

Exploration of Undergraduate Vocational Education in China: Process, Experience and Strategy

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Abstract

Undergraduate vocational education focuses on the cultivation of students' comprehensive technical ability, problem-solving ability and technical innovation ability. The development of undergraduate vocational education in China is the result of a combination of factors such as national strategies and regional missions. In this article, we sort out the policy documents and development history of China's vocational education and elaborate the current development, orientations, talent goals and faculty structures of undergraduate vocational education in various regions. By the end of the article, several suggestions are proposed based on international experience and China's national conditions. China's undergraduate vocational education needs to take the "China mode" and follow the main purpose of "dual-track parallel, conditional integration". It's also highlighted that relevant departments should gradually promote the standardization of undergraduate vocational education, development of special features and standardization of governance in order to truly realize the high-quality development of undergraduate vocational education in China.

Keywords: undergraduate vocational education, standardization, characterization, standardization

1. The Development Process of Undergraduate Vocational Education in China

Undergraduate vocational education is a necessary choice for the categorized development of higher education in China under the background of innovation-driven and industrial upgrading. Exploring and implementing undergraduate vocational education is a necessity for the development of vocational education in China in the present era, a product of the promotion of economic and social development and the implementation of national strategy, and a strategic measure taken by the Communist Party of China and the nation after fully evaluating and confirming the development quality and connotation of vocational education in China. Its development is helpful to break the "ceiling" of vocational education in China and build a modern vocational education system with Chinese characteristics.

Reviewing the development of vocational education since the founding of People's Republic of China, we can find that the establishment and improvement of vocational education system generally shows a change from focusing on post-junior high school to focusing on both post-junior high school and post-senior high school, and secondary and higher vocational education has gradually become the main body of vocational education system, which is consistent with the development process of China's industry structure from primary structure to intermediate and advanced structure in the industrialization process since the founding of People's Republic China. The undergraduate vocational education in China has shifted from junior vocational colleges "no longer seeking to upgrade to undergraduate level" to actively participating in "upgrading pilots", from borrowing "upgrading" outside the system to facilitating "upgrading" within the system, from "upgrading" in external transformation to "upgrading" in endogenous growth.

1. *Junior vocational colleges are no longer qualified to upgrade to undergraduate level, guided by the adjustment of educational structure*. After the "Reform and Opening-Up" when a series of policies were promulgated to transform China from a centrally planned economy to a socialist market economy, China has actively explored various school forms and development models of higher vocational education, such as vocational universities, junior colleges and vocational and technical colleges. Especially since the turn of the century, higher vocational education has developed into a vivid pattern of "three reforms and one supplement", "three educational forms as a whole", "three more and one reform" and "six forces" (Note 1). In January, 1999, two departments including the Ministry of Education

promulgated the *Opinions on Trial Implementation of New Management Mode and Operation Mechanism in Higher Vocational and Technical Education*, which made it clear that the higher vocational education with the new management mode and operation mechanism is junior college education. Under the guidance of the national strategy of large-scale enrollment expansion of higher education, the number and scale of higher vocational education have increased rapidly, and junior vocational colleges in China have entered a large-scale development stage. Both *Several Opinions on Further Strengthening Vocational Education* promulgated by the Ministry of Education and other seven departments in August 2004 and *Decision on Vigorously Developing Vocational Education* promulgated by the State Council in October 2005 emphasized that junior vocational colleges shall no longer be upgraded to undergraduate colleges. From 1999 to 2005, the number of ordinary junior colleges decreased from 313 to 186 while the number of junior vocational colleges increased from 161 to 892 (Chen, 2007). During this period, higher education in China experienced fast development. In just six years, more than 2/5 of the original ordinary junior colleges have been upgraded to undergraduate universities, while the number of junior vocational colleges has increased by 4.5 times. Under the historical conditions, the policy of "no longer upgrading to undergraduate level" of junior vocational colleges was undoubtedly correct and scientific. This is because junior vocational colleges were mostly born out of secondary vocational schools, and their foundation and conditions are relatively weak. The timely introduction of the policy of "no longer upgrading to undergraduate level" by the state helped improve the quality and promote the sustainable development of higher vocational education. If the blind convergence of "upgrading" had not been curbed, it would inevitably have led to serious imbalance in the structure of higher education.

2. *Contract-restricted eligibility of the upgrade from junior to undergraduate college.* In 2006, the Ministry of Education issued *Several Opinions on Improving the Teaching Quality of Higher Vocational Education in an All-round Way*, which pointed out that "higher vocational education is a type of higher education, cultivating highly skilled talents for the front-line needs of production, construction, service and management", and put forward specific requirements for improving the teaching quality of education from nine aspects. This document clearly stated for the first time that higher vocational college is a type of higher education. Since then, higher vocational education has entered an "independent" development stage of "de-undergraduate", and the type characteristics of higher vocational education have gradually become prominent. In November, 2006, two departments including the Ministry of Education promulgated the *Opinions on Implementing the National Model Higher Vocational College Construction Plan to Accelerate the Reform and Development of Higher Vocational Education*, requiring colleges and universities participating in project declaration and construction to promise not to be upgraded to undergraduate colleges before 2010. In 2010, the first round of national demonstration construction tasks was basically completed, and the quality of colleges under the project construction was greatly improved. In July 2010, two departments including the Ministry of Education promulgated the *Notice on Further Promoting the Implementation of the National Model Higher Vocational College Construction Plan*, emphasizing that it was clearly stipulated that the National Model (Backbone) Higher Vocational Colleges would not be upgraded to undergraduate level before 2020.

3. *A pilot modern vocational education system and a subsequent cooperative approach to junior-to-undergraduate upgrade.* With the promotion of economic and social development as well as people's educational needs and educational development, after entering the first 10 years of the 21st century, the *Outline of the National Medium-and Long-Term Education Reform and Development Plan (2010-2020)* (hereinafter referred to as the *Outline*) proposed that "modern vocational education system will be formed by 2020 to meet the requirements of the transformation of economic development mode and the adjustment of industry structure, embody the concept of lifelong education, and coordinate the development of secondary and higher vocational education". Under the guidance of the *Outline*, in October 2010, the General Office of the State Council promulgated the *Notice on Launching the Pilot Reform of the National Education System*, which requires that around the pilot comprehensive reform projects of vocational education, we should integrate the high-quality resources of vocational education and ordinary higher education, expand the channels to higher-level education for students, try longer training in junior vocational colleges, or adopt the segmented training together with ordinary undergraduate colleges to carry out the pilot modern vocational education system. In 2012, the Ministry of Education piloted undergraduate vocational education in Jiangsu, Zhejiang and other provinces, mainly in non-independent forms such as joint education, and many places also made independent explorations. Some provinces took the lead in supporting junior vocational colleges and ordinary undergraduate colleges to carry out "3+2" (three years in junior vocational colleges + two years in ordinary undergraduate colleges) and "4+0" joint training (all the four years in junior vocational colleges). On the premise of not changing the education management system, ordinary undergraduate colleges are responsible for enrollment management, student status management and diploma management, while junior vocational colleges are responsible for teaching management, student management and life management. It can be said that the "3+2" segmented training program and the "4+0" joint training program are essentially the initial forms and beneficial exploration of undergraduate vocational education; the goal was to build a vocational education overpass.

