



Research on the Construction of Provincial High-Level Vocational Colleges Under the Background of Guangdong-Hong Kong-Macao Greater Bay Area

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Abstract. In order to thoroughly implement the spirit of the National Vocational Education Conference and fully implement the "National Vocational Education Reform Implementation Plan" and "Opinions on Promoting the High-Quality Development of Modern Vocational Education", Guangdong Province has launched a plan to build provincial high-level vocational colleges. As one of the most active regions in China's economic development, the Guangdong-Hong Kong-Macao Greater Bay Area occupies an important position in the national development strategy. With the advancement of industrial transformation and upgrading and innovation-driven strategies in the region, the demand for high-skilled talents is increasing. This paper aims to explore how to build provincial high-level vocational colleges in the context of the Guangdong-Hong Kong-Macao Greater Bay Area through measures such as optimizing the vocational education structure, strengthening the integration of industry and education, and improving the teaching quality, so as to better serve regional economic development and social progress.

Keywords: Vocational Education; High-level Vocational Colleges; Integration of Industry and Education; All-round Education; Ideological and Political Education in Courses

1 INTRODUCTION

As one of the most open and economically dynamic regions in China, the Guangdong-Hong Kong-Macao Greater Bay Area brings together international metropolises such as Guangzhou, Shenzhen, Hong Kong, and Macao. With its unique geographical location and strong economic foundation, it occupies an important position in the global economy. With the restructuring of the global industrial chain and the intensification of international competition, the Greater Bay Area faces new development opportunities and challenges. The construction of high-level vocational education is particularly important in this context. It is not only the core engine for improving regional innovation capabilities and competitiveness, but also the key to promoting sustainable economic and social development. At the same time, the national and local governments

recognize the important role of vocational education in promoting industrial upgrading and improving the quality of human resources [1].

This article will deeply explore the current status and problems of the construction of higher vocational colleges in the Greater Bay Area. By analyzing the current status and problems of the construction of higher vocational colleges in the Greater Bay Area, drawing on advanced domestic and foreign experiences, it will put forward practical countermeasures and suggestions, in order to promote the high-quality development of vocational education in the Guangdong-Hong Kong-Macao Greater Bay Area and provide strong support for serving regional economic and social development [2].

2 OPPORTUNITIES AND CHALLENGES

2.1 Development Opportunities

(1) Good policy support: The construction of the Guangdong-Hong Kong-Macao Greater Bay Area has provided unprecedented development opportunities for higher vocational colleges. The national and local governments have issued a series of policy documents, such as the "National Vocational Education Reform Implementation Plan" and the "Opinions on Promoting the High-Quality Development of Modern Vocational Education", which provide policy guarantees and financial support for the development of higher vocational colleges [3].

(2) Extensive talent demand: With the upgrading and transformation of the industrial structure of the Guangdong-Hong Kong-Macao Greater Bay Area, the demand for high-quality technical and skilled talents is increasing. As the main battlefield for the cultivation of technical and skilled talents, the graduates of higher vocational colleges have high competitiveness in the employment market.

(3) Convenient inter-school exchanges and cooperation: The exchanges and cooperation between schools in the Guangdong-Hong Kong-Macao Greater Bay Area are becoming more and more frequent, providing higher vocational colleges with more opportunities for learning and reference. At the same time, higher vocational colleges are also actively integrating with the international community, carrying out international cooperation and exchanges, and improving their school management level and international influence [4].

2.2 Challenges

(1) The gap between teaching quality and school management level: Although some higher vocational colleges in the Greater Bay Area have achieved remarkable results in teaching level, many colleges still have deficiencies in teaching quality, faculty, curriculum system, etc. Most colleges need to improve their internationalization, scientific research results transformation, social service capabilities, etc., and cannot fully meet the growing demand for high-end skilled talents in the Greater Bay Area [5].

(2) Insufficient depth and breadth of industry-education integration: Although higher vocational colleges have promoted industry-education integration to a certain extent, the depth and breadth of school-enterprise cooperation are still insufficient. The

cooperation projects of some colleges are relatively scattered, and they have failed to form a systematic and long-term cooperation mechanism, resulting in insufficient feedback from enterprises on the needs of higher vocational college graduates, affecting curriculum design and teaching quality.

