

Research on Vocational Education Personnel Training Under the Strategic Background of Guangdong-Hong Kong-Macao Greater Bay Area -- Taking Zhaoqing City As an Example

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Abstract: The economic development of the Guangdong-Hong Kong-Macao Greater Bay Area depends on the intellectual and talent support of vocational educators. Based on the analysis results of talent cultivation needs of the Greater Bay Area, on the basis of the strategic planning opportunities of the Greater Bay Area and the successful experience of vocational education at home and abroad, combined with the basic conditions of Zhaoqing city, this paper puts forward the strategy of building a vocational education talent base in Zhaoqing City, and puts forward the concrete realization path and safeguard measures such as encouraging enterprises to run universities.

Keywords: Guangdong-Hong Kong-Macao Greater Bay Area; vocational education; personnel training

1. Introduction

1.1. Opportunities for Vocational Education Personnel Training and Development in Zhaoqing City Based on the Strategic Background of Guangdong-Hong Kong-Macao Greater Bay Area

In February 2019, The State Council of China issued and implemented the Outline of the Development Plan for the Guangdong-Hong Kong-Macao Greater Bay Area. By rearranging and planning the existing economically developed areas in China, the construction of the Guangdong-Hong Kong-Macao Greater Bay Area will further revitalize the driving force of economic development in the Guangdong-Hong Kong-Macao region and effectively promote the coordinated development of resources. The Guangdong-Hong Kong-Macao Greater Bay Area covers Hong Kong, Macao and the cities of Guangzhou, Shenzhen, Zhuhai, Foshan, Huizhou, Dongguan, Zhongshan, Jiangmen and Zhaoqing in Guangdong Province, covering a total area of 56,000 square kilometers, which exceeds the combined area of the three bay areas of New York, San Francisco and Tokyo. By the end of 2021, the Guangdong-Hong Kong-Macao Greater Bay Area had a population of about 86,692,300, accounting for 6 percent of China's total population. It is the most open and economically dynamic region in China. In 2021, the economic aggregate of the Greater Bay Area was about 12.6 trillion yuan, generating 12% of the national economic aggregate with less than 1% of the land area. In 2022, the value is expected to reach 14.76 trillion yuan, surpassing Tokyo Bay Area to become the world's largest economic aggregate [1].

The Guangdong-Hong Kong-Macao Greater Bay Area focuses on the application and transformation of high and new technologies. Through the engine of scientific and technological innovation, regional economy will be driven to achieve rapid development and China's economic strategic layout of rejuvenating the country through science and technology will be completed. For a long time, economic development and promotion cannot be separated from the support of outstanding talents, and as a unit that continuously exports talents to the society, professional colleges and universities bear the great responsibility of revitalizing economic development [2]. In this paper, from the aspects of talent training methods and key contents of vocational education, the reform ideas of teaching mode and the transformation path of training methods of vocational colleges in the construction process of Guangdong-Hong Kong-Macao Greater Bay Area will be discussed, so as to promote the continuous strengthening of technological innovation strength of our city and the development process in the new era with the upgrading of talent strategy.

The development of vocational education based on the perspective of Zhaoqing City, its demand not only comes from the local "small environment", but also is affected by the overall environment of the larger region and even the country. Therefore, the demand analysis of vocational education development from the perspective of Zhaoqing should adhere to the principle of "based on location advantages", analyze internal and external demands, and reveal the three-dimensional relationship and multiple demands among education, people and society [3].

2. Demand for Talent Cultivation in the Context of the Guangdong-Hong Kong-Macao Greater Bay Area Strategy

As the global economic form from industrial economy into the digital economy stage, human resource demand to high-tech and innovative features, the traditional education mode to cultivate talents and the actual demand of the talent market there is a huge deviation, education reform is imperative. It is a general trend to focus on developing vocational education. Zhaoqing City strives to cultivate professional talents and build a talent base, which can provide important skilled human resources support for the construction of Guangdong-Hong Kong-Macao Greater Bay Area, and is an important foundation and necessary condition for the development strategy of Guangdong-Hong Kong-Macao Greater Bay Area. Under the background of Guangdong-Hong Kong-Macao Greater Bay Area, the goal of developing Zhaoqing vocational education is to cultivate new-type technical talents with modern vocational abilities, which should not only meet the requirements of current vocational work, but also adapt to future career development.

