

Internationalization Oriented Cooperation and Development of Higher Vocational Education in Guangdong-Hong Kong-Macao Greater Bay Area

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Abstract: Higher vocational education is an important field to promote higher education cooperation in Guangdong, Hong Kong and Macao Greater Bay Area. Guangdong, Hong Kong and Macao can give full play to their respective vocational education advantages and characteristic resources, get rid of all constraints on the development of education cooperation, establish a collaborative education mechanism for higher vocational education, and create an international vocational education demonstration area. On the one hand, Guangdong, Hong Kong and Macao have the same needs and cooperation motivation in the field of internationalization oriented higher vocational education. On the other hand, there are objective obstacles such as the cooperation policy and framework system needs to be improved, the integration of education ecology is difficult, and the dilemma of educational cooperation needs to be effectively solved. In order to speed up the cooperation and development of international higher vocational education in Guangdong, Hong Kong and Macao, this study puts forward three measures and suggestions: first, establish a platform mechanism for collaborative education and linkage development of higher vocational education, improve and refine cooperation policies, and accelerate the pace of policy implementation. Second, conduct in-depth research on talent demand in key industries, and clarify the fields and framework of higher vocational education cooperation. Third, pilot projects should be carried out first, seek common ground while reserving differences, encourage multiple social forces to participate in cooperation, and promote the ecological integration of vocational education. The above measures are aimed at accelerating the construction of International Vocational Education Demonstration Zone in Greater Bay Area and promoting the sustainable development of higher vocational education cooperation in Greater Bay Area.

1. Introduction

In 2020, the Ministry of Education and the People's Government of Guangdong Province jointly issued "Plan for Promoting the Cooperation and Development of Higher Education in Guangdong-

Hong Kong-Macao Greater Bay Area". It clearly proposes to build the Guangdong-Hong Kong-Macao Great Bay Area into a national pilot area for deepening the reform of higher education system and mechanism, an important hub for international cooperation in education services along the "the Belt and Road", and a vivid model for the comprehensive cooperation and development of education between the mainland and Hong Kong and Macao, so as to build a world-class higher education system and an international education demonstration zone. [1] The higher education cooperation in the Greater Bay Area has a resource basis, a practical basis and an institutional basis. In the future, the higher education in Guangdong, Hong Kong and Macao should promote collaborative, integrated and strategic cooperation. [2] Higher education in Guangdong, Hong Kong and Macao is complementary and regional. With a broader international vision and a longer-term strategic development perspective, it is of great significance to promote the cooperation and development of higher vocational education and the construction of Guangdong-Hong Kong-Macao Greater Bay Area and Guangdong as a strong province in education.

2. Literature Review

Jane knight, an internationally renowned education expert, believed that the internationalization of colleges and universities is a way for countries to cope with the impact of globalization on the basis of respecting their own personality of higher education. [3] Schneider of the University of Cincinnati in the United States took the lead in establishing cooperative education, opening a multilateral cooperation model among American colleges, enterprises and governments. [4] Senker discussed the basis and motivation of cooperation in the field of education and believed that universities should seek more financial support and resources to carry out multilateral cooperation. [5]

