and the enterprise has a low sense of interest in the university-enterprise collaborative education. Local governments lack the support policies and reward and punishment systems that really encourage enterprises to participate in collaborative education, and ensure the interests of both universities and enterprises through clear laws and regulations. However, some preferential policies such as enterprise tax reduction and subsidies for accepting internship training for university engineering students have not yet made substantial progress, and there are widespread deviations in implementation, inadequate supervision or assessment mechanisms, or inadequate implementation. For example, some of the existing policy documents are mostly formulated by the education sector. The participation of enterprises is not high. Most enterprises passively participate in the collaborative education mode of government establishment, university leadership, and enterprise participation, which lack of subjective enthusiasm.

#### **3.2 Low Integrating Degree of Collaborative Education between Engineering Universities and Enterprises**

Enterprises lack the willingness to act and continuous motivation to participate actively. At present, the problem of restricting the operation mechanism of university-enterprise collaborative education is more obvious, and the desire of enterprises to actively participate in the con-

struction of higher engineering education system is lower. Most enterprises are reluctant to accept student internship training on a large scale, and there is a widespread phenomenon of "university heat and business cold", which can be mainly summarized as: First, the reality of the instability of the economic benefits of enterprises and the heavy burden of production and operation affects the enthusiasm of enterprises to accept the internship training of university students. Second, the enterprises are concerned about the personal injury, safety hazards and safety responsibility during the production internship. Third, the company's core process, key production technology and confidentiality factors of important research and development technology; Fourth, universities and enterprises have a very limited financial support for student internship training. Taking student safety as an example, enterprises have a strict and complete three-level safety education system and responsibility system. Employees need to undergo strict, periodic, safety education and pre-job training to get a job. For interns who lack systematic security education and only stay in the company for a short period of time, the willingness to accept the company is not obvious.

### **3.3 Inadequate Systematicness of Collaborative Education between Engineering Universities and Enterprises**

The teaching mechanism to promote seamless integration and deep integration of school-enterprise has not been completely straightened out. There are still defects in the comprehensiveness and systematicness of enterprises participating in the construction of engineering education teaching system in colleges and universities. The main problems are as follows: the number of enterprise research and development personnel, senior engineers and professional technicians participating in engineering teaching is still insufficient; the form of enterprise participation in curriculum system construction, teaching application knowledge, joint instruction curriculum design and graduation design is still simple; The quality monitoring and evaluation system of enterprises participating in intramural simulation teaching and off-campus internship training is not systematic; The randomness and variability of the participation of enterprise experts in the research, formulation, updating and revision of engineering talent training programs are large, and the recommendations are based only on the actual needs of enterprises, which lack of objective understanding of the law of talent cultivation and reasonable consideration of the construction of students' knowledge systems.

## **4. Deepening Path of the Collaborative Education between Local Engineering Universities and Enterprises**

### **4.1 Improve and Implement the Local Government's Policy Guarantee System and Incentive Measures, Fully Mobilize and Stimulate the Enthusiasm and Initiative of Enterprises to Participate in University-Enterprise Collaborative Education**

First of all, the local government has comprehensively formulated the management methods for school-enterprise collaborative education. The local government will work with enterprises and universities to formulate policy documents such as the "Management Measures for School-enterprise Collaborative Education" and the "Regulations for School-enterprise Collaborative Education" to further clarify the specific standards and requirements for school-enterprise collaborative education. For example, in the "2000 Target: American Education Act," the United States wrote "Strengthening the links between schools, parents, and industrial enterprises, and encouraging the development of a more systematic industrial training system through the establishment of the National Technical Standards Committee."<sup>[1]</sup> Then, strengthen the regulatory duties and regulatory functions of local governments. Local governments should continue to give policy incentives such as tax and fee reduction, land transfer, financial support, human compensation, talent invocation and insurance payment to enterprises that actively participate in diversification and substantive synergy. Through government-led or entrusted third-party professional evaluation agencies, the classification and inspection of school-enterprise collaborative education incentive policies will be carried out in a normal manner, and the scientific implementation and comprehensive implementation of existing incentive policies and key measures will be promoted. Finally, improve the corporate assessment system. Exploring the scale and quality of accepting the internship training of college students as one of the important conditions for the annual performance appraisal of enterprises, and fully constraining the responsibility and obligation of enterprises to undertake higher engineering education.

### **4.2 Innovate the Long-term Operation Mechanism of University-Enterprise Collaborative Education, and Break through the "Last Mile" of Education and Employment**

First, establish a school-enterprise consultation mechanism and a regular joint mechanism. Promote the establishment of expert advisory groups by universities, enterprises and regional industry associations, strengthen the



school-enterprise collaborative development, and build a cross-complementary teaching system of "school curriculum + enterprise curriculum" with professional competence training as the core, establish a school-enterprise cooperation project, and systematically work processes and a rich teaching model in the form of professional ability development.

Secondly, improve the school-enterprise linkage to carry out the mechanism of innovation and entrepreneurship. Based on the university's superior characteristics of engineering majors, the school-institution (department) two-level scientific and technological innovation competition activities will be carried out regularly, and a flexible and innovative innovation and entrepreneurship training mechanism will be explored. Create a variety of school-enterprise activity brands, such as the professional skills competition sponsored by the company, the Innovation and Entrepreneurship Competition, and continuously expand the depth and breadth of the company's participation in education and teaching reform.

Finally, explore the establishment of a stable and rich "zero-run" engineering talent supply mechanism and early warning mechanism for talent training needs. In response to the actual needs of enterprises, adjust professional training standards, revise training programs, optimize the training process and strengthen quality evaluation,<sup>[2]</sup> Timely increase the teaching content of cutting-edge technological innovation, production process evolution and production process optimization. Strengthen the number of school-enterprise joint preparation of syllabus and featured textbooks, and strengthen student application skills training. Improve the formulation of job standards, and realize the close connection between professional chain and industry chain, course content and professional standards, teaching process and production process.

### **4.3 Innovate the University-Enterprise Joint School-running Model, and Build a System of Engineering Talents That Integrates Innovation and Practical Ability**

First of all, gradually shift the focus of work, the secondary school as the implementation of the university and enterprise collaborative education and the implementation of the entity, and actively promote the grassroots teaching units to participate in the university-enterprise collaborative education. Explore new modes and new mechanisms such as joint-stock schools, university-enterprise joint-run schools, university-enterprise alliances, order-based cooperative schools, and enterprise-named schools, support universities and enterprises to jointly develop school standards, standardize school procedures, clarify the rights and responsibilities of both parties, and improve the

mechanism of benefit sharing and risk sharing.

Second, strengthen cooperation with enterprises to build an internship training and teaching base. Choose famous enterprises and local engineering colleges to jointly establish a comprehensive practical teaching platform, and cover the simulation and teaching base of the whole industry chain to simulate the real production environment and equipment control of the enterprise. Focus on the comprehensive function building of student learning, teacher training and corporate training, and comprehensively enhance the effectiveness and effectiveness of collaborative education.

Finally, build a talent training system that integrates innovation and practical ability. At present, the reform direction of higher engineering education is the cultivation of talents under the concept of large engineering, that is, on the basis of disciplines, more emphasis is placed on the systemic and integrity of engineering practice and engineering education itself. To this end, it is necessary to attach great importance to the diversity of students' knowledge and the diversity of abilities, and to emphasize the practicality of engineering education while cultivating students' creativity. In order to adapt to this concept of large-scale engineering education, on the one hand, local engineering colleges and universities should actively carry out research-based learning and innovative experimental project training programs.

Institutions funded students to carry out research-based learning and innovative experimental projects in a project-based manner, enabling some capable students to enter research-based learning and innovative experimental research earlier, and improve students' innovation level. On the other hand, university-enterprise cooperation promotes the construction of innovation and entrepreneurship platform. In accordance with the needs of enterprise engineering projects and the future development direction, colleges and universities infiltrate engineering education ideas in the main teaching links, and strengthen students' practical ability and engineering innovation ability.