In order to fully understand the actual situation of talent demand in the Guangdong-Hong Kong-Macao Greater Bay Area, the research team conducted a survey by issuing questionnaires and interviewing to various large, small and medium-sized enterprises in the Bay Area. The questionnaire was issued in Guangzhou, Shenzhen, Dongguan, Zhongshan, Zhuhai, Zhaoqing and other cities. The enterprises involved mainly included state-owned Huafa Group, listed enterprises Gree Group, Lizon Pharmaceutical, Taiwan-funded enterprises Guangsheng Sports Equipment Co., LTD., science and technology enterprises Xiaopeng Automobile Co., LTD., and micro-startups in Vipshop South China Warehouse and Zhaoqing University Innovation and Entrepreneurship Park. The questionnaire was mainly filled out online and distributed on site. In the process of investigation, various ways were adopted to eliminate the adverse effects and improve the reliability and validity of the questionnaire. The objects of filling in are mainly human resource department directors, production department directors or persons in charge of small companies. The directors are invited to fill in the form voluntarily and anonymously and give thanks as gifts. Among them, 300 paper questionnaires were issued, 31 were found invalid after examination. After removing invalid questionnaires, 269 effective questionnaires were actually collected, with an effective rate of 89.67%. Multiple choice questions, ranking questions, scoring questions and freelance questions were set to assess the vocational competency needs of Greater Bay Area enterprises. Of the respondents, 70 percent are small and medium-sized private companies with 100 to 300 employees, 10 percent are foreign companies and the remaining 20 percent are large listed companies. 62% of the people who fill in the questionnaire are human resources-related positions or other middle and senior management positions of the company. They have a better understanding of the actual requirements of

professional ability than ordinary employees and know what kind of talents the company needs for development.

According to the questionnaire analysis, the top three talents in the Greater Bay Area are scientific and technological innovation talents (33.20%), cross-border e-commerce talents (26.1%) and AI (artificial intelligence) related industry talents (16.8%). The needs of other talents are listed in order: hotel management talents, modern logistics talents, tourism industry talents, engineering and technology talents, cross-cultural communication talents and minority language talents, etc. It can be seen that the talent demand of enterprises in the Greater Bay Area has distinct high-tech characteristics. Large enterprises, small and medium-sized enterprises, listed companies and start-up companies all have a great demand for new composite talents such as technological innovation and advanced manufacturing.

Combined with the current economic development of cities in the Guangdong-Hong Kong-Macao Greater Bay Area, we can see that this distinctive talent demand comes from the regional characteristics of high-tech enterprises concentrated in the Greater Bay Area. Based on this talent demand, Zhaoqing City should build a base for the cultivation of professional talents in the Greater Bay Area, which should be targeted to train professional talents, meet the job needs of enterprises in the Bay Area and adapt to the development needs of enterprises in the Bay Area. In recent years, the "order-type" talent cultivation mode is just a new talent cultivation mode which has been verified by some countries and regions.

3. The Theory and Practice of "Order-Type" Talent Cultivation Mode

3.1. The Development of "Order-Type" Talent Cultivation Mode in Foreign Countries

The "order-type" talent training mode originated from the cooperative education mode of the United States, which was formed in the 1950s. Cooperative education is a teaching method that combines classroom teaching with practical operation. Schools and enterprises participate in the training process of students. In the American co-op model, students take classes in school for a period of time, then work in a company for a period of time, and so on until graduation. At present, there are more than 1,000 colleges and universities running various kinds of cooperative education programs in the United States, and more than 50,000 companies have participated in the cooperation. The cooperative education model of the United States plays a great role in promoting the economic and educational development of the United States, and also provides a reference for the educational development of other countries [4].

Germany's "dual" education system means that schools must provide two learning institutions: an academic learning institution and a vocational training place. There is a cooperative agreement between the two learning institutions on the content and the common teaching goals. In 2004, the German Ministry of Education announced that vocational university qualifications were the same as regular university undergraduate qualifications. In the decade since, the number of vocational college students has more than doubled, while the number of participating companies has nearly tripled. Germany's "dual system" teaching model has trained a large number of engineers who strive for excellence, making "Made in Germany" a name card and providing huge talent support for the rapid development of German industry.