Chinese scholars generally believe that it is necessary to vigorously promote the development of higher education cooperation in Guangdong-Hong Kong-Macao Greater Bay Area. Lu Xiaozhong and Zhuo Zelin (2020) thinks that the bay area is a multi-dimensional and three-dimensional concept with both natural and social significance. It compares and analyzes the formation and development of higher education in the San Francisco Bay Area and Guangdong-Hong Kong-Macao Greater Bay Area, and believes that the two bay areas have different development characteristics. It puts forward that in the coordination of the relationship between the government, the market and the university, it is necessary to focus on the autonomy of the university. [6] Chen Wei and Zheng Wen (2019) believes that in the education cooperation in Guangdong-Hong Kong-Macao Great Bay Area, it is necessary to coordinate the choice between short-term goals and long-term goals, give consideration to the two tasks of system construction and local breakthrough, make a choice between one-way input and two-way complementarity, single power model and multiple joint force model of education exchange and cooperation, and also find out the catch-up benchmark and reference object for the construction of Guangdong-Hong Kong-Macao Great Bay Area, and adhere to the use of cross-border research methods to explore the educational cooperation in the Great Bay Area. [7] Chen Xianzhe and Chen Xueqin (2019) believed that the higher education cluster in Guangdong-Hong Kong-Macao Greater Bay Area should give play to the combined advantages of regional, talent training, social services, institutional mechanisms and other elements, and take the road of integration and innovation to meet the challenges. [8] Xie Ailie et al (2019) believed that the current situation of the development and cooperation of higher education in Guangdong-Hong Kong-Macao Greater Bay Area had laid a realistic foundation for the integrated development of higher education. In order to promote the future integrated development of higher education in Guangdong Hong Kong Macao Greater Bay, they put forward suggestions on further strengthening top-level design, carrying out system innovation, promoting the synergy between higher education and industry, and improving the level of internationalization [9]. An Dongping (2019) believes that international experience is the only way

for the international development of vocational education in Guangdong, Hong Kong and Macao, and proposes a path to build a precise development system of vocational education in Guangdong-Hong Kong-Macao Greater Bay Area based on the international classic vocational education teaching model. [10]

To sum up, it is realistic and feasible to promote the cooperation and development of Higher Vocational Education in Guangdong, Hong Kong and Macao, and it is also an important historical opportunity. Based on the cooperative development of Vocational Education in Guangdong, Hong Kong and Macao, exporting excellent vocational education standards can set an example for the international development of China's higher vocational education.

3. Analysis on the Necessity of Higher Vocational Education Cooperation in Guangdong, Hong Kong, Macao and the Demand for International Development

Higher vocational education is an important branch of education to cultivate talents in front-line industries. Higher vocational education can directly participate in the regional industrial layout and development, and radiate to the surrounding areas through the regional economic network. [11] Therefore, the development of higher vocational education should not only be based on the local, but also look at the overall situation. The Pearl River Delta region has gathered more than 80% of the high-quality vocational colleges in Guangdong Province, and is separated from Hong Kong and Macao. There is a high degree of convergence in history, culture, social customs and languages among the three places of Guangdong, Hong Kong and Macao (hereinafter referred to as GHM Greater Bay Area). The people of the three places have a strong sense of social and psychological identity, close exchanges and frequent talent flows. This is an important background for the in-depth cooperation and exchange of higher vocational education among the three places. The necessity of higher vocational education cooperation and the demand for international development in GHM Greater Bay Area are shown in Figure 1.