(3) Unbalanced policy and financial support: Although the government has increased its investment in vocational education, there is an imbalance in the allocation of resources among cities and colleges in the Guangdong-Hong Kong-Macao Greater Bay Area. Colleges and universities in some economically developed regions receive more funding and policy support, while higher vocational colleges in other regions face a lack of resources, which affects the upgrading of their teaching facilities and the construction of their teaching staff [6].

3 SUGGESTIONS FOR THE CONSTRUCTION OF HIGH-LEVEL VOCATIONAL COLLEGES

3.1 Create High-Level Professional Groups to Serve the National Strategy of the Greater Bay Area

In the process of promoting the construction of high-level vocational colleges, focusing on professional construction and deeply integrating into the pillar industries of the Guangdong-Hong Kong-Macao Greater Bay Area is an important path for higher vocational education to serve the national strategy and promote the high-quality development of the regional economy. As one of the most economically dynamic regions in China, the Greater Bay Area covers multiple pillar industries such as intelligent manufacturing, information technology, and biomedicine. The deep integration of higher vocational colleges with these industries can not only inject new impetus into the regional economy, but also provide a steady stream of high-quality technical and skilled talents for industrial upgrading.

Firstly, high-level vocational colleges should be guided by the economic needs of the Greater Bay Area, closely connect with key industries in the region, and build multi-level and professional high-level professional groups. For example, around the field of intelligent manufacturing, build majors covering robotics, automation systems, precision machinery, etc.; for the information technology industry, focus on building courses and training bases in popular fields such as cloud computing, artificial intelligence, and the Internet of Things. Through the establishment of these professional groups, higher vocational colleges can achieve precise docking between education and industrial development, and provide more adaptable talent support for industrial upgrading.

Secondly, industry research and dynamic adjustment of professional settings are the key to ensuring that the professional construction of higher vocational colleges keeps pace with the times. Higher vocational colleges need to maintain close contact with industry associations, enterprises, and scientific research institutions, and collect the latest industrial development trends, technical needs, and talent needs through regular industrial research, so as to adjust teaching content and talent training programs in a timely manner. For example, with the rapid development of emerging technologies

such as 5G and artificial intelligence, higher vocational colleges can quickly introduce relevant courses to ensure that students can learn the most cutting-edge technical knowledge and have the ability to cope with future industrial challenges. At the same time, by strengthening cooperation with scientific research institutions and innovation platforms in the region, jointly developing new technologies and new processes, promoting the transformation of scientific research results in teaching, combining cutting-edge technical knowledge with practical ability, and further improving students' innovation ability and technical level.

In summary, to promote the construction of high-level higher vocational colleges, it is necessary to focus on professional construction, closely connect with industrial needs, and build a high-level professional group that meets the needs of regional economic development through measures such as deepening the integration of industry and education and strengthening the construction of a "dual-qualified" teaching team. This process will provide strong talent guarantee and intellectual support for the national strategy of the Greater Bay Area, and promote industrial upgrading and the sustainable and healthy development of the regional economy. Through these measures, higher vocational colleges can not only improve their own level of education, but also play a more active role in promoting regional economic development, and achieve a virtuous cycle of win-win cooperation between schools and enterprises, regional development and talent training.

3.2 Focus on Improving the Quality of Education and Hardware Construction

In the process of building a high-level professional group, we will focus on improving the quality of education, focusing on "hardware" construction, and promoting the new infrastructure of vocational education in the new era. It mainly includes the following aspects:

Course Construction. (1) Integration of ideological and political courses with professional courses: On the basis of the "Ideological and Political Courses Teaching Competition", encourage various disciplines to integrate ideological and political elements into the course content, so that ideological and political education can be combined with vocational skills training to form a pattern of all-round education. (2) Optimize course settings based on industrial needs: According to the needs of regional economic and industrial development, dynamically adjust the course content to ensure that the course can cover emerging technologies and industrial development trends in a timely manner, and maintain the foresight and practicality of the course. (3) Combination of project-based teaching and competition: Through project-based teaching, students can learn in real projects and improve their practical ability. At the same time, the results of the competition are applied to the optimization of course content to promote the integration of teaching and actual combat.

Textbook Construction. (1) Cooperate with enterprises to develop textbooks: Combined with the actual needs of enterprises, jointly develop practical textbooks with

leading enterprises to ensure that the content of textbooks keeps up with the development of the industry and adapts to the requirements of new technologies and new processes. (2) Construction of a diversified teaching resource platform: Develop online courses and digital teaching resources, build a teaching material system based on "Internet +", enrich the form of teaching materials, support students' independent learning and a hybrid teaching model that combines online and offline. (3) Update the content of textbooks to keep up with industrial development: Update the content of textbooks regularly to ensure that the cases and technologies in the textbooks reflect the latest industrial trends and avoid the textbooks lagging behind industrial development.