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ARTICLE

# Design Index and Empirical Analysis of the Evaluation Index System for the Transformation of Scientific and Technological Achievements of Universities in Beijing, Tianjin and Hebei

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ABSTRACT

Promoting the transformation of scientific and technological achievements of universities and colleges in Beijing, Tianjin, and Hebei is an important measure to enhance the level of scientific and technological development in universities, enhance the scientific and technological synergy of Beijing-Tianjin-Hebei urban agglomeration, practice the coordinated development strategy of Beijing, Tianjin and Hebei, and promote the construction of Xiong'an New District. Based on the scientific and technological input of colleges and universities, the development of science and technology and the output of science and technology, this paper uses Delphi and AHP to construct a Beijing, Tianjin, Hebei University Science and Technology Achievement Transformation Performance Evaluation System from the perspectives of transformation potentials, scientific research activities and achievements transformation of university scientific and technological achievements. An empirical analysis was carried out to provide reference for the government's efficient decision-making and improvement of strategies for transforming scientific and technological achievements in universities.

## 1. Introduction

The level of science and technology transformation in universities is an important factor in measuring the level of regional science and technology transformation. It is of strategic significance to promote the sharing of regional science and technology resources, improve the efficiency of resource allocation, and enhance regional scientific and technological innovation capabilities. The government attaches great importance to this. In

2015, the "Comprehensive Development Plan of Tianjin and Hebei" puts forward: "Bearing Beijing as an original technology headquarters, patent trading market, high-end innovation service centers, and talent distribution centers; Tianjin will be built as a demonstration of innovation and entrepreneurship for small and medium-sized technology companies, parks and modern manufacturing bases; and Hebei focuses on the promotion of high-tech products and services to form innovative pilot areas and entrepreneurship incubators. Following the revision of the "Promotion

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of Scientific and Technological Achievements Conversion Law" in 2015, the State Council has successively promulgated the "Some Regulations for the Promotion of the Transformation of Scientific and Technological Achievements" and the "Action Plan for Promoting the Transfer and Conversion of Scientific and Technological Achievements." It is regarded as promoting the transformation of scientific and technological achievements in institutions of higher learning. The state has adopted policies and encouragement measures to standardize and guide the transformation of scientific and technological achievements. It has continuously increased the environmental support for the transformation of universities and colleges, emphasized the importance of transformation of scientific and technological achievements in universities, and demonstrated the important position of universities as a process of transforming scientific and technological achievements. The integration of talent cultivation, scientific research, and service to the society is one of the three major functions of colleges and universities. Promoting the transformation of scientific and technological achievements in universities and colleges in Beijing, Tianjin, and Hebei is a concrete manifestation of the social functions of the universities in the three places. It is an important driving force for promoting the coordinated development of Beijing, Tianjin, and Hebei. The current transformation of scientific and technological achievements has made continuous progress, but in this process there have also emerged a series of problems such as low efficiency in the transformation of scientific and technological achievements in universities and low levels of technology transactions and absorption. This paper evaluates the performance of transformation of scientific and technological achievements in Beijing-Tianjin-Hebei universities, aiming to provide reference for the government's efficient decision-making and strategies for improving the transformation of scientific and technological achievements in universities.

## 2. Research Status

Scholars engaged in the evaluation of scientific and technological achievements in the evaluation of research and application of scientific and technological achievements in colleges and universities have made a large number of attempts, but also made more research results.

Some scholars evaluated the status quo of the transformation of scientific and technological achievements in colleges and universities by establishing index systems or models. Wei Liu and Aiju Chen (2008) established an evaluation system for the transformation of scientific and technological achievements in colleges and universities based on the network-level analysis method, which in-

cludes scientific and technological innovation capabilities, scientific and technological achievements transformation capabilities, scientific and technological research and development capabilities, and transformed environmental performance.<sup>[1]</sup> Huiyong Song (2014) used data envelopment analysis (DEA) to evaluate the ability of scientific and technological achievements of 39 universities in Jiangsu Province.<sup>[2]</sup> Xiuhua Yang and Peiguo Yu (2014) conducted a study on the efficiency of transformation of scientific and technological achievements in Chinese universities based on the DEA method.<sup>[3]</sup> Weimin Wei and Feiyue Zhou (2006) used a comprehensive fuzzy evaluation method to establish a comprehensive fuzzy evaluation model for the research performance of university scientific and technological achievements.<sup>[4]</sup> Yan Zhu (2016) combined with the development stage of transformation of scientific and technological achievements in universities, established an index system for the evaluation of transformation of scientific and technological achievements in universities, in terms of basic research, experimental research, achievement transformation, industrial promotion, and transformation of environmental indicators in the transformation of university scientific and technological achievements. Using the improved analytic hierarchy process to determine the weight of each index, the industrial extension research of university scientific and technological achievements was carried out.<sup>[5]</sup>

In addition, scholars use examples or empirical analysis methods to research scientific and technological achievements in universities. Guiyue Wang and Shuen Wang (2009) selected 16 evaluation indicators using the good predictive ability of neural networks, and established an evaluation model for the transformation of scientific and technological achievements in universities based on fuzzy neural network, and conducted an example analysis.<sup>[6]</sup> Junhua Guo and Nini Xu (2016) used factor analysis methods and clustering methods to establish an evaluation index system for university science and technology achievement conversion capacity to analyze empirically the transformation capability of university scientific and technological achievements from the three dimensions of transformation conditions, transformation strength and transformation effects. The study found that there is a big difference in the ability of transforming scientific and technological achievements between universities.<sup>[7]</sup>

At present, the research on the transformation of scientific and technological achievements in colleges and universities focuses on the construction of the overall index system, and rarely evaluates and empirically measures the transformation of scientific and technological achievements in regional universities. Based on previous research

results, this paper uses Delphi and Analytic Hierarchy Process (AHP) to construct a Beijing, Tianjin, and Hebei colleges and universities scientific and technological achievements conversion ability evaluation system and collect data for an empirical analysis from the perspectives of transformation potential of science and technology achievements, research activities, and transformation of achievements.

### **3. Measurement Index System Design**

Input-output analysis is a kind of economic quantitative analysis method that was researched by the famous American economist Vasily Lyonkov in the 1930s.<sup>[8]</sup>The theoretical basis of the input-output model is Vasily's general equilibrium theory. Input-output analysis is an economic quantitative method that studies the interdependence of inputs and outputs among various parts of the economic system. Input is the consumption of an activity. Output refers to the result of an activity. This article relies on the general equilibrium theory and input-output model to determine the factors of the vertical achievements of the universities, the results of horizontal cooperation, and the transformation efficiency of achievements in the Beijing-Tianjin-Hebei colleges and universities, and establish the first-level indicators from the transformation potentials, scientific research activities, and achievement transformation of university scientific and technological achievements. Two secondary indicators and 17 tertiary indicators were used to construct a Beijing-Tianjin-Hebei university science and technology achievement transformation performance evaluation system.

#### **3.1 Selection of evaluation indicators**

In the performance evaluation of university scientific and technological achievements conversion, the conversion potential, scientific research activities and the transformation of scientific and technological achievements are considered in three aspects. The potential for transformation is the precondition and basis for the development of science and technology. The process of scientific and technological activities is the practical stage of scientific and technological work. The transformation of scientific and technological achievements is the outcome of technological activities. Conversion potential, scientific research activities, and scientific and technological achievements represent different stages of the science and technology process. The assessment indicators of each stage should be different. Comprehensive evaluation of the three aspects can reasonably reflect the level and strength of the entire process of scientific and technological development of universities and colleges in Beijing, Tianjin, and Hebei.

#### **3.1.1 Conversion Potential**

The transformation potential reflects the level of colleges and universities, the transformation potential of colleges and universities affects the efficiency of transformation of scientific and technological achievements in universities, including human and financial inputs.