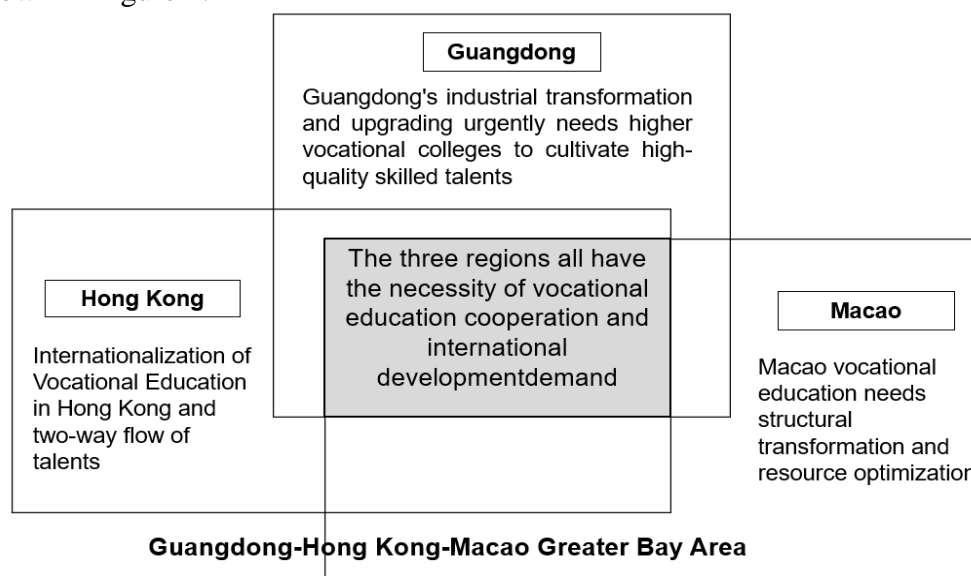


Figure 1: The necessity of higher vocational education cooperation and the demand for international development.

3.1. Guangdong Higher Vocational Education Needs to Accelerate International Development

3.1.1 Guangdong Urgently Needs a Large Number of High-Quality Skilled Talents for Industrial Transformation and Upgrading

At this stage, accelerating the training of high-quality skilled talents with international concept, global vision and cross-border cooperation spirit is a new requirement of Guangdong industrial transformation and upgrading for higher vocational colleges. The quality and scale of training high-quality skilled talents not only reflect the objectives and structure of higher vocational education, but also affect the speed and efficiency of industrial development. Over the past 40 years of reform and opening up, Guangdong Province has taken the lead in establishing an open economic system by giving full play to its regional advantages. In recent years, Guangdong Province has made continuous progress in promoting industrial transformation and upgrading, accelerating industrial cost reduction and efficiency increase, increasing the proportion of service industry, and promoting the cultivation of new business forms, which has played an exemplary role in the country. However, there is still a structural contradiction between talent quality and industrial transformation in the cultivation of skilled talents in Guangdong Province. On the one hand, the talent cultivation type of Higher Vocational Colleges in Guangdong Province is still not well matched with the current "new engineering" development strategy. It is urgent to cultivate a large number of skilled, problem-solving and excellent skilled talents with innovative spirit. On the other hand, there are some problems in the industrial transformation and upgrading of Guangdong Province, such as insufficient R & D investment, low production efficiency and low degree of product internationalization, which require a large number of high-quality skilled talents with a global vision, internationalization concept and cross-border cooperation spirit.

3.1.2. Requirements of Guangdong Province for Building a Strong Province of Higher Vocational Education

In 2019, the number of undergraduate and junior college students in Guangdong Province was 2.054 million, and the status of a major education province has been established. By the end of 2019, there were 89 independent higher vocational colleges in Guangdong, with 89 240000 people, mainly concentrated in the Pearl River Delta, which is highly consistent with the regional economic and industrial clusters of Guangdong Province. Among the 89 higher vocational colleges in Guangdong Province, there are 14 national "double high plan" construction colleges, 11 national demonstration colleges and 29 provincial-level or above demonstration higher vocational colleges. The vertical connection of secondary and higher vocational education, academic education and skill training reflect a variety of levels. However, there is still a gap between Guangdong Province and a strong province of higher vocational education: first, Guangdong characteristics of higher vocational education have not yet taken shape, and it is necessary to make breakthroughs in innovation and development from the aspects of strategy, discipline distribution and connotation construction. Second, the adaptability and communication of high-quality teachers need to be improved. The construction of teachers' team urgently needs to strengthen the relevance and applicability with GHM Greater Bay Area industry, strengthen cross regional exchange and learning, broaden international vision and improve practical ability.

