

Research on the Collaborative Development of Higher Vocational Education in Chengdu-Chongqing Economic Circle (CCEC) from the Perspective of Curriculum Alliance (CA)

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Abstract: Curriculum is the core element of school teaching work, and efficient curriculum alliance (CA) is of great significance to promote the complementarity and sharing of resources in higher vocational colleges in Chengdu-Chongqing economic circle(CCEC). It should be guided by the strategic alliance theory, build the organizational framework of CA from the aspects of goal vision, member partners, cooperation projects, management institutions, and support conditions, and build an effective alliance operation mechanism from the aspects of development motivation, communication and coordination, and performance evaluation. Due to the fact that vocational education is an open and complex system, promoting the construction of organizational framework and implementation of the operational mechanism of CA of vocational colleges in CCEC requires the coordinated promotion of multiple departments within the system, closely integrating with the local economic and industrial structure, social and cultural development, and promoting the high-quality development of vocational education.

1. Introduction

As a major strategic arrangement for national regional development, the construction of CCEC has reshaped the regional space for resource flow [1]. Vocational education plays an important role in promoting industrial development by reallocating labor resources through human resource development. In April 2020, Sichuan Province and Chongqing Municipality signed a framework agreement to promote the construction of the CCEC and the coordinated development of education; In October 2021, both parties jointly formulated the "*Action Plan for the Coordinated Development of Education in CCEC*" (hereinafter referred to as the "*Action Plan*"), proposing to "create a nationally influential demonstration zone for coordinated development of education". How to build this demonstration zone? Where is the focus? What is the grip on? These issues have become the logical starting point for building CA of vocational colleges in CCEC.

2. The Practical Value of CA in Higher Vocational Colleges from the Perspective of Talent Cultivation

To build CCEC into an important growth pole for high-quality development, talent is the key. Without talent, there can be no innovation, and without innovation, there can be no development. Talents are the core production factor, and the gathering of high-end talents will help achieve the expected goals of the construction of CCEC. Curriculum is the core of education and the foundation of professional talent cultivation. The quality of curriculum teaching directly determines the quality of talent cultivation. Building a CA in vocational colleges is a key to promoting the coordinated development of education in CCEC. It has high practical value for the sharing of high-quality teaching resources, the improvement of talent cultivation capabilities, and the economic development of the western region in vocational colleges.

2.1 Promoting the Sharing of High-Quality Teaching Resources in Vocational Colleges in CCEC

According to "China Urban Science and Technology Innovation Development Report [2]", only Xi'an and Chengdu were selected in the top 20 cities in the central and western regions of China's urban science and technology innovation development index, indicating the gap in innovation capacity between the western and eastern regions. As an important subject of knowledge innovation, vocational colleges have weak innovation ability in output, and there is still significant room for improvement in talent cultivation ability. Therefore, it is necessary to concentrate efforts to build a regional community for the development of vocational education. The construction of CA of higher vocational colleges in CCEC will help to break the closed supply of teaching resources and break through the traditional classroom teaching mode, make cross school course selection, mixed teaching, cross regional collaborative learning possible, and promote the high-quality development of higher vocational colleges in CCEC.

The distribution of vocational colleges in CCEC is relatively concentrated, with 31 vocational colleges in Chengdu accounting for one-third of the total 96 vocational colleges in Sichuan Province. There are currently 41 vocational colleges in Chongqing, including 34 in the main urban areas. Using higher vocational education resources per million people as a measurement indicator, the number of vocational colleges in Chengdu and Chongqing is basically the same, but the distribution is very uneven. The differentiated distribution density between regions must be driven by integrating resources and optimizing regional layout to promote the coordinated development of vocational education in CCEC. There are multiple high-speed railways connecting Chengdu and Chongqing, and the commuting time is generally within one hour. Building a CA for vocational colleges in CCEC will break through inter school or regional differences, narrow the distribution of regional high-quality teaching resources, and promote the sharing and balanced development of high-quality teaching resources in vocational colleges in CCEC.