Scientists and technicians are the main bodies that promote the development of science and technology. The number of R&D personnel in higher education institutions and personnel of scientific research institutions in higher education institutions reflects, to a certain extent, the size of personnel engaged in science and technology research and development in colleges and universities. Therefore, the number of R&D outcomes applications and scientific and technical service personnel in higher education institutions and the number of scientific research institutions in higher education institutions are selected as important indicators for assessing the human input status of the transition of scientific and technological achievements in universities and colleges in Beijing, Tianjin and Hebei.

In the scientific research process of colleges and universities, funds are the basis for scientific and technological activities. Funds investment includes basic research funding, application research funding, and experimental development funding for colleges and universities, reflecting the funding input for the scientific research process. Therefore, the selection of funding is an important indicator to measure the scale of college investment and scientific and technological strength.

#### **3.1.2 Scientific and Technological Activities**

Scientific and technological activities are the practical stages of scientific and technological work and are closely related to the creation, development, dissemination and application of scientific and technological knowledge. The depth and breadth of scientific and technological activities reveal to some extent the strength of scientific and technological strength. Scientific research institutes, colleges and universities and large and medium-sized enterprises are the subjects engaged in scientific research and technological development. They are the grass-roots units that carry out scientific and technological research and are the main bearers of scientific and technological activities. Scientific research and technological development and promotion are the main contents of scientific and technological activities. The number of scientific and technological activity units and the number of various types of research projects (projects) are important indicators that reflect the strength of regional science and technology. There is no country with a big economy, a country with strong science and technology, nor can a country with strong education comprehensively analyze and evaluate the scientific and



technological strength of a country or region. It should not only see the current state of the development of science and technology, but also pay attention to its future development potential. College students are the backup forces of future scientists and engineers. Therefore, the number of graduate students and the number of students participating in the research project are also an important measure of scientific and technological strength.

### 3.1.3 Achievement Transformation

The level of achievement transformation in colleges and universities reflects the degree of scientific and technological innovation ability and the activity of science and technology in colleges and universities. This article selected four secondary indicators of monographs, scientific papers, patents and technology trade. The quantity and quality of monographs and scientific papers are one of the important indicators for the evaluation of outcomes. The number of patents is the number of patented inventions

created, and the number of patent grants reflects the university's technological innovation capabilities. Technology trade reflects the innovation and digestion and absorption capabilities of colleges and universities, and it is an effective way for science and technology to be transformed into productive forces. This article selects the technical market turnover and the number of technical market transactions, two three-level indicators to assess the level of science and technology trade in colleges and universities.

### 3.2 Determination of Weights

In order to determine the weight of indicators, first select experts to score each indicator. Using the analytic hierarchy process, we compare the importance of each factor at the same level with respect to the previous criterion level, calculate the weights of the elements of each layer on the system target, and use the group decision method to obtain each level of weight.<sup>[9]</sup> The index system design is shown in Table 1.

**Table 1.** Evaluation Index System for the Transformation of Scientific and Technological Achievements in Universities

First-level indicators	Second-level indicators	Third-level indicators
Conversion potential (0.27)	Human input (0.56)	$P_1$ R & D Results Application and Technology Service Staff (0.33)
		$P_2$ Number of Staff of Scientific Research Institutions in Colleges and Universities (0.67)
	Funding (0.44)	$K_1$ Funding for basic research in colleges and universities (0.26)
		$K_2$ Higher education applied research funding (0.41)
Science and technology activities (0.24)	talent Development (0.40)	$K_3$ Higher education funding for experimental development (0.32)
		$TD_1$ Number of non-professional personnel engaged in research and development(0.37)
		$TD_2$ The number of graduate students in the research project(0.24)
	Research institutions (0.24)	$TD_3$ The number of research projects in the current year(0.40)
$M$ Number of research institutions in institutions of higher learning(1.00)		
Achievements (0.49)	research subject (0.36)	$RS_1$ Higher Education Research Project(0.18)
		$RS_2$ The number of participants in the year (people) (0.31)
	Professional writing (0.19)	$RS_3$ Funding for the year (1000yuan) (0.30)
		$RS_4$ Expenditure for the year (1000yuan) (0.21)
Scientific Papers (0.20)	$B$ Research institutes(1.00)	
	patent (0.21)	$TH$ Universities publish scientific papers(1.00)
Technical trade (0.40)		$RA$ Number of Patent Grants in Colleges and Universities(1.00)
		$TC_1$ Technical market turnover(0.56)
		$TC_2$ Technical market turnover contract number(0.44)



#### 4. Empirical Measurements of Scientific and Technological Achievements Transformation in Colleges and Universities in Beijing, Tianjin, and Hebei

In order to understand the level and ranking of scientific and technological transformation of universities and colleges in Jing-Jin-Ji, the data from the Statistics of Science and Technology Statistics in Colleges and Universities from 2012 to 2016 were used for empirical analysis. According to the evaluation index system for science and technology transformation, the values of 206 indicators are shown in Table 2.

**Table 2.** Evaluation Index Data of the Transformation of Scientific and Technological Achievements of Colleges and Universities in Beijing, Tianjin, and Hebei in 2016

project	Beijing	Tianjin	Hebei
$P_1$ /people	3735	299	1138
$P_2$ /people	39312	10995	10218
$K_1$ /10000yuan	637.1411	69.8095	30.3028
$K_2$ /10000yuan	901.4908	219.1862	63.1680
$K_3$ /10000yuan	76.5421	28.4092	2.8468
$TD_1$ /people	329	70	19
$TD_2$ /people	49357	12476	3425
$TD_3$ /people	11712	4312	1974
$M$ /piece	644	194	136
$RS_1$ /piece	61907	13007	10063
$RS_2$ /people	28700	7532	7572
$RS_3$ /1000yuan	18612634	3445630	1460823
$RS_4$ /1000yuan	14560361	3157551	1244369
$B$ /item	509	43	133
$TH$ /piece	85613	23122	23586
$PA$ /item	9207	2079	2632
$TC_1$ /1000yuan	960813	127662	59669
$TC_2$ /item	938	182	338

Notes: There are more data from 2012 to 2016; only 2016 data are listed here.

To evaluate the ability of Beijing-Tianjin-Hebei university science and technology achievements transformation, the same group of source data should be weighted and ranked in the same evaluation index system and the same evaluation model. In order to make the evaluation result more consistent with the objective reality, eliminating the influence of different disparities in the overall data and the incomparable factors between the indicators, and playing the role of the same measure, a comprehensive index weighting method was adopted. In the evaluation index

system, the unit of measurement of each index is different, and it is not fair, and cross-computing and comparative analysis cannot be performed. It is necessary to perform dimensionless processing first. Here, we use the indexed processing method. Exponential processing takes the difference between the maximum value and the minimum value of the index to calculate the index of the index, and uses the product of the relative weight of each index and its composite index as the evaluation value of the index to accumulate the evaluation value of each index. The sum is the conversion value of scientific and technological achievements. The formula is:

$$M_{(t)} = \sum_{i=1}^m R_i e_i$$

In the formula,  $M_{(t)}$  is the t-level scientific and technological achievements transformation strength evaluation value;  $R_i$  is the weight of index i relative to the target;  $e_i$  is a measure of the value of the indicator i through the dimensionless indicator. This formula can also be used to comprehensively evaluate different indicators of each level of the evaluation index system to facilitate analysis and comparison. Using the above evaluation index system and evaluation method, the scientific and technological transformation capacity of universities in Beijing, Tianjin, and Hebei was evaluated and calculated from 2012 to 2016. The results of the first level evaluation are shown in Table 3.