3.2. Internationalization of Vocational Education in Hong Kong and Two-Way Talent Flow Demand

Compared with Guangdong, the vocational education system in Hong Kong has been formed earlier, the system is more perfect, and the level and quality of talent training are relatively high. Hong Kong's vocational education has a high degree of internationalization and a complete internal level connection, which has been widely recognized internationally. As early as 2008, Hong Kong issued the academic and Vocational Qualifications Assessment Ordinance, which is based on ability and establishes a qualification framework from the legislative level, including three aspects: qualification level, qualification name and credits. At present, Hong Kong has formed a seven-level seniority system to support lifelong learning in order to enhance the competitiveness of the globalized economic system. Hong Kong Vocational Education is integrated into the construction of GHM Greater Bay Area, and cooperation with higher vocational colleges in Guangdong Province is strengthened. First, it can realize the employment diversion of vocational education, speed up the flow of Hong Kong's highly skilled talents to GHM Greater Bay Area, and relieve the employment pressure in Hong Kong. Second, Hong Kong's relatively perfect vocational education system and high-quality resources can export diversified, lifelong, personalized, full-time and other vocational education models and experiences for GHM Greater Bay Area. Third, the flow of talents within GHM Greater Bay Area can inject more high-quality skilled talents into the prosperity and development of Hong Kong.

3.3. Macao Vocational Education Needs Structural Transformation and Resource Optimization

Macao's economic structure is relatively simple, mainly gambling and tourism. At present, there are only three formal vocational education institutions in Macao, with relatively few disciplines and low levels of talent cultivation, which can no longer meet the talent needs of Macao's future social transformation and industrial pattern transformation. In 2019, in order to further connect the overall planning of GHM Greater Bay Area, the Macao SAR government prepared the plan of Macao Special Administrative Region participating in the construction of GHM Greater Bay Area, which proposed to promote the employment and Entrepreneurship of Macao Youth in GHM Greater Bay Area, promote scientific and technological innovation, cultural exchanges and cooperation in GHM Greater Bay Area. In this context, Macao's vocational education system needs to improve the professional settings, speed up the cultivation of talents in high-end service industries such as tourism, exhibition, hotel, finance and catering, strengthen cooperation and exchanges with vocational education institutions and higher vocational colleges in Hong Kong and Guangdong, promote the cross regional learning of Macao's youth, and improve the level of talent cultivation.

Through the above analysis, it is not difficult to find that Guangdong, Hong Kong and Macao all have the necessity of vocational education cooperation and international development needs, which are significantly related and complementary, and all have external driving forces from industrial transformation and upgrading, social and economic development, technological development and innovation, etc.

4. The Main Problems to Be Solved in the Cooperation and Development of Higher Vocational Education in GHM Greater Bay Area

The main problems to be solved in the cooperation and development of higher vocational education in GHM Greater Bay Area are shown in Figure 2.

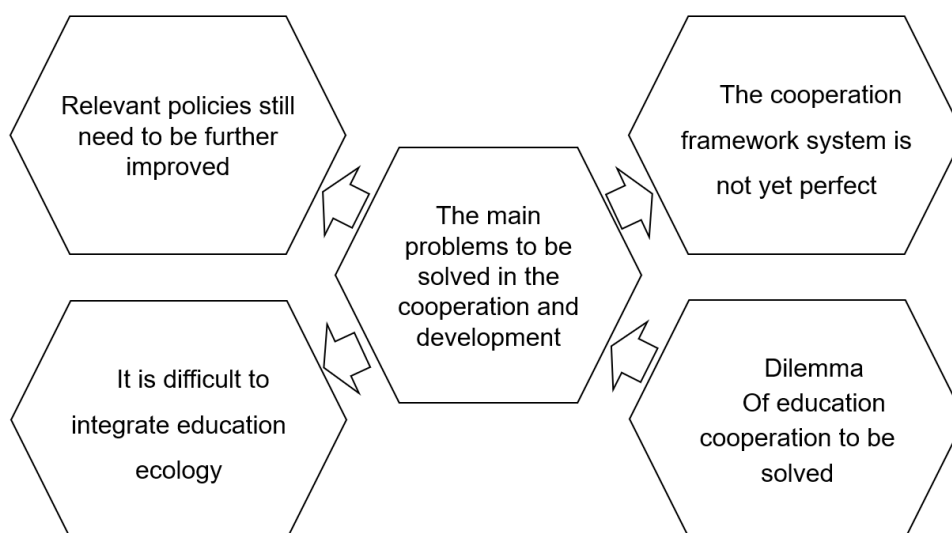


Figure 2: The main problems to be solved in the cooperation and development.