4. *Guided by the classification guidance of colleges and universities, some local ordinary undergraduate colleges began to transform into undergraduate vocational colleges.* In May 2014, the State Council promulgated the *Decision on Accelerating the Development of Modern Vocational Education*, emphasizing that the junior vocational colleges should not be upgraded or merged into undergraduate colleges. For the first time, it explicitly proposed to guide a number of ordinary undergraduate colleges to transform into applied technology universities and "explore the development of vocational education at the undergraduate level". In the same year, *Modern Vocational Education System Construction Plan (2014-2020)* (hereinafter referred to as "Plan") pointed out that "undergraduate vocational education will reach a certain scale, and the training system will be systematically constructed covering secondary vocational schools, junior colleges, undergraduate colleges and professional post-graduate degree programs". In October 2015, three departments including the Ministry of Education promulgated the *Guiding Opinions on Guiding the Transformation of Ordinary Undergraduate Universities in Some Local Areas to Application-oriented Universities*, which clearly promoted the transformation of qualified newly-built undergraduate universities to application-oriented universities. Although a few universities think that the transformation of local undergraduate colleges means to transform to vocational education, and some independent colleges have explored undergraduate vocational education, the vast majority of newly-built undergraduate colleges are more willing to accept the orientation of application-oriented rather than vocational education. It must be noted that the newly-built undergraduate universities have been independently upgraded or merged from ordinary junior colleges and junior vocational colleges, and the newly-built undergraduate universities are encouraged to change to application-oriented type, aiming at overcoming homogeneous development, realizing differentiated development and cultivating compound, application-oriented and innovative undergraduate talents. However, under the guidance of resource allocation mechanism of higher education, the newly-built upgraded undergraduate universities are basically no longer the "vocational education" and turned to academic higher education. In practice, some local ordinary universities stagnated in transformation and development while junior vocational colleges had increasing demand for upgrading, forming a huge contrast of "cold on one side and hot on the other".

5. *Taking endogenous growth as orientation, "vocational technical universities" are established to carry out "pilot upgrading".* This policy has led to an important historic breakthrough from the previous practice of piloting 4-year undergraduate vocational education by secondary colleges of ordinary undergraduate universities and jointly organizing 4-5-year undergraduate vocational education by junior vocational colleges and ordinary undergraduate universities. The reform marked the establishment of a modern vocational education system connecting independent technical secondary schools, junior colleges and undergraduate universities. In February 2019, the *National Vocational Education Reform Implementation Plan* (also known as "20 Articles for Vocational Education"), which was hailed as the blueprint of vocational education reform in the new era, once again emphasized "carrying out pilot undergraduate vocational education". By far, undergraduate vocational education entered a new "independent" development stage where independent private undergraduate universities independently held undergraduate vocational education. On the one hand, it encourages a large number of ordinary undergraduate universities to change to application-oriented type. On the other hand, it clearly proposed to carry out the pilot undergraduate vocational education, and regarded the talents trained by applied technology majors in applied undergraduate colleges, undergraduate vocational colleges and ordinary undergraduate colleges as high-level applied talents. In June 2019, the Ministry of Education officially approved the first batch of 15 "vocational technical universities", such as Chengdu Art Vocational University to carry out pilot undergraduate vocational education. On January 19, 2020, the Ministry of Education sent a letter announcing that six schools including Nanjing Vocational University of Industry Technology were upgraded to undergraduate vocational schools. In May, the General Office of the Ministry of Education issued the *Implementation Plan on Accelerating the Transformation of Independent Colleges*. In the path of transfer, it was proposed for the first time that "we can explore and coordinate the merger and transformation of educational resources of higher vocational colleges and junior colleges in the province". In June 2020, Nanjing Vocational College of Industry Technology changed its name to Nanjing Vocational University of Industry Technology, becoming the first vocational and technical university upgraded from a public higher vocational college or a junior college, thus loosening the policy of not upgrading public higher vocational colleges and junior colleges to undergraduate universities.

In January 2021, the Ministry of Education issued two normative documents, *Standards for Setting Vocational Undergraduate Schools* and *Administrative Measures for Setting Vocational Undergraduate Majors*, to make the top-level design for undergraduate vocational education from the institutional level. On April 13, 2021, the National Vocational Education Conference was held in Beijing, which conveyed General Secretary Xi Jinping's important instructions on vocational education: to optimize the type positioning of vocational education, steadily develop undergraduate vocational education, and train more high-quality technical and skilled talents and skilled craftsmen. In July, 2021, the Ministry of Education promulgated the *Opinions on Establishing Institutions of Higher Learning during the 14th Five-Year Plan Period*, which required steady development of undergraduate vocational colleges on the basis of high-quality junior vocational colleges. In October 2021, the General Office of the CPC Central Committee and the

General Office of the State Council promulgated the *Opinions on Promoting the High-quality Development of Modern Vocational Education*, proposing that by 2025, the enrollment of undergraduate vocational education shall not be less than 10% of that of higher vocational education. In April 2022, the newly revised Vocational Education Law specified for the first time that vocational education enjoys the same important status as ordinary education from the legal level, clarified the legal status of type education, opened the channel for students of junior vocational colleges to "upgrade to undergraduate level". and removed the obstacles of policy discrimination. With this law in place, policy measures rose to the height of legal norms, providing legal guarantee for promoting the steady development of undergraduate vocational education according to law, and reserving broad space for developing higher-level vocational education. Since the pilot projects in 2020, undergraduate vocational education has gone from theory to practice. The statistical results of national education in 2021 show that there are currently 32 undergraduate vocational schools, with a new recruitment of 41,400 undergraduate vocational students and a total number of 129,300 undergraduate vocational students. In the latest edition of vocational education major catalog, there are 247 undergraduate majors in higher vocational colleges (Department of Development Planning, Ministry of Education, 2022).

2. Exploration Experience of China's Undergraduate Vocational Education

Developing undergraduate vocational education can not only improve modern vocational education system but also promote the fair upgrading of higher education. However, China's higher vocational education has been in a low-level position in higher education for a long time, and the "type" identity has never been truly established. According to the strategic task of "developing high-quality education with world advanced level with Chinese characteristics" pointed out in *China Education Modernization 2035*, if higher vocational education, which reflects the most Chinese characteristics, could not be lifted from the bottom of higher education, how could we realize education modernization? Internationally, developed countries such as Germany, UK and Japan are actively exploring the cultivation model of talents with vocational skills at undergraduate level through the "dual system" courses, degree apprenticeship system and the development of technical and scientific universities. Therefore, on the basis of the present development of undergraduate vocational education, China actively draws lessons from the typical experience in the world and gradually explores the development model of Chinese modernization.