**Table 3.** Evaluation of Scientific and Technological Achievements Transformation of Colleges and Universities in Beijing, Tianjin, and Hebei from 2012 to 2016

Time	project	Conversion potential	Science and technology activities	Achievements
2012 year	Beijing	0.2376	0.4234	0.5998
	Tianjin	0.0098	0.0358	0.0105
	Hebei	0.0169	0.0000	0.0202
2013 year	Beijing	0.2376	0.4234	0.5998
	Tianjin	0.0253	0.0395	0.0165
	Hebei	0.0178	0.0000	0.0335
2014 year	Beijing	0.2376	0.4234	0.5998
	Tianjin	0.0420	0.0468	0.0115
	Hebei	0.0168	0.0000	0.0396
2015 year	Beijing	0.2376	0.4234	0.5998
	Tianjin	0.0290	0.0657	0.0067
	Hebei	0.0118	0.0000	0.0920
2016 year	Beijing	0.2376	0.4234	0.5998
	Tianjin	0.0327	0.0535	0.0083
	Hebei	0.0122	0.0001	0.0671

## 5. Conclusion

From the above analysis results, it can be seen that there is a gap in the ability of Beijing-Tianjin-Hebei University to transform scientific and technological achievements, and the level of scientific and technological achievements in the Inter-regional Science Division is extremely unbalanced. Under the overall trend, colleges and universities in Beijing are in absolute superiority in the process of transforming scientific and technological achievements of universities and colleges in Beijing, Tianjin and Hebei, and their overall strength ranks first. There is a certain gap between the strength of science and technology transformation in Tianjin and Hebei universities and Beijing, and this situation has not been significantly improved in recent years.

The value of transformation of scientific and technological achievements in universities in Beijing has remained at a value of 0.59 or more. This shows that it has a relatively high level of transforming achievements. From its transformation potential and scientific and technological activities, it can also be seen that its transformation potential and science and technology activity index are also among the top three universities. Obviously, Beijing belongs to the "three strong" regions with superior conversion conditions, active scientific and technological activities, and strong transformation. From the data analysis results, it can be seen that the conversion potential value of Tianjin in 2012 was 0.0098, which was lower than that of Beijing and Hebei. The technology conversion value from 2013 to 2016 was lower than that of Beijing but higher than Hebei, and its value was basically double that of Hebei Province. It shows that Tianjin universities have invested a certain amount in scientific and technological human and financial support.

The lack of investment in science and technology and the inactivity of scientific and technological activities are the key factors that restrict the transformation of scientific and technological achievements in universities and colleges in Hebei. From the analysis of the data, it can be seen that the transformation efficiency of scientific and technological achievements in colleges and universities in Hebei Province is lower than that in Beijing and Hebei. This is reflected not only in the lack of scientific and technological manpower input and financial support, but also in the lack of vitality in science and technology activities. During the period of assessment, it was shown that in

terms of personnel training, research institution construction, and research projects, Hebei universities are lagging behind in the three universities, and in recent years there has been no significant change.

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ARTICLE

## The Study and Investigation for the Ideals of New Generation Migrant Workers

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ABSTRACT

(1) Objective: The study is to understand the overall situation of the ideas of new generation migrant workers and its influencing factors, so as to provide basis for the formulation of relevant countermeasures. (2) Methods: The article uses a self-made questionnaire for 613 new generation migrant workers to conduct a questionnaire investigation and statistical analysis of the results. (3) Results: The scores of the new generation migrant workers' ideals from the highest to the lowest are life ideal, occupation ideal, physical ideal, development ideal and material ideal and the ideals have differences in gender, age, marital status and family residence. (4) Conclusion: The ideal levels are different and basically in the upper middle level.

### 1. Introduction

People always live in reality. However, the human real world is constructed by their own purposeful practical activities, embodying human needs and will. The real world is reflected in people's consciousness, that's to say, conception can be found in people's consciousness. Before the current real life is not yet created by their practice for themselves, people have been consciously building and designing it.<sup>[1]</sup> This kind of imagination to build a design in human consciousness is called

ideal. Obviously, ideal is an imagination and the goal human strive for, embodying the needs of human beings and the desire and pursuit of a good state in the future.<sup>[2]</sup> As a microcosm of the transformation and transformation in Chinese society, migrant workers have made tremendous contributions to the process of Chinese modernization, whose hard work drives the development and changes of cities. As time goes by, there have been changes in the diversity and individuation of the migrant workers' camps.<sup>[3,4]</sup> They are no longer homogenous groups. As a result of differen-

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tiation, the new generation migrant workers have quietly debuted, who were born after the 1980s.<sup>[5]</sup> Compared with the previous generation of migrant workers, they all have obvious differences in their choices of values and behavioral norms.<sup>[6]</sup>

## 2. Research Methods

### 2.1 Research Object

This study investigated new generation migrant workers working in Anhui, Jiangsu, Zhejiang, and Shanghai. A total of 700 questionnaires were distributed and 613 valid questionnaires were retrieved.

### 2.2 Research Materials

The self-contained ideal questionnaire for the new generation of migrant workers, including 19 questions, consists of five factors, namely life ideal, material ideal, physical ideal, development ideal and occupation ideal. The questionnaire has a good reliability and validity: the overall internal consistency coefficient of the questionnaire for the new generation of migrant workers is 0.905, and each internal consistency coefficient of the remaining factors is between 0.704 and 0.899; on the structure validity, the correlation among the factors of the formal questionnaire is between 0.24-0.51, and the correlation between each factor and the total score is between 0.41 and 0.79.

### 2.3 Research Procedures

As the main test, new generations of familiar migrant workers or factory leaders in the selected cities are be found, guided and then asked to issue questionnaires. After collected, the questionnaires are sent back by post and the data is finally analyzed and processed.

## 3. Results

### 3.1 The Overall Situation of the Ideals of New Generation Migrant Workers

On the whole, the overall ideal score of the new generation migrant workers ( $84.18 \pm 9.17$ ), and the average value of a single item (3.69) are both higher than the median value of a single project (3.00); the ideal and its score in each dimension are as following: life ideal ( $9.56 \pm 3.09$ ), material ideal ( $14.94 \pm 3.86$ ), physical ideal ( $11.54 \pm 3.39$ ), development ideals ( $7.20 \pm 2.68$ ), occupation ideal ( $5.06 \pm 2.25$ ), and according to the average scores in a single project, the ideal comparison in five tested dimensions is: life ideals > occupation ideals > physical ideals > development ideals > material ideals, in which only the average value of material ideal is 2.85, less than 3, while the average values of other dimensions are all more than 3. Therefore, it can be seen that the ideal levels of the new generation migrant workers are different and basically in the middle level (see Table 1).

**Table 1.** Descriptive Statistics of the Scores of the Ideals of New Generation Migrant Workers

Ideal	Score range	M	SD	The average score of an ideal	The theoretical median score of an ideal
Overall ideal	19 ~ 95	84.18	9.17	3.69	3
Life ideal	5 ~ 25	9.56	3.09	4.47	3
Material ideal	4 ~ 20	14.94	3.86	2.85	3
Physical ideal	4 ~ 20	11.54	3.39	3.44	3
Development ideal	3 ~ 15	7.20	2.68	3.44	3
Occupation ideal	3 ~ 15	5.06	2.25	4.15	3

### 3.2 The Differences in the Ideals of New Generation Migrant Workers

#### 3.2.1 The Gender Difference in the Ideals of New Generation Migrant Workers

The t-test is applied to the gender differences, as shown in Table 2. In terms of the overall ideals, there is a significant gender difference in the total score: the score of male migrant workers is higher than that of female migrant workers ( $p < 0.01$ ); among the dimensions of the ideals, there are an extremely significant gender difference in the material ideal: the score of male migrant workers is remarkably higher than that of female migrant workers ( $p < 0.01$ ). Such a significant difference is also reflected in the development ideal and occupation ideal ( $p < 0.001$ ).

**Table 2.** T-test of the Gender Differences in the Ideals of New Generation Migrant Workers

	Male		Female		t
	M	SD	M	SD	
Overall ideal	71.44	9.54	68.83	8.58	4.15***
Life ideal	22.50	3.14	22.25	3.03	1.12
Material ideal	11.80	3.80	11.00	3.89	2.98**
Physical ideal	13.94	3.57	13.57	3.19	1.56
Development ideal	10.68	2.61	9.98	2.70	3.78***
Occupational ideal	12.50	2.18	12.00	2.28	3.25***

Notes: \* indicates  $P < 0.05$ , \*\* indicates  $P < 0.01$ , \*\*\* indicates  $P < 0.001$ .