2.2 Enhancing the Talent Training Ability of Vocational Colleges in CCEC

The world's first-class urban agglomeration basically relies on the agglomeration of first-class universities. Universities play the role of knowledge spillover, promote scientific and technological innovation through the accumulation of knowledge capital accumulation, and improve labor productivity through the accumulation of human capital accumulation, thus promoting the high-quality development of regional economy and urban agglomeration. The most typical are the San Francisco Bay Area and the Tokyo Bay Area [3]. Non cooperative games and disorderly competition have led to a narrow competitive mentality of beggar-thy-neighbor in universities,

hindering collaboration between universities, resulting in resource waste and efficiency loss. From the perspective of vocational colleges themselves, collaborative development can form synergy at the regional level, leveraging their comparative advantages to form a coupling effect and improve talent cultivation capabilities. The products of colleges are essentially majors and courses [4]. As a carrier of knowledge, professional courses play the role of cultivating individuals and serve social, economic, and cultural development by cultivating talents. Building a CA for vocational colleges in CCEC will bring together courses from different types and characteristics of vocational colleges in CCEC. By cultivating highly skilled talents, new vitality will be injected into the socio-economic and cultural development of CCEC.

2.3 Providing Talent Support for Western Economic Development

Due to historical, resource endowments, institutional mechanisms, and other reasons, the economic and social development of the western region has long lagged behind that of the developed eastern regions. The talent loss caused by the competition for talent with the developed eastern regions is equivalent to "drawing blood" for the western region. The high-quality development of vocational education in CCEC provides talent support for the economic development of the western region, and provides a driving force for creating an important growth pole that drives high-quality development throughout the country. Specifically, the first is to ensure the skills and literacy of talents, including a rich reserve of theoretical knowledge and comprehensive practical abilities. The second is to provide an innovative social environment for creating an economic growth pole in the western region. Centered around the human capital demand for industrial structure transformation and upgrading, promoting economic growth and sustainable development of an innovative society while promoting educational equity.

3. The Realistic Situation of Collaborative Development of Education in CCEC

Although there is a bottom-up intercollegiate cooperation in CCEC, the government still focuses on the development needs of administrative jurisdictions in terms of higher education policy design and administrative planning, and rarely conducts overall planning from the perspective of regional development. The traditional management model of educational administrative regions is prone to restricting the adjustment of regional disciplinary and professional structures and the free flow of educational elements, which is not conducive to the optimal allocation of educational resources and the improvement of the overall strength of education in CCEC [5].

Since the beginning of the construction of CCEC, more than 20 alliances have been established, including CCEC Vocational Education Collaborative Development Alliance and the Financial Vocational Education Alliance, led by colleges or the government. These alliances involve multiple cooperation fields such as talent cultivation, resource sharing, and industry education integration. However, the alliance colleges have not truly achieved overall coordination and have not fully utilized the regional advantages of the dual city economic circle [6]. Most alliances lack sound institutional arrangements and loose organizational relationships, making it difficult to achieve the expected results. The academic community mainly discussed the synergistic development of education and economy, science and technology, the matching degree with local economic development, the driving force and mode of educational synergistic development, the promotion path and strategy [7, 8] in CCEC. There is a lack of micro guidance on existing educational synergistic development practice projects in the region, and there is almost no research on the framework construction and operation mechanism of education alliances.

Among established education alliances, most of the leading units are spontaneously established by colleges, and the member units are complex, including local governments, vocational colleges,

enterprises and public institutions, etc. The number of founding members ranges from a few to hundreds. However, except for a few of these educational alliances with relatively complete regulations, many alliances have a phenomenon of high participation enthusiasm and low construction enthusiasm among members, and the development speed of the alliance does not match the development goals. The rights and obligations of some alliance members are not clear, and alliance cooperation presents a false appearance of prosperity on the surface. The form of cooperation outweighs the content, making it impossible to achieve the relevant goals of The Action Plan. Although a few education alliances have mentioned the issue of curriculum cooperation, it still remains within the framework agreement and has not been able to substantively implement curriculum cooperation. Currently, there is no dedicated CA established in CCEC.

4. The Framework Construction of CA for Higher Vocational Colleges in CCEC

Strategic alliance refers to a cooperative activity characterized by commitment and trust between two or more partner enterprises to achieve strategic goals such as resource sharing and complementary advantages [9]. It is an important source of resources and competitive advantages. As a type of strategic alliance, CA is a cooperative activity carried out with the goal of sharing curriculum resources, complementary advantages, and common development. The strength of an organization depends to some extent on its rigor [10]. From the perspective of the organizational structure of a strategic alliance, Levis believes that the formation of an alliance must meet five conditions: voluntary organizations; two or more members participate; having cooperative projects; having professional management personnel; supported by funding and other conditions [11]. Based on Levis' perspective, the organizational framework of CA of vocational colleges in CCEC should include elements such as goal vision, member partners, cooperative projects, management institutions, and environmental support.