1. *Overview: What is the current situation?* Since *Modern Vocational Education System Construction Plan (2014-2020)* and *Decision of the State Council on Accelerating the Development of Modern Vocational Education* put forward "exploring the development of undergraduate vocational education and cultivating undergraduate vocational talents" in 2014, undergraduate vocational education has really ushered in a development opportunity and gradually become a hot spot in the field of education. After the Ministry of Education, the National Development and Reform Commission and the Ministry of Finance issued the *Guiding Opinions on Guiding the Transformation of Some Local Ordinary Undergraduate Universities to Application-oriented Universities* in 2015, as of the end of 2016, there were more than 240 local ordinary undergraduate universities in more than 20 provinces, municipalities and autonomous regions including Zhejiang, Guangxi, Hubei, Henan, Jiangxi, Hebei, Jilin, Gansu, Liaoning, Chongqing, Sichuan, Hunan and Shanghai (Zhong, 2017). The transformation and development of local ordinary undergraduate universities have been regarded as a strategic breakthrough to build modern vocational education system and promote the structural adjustment of higher education. At present, the undergraduate vocational education is basically in a symbiotic pattern, where undergraduate application-oriented colleges in transformation are the main body, a very small number of national model higher vocational institutions represented by Tianjin Sino-German Vocational Technical College are auxiliary, and four-year pilot undergraduate vocational colleges independently held by ordinary undergraduate colleges or jointly held by some model higher vocational institutions and undergraduate universities are supplements (Song & Qi, 2019).

a. *Mainly distributed in the eastern region with private schools playing the dominance role.* From the perspective of the region and province where the school is located, the upgraded vocational schools are mainly in the eastern region, followed by the central and western regions. Shandong Province is the highland, followed by Jiangxi, Guangdong, Sichuan, Shaanxi and other provinces. Other provinces currently have one undergraduate vocational college in its region, such as Quanzhou Vocational and Technical University in Fujian Province and Henan Vocational University of Science and Technology. Although limited in number, the schools are still strong. In terms of the nature of schools, among the 27 undergraduate vocational schools, five are public colleges and 22 are private colleges. The implementation paths of the 27 colleges were different, 22 of which were upgraded from higher vocational institutions, one was transformed from an independent college (Jingdezhen Art Vocational University), and four are undergraduate vocational institutions merged and transformed from public higher vocational colleges and independent colleges (Shanxi Engineering Science and Technology Vocational University, Hebei Engineering Vocational and Technical University, Hebei Science and Technology Engineering Vocational and Technical University, Hebei Petroleum Vocational and Technical University). Among the 22 upgraded colleges, except Nanjing Vocational University of Industry Technology which is a public university, the other 21 are private universities.

b. Aiming to cultivate "high-quality" or "high-level" talents. Some undergraduate vocational colleges position their undergraduate talent cultivation as "high-level vocational technical and skilled talents". Talent cultivation goal at the undergraduate level is "high-level technical and skilled talents who have a solid basic theoretical knowledge of management, economics and marketing, strong abilities in brand marketing, market development, marketing planning and innovation and entrepreneurship, and can engage in market development and marketing management in enterprises related to industry such as manufacturing and information technology". When formulating the talent cultivation goals for the undergraduate level and the junior college level, some colleges set the same goal, which is "technical and skilled talents". Let's take the engineering cost major of a school in Shandong as an example. Its talent cultivation goal at the junior college level is "high-quality technical and skilled talents with good professional quality, humanistic quality and awareness of innovation and entrepreneurship, mastering the basic knowledge and practical operation technology of architectural engineering quota and budget, budget estimate and engineering quantity calculation, having the ability for feasibility analysis and engineering project management of engineering construction projects, and being competent for investment estimation, bidding quotation formulation and review", while its talent cultivation goal at the undergraduate level is "high-quality technical and skilled talents who understand technology and economy and are good at operation and management". There are some differences in specific training contents, but the ultimate goals of talent cultivation are the same.

c. *Information manufacturing majors are highlighted in the school program.* According to the *Catalog of Vocational Education Majors (2021)*, the majors of undergraduate vocational schools are mainly electronic information and equipment manufacturing, followed by finance and trade, literature and art, and further followed by transportation and civil architecture. From the perspective of disciplines, this catalog includes 12 vocational education disciplines, including resources, environment and safety, civil construction, equipment manufacturing, biochemical industry, food, medicine and food, transportation, electronics and information, medicine and health, finance and trade, culture and art, news communication, education and sports. From the perspective of majors, there are 97 major categories of vocational education, including surveying and mapping geographic information, oil and gas, architectural design, civil construction, construction engineering management, machinery and equipment manufacturing, automation, automobile manufacturing, chemical technology, medicines and medical devices, road transport, water transport, urban rail transit signal and control technology, electronic information, computer, communication, nursing, finance, financial accounting, economy and trade, business administration, e-commerce, logistics, art design, performing arts, press and publication, radio, film and television, education, language and sports. From the perspective of the number of majors, there are 59 majors involved, including two in the major category of resources, environment and safety, four in the major category of civil construction, nine in the major category of equipment manufacturing, one in the major category of biochemical industry, one in the major category of food, medicine and food, five in the major category of transportation, 11 in the major category of electronics and information, three in the major category of medicine and health, seven in the major category of finance and trade, seven in the major category of culture and art, four in the major category of news communication and five in the major category of education and sports.

d. *The proportion of teachers with post-graduate qualification and the proportion of full-time double-qualified teachers are mostly between 25% and 45%.* The requirements for teachers in the *Management Measures for the Establishment of Undergraduate-level Vocational Education Programs (for Trial Implementation)* are as follows: "The teacher-student ratio of the whole university shall be no less than 1:18, the ratio of the full-time major-related teachers to the number of full-time students of the major shall be no less than 1:20 and the proportion of the full-time teachers with senior titles shall be no less than 30%. The proportion of the full-time teachers with a postgraduate degree shall be no less than 50%. Among the full-time teachers of a major, "dual-qualified" teachers shall account for no less than 50%.

According to the published data, the student-teacher ratios of the 20 schools are concentrated at 15:1-17:1, with sufficient number of teachers. From the perspective of the ratio of full-time teachers to teachers with senior titles, all schools have reached the basic standard, but the ratio of full-time dual-qualified teachers does not match the ratio of teachers with senior titles. Of the 21 schools with published data, only eight schools have a ratio of 50% of full-time dual-qualified teachers which meets the government's requirements, accounting for 38.1% of the total, with three of them reaching 80% or more, accounting for 14.29%, of the remaining 13 schools, nine have a ratio of 40-50%, accounting for 42.86%(see in Table 1), and four have a ratio of about 30%, accounting for 19.05%. In terms of the proportion of part-time employment in enterprises, three of the seven schools with published data reach 25%, or 42.86%, while the rest do not meet the basic standard of 25%.