#### 3.2.2 The Age Difference in the Ideals of New Generation Migrant Workers

An analysis of the variance of the age difference of the ideals of new generation migrant workers is shown in Table 3. The results show that the scores differ in the four dimensions of life ideal, material ideal, development ide-

**Table 3.** Analysis of Variance of Age Difference of the Ideals of New Generation Migrant Workers

	Under the age of 18		Between the age of 19 and 25		Above the age of 26		F
	M	SD	M	SD	M	SD	
Overall ideal	68.67	8.05	72.17	11.0	70.02	8.99	2.25
Life ideal	20.96	3.11	21.94	3.70	22.48	3.01	4.42*
Material ideal	11.64	3.92	12.58	4.21	11.28	3.81	3.87*
Physical ideal	13.48	2.73	13.60	3.70	13.79	3.39	0.21
Development ideal	10.83	2.58	11.04	2.40	10.25	2.70	3.44*
Occupation ideal	7.77	1.69	8.37	1.71	8.37	1.63	5.00**

**Table 4.** Multiple Comparisons in Age of the Ideals of New Generation Migrant Workers

Age(I)	Age(J)	I-J					
		Overall ideal	Life ideal	Material ideal	Physical ideal	Development ideal	Occupation ideal
Under the age of 18	Between the age of 19 and 25	Life ideal	-0.977	-0.94	-0.11	-0.20	-1.25*
	Above the age of 26	Material ideal	-1.519*	0.36	-0.31	0.58	-0.46
Between the age of 19 and 25	Above the age of 26	Physical ideal	-0.54	1.30*	-0.19	0.79*	0.79*

Notes: \* indicates P<0.05, \*\* indicates P<0.01, \*\*\* indicates P<0.001.

al, and occupation ideal (p<0.01 or p<0.05). In order to further understand the differences between the different age groups of new generation migrant workers, multiple comparisons are made on the total ideals and scores for migrant workers in different ages. From the results shown in Table 4, it can be seen that the score of the younger group is lower than that of the older group as a whole. In the dimension of life ideal, the score of the group under the age of 18 is significantly lower than that of the group over the age of 25; in the dimension of material ideal, the score of the group between the age of 19 and 25 is significantly higher than that of the group over the age of 25; in the dimension of development ideal, the score of the group between the age of 19 and 25 is also significantly higher than that of the group over the age of 25; in the dimension of occupation ideal, the score of the group under the age of 18 is significantly lower than the group between the age of 19 and 25 while the score of the 19-year-old group is significantly higher than that of the group over the age of 25.

**3.2.3 Difference in Ideal Marital Status of New Generation Migrant Workers**

The t-test is used to determine the ideal marital status of the new generation migrant workers as shown in Table 5. Although there is no difference in general, there are significant differences in the ideal marital status in all dimen-

sions. In the dimension of development ideal, the score of married migrant workers is higher than that of unmarried migrant workers (p<0.05); in the dimension of occupation ideal, the score of married migrant workers is higher than that of unmarried migrant workers (P<0.01).

**Table 5.** T-test of Difference in the Ideal Marital Status of New Generation Migrant Workers

	Married		Unmarried		t
	M	SD	M	SD	
Overall ideal	70.04	8.87	70.91	10.91	-0.80
Life ideal	22.46	2.95	21.84	3.829	1.67
Material ideal	11.32	3.781	11.97	4.336	-1.51
Physical ideal	13.77	3.40	13.71	3.333	0.18
Development ideal	10.95	3.19	10.27	2.67	0.71*
Occupation ideal	12.20	2.206	12.63	2.486	5.14**

Notes: \* indicates P<0.05, \*\* indicates P<0.01, \*\*\* indicates P<0.001.

**3.2.4 Difference in Ideal Residence of New Generation Migrant Workers**

The t-test is used to determine the ideal residence of the new generation migrant workers, as shown in Table 6. In terms of overall ideal, there is no significant difference between urban and non-urban areas. From the perspective of all dimensions, there is a significant difference between life ideal and development ideal (P<0.05). The ideal score



of migrant workers with urban registered residence is higher than that of non-citizens.

**Table 6.** T-test of the Difference in Ideal Residence of New Generation Migrant Workers

	Urban		Non-urban		t
	M	SD	M	SD	
Overall ideal	70.16	9.07	70.15	9.34	0.01
Life ideal	22.56	3.05	22.10	3.13	2.11*
Material ideal	11.26	3.79	11.63	3.97	-1.34
Physical ideal	13.82	3.27	13.66	3.58	0.66
Development ideal	10.17	2.65	10.59	2.70	0.66*
Occupation ideal	12.32	2.18	12.15	2.34	1.02

Notes: \* indicates  $P < 0.05$ , \*\* indicates  $P < 0.01$ , \*\*\* indicates  $P < 0.001$ .

## 4. Discussion and Analysis

### 4.1 The Overall Analysis of the Ideals of the New Generation Migrant Workers

In general, there are differences in different levels of the ideals of new generation migrant workers, which are basically in the upper middle level. A higher level can be achieved in both occupation ideal and development ideal as the occupational treatment and working environment have been continuously improved. With the increase of income, the new generation migrant workers have begun to pay more and more attention to spiritual things, such as pursuing fashionable dress, going to the gym to exercise, and shaping their bodies, which reflects that they are increasingly pursuing spiritual wealth. At the same time, it also proposes a new topic for the society. That is how to satisfy the growing spiritual pursuit on the basis of guaranteeing the basic survival needs of them and how to give more new citizen rights so that they can integrate into the city more quickly and better and are not the marginal person who working hard for the city.<sup>[7]</sup>

### 4.2 Analysis of Differences of the Ideals of New Generation Migrant Workers

#### 4.2.1 Analysis of Gender Differences

In terms of the overall ideal, there is a significant gender difference in the total score: the ideal total score of male migrant workers is higher than that of female migrant workers ( $p < 0.01$ ); There are significant differences in all dimensions: the ideal score of male is higher than that of female in material ideals ( $p < 0.05$ ); has extremely significant gender differences. The ideal score of male is significantly higher than that of female in development ideal ( $p < 0.001$ ); the ideal score of male is also significantly higher than female in occupation ideal ( $p < 0.001$ ). At pres-

ent, although many women have gone out of their homes to participate in social work, they are still the main bearers of the responsibility for homework and family care, which produce the double burden of domestic work and social labor, making the cultural life of female migrant workers poor even missing.<sup>[8]</sup>

#### 4.2.2 Analysis of Ideal Age Differences

There exist differences in life ideal, material ideal, development ideal, and occupation ideal ( $p < 0.01$  or  $p < 0.05$ ). In order to further understand the differences in different age groups, multiple comparisons of scores on the overall ideal and other four dimensions of the new generation migrant workers in different ages are carried out. Through comprehensive analysis, the ideal score of the group between the age of 19 to 25 is the highest, who has basically established a family and a stable living environment with increased experience and skill after several years' migrant work, some of whom may have embarked on leadership positions, while the group under the age of 18 scores the lowest, who has relatively small pressure and social responsibilities as teenagers.<sup>[9]</sup>

#### 4.2.3 Analysis of the Differences in Ideal Marital Status

Although there is no difference in the overall ideal, there are significant differences in all dimensions: the ideal score of married migrant workers is higher than that of unmarried workers in development ideal ( $p < 0.05$ ); the ideal score of married workers is higher than that of unmarried workers in occupation ideal ( $P < 0.01$ ), for the characteristics of the times come from life and also from life. In this era of unprecedented material enrichment, everything has changed quietly in food, clothing, shelter, and transportation.<sup>[10]</sup>

#### 4.2.4 Analysis of the Differences in Ideal Residence

In terms of the overall ideal, there is no significant difference between urban and non-urban areas, but there is a significant difference in life ideal and development ideal ( $P < 0.05$ ). The ideal score of migrant workers with urban registered residence is higher than that of non-citizens. In China, due to the constraints of the household registration system and the urban-rural duality structure, there are huge differences in people's thinking between cities and non-towns. According to Hartung's theory, as the family economy of workers with urban registered residence is slightly better than that of non-citizen migrant workers, urban migrant workers with higher family and school education are also better than non-urban workers.