4.1 Establishing the Vision of CA Goals

The common value goal is the prerequisite and foundation for achieving cooperation in strategic alliances. According to consistency and degree of conflict, the goals of partners can be divided into three types: common goals, goals that can be supported, and conflicting goals. The common goal is consistency goal; Supportable goals refer to goals supported by one partner but not cared about by other partners, which cannot be shared but do not cause conflicts and are still conducive to expanding their benefits; Conflicting goals are those that cannot be pursued together at the same time. The goals are supported by one party and opposed by the other, and the achievement of one party's goals comes at the cost of the other party's losses. Only when the strategic alliance goals are consistent can organizational members fully share information, fulfill commitments, and achieve goals. Therefore, when determining the goal vision of CA for vocational colleges in CCEC, it is necessary to consider the common interests of all members, based on their respective resource differences and major needs for regional economic and social development, to solve the practical difficulties of curriculum development. Through CA, we will revitalize the curriculum resources of vocational colleges in CCEC, leverage the leading and radiating role of advantageous schools and disciplines, and build a long-term mechanism of resource sharing, curriculum co construction, and win-win cooperation.

4.2 Preferred CA Member Partners

The theory of strategic alliance believes that current market competition is no longer a zero sum game, but should consider competitors as partners, seek common interests, and selectively

cooperate with competitors and other auxiliary forces in capital, access opportunities, resource technology, and other aspects [12]. The choice of partners is a key factor for the success of an alliance, and the matching of partners greatly affects the enthusiasm for cooperation among alliance partners, which in turn affects the organizational performance of the alliance. The Ba Culture and Shu Culture under the jurisdiction of Chengdu and Chongqing has the same root and source, and the geographical proximity and convenient transportation have eliminated spatial barriers for cooperation among vocational colleges. Cultural compatibility enables mutual trust among vocational colleges, and this geographical and cultural advantage should be fully utilized to develop cooperative partnerships and establish strategic alliances. Among the vocational colleges in CCEC, there are both educational administrative departments and industry colleges, public and private colleges, as well as comprehensive and professional colleges. These heterogeneous characteristics can enable members to obtain heterogeneous resources from their partners on the one hand, and may also generate adversarial competition on the other hand. Therefore, the alliance should not only attract universities of different levels, types, and characteristics to participate, achieve complementary advantages and common development, but also fully consider the complementarity, compatibility, and trust between members. The stronger the resource complementarity between alliance partners, the stronger their resource heterogeneity, and the stronger the competitiveness of the alliance.

4.3 Selected CA Cooperation Project

The compatibility between members determines whether the alliance can maintain consistent goals. Course quality is the lifeline of CA, and quality standards serve as a ruler to measure the level of course construction, which is an important basis for the development and construction of course resources. We should guide the development and construction of alliance courses through course quality standards, and ensure the educational effect of alliance with high-quality course supply. The CA of vocational colleges in CCEC should focus on the co-construction and sharing of curriculum resources, and promote cooperation in teaching exchange, experimental and practical training resource sharing, etc. We should build a highly complementary curriculum system, promote the digital transformation of curriculum, realize the universality of teaching exchange, promote the sharing of experimental training resources, and improve the utilization of resources.

4.4 Improving the CA Management Organization

The successful operation of CA cannot be separated from standardized management institutions. The establishment of a specialized management organization in the alliance helps to strengthen top-level design, highlight division of labor and cooperation, and improve the management performance of the alliance. In the construction of CA of vocational colleges in CCEC, the head of the decision-making body should be selected from the main leaders of the member schools, which is conducive to the implementation of the alliance's decision-making matters. The Permanent Secretariat of the Alliance is responsible for coordinating specific actions and resolving conflicts and contradictions during the operation process. Under the leadership of the Alliance Council, specialized implementation agencies and evaluation monitoring agencies can be established, such as setting up a Curriculum Construction Committee to implement the resolutions of the Alliance Assembly and the Council, and establishing a Teaching Evaluation Committee to monitor the quality of curriculum construction.

4.5 Optimizing CA Environment Support

Vocational education is a social existence, and whether it can adapt to the environment and whether the environment can support its development determines the rise and fall of vocational education [13]. The operation of CA cannot be separated from the support of operating funds, institutional arrangements, network platforms, practical training resources, and other conditions. In the early stage of the alliance's establishment, support can be sought from the government. After having hematopoietic functions, the alliance should raise its own operating funds or raise development funds from society. The alliance charter provides a contractual framework for the conduct of alliance activities, which should clarify the purpose of cooperation, cooperation methods, rights and obligations, entry and exit, etc. In addition, each specialized committee should formulate management and implementation rules tailored to local conditions to ensure that all work of the alliance is regulated and compliant. We should fully utilize the advantages of emerging technologies to create a network platform that serves CA with high starting points and standards, and improve the efficiency of cross regional resource flow among member colleges. To build a cross regional academic affairs management system, track the big data of teaching and learning, and carry out learning situation analysis and teaching quality monitoring based on this.