4.1. Relevant Policies Still Need to Be Further Improved

In 2018, Guangdong Province issued the implementation opinions to support the scientific research and education cooperation plan among universities in Guangdong, Hong Kong and Macao, including personnel exchange visits, credit mutual recognition, degree mutual teaching and facility sharing, and co construction and joint research of laboratories, educational framework, teaching standards and teaching materials. However, Guangdong Province has limited policy applicability at its own level. At the implementation level, there is still a lack of cooperation management methods, rules and standards with local and institutional characteristics. Some of the existing cooperation and exchange platforms are mainly spontaneously established by universities in the three places, lacking guidance and guidance at the government level. The form of cooperation is loose, the depth and breadth are very limited, and no effective joint force has been formed. In addition, the cross-border cooperation and exchange of higher vocational education is mainly promoted within the education system, with less participation of other relevant provincial departments. A cross departmental overall planning and management mechanism has not yet been formed, resulting in some link obstacles that cannot be solved.

4.2. The Cooperation Framework System is Not Yet Perfect

Due to the differences in industrial structure, talent demand and vocational education system among Guangdong, Hong Kong and Macao, the integration of vocational education among the three places has not yet formed an overall cooperation framework. The first is that the industrial layout among the three regions, the overall investigation on the direction of industrial transformation, the demand forecast for highly skilled talents, the discipline integration construction and development planning are still in the primary stage, and the pace of integrating higher vocational education into the construction of GHM Greater Bay Area international education demonstration zone is slow. The second is the lack of effective growth mechanisms, such as mutual recognition of academic qualifications, mutual recognition of credits, vocational qualification certification, cooperative school running, joint enrollment, talent exchange, coordinated research on industrial technology, and circulation of scientific research funds.

4.3. It is Difficult to Integrate Education Ecology

Although GHM Greater Bay Area belongs to the Lingnan cultural circle, there are still obvious differences in the educational system, educational philosophy, educational values and educational development level among the three places. Taking Hong Kong vocational education as an example, it has a very high degree of marketization. It is divided into two forms: pre-job education and on-the-job training. The training plan is regularly adjusted according to the needs of social posts. There are many part-time teaching staff. The teaching places are networked and community-based. The curriculum is very meticulous (such as bricklaying, painting and other construction work need special training and assessment). Therefore, the differences in educational ecology have brought about difficulties in communication, coordination, specialty matching and classroom implementation in teaching methods, textbook compilation, credit standards, teaching places, teacher requirements, etc., making cooperation superficial and unable to carry out in-depth.

4.4. Dilemma of Education Cooperation to Be Solved

At this stage, the dilemma of education cooperation in GHM Greater Bay Area is mainly manifested in the dilemma of how to promote collaborative resource transformation on the basis of advantages, how to achieve coordinated practice evolution on the basis of differences, and how to achieve innovative system optimization on the basis of norms. [2] In the next stage, in the process of higher vocational education cooperation between Guangdong, Hong Kong and Macao, the first is to promote the integration of educational resources with new development tasks and promote cooperation and synergy. Second, improve cooperation programs and implementation paths with new development concepts to promote cooperation integration. Third, new development models should be used to drive institutional innovation and promote cooperation innovation.

5. Implementation Path of Internationalization Oriented Higher Vocational Education Cooperation Development in GHM Greater Bay Area

Internationalization oriented implementation path for the cooperative development of higher vocational education in GHM Greater Bay Area are shown in Figure 3.