3.2. The Development Status of "Order-Type" Talent Cultivation Mode in China

In China, vocational education has been moving towards school-enterprise cooperation for several decades, but the order-type talent training mode is still a relatively new form of school-enterprise cooperation. It is an educational system in which schools and industries cooperate in the field of education, teaching and research, that is, students participate in the working practice of enterprises during their study at school. A search of "ordnance training mode" and "doctoral papers" by CNKI showed that there were only 43 master's papers and no doctoral papers, and the rest were journal papers. Thus it can be seen that the order-type talent training model is still in the primary stage of research in the domestic theoretical circle. The main points of relevant researches in the past decade are as follows: In terms of the advantages of order cultivation, Zhang Xiangyun (2013) believes that order cultivation has five advantages: (1) it avoids blindness in talent cultivation; (2) The resources of the university and the enterprise are optimized; (3) It provides guarantee for the teaching, practical training

and double teacher training of the school; (4) to meet the talent needs of enterprises; (5) Design conducive to students' study and career [5]. Sun Xiaojing (2010) believes that order training fully reflects the concept of higher vocational education under the new situation, conforms to the cognitive law of students, makes full use of teaching resources and improves the utilization rate of experimental and practical training bases [6]. Chen Xuan (2016) believed that the order training mode, for the training side of the school, can ensure that the school has a target in talent training. For the students to be cultivated, they have made clear their own development direction and learning objectives from the beginning, which helps to improve the efficiency of learning. For the employer of the entrusted training party, the allocation efficiency of human resources is improved [7]. In terms of the innovation and practice of the order training mode, Zhou Jiansong (2008), through a comparative analysis of the oriented entrainment training mode, the enterprise-centered mode and the loose order training mode of 2+1, believes that the "culture + order" talent training mode represented by Zhejiang Vocational College of Finance, It can effectively overcome the defects and deficiencies of the above four order-type talent training modes, realize the organic integration of academic education and vocational training, and has certain promotion and reference significance [8]. Wang Guijun (2015) proposed that the "order-based" talent training model, due to the highly targeted training process, leads to the goal bias, the decline of talent quality and the lack of educational ethics [9]. Zhu Chunhui (2009) elaborated the connotation and significance of "order-style" talent training mode, and took the character design major of Chongqing Urban Management Vocational and Technical College as an example to discuss the practice process of "order-style" talent training mode in higher vocational colleges from the perspective of professional construction and teaching organization [10].

3.3. A Case Study of China's "Order-Style" Talent Training Model -- Country Garden Vocational College

Guangdong Country Garden Vocational College is a full-time higher vocational school founded by Country Garden Group in 2014 in Qingyuan Vocational Education City, Guangdong Province. Centering on the industrial development strategy of Country Garden Group, the school has set up specialties such as architecture, engineering, mechanical and electrical, property, hotel, landscape architecture, accounting and computer, which are highly consistent with the industries and positions covered by Country Garden Group. On the one hand, this professional setting mode is conducive to enterprises selecting skilled and experienced technical talents and management elites from employees to teach students and guide students' practical operation; on the other hand, it is conducive to enterprises arranging practical training, internship and employment positions for students, realizing the goal of "entry immediately after admission and employment immediately after graduation" proposed by scholars in charge of management [9]. This model is truly "teacher as coach, student as apprentice". The chairman of Country Garden Group promised, "I will attach importance to the interaction between the school and the enterprise. I will open all the positions of the group to the training of students. At the same time, I will let skilled talents to teach vocational skills in the school." His teaching requirement: "All graduates are qualified for the role of assistant to the general manager of a department of Country Garden Group upon graduation."

Backed by Country Garden Group, the college, which provides free room, board and clothing to students, ranked first in a survey of satisfaction among Chinese universities in 2022. Advanced and complete professional practice base is the characteristic of the college. Teachers from enterprise management positions guarantee the academic and technical characteristics of the university. In the past seven years, the employment rate of Country Garden Vocational College has reached 100% almost every year. The education system of Guangdong Country Garden Vocational College belongs to the typical "order-type" talent training mode, which has opened up a unique road to success of "enterprise-run university" in the field of vocational education.

To sum up, "order-type talent training mode" has developed into an innovative stage in the long-term practice of many colleges and universities at home and abroad, and has been proved to be an advanced vocational education mode conducive to the common development of schools and enterprises and conducive to the combination of work and study.