Table 1. The overall ratio of "dual-qualified" teachers rate of undergraduate vocational education schools

Ratio of "dual-qualified" teachers(%)	N	Overall ratio(%)
> 80	3	14.29
50-80	5	23.81
40-50	9	42.86
30-40	4	19.05

Description: "N" stands for the number of schools in the sample

2. *Orientation of development: What are the students trained for?* The goals, requirements, specific orientation and key issues of talent cultivation are the fundamental problems of "who are trained" for China's undergraduate vocational education. At present, no unified understanding of the essence of vocational education has been reached in China's academic circles (Kuang & Li, 2021), but on the whole, most scholars chose to define the concept of undergraduate vocational education from two directions: "pursuing undergraduate level" and "highlighting vocational type" (Zhuang, 2021). Or they adhere to the hierarchical classification of undergraduate vocational education on the basis of "dual track system" and emphasize the element of "new technology", highlight the two characteristics of new technology application and research and development (Wu, 2021), and distinguish it from ordinary undergraduate, applied undergraduate and junior vocational colleges. Therefore, undergraduate vocational education mainly focuses on training high-level professional and technical talents, setting up applied majors serving regional economic development (Xu, 2021), and exploring new academic system of vocational education (Li, 2021).

Although the specific expressions for the goals of the pilot vocational education vary from place to place in China, they mainly focus on three aspects: talent cultivation, social service and the construction of a modern vocational education system. As for talent cultivation, Jiangsu emphasizes improving the role of vocational education to promote students' all-round development; Liaoning clearly focuses on improving the quality of applied talent cultivation; Zhejiang proposes to expand the training of high-level technical and skilled talents; and Sichuan requires strengthening the cultivation of compound talents with technical skills. As for social services, it mainly faces the economic transformation and upgrading and the adjustment of industry structure, explores the integrated development of vocational education with economy and society, and enhances the ability to serve economic and social development. As for the construction of a modern vocational education system, it is mainly to build an overpass for talent growth and speed up the construction. In fact, the discussions on the orientation of undergraduate vocational education are mainly divided into two perspectives: level orientation and type orientation, which are presented through talent cultivation goals and service functions. Talent cultivation is the core function of educational institutions, and the difference in talent cultivation orientation is the fundamental judgment basis for distinguishing different types and levels of educational institutions. In terms of level orientation, "high quality" and "high level" have become common expressions for talent cultivation in undergraduate vocational education. In terms of type orientation, the basic characteristics of the compound technical and skilled talents of undergraduate vocational education include a strong theoretical foundation, innovative spirit and practical ability. Meanwhile, after upgrading, junior vocational colleges should adhere to the type characteristics of technical and skilled talents training and avoid the drift of academic orientation.

3. *Talent training: How are students trained?* The construction of talent cultivation system of undergraduate vocational education is to solve the fundamental problem of "how students are trained" or "in which way students are trained". Carrying out undergraduate vocational education is a key measure to enhance the adaptability of vocational education in the new development stage, which is in line with the historical necessity of industrial transformation and upgrading and people's expectation for systematic and high-quality development of vocational education. At the present stage, the most urgent concern of undergraduate vocational education in China is not the quantity and scale. Of course, these problems are also very important for the development of undergraduate vocational education, but we should focus on solving a series of problems of its connotation construction, such as the integration of disciplines and majors, the curriculum construction focusing on both theory and practice, the reconstruction of practice education system, the integration of vocational education system and industry, etc.

First, the integrated construction of disciplines and majors. Discipline construction and major construction are the two cornerstones of a university. It is generally agreed that universities rely on majors to survive and disciplines to seek high level. For a long time, people's dispute over the priority of disciplines and majors is, in the final analysis, how to allocate insufficient resources. In fact, for undergraduate vocational education, discipline construction and major construction are not an A or B option. The way to avoid overlooking one of the two due to competition for resources is

to implement the "integration" of disciplines and majors. The basic ideas are as follows: As for major construction, undergraduate vocational education pursues demand orientation while strengthening superior majors, transforming traditional majors and developing new majors. As for discipline construction, undergraduate vocational education focuses on technology development, welcomes the forefront of technology, and emphasizes applied research, without repeating the development process of traditional disciplines. As for project construction, undergraduate vocational education should avoid the separated construction of key disciplines and first-class majors, pay attention to overall thinking, and realize connected support and benign interaction through teacher sharing and platform sharing. As for teaching organization, undergraduate vocational education should expand the teaching and research section from "single function" to "two functions" of teaching and research. As for the achievement application, undergraduate vocational education should pay attention to two timely transformations: The first is to transform to application in time to promote the development of industry; the second is to transform teaching in time and update teaching content, and change "training tomorrow's talents with yesterday's technology" into "training today's talents with tomorrow's technology".

Second, the curriculum construction that integrates theory and practice. With the dual attributes, the curricula of undergraduate vocational education highlight "higher" and "vocational" at the same time. The two most important problems in the construction of curriculum system are the reform of curriculum organization mode and the construction of curriculum connection system. The curriculum organization mode of undergraduate vocational education should break the subject curriculum orientation, take the practical knowledge required by post tasks as the curriculum content, organize the curriculum with the action logic of work practice, pay equal attention to theory and practice, combine academics with application, and highlight the professionalism of vocational education as a type attribute. In addition, its curriculum should be connected with the curriculum system of secondary and higher vocational colleges, and its curriculum content should be based on the occupational competency of secondary and higher vocational education, so as to improve and broaden students' occupational competency. Compared with junior vocational education, its curriculum system construction should highlight the basic theory of practical knowledge and the comprehensiveness and innovation of interdisciplinary courses, so as to highlight the nature of higher education in undergraduate vocational education.

Third, the reshaping of the practice education system. The particularity of talent cultivation in undergraduate vocational education determines the uniqueness of its practice orientation. In the process of developing practice education, we should pay attention to the following aspects: First, we should emphasize the systematization of practical training. We should not only pay attention to students' acquisition of complex emerging technologies and the in-depth mastery of theoretical knowledge, but also strengthen their systematic mastery of technologies with different difficulties and structures in technical groups, and their systematic acquisition of knowledge with different levels and structures in professional fields. We mainly emphasize the systematic formation of mastered knowledge and ability, the systematic understanding of knowledge and technology structure involved in professional fields and the systematic thinking of solving problems. Only by grasping the regular connection between various knowledge and technologies can students get a deeper understanding and improve their forward-looking thinking, comprehensive thinking and transferable ability to solve problems in practice. Secondly, we should pay attention to the integration of practical content. Practice education combines theoretical knowledge with practicality, practical situational knowledge and specific practical method knowledge, follows the logic of work system, and points to the complexity of work and technology. Undergraduate vocational education should conform to the trend of comprehensive development of modern industry, and cultivate students' professional core competence, practical application ability, learning ability for new technology and creative problem-solving ability through comprehensive practical training based on working process orientation. Thirdly, undergraduate vocational education should attach importance to the innovation of practical application, which not only emphasizes learners' flexible application and inherited application of complex technologies, but also emphasizes learners' creative application based on theoretical research and practical inquiry. We encourage learners to absorb new knowledge, new technologies and new methods, communicate and integrate with learners in other majors and fields, be rich in theoretical mind and practical wisdom, creatively respond to the changing new situations and solve new problems, so as to further enhance the training specifications of high-level technical and skilled talents in undergraduate vocational education.