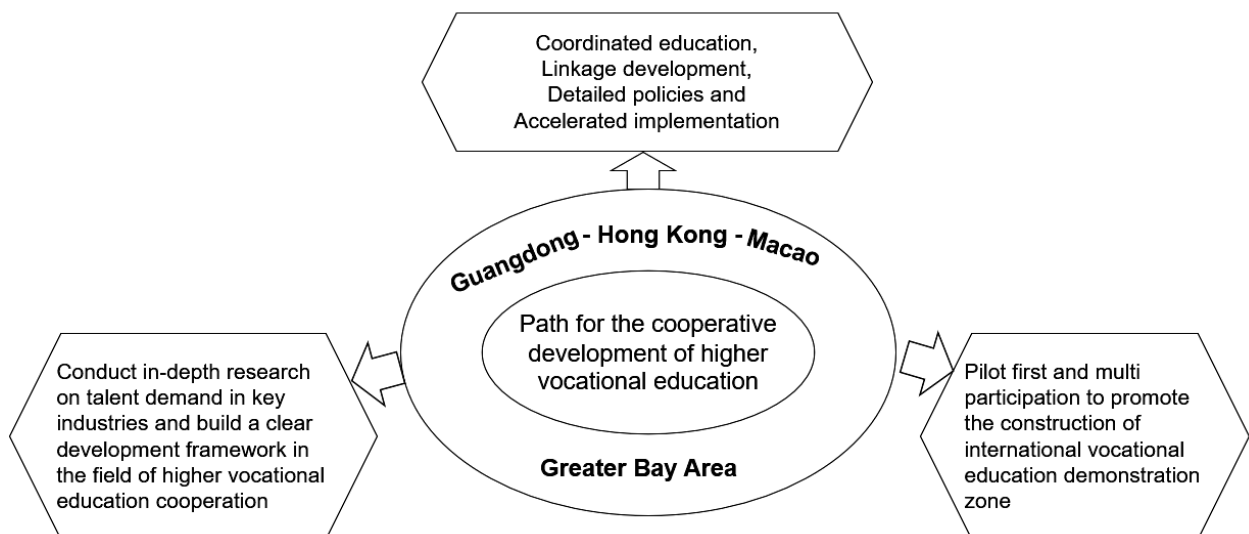


Figure 3: Internationalization oriented implementation path for the cooperative development.

5.1. Coordinated Education, Coordinated Development, Detailed Policies and Accelerated Implementation

5.1.1. Establish a Platform Mechanism for Collaborative Education and Linkage Development of Vocational Education in GHM Greater Bay Area

It is suggested that the relevant national ministries and commissions should take the lead in formulating the top-level plan, and the Guangdong provincial government and the Guangdong Provincial Department of Education should jointly formulate the relevant school running mechanism and school running regulations for the integrated development of higher vocational education in Guangdong, Hong Kong and Macao, establish the mechanism of the three places' vocational education linkage and consultation platform, and set up a management working group or office for the coordinated development of higher vocational education in Guangdong, Hong Kong and Macao to be responsible for the implementation of various policies and plans. Special plans can be set up to focus on solving the obstacles affecting cooperation and exchange, simplifying procedures, and appropriately relaxing the restrictions on the mutual flow of teachers among the three places. Set up special funds to encourage higher vocational colleges and vocational training institutions in the three places to apply for special funds and improve the enthusiasm of these education implementation subjects.

5.1.2. Accelerate Policy Refinement and Promote Policy Implementation

This study suggests that vocational colleges in all regions and at all levels should be guided to formulate cooperation and exchange management measures focusing on promoting the integrated development of higher vocational education in the Greater Bay Area and embodying local characteristics and vocational college characteristics, including joint school running, cross-border enrollment, collaborative talent training, mutual recognition of academic qualifications, mutual recognition of credits, etc., jointly develop talent training standards with international standards, and jointly promote the construction of teachers, teaching materials and curriculum standards, so that the policy can be smoothly implemented and promoted at the implementation level. At the same time, local education authorities and higher vocational colleges should formulate a negative list of cooperation and exchange, plan with the connotation construction of higher vocational colleges and other related work, and implement the combined incentive policy of "Performance Evaluation plus Special Fund Allocation".