## 5. Conclusion

The ideals of the new generation migrant workers are at a medium level, whose cores in all dimensions are, from high to low, life ideal, occupation ideal, physical ideal, de-

velopment ideal and material ideal. The ideals have differences in gender, age, marital status, and family residence. The levels of the ideals of new generation migrant workers are different in all aspects, and the ideal level is basically in the upper middle level. This is because it is inseparable from our party and the government's high priority on ideal education<sup>[11]</sup>. It also proposes a new topic for the society. That is how to satisfy the growing spiritual pursuit on the basis of guaranteeing the basic survival needs of them and how to give more new citizen rights so that they can integrate into the city more quickly and better and are not the marginal person who working hard for the city.<sup>[12]</sup>

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## REVIEW

# Analysis of the Importance of Demeanor Training to the Study of Chinese Folk Dance —Taking Uyghur Dance as an Example

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### ABSTRACT

Chinese folk dance has a long history and is quite abundant. It is an indispensable source of Chinese classical dance, court dance and professional dance creation. Chinese folk dances are characterized by unpretentiousness, diverse forms, rich content, and vivid images. But these require professional dancers to express through professional training. Even amateur dances need to be completed through well-trained and emotionally full actors.<sup>[1]</sup> In the process of training, in addition to the necessary basic skills and other physical training, we also need to train the demeanor. We often say that the eyes are the windows of the soul, and the folk dance is more about expressing a feeling to the audience. If the dancer don't have a good performance and face expression, he or she can't express the dance work at all. Therefore, this article takes the training of national folk dance as the starting point, combining technical training, stage performance, professional dancers and amateur dancers, taking the Uyghur as an example.

## 1. Introduction

The times are developing, and the art of dance is constantly being passed down from generation to generation. It is extremely valuable that our national folk dance is rooted in the production and life of the people. Such inheritance requires teachers or elders to teach skills. These teachers not only teach skills but also convey emotions when teaching. It is a dancer's emotion towards the art of dance, and it is also the dancer's emotion towards the current work, which are beautiful, full of emotions, rich in expression, and exquisite from heart.

## 2. Chinese Folk Dance

### 2.1 A Brief Introduction of the Development History of Chinese Folk Dance

Chinese folk dance is a cultural phenomenon. It uses human form movements and thoughts and emotions to express social life, embody national history and convey friendship and express feelings. The development of national folk dance is closely related to China's material civilization and spiritual civilization.<sup>[2]</sup> As early as prehistoric times, we used the "hand dance, the foot of the dance" to describe the most primitive dance, the dance life penetrat-

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ed into every aspect of life, everyone did the dance from the heart, the feelings really revealed. With the continuous development of human society, part of it is divided into court dance, which is used to serve the aristocratic life; the other part is divided into folk dance.

## 2.2 A Brief Introduction to Xinjiang Uygur Dance Culture and Development History

The music of the Xinjiang Uygur people is so beautiful and beautiful, which deeply reflects the unique customs of the minority people in the northwestern border of China.<sup>[3]</sup> The Uighur people inherited the musical traditions of ancient Western regional musical instruments such as "Kashgar Music", "Qiuci Music", "Chotscho Music", "Keriya Music" and "Yizhou Music". At the same time, it has also extensively absorbed the essence of music and dance in many regions and ethnic groups in Xinjiang, the Central Plains, and the East and West co, and gradually formed folk music and folk dances with unique characteristics and different styles.

The dances of the Xinjiang Uygur Group are subtle, beautiful and calm, especially the graceful and elegant actress dances, and the vigorous and unrestrained actor dances the folk dance "Maxrap" with a broad mass base, warm and cheerful, the dance has Uyghur characteristics.

## 3. Demeanor in Dance

### 3.1 Appreciate the Dance Demeanor from the Dance Training and Performance

#### 3.1.1 Single Dance Element Training Settings

Take the national folk dance curriculum in colleges and universities in our country as an example to elaborate. As a dance major student, the National Folk Dance Materials class is accompanied by four years of university time as a compulsory course for each semester. During these four years, we will be exposed to many different ethnic dances. They have beautiful and different styles. In terms of the Uyghur style teaching settings, it is divided into the following combination training: basic temperament, basic dance posture, basic pace, eyes, and comprehensive performance combination.<sup>[4]</sup> From this, we can see the importance of demeanor training in the whole Uyghur dance learning, and integrate the demeanor exercises into the practice of each dance. It is crucial for whether to fully grasp and interpret the beautiful Uighur dance.

#### 3.1.2 Strengthen the Requirements for Dancers' Stage Performance

The stage expression includes both the dancer's mastery of the dance technique and the dancer's control of the emotion. Ten minutes on the stage, ten years of hard work, all the dancers in the classroom study hard to present the most beautiful dance, the most expressive eyes and the

most sincere emotions on the stage. Therefore, for each dancer, the learning in the classroom is important, but the practice on the stage is more effective and necessary. The teacher emphasizes that the performance of the students on the stage should be infinitely magnified and full, knowing how to express emotions with eyes and expressions to resonate with the audience.

### 3.2 The Importance of Appreciating the Demeanor from Uighur Dance Costumes, Makeup and Music

Uighur costumes are bright and bright, and the makeup is more focused on the eyes, and the music is passionate. These are all determined by its national characteristics. The Uighur girl has a veil, and people can only appreciate her beauty through her eyes and appreciate what she wants to express. Therefore, we often see that the eye makeup of female dancers in Uighur dances will be gorgeous and beautiful.<sup>[5]</sup> All art originates from life. Many female dancers in the dance works also wear veil, which requires the actors to have a good attitude and convey their feelings with a beautiful pair of eyes.

## 4. The Requirements for Dancers' Demeanor Training

### 4.1 Faced with Professional Dancers

Day after day, year after year, professional dancers use their hard work and sweat every day to enhance their professional skills and train their limbs to perfection. However, because many dancers are still young at the beginning of the dance, they cannot understand each dance movement. The inner meaning of dance works is only performed by the body. Therefore, in the face of professional dancers, it is necessary to combine the practice with the theory and practice the dance works. The eyes are the windows of the soul, and the hearts will be revealed through the eyes.<sup>[6]</sup> Only in this way can we develop outstanding dancers with all-round development.

### 4.2 Faced with Amateur Dance Lovers

In the face of amateurs, as dancers, we must encourage and actively guide them so that these fans can love the art of dance from the inside out, let them bravely and confidently stand on the stage to express themselves, convey emotions and deduce the dance.

### 4.3 Chinese Folk Dance Examination Textbook

The Chinese folk dance examination textbook aims at children who have just learned to dance. Through studying this textbook, the children not only exercised their body, increased their self-confidence, but also liked the dance in their daily efforts. Each dance in this textbook is a complete small work. It emphasizes the students' good grasp of the body movements and emphasizes the requirements of the students' eyes, expressions and other expressions.

Instead of simply moving with music, the national music, costumes, culture and customs behind these dances will give children a deep understanding. For every child who learns to dance, this is a good trend for the whole dance education system concept. It will continue to promote the development of China's dance industry.

## **5. The Influence of Chinese Folk Dance Development of on Dance Art**

### **5.1 The Influence of Chinese Folk Dance Development of on Chinese Dance Art**

Chinese folk dance culture, like the folk dance culture of other nations in the world, is the oldest form of art. It has been running through thousands of years, constantly developing and changing and influencing other art forms. As a cultural carrier, it has a rare vitality.<sup>[7]</sup> With the changes of the times, it is constantly developing and changing. It is this tenacious vitality that has made the folk dances withstand the test and live endlessly. The world folk dance is like this, as is the Chinese folk dance. No art can be as direct, vivid, and appealing as folk dance. It is also the most intuitive expression of the character, temperament, temperament, and way of life, essential spirit, material culture, living conditions and even religious beliefs of the people of the nation. Therefore, folk dance has an irreplaceable important position in the history of Chinese aesthetics and has become an indispensable part of Chinese cultural composition.