Undergraduate vocational education should pay attention to the integration of vocational education system and industry. The talent cultivation of undergraduate vocational education is ultimately oriented to industry and enterprises. From the perspective of the latest demand of industrial development, the state should promote undergraduate vocational education to focus on advanced manufacturing, modern agriculture, modern information technology, new energy, new materials, artificial intelligence and digital manufacturing and to carry out professional transformation and upgrading for some traditional manufacturing industries such as architectural engineering, textile manufacturing, chemical medicine, iron and steel metallurgy. This determines that in terms of majors (groups), theoretical systems and practical

systems, undergraduate vocational education must form a development pattern with the construction of majors (groups) as the core and the theoretical systems and practical systems as the auxiliary, so as to enhance the industry adaptability and service ability of the talent cultivation.

4. *Faculty development: Who trains the students?* The talents trained by undergraduate vocational education are high-level technical and skilled talents, and a team of teachers with excellent quality is the key guarantee for the smooth implementation of the talent cultivation model of undergraduate vocational education. Since the 18th National Congress of the Communist Party of China, the state has successively issued documents such as *Opinions on Comprehensively Deepening the Reform of Faculty Development in the New Era* and *Action Plan for Revitalizing Teacher Education (2018-2022)*, which clearly put forward the implementation of the Action Plan for Revitalizing Teacher Education, taking the structural reform of the supply side of teacher education as the driving force and strengthening faculty development from the source, which pointed out the development direction and planned the action path for the training of undergraduate vocational teachers. In January 2021, the General Office of the Ministry of Education issued the *Administrative Measures for Setting up Majors of Undergraduate Vocational Education Level (Trial)*, which put forward the requirement that "the ratio of 'double-qualified' teachers to full-time teachers shall not be less than 50%" for the faculty development necessary for setting up undergraduate vocational majors. The key to education lies in teachers. Constructing the standards for teachers of undergraduate vocational education and building a group of high-quality "double-qualified" teachers are the inevitable choice for the benign development of vocational colleges and also the inevitable requirement for undergraduate vocational colleges to improve their teaching quality.

The characteristics of undergraduate vocational education determine the "four changes" of teachers: First, teachers' ability changes from "theoretical type" to "double-qualified type". Second, the role of teachers changes from "starring" to "directing". Action learning in vocational education determines the ineffectiveness of knowledge infusion. Only by changing teachers' roles and making students change from "passive acceptance" to "active exploration" can the training quality be improved. Third, teaching mode changes from "self-employed" to "team-oriented". "Modular" curriculum, "project-based" carrier and "collaborative" cultivation mean that the "self-employed" teaching mode has the past, and team-based and collaborative teaching will surely become the mainstream. Fourth, the teaching team changes from "ladder" to "lattice". The teaching team is composed of teacher entrepreneurs (teaching reform designers, knowledge brokers), school teachers, industry experts, learning instructors, personality education consultants, effect evaluators, etc., who perform their respective duties and give full play to their specialties to adapt to the teaching reform and improve the training quality (Deng & Peng, 2017). "Dual-qualified" teachers training is a systematic project. The advancement of vocational education to undergraduate level means that it is urgent to improve the quality and excellence of discipline construction. Only by cultivating "dual-qualified" teachers and teaching teams in a planned and batch way can the smooth transition from "qualification of a single department" to "qualification of the whole school" be realized. On this basis, first of all, we should introduce talents reasonably and optimize the structures and levels of teachers. Secondly, we should scientifically evaluate talents and stimulate the vitality of faculty. Finally, we should try every means to keep talents and effectively stabilize the faculty.

3. Future Development of China's Undergraduate Vocational Education

As a new form of higher vocational education, undergraduate vocational education is the key to enhancing the image and international influence of Chinese vocational education. Since China is different from other countries and regions in terms of social conditions, cultural traditions and educational systems, and undergraduate vocational education should also take different paths, strategies and methods in its development. To learn from the experience of undergraduate vocational education in various countries and regions, on the one hand, we should borrow daringly. Any practice that conforms to the law of vocational education and helps to cultivate high-quality and high-end applied talents can be used. On the other hand, we should proceed from China's national conditions and adapt to the needs of China's social and economic development to selectively absorb and optimize with characteristics. Therefore, we should take a correct perspective at the problems in the development of undergraduate vocational education in China, learn from the international advanced experience, base ourselves on the educational reality in China, stick to the local background in China, and actively explore the "Chinese model" of undergraduate vocational education with clear orientation, clear approach and scientific standards (Yang & Zhu, 2022).

1. *Overall plans.* In April 2021, the National Vocational Education Conference creatively put forward the idea and strategy of building a skilled society. A skilled society is not only the key means to build a modern socialist country in an all-around way, but also the actual state of a modern socialist country. It requires the country to attach importance to skills, the society to advocate skills, and everyone to learn and possess skills. Therefore, the most critical link in the process of building a skilled society is whether the skilled talent cultivation system is complete. At present, China has the largest vocational education system. However, the main results of national education statistics in 2021 show that the number of undergraduate vocational colleges accounts for only 2.11% of that of higher vocational institutions, the

number of students accounts for only 0.81%, and the number of students enrolled is only as low as about 0.74%, which shows that only a very small number of students can receive complete and coherent academic vocational education. In order to solve the shortage of high-level skilled talents, the State Council issued the *Opinions on Promoting the High-quality Development of Modern Vocational Education*, which clearly pointed out that by 2025, the enrollment of undergraduate vocational education will not be less than 10% of the enrollment of higher vocational education. It can be predicted that China's undergraduate vocational education will achieve rapid development in a short time. Therefore, on the basis of the present situation of undergraduate vocational education in China, we must fully absorb the advanced experience from abroad and explore the "Chinese model" of undergraduate vocational education.

China's undergraduate vocational education needs to follow the "Chinese model" of "dual tracks in parallel and conditional integration". Vocational education and general education should be in two development tracks. The vocational education track should be vertically connected, including secondary vocational schools, higher vocational colleges (junior colleges), higher vocational colleges (undergraduate college) and vocational postgraduate education. The track of vocational education and the track of general education can be There should be two-direction flows between vocational education and general education, which requires typed transformation rather than hierarchical elimination.

First of all, China's undergraduate vocational education is based on academic education. At present, the underlying logic behind the type reform of China's vocational education is to serve the skilled society, and the key step is to break the value concept of diploma worship in China and let technology be the main basis for talent evaluation. It is impossible and infeasible to fundamentally change China's diploma system, but we can learn from the experience of developed countries, especially the Japanese experience, and gradually enhance people's recognition of highly skilled talents by linking vocational education with higher diplomas recognized by people. That is to say, China's undergraduate vocational education should not only focus on diploma education, but also be organized by high-level colleges.