Professional Construction. (1) Connect with the industrial chain to build professional groups: Build high-level professional groups around regional pillar industries such as intelligent manufacturing, information technology, biomedicine, etc. to ensure that each major is highly matched with industry needs. (2) Professional teaching standards are aligned with industry standards: Strengthen cooperation with industry associations, revise professional teaching standards with reference to industry standards, ensure that the talents trained meet the requirements of industry qualification certification, and enhance students' employment competitiveness. (3) Establish a dynamic adjustment mechanism for majors: Conduct professional evaluations regularly through professional competitions and other forms, and adjust professional directions in a timely manner according to market demand, technological changes and industrial development.

Teacher Development. (1) Comprehensive participation to improve teaching level: Through competitions such as "Teacher Teaching Ability Competition", "Lesson Presentation Competition", and "Professional Presentation Competition", teachers are fully covered to participate in the competition, prompting teachers to improve their teaching ability and understanding of vocational education concepts in the competition. (2) Strengthen the construction of "dual-qualified" teacher teams: encourage teachers to work in enterprises or participate in enterprise projects to improve practical ability, and introduce industry experts as part-time teachers to jointly improve teaching quality. (3) Teacher career development support: provide teachers with systematic training opportunities, including training in new technologies and new methods and further study of vocational education concepts, to promote the continuous growth of teachers.

Teaching Base Construction. (1) School-enterprise co-construction of training bases: jointly build on-campus and off-campus training bases with enterprises to ensure that the equipment and scenes of the teaching bases are consistent with the actual production of the enterprises, and ensure that students can receive training in a real working environment. (2) Introduce virtual simulation training platform: use modern technology to build a virtual simulation training platform to make up for the shortcomings of practical teaching of some high-cost or high-risk projects and improve students' practical ability. (3) Openness and diversification of teaching bases: On the basis of the original on-campus bases, promote the opening of teaching bases to the society, introduce social

and industry resources, establish diversified and multi-level open teaching bases, and serve the society and enterprises.

3.3 Implementing the Three-Dimensional Education and Deepening the Reform of Curriculum Ideological and Political Education

In the process of "five metals" construction, implementing the "three-dimensional education" (education for all staff, education for the whole process, and education for all aspects) and deepening the reform of curriculum ideological and political education can effectively improve students' ideological and political literacy and professional skills. The following are specific suggestions:

Educate all Staff: Establish a Curriculum Ideological and Political Education Mechanism in Which all Teachers Participate. Integrate the concept of "education for all staff" into the work of all subject teachers. Not only ideological and political teachers should be responsible for ideological education, but professional teachers should also take the responsibility of educating people. Regularly carry out curriculum ideological and political education training and seminars for all teachers to make it clear to teachers how to naturally integrate ideological and political elements into professional courses. Through the collaboration of all faculty and staff such as teachers, counselors, and administrators, jointly promote the all-round development of students. Set up a special group for curriculum ideological and political education to coordinate the participation of different disciplines and departments in ideological and political work and form an atmosphere of education in which all staff participate.

Educate People Throughout the Whole Process: Integrate Ideological and Political Education into the Whole Stage of Students' Growth. Before the start of each semester, organize and carry out entrance education in the form of ideological and political lectures, class meetings, etc., so that students can understand the significance and goals of course ideological and political education, and establish correct values and professional responsibility from the beginning of enrollment. In the teaching process, ideological and political elements should be integrated into each course link, such as theoretical learning, practical operation, internship and training. Through case analysis, project discussion and other methods, ideological and political education is naturally integrated into knowledge imparting and skill training, so that students can receive subtle ideological guidance in specific learning. At the graduation stage, through special lectures, workplace ideological and political training and other forms, deepen students' ideological and political education, guide them to combine professional ethics and social responsibility to conduct self-summary, and make ideological preparations for entering the workplace.