4. Analysis on the Basic Conditions of Zhaoqing to Build the Vocational Education Talent Training Base

Situated at the edge of Guangdong-Hong Kong-Macao Greater Bay Area, Zhaoqing ranks low in economic development, which restricts the development level of vocational education to a certain extent. The distribution of vocational schools in Zhaoqing is relatively simple, with only 1 higher vocational school, 1 higher technical school and 18 secondary vocational schools. In general, its development level is still far lower than that of neighboring cities. Although the professional matching rate of Zhaoqing's two higher vocational colleges is relatively high, there is still a large employment gap in the human resources market, which is not enough to match the current situation of economic development. At the same time, Zhaoqing occupies the first place in the nine cities of Guangdong-Hong Kong-Macao Greater Bay Area, with very rich natural resources. However, the development of vocational education corresponding to the industry has been stagnant, and the local advantages have not been fully utilized, so the talent training structure is in urgent need of optimization.

We have made a SWOT analysis of Zhaoqing City's basic conditions for developing vocational education and building vocational education talent training base, as shown in Table 1.

Table 1. SWOT analysis of Zhaoqing's vocational education talent training base.

S	W
Large geographical area and rich land resources; Famous historical and cultural city with profound heritage; 3. Rich tourism resources, healthy and livable cities	Poor geographical location on the edge of the Bay Area Mountainous areas are large and their economic development is unbalanced Single vocational colleges with small scale
O	T
National Strategic Opportunities in the Guangdong-Hong Kong-Macao Greater Bay Area Undertake the spillover function of Guangzhou and Shenzhen Great demand for talent in the Bay Area	Significant siphon effect of surrounding cities Traditional development concepts are deeply rooted and vocational education is not paid enough attention to

(1) Zhaoqing City's advantages in developing vocational education personnel training. Firstly, with a total area of 14,891 square kilometers, Zhaoqing is the largest city in the Guangdong-Hong Kong-Macao Greater Bay Area, accounting for 26% of the total area. Among them, the space available for development reaches 1725 square kilometers, which has enough land resources for Zhaoqing City to support the development of vocational education, establish or expand more vocational schools, and drive the development of local economy. Zhaoqing City has rich cultural heritage. It is the birthplace of Lingnan culture and Guangfu culture, as well as the intersection of Western culture and Chinese civilization. More than 430 years ago, Matteo Ricci, a European missionary, landed in Zhaoqing City and spread Catholicism in the mainland. Zhaoqing City is rich in natural resources and has the country's first nature reserve -- Dinghu Mountain. Because of its fresh air and beautiful scenery, it is a suitable back garden for living and working in the Greater Bay Area. With the emphasis on health and environmental protection today, the natural conditions of Zhaoqing City have a unique attraction for the introduction of high-end talents. Such unique natural and historical conditions are suitable for the development of education.

(2) The disadvantage of Zhaoqing in developing vocational education personnel training. First of all, the geographical location of Zhaoqing city is poor, located in the edge of the Greater Bay Area, far away from the economic and political center, often ignored; Due to the distribution of more mountains within Zhaoqing City, economic development is backward, the development of the city is extremely unbalanced. The lag of economic development restricts the development level of vocational education to a certain extent. The scale of vocational colleges is small, the quality of education is not high, the majors of the colleges are relatively traditional and single, the follow-up development is weak, and it is in urgent need of transformation breakthrough.

(3) Zhaoqing City to develop vocational education talent training opportunities. Since 2018, with the gradual implementation of the national strategy of building the Guangdong-Hong Kong-Macao Greater Bay Area, Zhaoqing City is facing a rare historical development opportunity and a good opportunity for transformation. Close to the mega city, Zhaoqing can undertake the spillover industries of Guangzhou, Shenzhen, Foshan and Dongguan. Vocational education is the foundation of building a modern city. To build a vocational education talent base in the Greater Bay Area is a new opportunity and a new task given to Zhaoqing by history. The Guangdong-Hong Kong-Macao Greater Bay Area has a large population base, a large number of enterprises, traditional manufacturing and service industries as well as a complete high-tech industrial chain. There is a huge gap in human capital demand, and a large number of talents at all levels are urgently needed to support the construction of the Bay Area. This has prepared a broad job market for Zhaoqing to develop vocational education.