5.2. Conduct in-depth Research on Talent Demand in Key Industries and Build a Clear Development Framework in the Field of Higher Vocational Education Cooperation

5.2.1. Focus on the Industrial Development Goals of Guangdong, Hong Kong and Macao, and Define the Key Areas of Cooperation

The main pillar industries of Hong Kong are financial services, tourism, trade logistics and professional services. This export-oriented economy is vulnerable to the impact of the external environment. Hong Kong urgently needs to play a role in the new global division of labor through structural reform and reindustrialization. Due to the small land and large population, the manufacturing industry is no longer suitable for Hong Kong. High value-added industry is the way for Hong Kong in the future. Therefore, the chassis of Hong Kong's economic development is in the mainland, that is, R & D can be put in Hong Kong and manufacturing in the mainland. As an export-oriented micro economy, Macao currently has a relatively single industrial structure. Affected by the COVID-19 pandemic, the number of tourists in Macao has shrunk significantly and the economy has

contracted significantly. Macao urgently needs to enter the domestic economic cycle, including promoting industrial development, making use of the spatial advantages of Hengqin Peninsula to build Macao brands, accelerating the development of modern financial technology industry, developing exhibition tourism, and promoting the large-scale development of high-quality traditional Chinese medicine enterprises. Guangdong, Hong Kong and Macao can learn from each other's strong points to complement each other's weak points. By taking advantage of the characteristics of Guangdong higher vocational colleges, such as complete disciplines, large scale and large amount of talent output, we can define the fields of early cooperation, jointly develop talent training models in advanced manufacturing, marine economy, exhibition tourism, modern service industry, traditional Chinese medicine industry and modern financial industry, promote the construction and sharing of training bases for advantageous majors, and support the mutual recognition of professional qualifications and professional standards among the three places mutual recognition of course credits and skill training requirements, etc., to support the three places to build a high-level vocational education research platform, jointly hold cross-border high-level vocational skills competitions, and jointly cultivate international high-level vocational skills teachers, so as to establish an international vocational education demonstration zone of "Discipline Characteristics plus Industrial Model".

5.2.2. Establish an Interdisciplinary Expert Advisory Committee to Build a Framework for Cooperative Development of Higher Vocational Education

This study proposes to establish an advisory committee composed of experts in higher vocational education, law, regional economy, humanities and social sciences, management and other fields to jointly negotiate the formulation of the cooperation and exchange framework of higher vocational education in Guangdong, Hong Kong and Macao. The cooperation and exchange framework of higher vocational education in Guangdong, Hong Kong and Macao should have a high political position to ensure the effective implementation of the coordination policy of higher vocational education. Its contents should include but not limited to the following areas: (1) Inter school cooperation: cooperation in running schools, joint enrollment, conclusion of sister college relations, and non-academic skills education and training programs for Hong Kong and Macao. (2) Construction of pilot disciplines: discipline co construction, collaborative professional training, etc. (3) Construction of teaching resources: co-construction and sharing of teaching materials, curriculum standards and training bases. (4) Teacher growth: teacher exchange and cross-border learning, joint application for teaching and research projects, joint efforts to overcome technical problems, etc. (5) Student growth: mutual recognition of vocational skill certificates, cross-border training and internship projects, establishment of Guangdong, Hong Kong and Macao youth innovation and entrepreneurship base, implementation of various support policies for mainland entrepreneurship of Hong Kong and Macao youth, and development of youth vocational skill competitions. (6) Basic public services: implement the guidance for Hong Kong and Macao students' internship and employment in the mainland. Broaden the application channels for Hong Kong and Macao Student Awards and grants. (7) Quality assurance: cooperation and exchange of project process control, project implementation supervision, multi-dimensional quality evaluation after project implementation, etc.