5. Construction of the Operating Mechanism of CA of Higher Vocational Colleges in CCEC

A good operating mechanism and effective management are necessary guarantees for the healthy development of an organization. The driving force mechanism is the starting point of alliance operation, and the success of strategic alliances not only requires a rigorous organizational structure, but also an effective operational mechanism. According to the constituent elements of CA framework for vocational colleges in CCEC, corresponding operating mechanisms should be constructed from the aspects of development motivation, communication and coordination, and performance evaluation, to ensure the healthy development of CA from three aspects: front-end, midrange, and back-end.

5.1 Stimulating Organizational Vitality

The construction of regional school CA is a complex systematic project that requires the establishment of efficient operating mechanisms. Education is a public welfare undertaking, and schools are public organizations. Therefore, the main driving force for the development of CA in vocational colleges comes from policy driving. The governments of Chongqing and Chengdu should fully unleash policy dividends, establish a regional "integrated" development concept [14], and explore a new model of curriculum coordinated development in vocational colleges in CCEC. CA are typical knowledge-based organizations that promote the flow of teaching experience, knowledge resources, etc. among member colleges, and can maximize the satisfaction of member schools' mutual learning and win-win cooperation interests. In the process of building CA of vocational colleges in CCEC, it is necessary to guide member colleges to establish the idea of open education and win-win cooperation, create a cultural atmosphere of mutual trust, and promote the effective dissemination of advanced experience from advantageous colleges to other colleges. Through mutual learning, the alliance members can stimulate their own curriculum construction and teaching reform vitality, continuously improve the quality of talent cultivation, and enhance their ability to serve the regional economy and society.

5.2 Promoting Mutual Recognition of Course Credits

Strategic alliance partners are essentially a competitive and cooperative relationship, which can easily lead to conflicts between collaborators and affect the achievement of alliance goals. Therefore, it is necessary to establish effective communication channels and timely coordinate and resolve conflicts among alliance members. Mutual recognition of credits is the cornerstone of course sharing in the alliance. The mutual recognition and transfer of credits among different colleges have expanded students' learning choices. Promoting the credit transfer work of CCEC Higher Vocational College CA cannot be done in a unified manner. It is necessary to fully consider the complexity of the alliance's levels, diversity of types, differences in disciplines, and heterogeneity of courses. For high-quality courses certified by the alliance, all colleges should mutually recognize credits, and for general courses launched on the alliance platform, colleges should independently recognize credits, Maximize course sharing and credit conversion while ensuring substantial equivalence.

5.3 Optimizing Benefit Distribution Mechanism

The performance of strategic alliances is the degree to which partners achieve strategic goals through strategic alliances, and its effectiveness needs to be measured through evaluation. CA of vocational colleges in CCEC should establish the concept of open education, and evaluate the operational performance of the alliance through self-evaluation and entrusting third-party social evaluation institutions, with a focus on evaluating the production quality and service quality of course products. On the one hand, it is necessary to monitor the teaching process and effectiveness of shared courses around the key links of education, and promote the continuous improvement of teaching quality. On the other hand, it is necessary to establish a normalized self-evaluation mechanism to regularly evaluate the participation and contribution of member schools in the development of the alliance. Member schools with low participation and contribution, and who do not improve in a timely manner, are required to withdraw from the alliance in accordance with regulations. Only by benefiting member schools, especially those private vocational colleges, can their enthusiasm and initiative be stimulated, thereby promoting the sustainable development of the alliance. In CA charter, it is necessary to clarify the basic principles of mutual benefit and promote member schools to reach a consensus on investment proportion and income distribution.

6. Conclusion

The balanced development of vocational education and local industrial economy will promote the spatial agglomeration of industries and population in CCEC, as well as the formation of industrial chains and clusters, enhance the spatial aggregation between cities, and make CCEC the most concentrated and promising region for population and industry growth in the western region. CA is an important lever for the coordinated development of vocational education in CCEC. It is necessary to firmly grasp the key link of curriculum, guided by the theory of strategic alliance, build an organizational framework for CA of vocational colleges in CCEC, and construct an efficient operating mechanism.

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