(4) The threatening factors of developing vocational education talent training in Zhaoqing City. The development of vocational education in Zhaoqing City is influenced by the strong siphon effect of surrounding developed cities, which is a challenge. Both enterprises and talents tend to flow to big cities, while small cities are prone to hollowing out. The advanced manufacturing industry in the Greater Bay Area is concentrated in Shenzhen, Dongguan, Foshan and other cities around Zhaoqing City. The local enterprises in Zhaoqing City are mainly traditional and extensive small and medium-sized enterprises, which develop slowly. For a long time, Zhaoqing has been positioned as a tourist city, downplaying the industrial development, resulting in it missing the key period of industrial construction. In the past decades, Zhaoqing has failed to develop into a national popular tourist city because of its lack of tourism resources. Deep-rooted traditional development thinking has influenced the economic development and urban planning of Zhaoqing city, but also restricts the development scale and level of vocational education in Zhaoqing city.

To sum up, although Zhaoqing City faces difficulties and obstacles in developing vocational education, it also meets the historical opportunity of national construction of the Greater Bay Area. It is an important opportunity given to Zhaoqing City by history to provide suitable talents for the Greater Bay Area and build a vocational education talent base.

5. Problems Existing in Zhaoqing City to Build Guangdong-Hong Kong-Macao Greater Bay Area Vocational Education Talent Training Base

5.1. There Is a Gap Between the Development of Vocational Personnel Training and That of Other Cities in the Greater Bay Area

Based on the analysis of the regional distribution characteristics of vocational education in the Greater Bay Area, there are obvious differences in the distribution of talents and educational levels among cities. The government and relevant departments generally have strong autonomy and pertinency in talent introduction and independent training, and the actual results are relatively ideal. However, the coordination among cities in the Bay Area is weak. That is, municipal governments only formulate management measures and development strategies for higher vocational colleges and personnel training within their jurisdiction, but lack a comprehensive and overall plan for the Greater Bay Area. This has brought certain obstacles to the coordinated development and quality improvement of talent introduction and training in the Greater Bay Area. Compared with the developed cities and regions in the region, Zhaoqing ranks behind in total economic development, and the development of vocational education is also relatively backward. Table 2 shows the vocational education development gap between Zhaoqing City and Guangzhou City and Foshan City in 2022.

Table 2. A brief table of the scale of vocational education in Guangfo Zhaozhao Mountains.

Area	Higher Vocational College			Secondary Vocational College		
	Number of schools	student at school	Proportion (%)	Number of schools	student at school	Proportion (%)
the Greater Bay	44	312000	-	234	58.8	-
Canton	23	167300	53.6	51	9.68	16.5
Foshan city	4	32500	10.4	48	8.84	15.1
ZhaoQing city	2	20600	2.8	18	5.83	9.9

5.2. *The Setting of Majors Is Not Reasonable, and the Matching Degree Between Majors and Industries Is Low*

Different from the traditional higher education, vocational education pays more attention to the cultivation of professional skills to ensure the output of high-quality, practical labor force to the society. In order to gain enough competitive advantages in talent training, vocational colleges take measures to increase the source of students and mass education, and set up popular majors with a high employment rate in the current or the past few years. However, the number of newly created jobs in the human resource market is limited every year, and the demand for talents is shifting to the direction of intelligence and science and technology, resulting in deviations between the employment of graduates and the market demand. In 2021, finance and commerce will be the major of secondary vocational schools in Guangdong Province, among which e-commerce majors will have the largest number of locations, and preschool education and e-commerce majors will have the largest number of students. According to the statistics in 2022, Zhaoqing vocational colleges still focus on traditional majors such as finance and commerce, electronic information, civil architecture, medicine and preschool education. There are almost no majors in intelligent manufacturing, big data and science and technology, which is inconsistent with the needs of enterprises in Zhaoqing and talents in Guangdong-Hong Kong-Macao Greater Bay Area. Due to the prominent phenomenon of repeated construction of majors, economic management and other majors set too many points, resulting in a low employment rate, employment quality is not high, reflecting the characteristics of vocational education specialty set unscientific.

5.3. *The Proportion of Technical Talents and Economic and Trade Talents Is Unbalanced*

The geographical location and regional environment of the Guangdong-Hong Kong-Macao Greater Bay Area determine that its reserves of economic and trade talents are more abundant than other areas in China. It takes a relatively long process for technical talents to promote regional economic development through scientific and technological strength. This indirect source of economic growth has no advantages over commercial activities that directly promote economic development. The proportion of economic and trade talents in Guangdong-Hong Kong-Macao Greater Bay Area is higher than that of technical talents, which leads to the lack of a relatively ideal development environment for technical vocational education. Therefore, to expand the scale of the introduction and training of technical talents is the key to the strategic development of talents in the Greater Bay Area.