Secondly, China's undergraduate vocational education must focus on majors, rather than simply setting up vocational (technical) colleges. According to the international experience, it has become a consensus that vocational education and general education should develop on dual tracks. Therefore, it is an indisputable development trend that China's undergraduate vocational education is classified as higher vocational education, and higher vocational education and general higher education go hand in hand on dual tracks. However, at present, China's undergraduate vocational education mainly exists in vocational (technical) universities and some high-level junior colleges in the form of undergraduate majors. This is different from Germany, where "dual-system" courses exist in universities of applied science and technology. This is mainly because there is no institutional basis of "dual system" in China. If undergraduate vocational majors are set up in application-oriented universities, we may encounter the problems encountered by British polytechnic colleges, and finally undergraduate vocational education will lose its basic DNA attribute due to "academic drift". Therefore, China's undergraduate vocational education must be held by colleges with vocational education sequence, while China's postgraduate vocational education in the future can also be piloted in high-level vocational (technical) colleges with major as the starting point, and finally establish a complete academic system of vocational education.

Finally, China's undergraduate vocational education and general education should be horizontally connected, but they must be conditionally transformed through the national qualification framework. Influenced by the "Y" educational system for a long time, China's secondary vocational schools are mainly employment-oriented while the enrollment targets of higher vocational institutions are mainly students of ordinary college entrance examination. Such educational channels gradually label vocational education as "failed education". Therefore, the vocational education system and the general education system should maintain a certain degree of independence. Undergraduate vocational education should mainly recruit students from vocational schools. If ordinary high school graduates want to apply for vocational (technical) universities, it is suggested that they study in vocational colleges for 1-2 semesters, or study corresponding courses and complete the transfer of learning outcomes according to the national qualification framework. Similarly, undergraduate vocational education can also be transferred to application-oriented universities for further study through the transfer of corresponding learning outcomes.

2. Development strategy. High-quality development is the key word of China's economic and social development, the fundamental requirement and goal of higher vocational education reform, and the theme of vocational technology universities. Undergraduate vocational education should be based on the new development stage, implement the new development concept, serve the new development pattern, and plan the "novelty" at the undergraduate level (Liu, 2021).

a. Standardization of school education. The formulation of educational standards is the responsibility of the government, especially the educational administrative departments. Strict quality management led by standard construction is the inherent requirement for the sound development of undergraduate vocational education and the common experience of

foreign vocational education (Lu, 2019). *The National Vocational Education Reform Implementation Plan* clearly points out: "We should take standardization construction as a breakthrough to lead the development of vocational education and improve the vocational education system". At present, undergraduate vocational education is still in the pilot and exploration stage, but its large-scale development and rapid advancement are the general trend. At present, the primary solution is to grasp the progress and major development of undergraduate vocational education in pilot colleges in time, comprehensively summarize the effective experience and existing shortcomings of the pilot colleges, gradually promote the pilot and trial of undergraduate vocational education in a wider range, issue a series of national standards related to undergraduate vocational education, and guide the transformation of high-level higher vocational institutions and high-level professional groups (Cui & Long, 2021). Specifically:

The first step to build a standardized school education is to clarify and implement approachable standards for the establishment of undergraduate vocational colleges. The threshold of undergraduate vocational education is the primary criterion to guide colleges to enter the undergraduate level of vocational education. The national education authorities should introduce relevant regulations as soon as possible on the basis of comprehensively drawing lessons from the conditions and standards set by undergraduate vocational education at home and abroad, and select the access condition system. The conditions set should fully reflect the characteristics of vocational education as a type of education, high-level basic conditions, high-quality talent cultivation ability and strong industry support ability. We should break through the fixed thinking of upgrading or transforming only from higher vocational institutions, and face various higher education institutions such as local undergraduate colleges including higher vocational institutions and independent colleges. In addition to meeting the basic setting standards of universities, the standards for undergraduate vocational education should clearly define or guide the hard indicators such as major setting (name), training base conditions, ratio of "dual-qualified" teachers, university-enterprise cooperation resources, talent cultivation quality and technical service ability (such as the number of patents), rather than the indicators of traditional academic research-oriented universities such as professor ratio, doctor ratio and the number of scientific research achievements (Li, 2011).

Following that, teaching standards for each major must be established. Major construction is the focus of undergraduate vocational education, and standards of major teaching are the fundamental guide for undergraduate vocational colleges to set up majors and carry out major construction. Each pilot college should do a good job in summarizing and formulating standards for major development of undergraduate vocational education, and make clear regulations on major names, basic academic system, cultivation goal, employment orientation, occupational competency requirements, main teaching contents, practical training requirements, corresponding occupational posts groups (technical fields), 1 + X certificates, etc., and pay attention to the connection with major teaching standards of secondary vocational schools and higher vocational colleges.

Thirdly, it is equally important to establish standards for talent cultivation. Talent cultivation is the core of undergraduate vocational education. According to the progress and quality of pilot majors, the education authorities should formulate talent cultivation quality standards, talent cultivation scheme standards, knowledge ability and quality standards, double-qualified teachers' ratio standards, graduation requirements, curriculum system and standards as soon as possible, and urge the colleges and universities that have a plan for undergraduate vocational majors to carry out talent cultivation according to the standards to ensure that the level of talent cultivation meets the requirements of industry. Focusing on the standard of talent cultivation, undergraduate vocational colleges should build a new "five-in-one" education ecology in which government, schools, industries and enterprises cooperate. In order to improve the quality of talent cultivation, undergraduate vocational colleges must build a new "five-in-one" education ecology based on the improvement of four external guarantee systems, including major setting and high-level major group construction, high-quality curriculum system, new "three educational" system construction, comprehensive occupational quality training and talent cultivation quality evaluation, etc. (Wang, 2022).

In addition, standards for quality evaluation is essential. The reform of classified evaluation is the institutional basis to promote the characteristic development of undergraduate vocational colleges. For the evaluation of the characteristic development of undergraduate vocational colleges, we can't completely transplant the evaluation framework of ordinary undergraduate universities or higher vocational colleges and junior vocational colleges, nor can we adopt a one-size-fits-all evaluation for all schools. Instead, we should develop personalized evaluation indicators for characteristic development based on standard school evaluation indicators. According to the requirements of "earnestly promoting the classified evaluation of universities and guiding different types of universities to develop their characteristics and level" put forward in the *Overall Plan for Deepening the Reform of Education evaluation in the New Era*, we should formulate the classified evaluation systems for undergraduate vocational colleges in line with their characteristic development law. First of all, we should establish the people-oriented evaluation concept and attach importance to school self-evaluation. Traditional evaluation system for higher vocational education has a strong