All-Round Education: Course Ideological and Political Education is Integrated into Professional Courses, Practical Training and Campus Culture. In the

professional course system, sort out the ideological and political education elements of each course, and formulate ideological and political goals for each subject. Especially in key professional courses, we will comprehensively design the content of ideological and political courses around core values such as social responsibility, professional ethics, and innovative spirit, so as to achieve an organic combination of professional education and ideological and political education. In the practical training and practical teaching links, we will integrate ideological education such as professional quality, craftsmanship and teamwork. For example, in the operation guidance of the training base, we will emphasize responsibility, standardized operation and safety awareness, so that students can improve their ideological and political quality and practical skills simultaneously. Through colorful campus cultural activities, such as vocational skills competitions, ideological and political theme debates, volunteer activities, etc., we will create a positive campus atmosphere, enhance students' sense of social responsibility and collective honor, and form a support system for "all-round education".

In the process of carrying out the three-dimensional education and ideological and political construction of courses, teachers will improve their ideological and political design and practice abilities through ideological and political competitions, teaching competitions, etc. In the ideological and political reform of courses, we will focus on the innovation of teaching methods, and use interactive teaching, project-based teaching, role-playing and other teaching methods to enhance student participation. At the same time, an evaluation system for ideological and political education in courses will be established. By regularly evaluating the effectiveness of teachers' ideological and political teaching, collecting student feedback, and continuously optimizing the content and form of ideological and political education in courses, we will ensure that ideological and political education can be effectively integrated into the entire teaching process.

3.4 Promote the Integration of Industry and Education and Realize Collaborative Education Between Schools and Enterprises

Establish a Close Cooperation Mechanism Between Schools and Enterprises.

Schools and enterprises should sign a long-term cooperation agreement to clarify the responsibilities of both parties in talent training, curriculum development, and construction of training bases. Establish a school-enterprise cooperation alliance to promote resource sharing, improve communication efficiency, provide students with more internship and employment opportunities, and ensure that talent training is accurately matched with industry needs.

Co-build a Training base for the Integration of Industry and Education. Schools and enterprises jointly build training bases, and the base equipment is synchronized with the production line of the enterprise to provide students with practical opportunities in a real environment. The enterprise provides financial and technical support, and the school organizes teaching to achieve a win-win situation. At the same time, use virtual simulation technology to build an online training platform to make up for some

high-cost and high-risk operation teaching shortcomings and improve students' operation skills.

Strengthen the Construction of a "Dual-Teacher" Teaching Team. Higher vocational colleges should regularly arrange teachers to participate in actual projects in enterprises, master front-line production experience, and integrate it into teaching to improve teaching quality. Invite enterprise engineers to serve as part-time teachers, bring cutting-edge industry information and actual cases into the classroom, help students understand industry dynamics, and form a "dual-teacher" teaching team that closely combines theory and practice.

Innovate the School-Enterprise Cooperation Education Model. Adopt the modern apprenticeship system, and students receive practical operation training in the enterprise during their studies, and master skills and professional qualities through the master-apprentice system. Implement the "work-study alternation" model, where students rotate between schools and enterprises, receive theoretical education and practical training, and enhance their ability to adapt to work. Through this model, enterprises can select and cultivate talents that meet their needs in advance, and schools can also improve students' employment competitiveness.

Improve the Conversion Rate of School-Enterprise Cooperation Results. Schools and enterprises can jointly develop technical projects to promote technological innovation and the transformation of scientific research results. Enterprises provide project support, schools contribute technology and scientific research strength, and both parties work together to overcome difficulties and enhance the scientific and technological content of cooperation. At the same time, schools and enterprises jointly carry out skills training and professional qualification certification to help students obtain professional certification and promote the improvement of corporate employees' skills and achieve human resources upgrading.

Through the above measures, we can effectively promote the deep integration of industry and education, jointly educate people between schools and enterprises, cultivate high-quality skilled talents that meet the needs of the industry, and at the same time meet the development needs of enterprises to achieve a win-win situation for schools and enterprises.

4 CONCLUSION

In the context of the Guangdong-Hong Kong-Macao Greater Bay Area, the construction of high-level vocational colleges in the province is not only an important measure to promote regional economic development, but also a key link in promoting educational modernization. By optimizing professional settings, deepening the integration of industry and education, and improving the level of the teaching staff, vocational colleges will be able to better cope with challenges, cultivate high-quality skilled talents

that meet the needs of industrial development, and provide strong support for the sustainable economic and social development of the Guangdong-Hong Kong-Macao Greater Bay Area. In the future, vocational colleges should continue to seize the opportunities of the construction of the Guangdong-Hong Kong-Macao Greater Bay Area, constantly innovate development paths and models, and make greater contributions to regional economic and social development.

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