5.4. *Lack of System, Enterprises Lack of Channels to Participate in Vocational Education*

At present, Guangdong Provincial high schools are actively promoting the integration of production and education, collaborative education. In 2021, the number of enterprises participating in the integration of industry and education is nearly 20,000, and the number of industry-education cooperation majors is about 2,000. More and more enterprises are participating in vocational education by jointly formulating talent training programs, jointly recruiting and enrolling students, jointly training teachers, jointly developing teaching resources, jointly carrying out teaching activities, and jointly building quality assurance systems for talent training. Although the number of participating enterprises is increasing, the initiative and enthusiasm of enterprises to participate in the

integration of industry and education are not enough due to the lack of policy support, the lack of coordination and guarantee platform of school-enterprise cooperation, and they fail to give full play to the main role of enterprises in vocational education.

6. Zhaoqing City to Build Vocational Education Personnel Training Base of the Main Implementation Path

(1) Strengthen the system guarantee, give play to the main role of enterprises in the development of vocational education.

Establish system mechanism, give full play to state-owned enterprises in Zhaoqing vocational education development process of the main role. In the investigation of Zhuhai Huafa Group, it is found that whenever Zhuhai city has a new plan and idea for urban development, Huafa Group is the first one to explore the road and realize the dream for the government. The rapid development of Zhuhai Special Zone in the past 40 years has perfectly explained the courage and wisdom of Huafa Group to fulfill its social responsibility and demonstrate its responsibility as a state-owned enterprise. Similarly, in Zhaoqing City's plan to build the Guangdong-Hong Kong-Macao Greater Bay Area vocational education talent cultivation base, it is also necessary to give play to the leading role of state-owned enterprises, take the policy as the guidance and the system as the guarantee, set the main role of enterprises as the system, and take school-enterprise cooperation and the integration of industry and education as the long-term task to consolidate the responsibility. Zhaoqing City can combine the development experience of Zhuhai City with the experience of Country Garden in running a university, creatively give play to the leading role of state-owned enterprises in school-enterprise cooperation and vocational education development, and lead Zhaoqing City vocational education development out of a road of innovative development.

(2) Build a platform to promote the integration of industry and education between Zhaoqing City and Hong Kong, Guangzhou, Shenzhen and other big cities.

Zhaoqing is building a vocational education city to become an important higher education base in Guangdong. With the industrial upgrading, the demand for skilled talents is increasing. Zhaoqing city should give full play to the advantages of vocational schools. It can not only form its own rare advantages to attract related industries to Zhaoqing City, but also transport a large number of skilled talents to Guangzhou, Shenzhen, Foshan and other places to support industrial development. Therefore, in the direction of talent training, it is necessary to combine the common industrial needs of Zhaoqing City and the core cities of the Greater Bay Area, and train targeted skilled talents.

(3) Enterprises are encouraged to set up universities and develop "order-type" personnel training through multiple channels.

In recent years, Zhaoqing constantly introduces a number of high-tech enterprises, enterprise development is in urgent need of a large number of high-tech talents. Zhaoqing secondary vocational schools and higher vocational colleges can directly carry out cooperative education with the newly introduced science and technology enterprises and train talents according to the actual needs of enterprises. There are many small and medium-sized enterprises in Zhaoqing city, which can learn from the jewelry town model of Panyu District, Guangzhou, and keep close contact with higher vocational colleges on talent training with industry associations as the leading. It can also rely on the local industrial clusters to establish close production-education integration with higher vocational colleges. For example, Zhaoqing auto parts industrial base and local colleges have in-depth talent training cooperation, the establishment of multilevel industrial base and training base, convenient for students to do in the middle school, learning to do. The education mode of Guangdong Country Garden Vocational College has brought a successful example for the development of vocational education in China. This new education mode with enterprises as the main body not only guarantees the combination of academic and practical teaching structure, but also meets the employment needs of college students. The tuition and accommodation fee free mode also effectively solves the problem of poor students going to college. Embodies the strong sense of social responsibility of the enterprise.

(4) We will strengthen the construction of teachers who integrate industry and education, and establish a

disciplinary and professional system suited to industrial transformation.