### **5.2 The Influence of Chinese Folk Dance Development of on World's Dance Art**

As Goethe once said that "the more it is national, the more it is the world." As an ancient multi-ethnic country, China not only has uninterrupted social development civilization, but also has rich history and culture. Chinese Fifty-six ethnic groups have their own characteristics. Interact with each other.<sup>[8]</sup> Looking at the whole world, although they

have different cultures, different histories, and different beliefs, they all have a pair of eyes that discover beauty and appreciate beauty. They may not be fluent in each other but can convey friendship, friendship, and friendship through dance. With one hand and one eye, you can convey the most sincere emotions to each other and infect each other. As a part of the whole dance art, Chinese folk dances continue to promote the continuous development of the entire dance industry. Let dance art open like a beautiful flower in the forest of art.

## **6. Conclusion**

In summary, Chinese folk dance requires professional dancers to express through professional training. Even amateur dances need to be completed through well-trained and emotionally full actors. In the process of training, in addition to the necessary basic skills and other physical training, we also need to train the demeanor. Demeanor training is a small part of the training of Chinese folk dances, but although it is a small part, it plays a vital role in cultivating a good dancer.

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## REVIEW

# Research on Incentive Mechanism and Analysis of the Obstacles in the Application of Low-carbon Logistics Technology

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### ABSTRACT

Low-carbon logistics technology is a modern technology with green environmental protection concept as the core, which can effectively reduce the carbon emissions of all links in logistics activities, and thus achieve the goal of maximizing the use of resources and reducing environmental pollution. With the deepening of the concept of environmental protection, the application of low-carbon logistics technology is not only an inevitable choice for adapting to social development and responding to environmental protection slogans, but also an inevitable choice for the logistics industry to achieve sustainable development goals. Based on the brief introduction of low-carbon logistics technology, this paper analyzes the main obstacles of the application of the technology, and proposes corresponding incentive mechanism according to the obstacle factors, aiming at alleviating the resistance in the practical application of low-carbon logistics technology and promoting the realization of low-carbon logistics development.

## 1. Introduction

The ultimate goal of low-carbon logistics is to achieve sustainable socio-economic development, and the application of low-carbon logistics technology is conducive to reducing the carbon emission of all aspects of logistics activities, thereby reducing environmental pollution and coordinating the development of environmental and economic benefits of logistics activi-

ties, thus Creating an environment conducive to the establishment of an environment-friendly and resource-saving society in China. However, judging from the actual situation of low-carbon logistics development of Chinese enterprises at this stage, the application of low-carbon logistics technology has great resistance, and it is difficult to achieve popularization in a short time. In view of this, this paper has important practical significance for the analysis

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of the obstacle factors and the incentive mechanism of low-carbon logistics technology application.

## **2. A Brief Introduction to Low-carbon Logistics Technology**

Low-carbon logistics refers to the effective control of carbon emissions in logistics activities through advanced logistics technologies and greenhouse gas emission reduction technologies, thereby reducing the adverse effects of logistics activities on the environment and maximizing the utilization of logistics resources.<sup>[1]</sup> The main operations of low-carbon logistics include low-carbon transportation and distribution, low-carbon loading and handling, low-carbon flow processing, low-carbon packaging, and low-carbon storage. The principles of low-carbon logistics mainly include adherence to the principles of integrity, hierarchy and dynamics. Low-carbon logistics technology integrates low-carbon design, low-carbon concept, and low-carbon technology into various processes of logistics activities. From the perspective of all aspects of logistics activities, common low-carbon logistics technologies include low-carbon storage technology, low-carbon handling technology, low-carbon packaging technology, low-carbon transportation and distribution technology, and low-carbon circulation processing technology.<sup>[2]</sup>

## **3. The Analysis of the Obstacles in the Application of Low-carbon Logistics Technology**

The application of low-carbon logistics technology involves a wide range. From the perspective of the development of low-carbon logistics in China, the obstacles to the application of low-carbon logistics technology are mainly reflected in the government, enterprises and the public. The specific analysis is as follows:

### **3.1 Government Factors**

The obstacles to the application of government behavior to low-carbon logistics technology mainly include the following aspects: The first are the obstacles to the management system. At this stage, the Chinese government has rigidly divided the logistics activities into different sections, and each link of the logistics activities is managed by different government functions. In this case, not only the logistics activities of the enterprises are difficult to systematically develop, but also Due to the differences in the management systems of various functional departments, there are situations such as blank or duplicated duties in actual work, which is not conducive to the application of low-carbon concepts. The second are the obstacles to the evaluation criteria. For the government department, it must clearly understand the behavioral attributes of enterprise logistics, and then can supervise or motivate the application of low-carbon logistics technology in enterprise

logistics activities. However, at present, the research on China's existing low-carbon logistics evaluation system is still in the exploration stage, and the practical application results of relevant research results are relatively limited. However, due to the inability of government departments to introduce perfect evaluation standards, enterprises have certain speculative behaviors in applying low-carbon logistics technology, and will also increase the management costs of government departments.<sup>[3]</sup> The third are the obstacles to the regulatory system. The government's supervision on the application of low-carbon logistics technology is very inadequate. In addition to the mandatory measures to limit the carbon emissions of motor vehicles' exhaust gas, other perfect supervision systems have not been established. This situation is for low-carbon logistics technology. The application has had a huge adverse effect. The fourth is that, the compensation system is not perfect. The government's compensation system is an important driving force for enterprises to apply low-carbon logistics technology. Therefore, government departments should reduce the concerns of enterprises on the application of low-carbon logistics technology to increase costs through effective incentive mechanisms. However, the incentive effect of the incentive mechanism implemented by the Chinese government is very limited, and most of them have incentive effects on the production and sales of products, and there are few incentive mechanisms for enterprises to apply low-carbon logistics technology. The enthusiasm of enterprises to apply low-carbon logistics technology is not high.

### **3.2 Enterprise Factors**

The existing logistics technology level of the enterprise is an important technical basis for the development of low-carbon logistics of enterprises. From the current situation, the obstacles for enterprises to apply low-carbon logistics technology mainly include the following three: First, logistics equipment factors. At present, in the logistics activities, the carrier is the main source of carbon emissions. Some equipment manufacturers have gradually started to develop and use clean energy vehicles in response to the low-carbon environmental slogan. However, due to limited effects, they have not received positive response from enterprises.<sup>[4]</sup> In addition, the development of technologies with low carbon environmental performance such as solar vehicles and electric vehicles is not mature enough to be promoted in a short period of time, which has caused certain obstacles to the application of low-carbon logistics technology. The second are the logistics facilities factors. The logistics facilities mainly include basic facilities such as logistics nodes, logistics channels and logistics processing points. Since the low-carbon environmental protection requirements are not taken into

account in the initial stage of construction, the existing logistics facilities of Chinese enterprises cannot support the needs of enterprises with low-carbon development.<sup>[5]</sup> Moreover, due to excessive pursuit of economic benefits, many enterprises deliberately neglect low-carbon environmental protection requirements in the planning of logistics facilities, which in turn leads to serious environmental pollution and waste of resources. The third are logistics information technology factors. Logistics information technology is an important technology to improve the efficiency of logistics activities and solve the problem of information asymmetry between the participants of logistics activities. It is also an effective tool for enterprises to achieve low-carbon development. Common logistics information technologies include GPS technology, electronic data exchange technology, and geographic information system technology. However, at this stage, the research progress of the above-mentioned technologies in China is relatively slow, and the application cost is relatively high, which makes it difficult to achieve universalization, which has caused certain obstacles to the application of low-carbon logistics technology.