administrative color, focusing on external evaluation and appraisal evaluation, taking school development as the basis, and lacking attention to teacher-student development and teaching quality. Since the results of external evaluation directly affect the allocation of funds and educational resources for undergraduate vocational colleges, in order to obtain better evaluation results, many undergraduate vocational colleges have to invest a lot of manpower, financial resources and material resources to cope with the inspection, even at the expense of breaking the normal operation order of schools. Self-assessment reports are often separated from objective facts, and the evaluation process is a mere formality, deviating from the purpose of promoting reform through evaluation. To develop undergraduate vocational education in the new period, we should take lessons from the past during the construction of evaluation system for education quality and establish the people-oriented evaluation concept. In evaluation, we should not only pay attention to the development of teachers and students, teachers' professional quality and students' comprehensive quality, but also pay attention to school's self-evaluation, increase the weight of self-evaluation in the whole evaluation system, and focus on the practical difficulties and development needs faced by schools. Secondly, we should improve the multi-evaluation mechanism and promote the third-party evaluation. The undergraduate vocational colleges should take the establishment and improvement of diversified evaluation mechanisms as an important direction for the construction of quality evaluation, combine it with deepening industry-education integration and university-enterprise cooperation, and encourage and guide industry organizations and enterprises to participate in the evaluation of education quality. It is necessary to speed up the establishment of a third-party evaluation mechanism for vocational education, study and formulate the qualification certification standards for evaluation of higher vocational education, expand the ways and scope for scientific research institutions, professional societies, foundations and other social organizations to participate in the evaluation of education quality, and promote the marketization, socialization and diversified development of the quality evaluation of undergraduate vocational education. Finally, we should improve the evaluation indicator system and make good use of the evaluation results of education quality. The evaluation indicators of education quality of undergraduate vocational colleges should be formulated according to the principles of science, comprehensiveness, rigor and practicality, which should cover both result and process evaluation indicators. In terms of the indicator design, we can set up the first-level, second-level and third-level indicators according to the path from the whole to the local, and evaluate them in different categories. After the evaluation is completed, we should make good use of the evaluation results. The undergraduate vocational colleges should formulate a systematic quality improvement plan according to the evaluation report, and the education administrative departments, industry organizations, enterprises and third-party evaluation institutions can supervise the implementation according to the plan formulated by the school, so as to promote the undergraduate vocational schools to continuously improve their education quality and school-running level.

Finally, school leaders should aim to develop brand-based schools. From the top-level design level, the state has successively issued a number of policy documents to guide undergraduate vocational colleges, such as *Standards for Setting Undergraduate Vocational Schools (Trial)* and *Administrative Measures for Setting Undergraduate Vocational Majors (Trial)*, etc. The follow-up relevant policy documents are constantly emerging, providing a relatively complete policy support system for the standardized governance of undergraduate vocational college. However, the development of undergraduate vocational colleges can't rely on the promulgation of national policies documents; nor can they take the standards as all the development goals of undergraduate vocational colleges. On the basis of completing the goals, they should give full play to their initiative and creativity, boldly explore and innovate, and form the characteristic paradigm of undergraduate vocational education. This requires undergraduate vocational colleges to promote bottom-level innovation under the guidance of national top-level design, and plan a characteristic development road for schools based on reality.

b. *Differential development.* The pilot projects and implementation of undergraduate vocational education must highlight the characteristic development concept. In the process of pilot development, the state has also fully considered the types of colleges, regional distribution, major differentiation and development ability of each college. For example, it supports Shandong to pilot undergraduate vocational education in double high schools, Gansu to transform the transformed pilot undergraduate colleges into universities of applied sciences, Shanxi to reform the vocational higher education system and pilot vocational and technical normal colleges, and establish a junior-college, undergraduate, master and doctoral vocational teacher training system. In the exploration of undergraduate vocational education, these pilot colleges should creatively construct majors with characteristics and highlights. The future development of undergraduate vocational colleges should also adhere to this concept and take the road of characteristic development.

Firstly, it is essential to characterize the school orientation. When selecting undergraduate vocational education colleges, the state must fully consider the characteristics of schools, and comprehensively evaluate and assess whether colleges have service support ability according to the needs of the national strategy and the development of key industries. At the same time, in the process of development, it is necessary to strengthen the characteristic development ability in school orientation and goals, improve the fit between main majors and major groups and the industry chain, and prevent the blind expansion of majors and the shift in orientation.

Secondly, the pattern of talent cultivation needs to be diversified. The reform of talent cultivation mode is the core of the connotation construction of undergraduate vocational education. University-enterprise cooperation and work-study combination are the key to the reform of talent cultivation mode of undergraduate vocational education. At the stage of undergraduate vocational education, the talent cultivation mode can't stay at the simple university-enterprise cooperation level; instead, it needs to adapt to the needs of training higher-level innovative technical and skilled talents, and transform and upgrade to a deeper school-enterprise integration. University-enterprise integration includes three connotations: First, at the school level, university-enterprise cooperation changes to university-enterprise integration, and university-enterprise "dual subjects" changes to "integration". Second, at the training level, work-study combination changes to work-study integration, which is no longer a simple combination of study and work but a combination of study and work with more emphasis on work process-oriented learning. Third, at the practice level, on-the-job internship changes to post work, with more emphasis on the "integration" of post practice, graduation design and employment. In order to realize the transformation and upgrading of talent cultivation mode from university-enterprise cooperation to integration, in addition to integration in five levels, namely cultivation goals, specifications, contents, process and evaluation, the key to the integration is to ensure that university-enterprise cooperation can be integrated into the whole process of school governance, department running, major construction, talent cultivation and social service through the innovation of system and mechanism, and build an ecological system of university-enterprise integrated education.

Further, the talent cultivation system is to be characterized. In the talent cultivation system, curriculum is the core element, which regulates what to teach and learn and guides students to constantly construct their own individual experiences. Therefore, the characteristics of the talent cultivation system in undergraduate vocational colleges depend on the construction of characteristic courses. On the basis of characteristic curriculum development, the key elements of talent cultivation, such as teachers, teaching materials and teaching methods, have also been reformed. At the same time, because undergraduate vocational education is both vocational and higher level, the talent cultivation focuses on acquisition of technical theoretical knowledge, training of technical creativity and training of research practical ability, etc., while the curriculum design focuses on technical traction, product carrier, integration of theory and practice, and competency basis (Yang, 2022).

Also, school leaders should diversify the characteristic culture of vocational colleges. Undergraduate vocational colleges should select cultural carriers and typical artifacts which are closely related to the spiritual life of teachers and students and can awaken their consciousness as citizens, professionals and students from the school's regional culture, historical tradition and professional characteristics, and comprehensively design and condense them into characteristic school cultural signs and projects (Liu & Chen, 2021), which are integrated into the campus software and hardware facilities and the construction of the first and second classrooms, so as to realize the role of characteristic school culture in permeating the campus, touching teachers and students and cultivating temperament.

c. *Standardized governance*. At present, the operation mode and law of undergraduate vocational education are still in the exploratory period. The state should plan ahead, gradually sort out the governance mode of undergraduate vocational colleges under the framework of modernization of educational governance system and governance capacity, deepen the reform of internal and external management system, and improve the governance of undergraduate vocational schools, so as to promote the effective operation of various management elements, realize the optimal allocation of resources and maximize the synergy of governance subjects.