Teachers are the key to success in teaching. In the process of promoting the reform of talents training with the integration of production and education, we should strengthen the construction of teachers with the integration of production and education, create teachers with dual skills, integrate the cultivation of craftsman spirit into basic education, and promote the development of collaborative education with production and education. Vocational school teachers is different from ordinary high school or university teachers' requirement, should not only possess professional knowledge, and have strong ability of practice guidance. According to the characteristics of vocational education, each specialty has formed a teacher team consisting of professional leaders, young and middle-aged backbone teachers and enterprise engineers with front-line practical experience. Under the order-type talent training mode of enterprises running universities, professional teachers introduced from other schools have more opportunities to improve their practical skills by participating in the production, service and management of enterprises. And from the enterprise internal selection of professional and technical personnel and management personnel can through the teaching skill training to improve their teaching ability and teaching practice. Such teacher resource integration and system optimization can ensure the combination of students' classroom theoretical learning and enterprise practice, and fully realize the connection between school and enterprise and the integration of production and education [11].

(5) To help build an application-oriented higher education base and improve the comprehensive education level of Zhaoqing.

To build a pattern of deeply integrated development of education and industry, it is necessary to simultaneously plan the integration of industry and education with economic and social development, and coordinate the layout of vocational education and regional development, so as to truly implement the integrated development of vocational education and local industry. The improvement of vocational education level depends on the drive of the good development level of higher education in the region. Only when the overall level of education is improved, can we have more power to develop vocational education. Zhaoqing has 8 colleges and universities with undergraduate degrees, 97,000 students and more than 5,300 teaching and administrative staff. Zhaoqing covers a total area of 3.58 million square meters, the total construction area of school buildings is 2.06 million square meters, and the total value of fixed assets is 4.4 billion yuan. Both in terms of the scale of school running and the number of university students, it ranks among the top in the province, and has initially formed the Guangdong-Hong Kong-Macao Greater Bay Area applied higher education base. Higher vocational school education is an important part of applied higher education. We should vigorously develop vocational education to help Zhaoqing City build an applied higher education base in the Greater Bay Area, and provide talent and intellectual support for the development of scientific and technological innovation in the Guangdong-Hong Kong-Macao Greater Bay Area.

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References

- 1 Wu L, et al. Research on International Training of Advanced Manufacturing Talents in Vocational Colleges in the Guangdong-Hong Kong-Macao Greater Bay Area Under the Background of "Internet + Mass Entrepreneurship and Innovation". *China Equipment Engineering* 2022; **(21)**: 82–85.
- 2 Huang B. Training High-Quality Engineering Talents for the Manufacturing Industry of Guangdong-Hong Kong-Macao Greater Bay Area. *Essays on Modern Education* 2019; **(1)**: 4.
- 3 Xie D, Wang Y. Coordinated Development of Vocational Education in Guangdong-Hong Kong-Macao Greater Bay Area: Realistic Basis, Major Difficulties and Future Prospects. *Education and Careers* 2022; **(20)**: 8.
- 4 Luo B. Application Research of Secondary Vocational Order-Type Talent Training Mode Based on Enterprise Perspective -- Taking LED Lighting Industry Technician Training As an Example Zhejiang Finance. Master's Thesis, Guangdong Teachers College of Technology, Guangzhou, China, December 2018.
- 5 Zhang X. Construction of Benign Operation Mechanism of Order-Type Talent Training Mode in Higher Vocational Colleges. *Academic Forum* 2013; **(02)**: 227–231+235.
- 6 Sun X, Liu D. A Probe Into the Talent Training Mode of "Order Training, Combining Work With Study" in Higher Vocational Colleges. *Vocational Education Forum* 2010; **(005)**: 63–64.
- 7 Chen X. A Review of Research on Order-Type Talent Training Model in Higher Vocational Colleges. *Times Agricultural Machinery* 2016; **(011)**: 111–113.
- 8 Zhou J, Xie F. Common Ecology of Industry, Alumni and Group: Innovation of Education Model in Higher Vocational Colleges. *China University Teaching* 2008; **(2)**: 3.
- 9 Wang G. Model Exploration of Free Enterprise University -- A Case Study of Guangdong Country Garden Vocational College. *Human Resource Development in China* 2014; **(24)**: 5.
- 10 Zhu C. Practice and Exploration of "Order-Type" Talent Training Mode in Higher Vocational Colleges. *Education and Career* 2009; **(17)**: 2.
- 11 Xu J, He W. Innovative Research on Governance Mechanism of Integration of Industry and Education in Vocational Education in Guangdong-Hong Kong-Macao Greater Bay Area. *Higher Engineering Education Research* 2022; **(3)**: 6.