### 3.3 Social Public Factors

On the one hand, the lack of environmental awareness of the public has led to a lower level of concern for low-carbon environmental protection in the whole society, and the low degree of attention means that the public is seriously inadequate in supervising the application of low-carbon logistics technology. In the case of insufficient strength, it is difficult for enterprises to consciously and actively apply low-carbon logistics technology. At present, exhaust emissions are the main concern of the public for the behavior of logistics companies. However, for the deeper development of low-carbon logistics, the public has not yet had a deep perception, and environmental awareness is difficult to correctly express, making the public's impact on corporate logistics behavior smaller and smaller. All in all, the lack of environmental awareness of the public has a great hindrance to the application of low-carbon logistics technology. On the other hand, the lack of a professional talent team has also caused serious obstacles to the development of low-carbonization of Chinese enterprises. From the perspective of hierarchy, logistics modernization is an important foundation for enterprises to apply low-carbon logistics technology, and professional talents with professional environmental protection knowledge and correct low-carbon environmental protection concept are the important foundation for logistics enterprises to achieve low-carbon development.<sup>[6]</sup> From the perspective of enterprises, professional logistics talents are not only the actual needs of modern logistics development, but also the actual needs of low-carbon logistics development. It

can be said that the professional talents are not only the main factors affecting the low-carbon development of logistics enterprises, but also will restrict the development of low-carbon logistics in the future.

## 4. Research on Incentive Mechanism in the Application of Low-carbon Logistics Technology

Based on the analysis of the obstacles in the application of low-carbon logistics technology in the previous article, the following incentives are also proposed from the government, enterprises and the public to promote the application of low-carbon logistics technology, as follows:

### 4.1 Incentive Mechanism in the Application of Low-carbon Logistics Technology Promoted by Government

First, government departments should actively change the management system, improve the systemic and integrity of logistics activities management, and create an enabling environment for enterprises to apply low-carbon logistics concepts. At the same time, the government should also unify the management systems of various functional departments to avoid duplication of functions or gaps in responsibilities between departments. Second, government departments need to develop sound and scientific evaluation standards. Under the premise of clarifying the attributes of corporate logistics behavior, government departments need to actively explore and combine international environmental standards and evaluation standards systems for low-carbon logistics technology applications in developed countries to develop evaluation criteria that are consistent with China's national conditions and corporate development trends to provide reasonable supervision and appropriate incentives for the application of low-carbon logistics technology, to avoid the existence of luck in the application of low-carbon logistics technology.<sup>[7]</sup> Third, establish a sound regulatory system. On the one hand, the introduction of environmental legislation related to corporate logistics activities, especially the legislation on low-carbon logistics supervision exerts certain external pressure on the development of low-carbonization of enterprise logistics. On the other hand, the establishment of a reasonable regulatory system, including the charge and charge system, waste charging system, deposit return system and licensing system, to promote the development of corporate logistics to the development of dyeing. Fourth, implement certain compensation for the application of low-carbon logistics technology. The establishment of the compensation system can eliminate the concerns of enterprises on the cost increase caused by the application of low-carbon logistics technology, and thus improve the enthusiasm of enterprises to apply low-carbon logistics technology.

#### **4.2 Incentive Mechanism in the Application of Low-carbon Logistics Technology Promoted by Enterprises**

First of all, to construct a technological innovation mechanism in all aspects of logistics activities, starting from all aspects of logistics activities, to achieve low carbonization of all aspects of logistics. Specifically, in the transportation sector, the use of clean energy-based vehicles, improve the fuel combustion of fuel engines, and encourage enterprises to use low-carbon transportation methods to achieve low carbonization of transportation. In the packaging process, the establishment of packaging technology innovation incentive mechanism to achieve low-carbon packaging, which can avoid the excessive packaging and reuse of packaging materials, etc., to stimulate the development of low-carbon packaging. In the process of circulation processing, the incentives that can be taken include: Integrate with other links and implement large-scale circulation processing, etc. The scale processing method can be realized in the following two ways. The first is to focus on the processing and utilization of corner scraps that occur during the processing of logistics, so as to reduce the generation of processing waste and reduce environmental pollution; The second is to transform the distributed processing into centralized processing, so as to use the scaled operation method to improve the utilization of resources and reduce environmental pollution. In the warehousing segment, the incentives that can be used include: stimulating logistics companies to rationalize the layout of storage equipment, and strengthening the internal management of storage facilities.<sup>[8]</sup>

Then, the logistics enterprises are encouraged to actively apply advanced logistics technologies. The specific measures include: stimulating enterprises to pay attention to and continuously accelerate the construction of logistics information systems, encourage multi-modal transportation, and encourage the development of third-party logistics while implementing the common distribution method. Finally, incentive logistics companies to carry out low carbon certification. The ISO14000 system is an international environmental standard proposed by the International Organization for Standardization to reduce environmental pollution, improve environmental quality, and achieve sustainable development. The products, services, and activities of enterprises can be evaluated through this standard.<sup>[9]</sup>

With the development of low-carbonization wave on a global scale, all countries in the world are building a new low-carbon standard system based on the ISO14000 series of standards. And many developed countries have already standardized the certification of low carbon standards into the track of standardization and legalization. In order to

adapt to this market environment and realize the low-carbon development of logistics enterprises, Chinese enterprises must also actively carry out certification of low-carbon standards, and at the same time establish and improve a more complete enterprise environmental management system.

#### **4.3 Incentive Mechanism in the Application of Low-carbon Logistics Technology Promoted by Social Public**

On the one hand, improve the environmental awareness of the public. The government should actively promote the concept of environmental protection and the concept of low-carbon consumption, and encourage the public to carry out low-carbon consumption to effectively reduce the environmental pollution caused by the packaging of logistics products. At the same time, the public should actively advocate the concept of low-carbon consumption and resist high consumption. The ability to logistics, the low-carbon ideas into the production and circulation of products, and promote the development of low-carbon enterprise logistics. At the same time, the public should also give full play to their supervisory responsibilities and actively participate in public opinion supervision. According to the previous analysis, the supervision of the public is an important external pressure for enterprises to achieve low-carbon development. Therefore, in order to guide the development of low-carbonization of enterprise logistics, the public should unify the ideological front, actively participate in the supervision of public opinion, express their own understanding of environmental issues through civil organizations and self-media, and advocate low-carbon logistics concepts to exert certain external pressure on the company, and to promote its development towards low-carbon logistics. On the other hand, an incentive mechanism for talent cultivation should also be established. The lack of specialized talents is an important factor restricting the development of low-carbon logistics of enterprises. The establishment of incentive mechanism for professional talent training can cultivate the talents needed for the development of low-carbon logistics, and then develop a low-carbon transformation with scientific and efficient development.

### **5. Conclusion**

With the continuous advancement of environmental protection work and the constant changes in the industry's competitive situation, low-carbon logistics has become an inevitable choice for the logistics industry to achieve sustainable development. The application of low-carbon logistics technology has also become an important boost for the development of low-carbon logistics. Through the research in this paper, we can find that the obstacles of low-carbon logistics technology application are mainly re-

flected in the three aspects of government, enterprise itself and the public. Therefore, when formulating the incentive mechanism for low-carbon logistics technology application, we should also start from the above three aspects. We will change the management system, innovate all aspects of logistics technology, and strengthen the incentive mechanism of low-carbon environmental protection publicity and personnel training to further promote the application of low-carbon logistics technology, encourage enterprises to achieve low-carbon logistics development, and promote the sustainable development of the entire logistics industry.

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In order to better manage the quality of publications, we've made the decision to adjust the publication frequency of ***Journal of Educational Theory and Management*** from a quarterly publication to a biannual publication. This would allow us to allocate sufficient time in between each issue to improve the quality and stability of our journal.

The publication of Volume 2, Issue 3, is projected to be in October 2018. This would mark our first issue published since the revision of our publication frequency twice yearly. Through such adjustments, we can expect the quality of articles and journals to improve which will be more conducive to our entry into internationally renowned databases.

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