The primary mission is to strengthen the school direction and implement the fundamental task of cultivating people with virtue and integrity. Undergraduate vocational education must strengthen the socialist direction, focus on the fundamental problem of "who to train, how to train and for whom to train", deepen the top-level design of talent cultivation, deepen the "simultaneous development in five areas", namely morality, intelligence, physique, beauty and labor, and build an talent cultivation system integrating value shaping, knowledge transfer and ability training. Undergraduate vocational education should give full play to the role of the Party Committee of the school in the overall situation and coordination of all parties, and improve the system of the leading groups of the school and the secondary units with the basic level. We should give full play to the role of teacher party branch secretaries as dual leaders, and let them cultivate and drive both Party building and academic ability. We should establish an inner-party supervision system with overall supervision by the Party Committee, special supervision by the Commission for Discipline Inspection, functional supervision by the Party's working departments, daily supervision by the Party's grass-root organizations and democratic supervision by Party members.

Also, future improvement can include refining the governance mechanism and promoting governance norms. Improving the internal and external governance system of government, schools, enterprises, third parties and other subjects as well as the governance ability of modern undergraduate vocational colleges are the organizational basis for ensuring the characteristic development of undergraduate vocational colleges. In this system, the government should do a good job in

the overall planning and service support for the characteristic development of undergraduate vocational colleges, combine the local characteristic industry layout with the unique advantages of economic and social development, and convene experts from schools, enterprises and industries to provide targeted guidance for the school orientation and major group layout of regional undergraduate vocational colleges, help undergraduate vocational colleges establish the phased goals of characteristic development, improve their layout of characteristic major groups, customize personalized talent cultivation schemes, provide sufficient personnel and financial support for the characteristic development of undergraduate vocational colleges, and fulfill the responsibility of school supervision through supervision and inspection. At the same time, undergraduate vocational colleges should base themselves on the needs of characteristic development, revise and improve the School Charter in line with the actual situation of the school, open channels for stakeholders such as industry enterprises to participate in school governance according to rules and regulations, strengthen the construction of school organizations such as professors' committee, academic committee and teachers' congress, and deepen the reform of the management system at the levels of the school and secondary colleges. Around the construction of characteristic major groups, we should adjust the implementation measures and supporting implementation rules for management at the school and secondary college levels, straighten out the relationship between rights, responsibilities and interests of characteristic development of the school and secondary college levels, empower secondary colleges in personnel, finance and matters needed for characteristic development, and stimulate the subjectivity and initiative of secondary colleges to participate in characteristic development. On this basis, we should further enhance the governance and operation efficiency of undergraduate vocational colleges, ensure the characteristic development of undergraduate vocational colleges with the operation mechanism with efficient objectives, legal principles and democrat procedures, obtain the best economic and social benefits of characteristic development with reasonable investment of manpower, material resources and financial resources, and maintain the orderly operation and efficiency improvement of school activities corresponding to characteristic development of undergraduate vocational colleges.

Third, education professionals should stick to the type and avoid "academic drift". From the development of higher vocational education in China, we can see that exploration in types has always been a basic logical thread in reform, innovation and development of higher vocational education. Since the birth of "vocational universities", how to avoid becoming "compressed biscuits" of general undergraduate education has always been the basic starting point of the reform and innovation of talent cultivation mode of higher vocational education. The risks of "academic drift" faced by China's undergraduate vocational education in its development mainly include policy drift, student drift, teacher drift, curriculum drift and school drift as a whole. Therefore, undergraduate vocational education should adhere to the orientation of type education, and put the idea of "industry-education integration, university-enterprise cooperation, work-study combination, unity of knowledge and practice" for vocational education into the whole process of running a school. In the practice, we should first take the establishment of type standards as the cornerstone, and standardize some key elements according to the growth law of high-quality knowledge-based and compound technical and skilled talents, such as professional teaching standards, curriculum standards, practice training standards, faculty development standards, etc. Meanwhile, we should construct the mechanism for division of responsibilities and rights and the implementation of the development of the national-local-school three-level undergraduate vocational education standard system, and lead the type development of undergraduate vocational education with standardization construction. In teacher recruitment, we should take the type development of teachers as the soul, and mainly introduce teachers from enterprises. We should also pay attention to the cultivation of teachers' practical teaching ability and the introduction of part-time teachers. We need to build a "double-qualified" teacher training base and enterprise practice base for school-enterprise cooperation, and create a group of professional and structured high-level dual-qualified teaching innovation teams. In the faculty management, we should improve the post setting and title evaluation system according to the characteristics of undergraduate vocational education. In research management, we should pay special attention to the improvement of teachers' research and development ability for applied technology and social service ability. In addition to embodying the characteristics of type education in the development of standards and the construction of teaching staff, we should also learn from the experience of higher vocational institutions in type exploration in the aspects of major construction and university-enterprise cooperation (Wang, 2020).

In conclusion, China's vocational undergraduate education has gone through the development and evolution from "*no more upgrading*" to "*pilot upgrading*", from upgrading outside the system to upgrading within the system, and from external transformation to internal growth. The development and evolution has been in the process of dynamic adjustment. In this process, vocational undergraduate education schools accepted the policy leadership, relied on the regional characteristics, sought assistance from professionals, established several disciplines based on the possessed resources, showing a high degree of mobility. However, the quality of the faculty and the construction of the talent cultivation system is yet to be further improved. In the future, the undergraduate vocational education should focus on giving full play to its own advantages, adhere to its own position, and create high-level vocational colleges with standardized management, development characteristics and standardized governance.

In the new journey to realize China's second Centenary Goal, the steady development of undergraduate vocational education is a historical necessity to promote the reform of education supply side and to conform to the trend of world education development and human modernization. It is also a strategic choice for scientific and technological revolution, economic transformation, social development and big country game. In the new era, vocational education has stood at a new historical starting point and entered an important period of great development, reform and promotion. Undergraduate vocational education is the key link of "a big game and a turnaround" of vocational education, a "special battle" to change the fate of vocational education, a major project to improve the modern vocational education system, and an endogenous driving force for vocational education as a prominent education type (Liu, 2021). With the spirit of reform and innovation and the determination to pursue excellence, China is steadily developing its undergraduate vocational education, improving its talent cultivation system and quality assurance system, promoting its undergraduate vocational education to make a good start, and further highlighting the irreplaceable role of vocational education in the education system and economic development.

Notes

Note 1. In December, 1978, the Third Plenary Session of the Eleventh CPC Central Committee created an unprecedented opportunity for the development of vocational education in China. In 1980, in order to solve the problem that the shortage of higher education resources could not adapt to economic development, the first batch of 13 vocational universities, including Jinling Vocational University, were established. During this period, Tongji University and other undergraduate universities began to train teachers of vocational education and pilot the four-year undergraduate talent cultivation of applied technology. At this stage, the legal status of China's vocational education system has been established, but it was basically limited to the junior college level, and there was no exploration at the undergraduate level in a strict sense.

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