5.3. Pilot Projects Should be Carried out First and Diversified Participation Should be Made to Promote the Construction of International Vocational Education Demonstration Zone

5.3.1. Pilot First, Seek Common Ground While Reserving Differences, and Build a Demonstration Base

To build an international higher vocational education demonstration zone, we should first seek common ground while reserving differences, and promote the ecological integration of vocational education in GHM Greater Bay Area. The three regions' vocational education cooperation projects can be carried out first in regions and higher vocational colleges with better conditions through pilot projects. For example, in Shenzhen Qianhai region, the Hong Kong Vocational Training Council was connected to carry out collaborative education in the fields of high-tech and high-end manufacturing. In Zhuhai Hengqin region, the three vocational education schools in Macao were connected to carry out the co construction of modern financial services, exhibition tourism, traditional Chinese medicine industry and other disciplines. In Guangzhou, Nansha vocational education cooperated with Hong Kong and Macao vocational education in running schools and recruiting students. At the same time, some double higher education institutions and demonstration institutions can also take the initiative to connect with Hong Kong and Macao in advantageous disciplines. The successful demonstration base construction experience will be gradually popularized in GHM Greater Bay Area through trial first, experience accumulation and successful samples.

5.3.2. Encourage Multiple Social Forces to Participate

Encourage diverse social forces to join, stimulate the enthusiasm of trade associations, enterprises and social organizations in Guangdong, Hong Kong and Macao, and establish a multi-level, three-dimensional and multi-dimensional cooperation mechanism. First, we should guide industry associations and industry backbone enterprises to unite with high-quality higher vocational colleges to form a cross-border industry education integration alliance facing the urgent needs of the industry in GHM Greater Bay Area, so as to realize real substantive operation. Second, the cross-border industry education integration alliance needs to accept cross-border students for practical training according to a certain proportion of employees. Third, implement incentive policies for industrial enterprises, replace subsidies with awards or allocate per student funds in proportion, and give priority to providing credit and financing support. Fourth, accelerate the transformation of scientific and technological achievements between schools and enterprises, and support the cooperation between schools and enterprises to build an internship and training base.

5.3.3. Participate in the "the Belt and Road" Education Cooperation and Promote the Construction of International Vocational Education Demonstration Zone

First, relying on the distinctive vocational education in Guangdong, Hong Kong and Macao, some overseas students are attracted to study advanced high-end manufacturing, finance, logistics, convention and exhibition, tourism management and other skills in Guangdong, Hong Kong and Macao Bay Area. Second, participate in the "the Belt and Road" education cooperation, accelerate the overseas layout of vocational education, encourage higher vocational colleges to "go global", actively carry out vocational skills training and academic education for countries along the "the Belt and Road", create a brand of Vocational Education in Guangdong, Hong Kong and Macao, and promote the construction of an international vocational education demonstration zone.

6. Concluding Remarks

At present, in the background of the development of higher education cooperation in GHM Greater Bay Area, Guangdong higher vocational colleges should seize important historical opportunities, give full play to the complementary advantages of vocational education resources in GHM Greater Bay Area, strengthen vocational education cooperation and exchanges with Hong Kong and Macao, and actively participate in the construction of the international vocational education demonstration zone in GHM Greater Bay Area. Guangdong, Hong Kong and Macao have the same demand and

motivation for cooperation in the field of internationalization oriented higher vocational education, but also have problems to be improved.

In view of this, this study proposes three measures. First, establish a platform mechanism for collaborative education and linkage development of vocational education in GHM Greater Bay Area, speed up policy refinement and promote policy implementation. The second is to conduct in-depth research on the talent demand of key industries and clarify the field and framework of higher vocational education cooperation. Third, pilot areas and pilot institutions should be the first to guide diversified social forces to join, based on seeking common ground while reserving differences, promote the ecological integration of vocational education in GHM Greater Bay Area, participate in the "the Belt and Road" education cooperation, promote the construction of international vocational education demonstration areas, and provide useful reference for vocational education cooperation and international development in other regions of China.

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