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Dilemmas and Breakthroughs in Specialty Group Construction of Newly Established Higher Vocational Colleges in the Pilot of Industry-Education Integration Cities

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Abstract: The pilot of industry-education integration cities provides an institutional innovation testbed for national vocational education reform and creates an important opportunity for newly established higher vocational colleges to break through resource constraints and achieve distinctive development. However, in the process of using policy dividends to promote specialty group construction, newly established higher vocational colleges face multiple dilemmas, including the "last mile" of policy implementation, insufficient sustainability of resource integration, and limited depth of college-enterprise cooperation. Taking Yibin Medical and Health Vocational College as a case, this paper comprehensively uses social network analysis and action research methods to systematically analyze the dilemmas in specialty group construction of newly established medical and health higher vocational colleges in the pilot of industry-education integration cities. It proposes a three-stage progressive breakthrough path of precise policy delivery, flexible resource allocation, and endogenous capacity growth, and constructs a grouping paradigm led by core specialties and coordinated by supporting specialties, so as to provide theoretical reference and practical guidance for specialty group construction in newly established higher vocational colleges in central and western China.

Keywords: Industry-education Integration City; Newly Established Higher Vocational Colleges; Specialty Group Construction; Breakthrough Path.

1. Problem Statement

In 2019, the National Development and Reform Commission, the Ministry of Education, and four other departments issued the Implementation Plan for the Pilot of National Industry-Education Integration Construction [1], marking that industry-education integration had risen from spontaneous exploration at the institutional level to national-level institutional design. By 2025, China had identified about 50 pilot cities for industry-education integration and cultivated more than 10,000 industry-education integration enterprises. The core logic of this policy arrangement is to use the city, as a level of government coordination, to break institutional barriers and information silos between education and industry, and to realize the organic connection of the education chain, talent chain, industrial chain, and innovation chain.

For newly established higher vocational colleges, the pilot of industry-education integration cities is both an opportunity and a challenge. On the one hand, the pilot policy provides institutional dividends in land, finance, personnel, and other areas, creating conditions for the rapid start-up of new colleges. On the other hand, newly established colleges generally face inherent disadvantages such as weak educational accumulation, a suboptimal faculty structure, and insufficient experience in industry-education integration. How to complete the systematic construction of specialty groups within the policy window has become a key issue determining their survival and development.

Existing studies have systematically discussed the connotation, paths, and cases of industry-education integration cities (Li Xinsheng [2], 2023; Han Lianquan et al. [3][4], 2021; Chen Peng et al. [5], 2025), and have also accumulated rich research on the grouping logic and construction strategies of specialty group construction in higher vocational colleges (Zhou Jiansong [6], 2020; Wang Ding [7], 2025). However, the intersection of these two types of research—specialty group construction in newly established higher vocational colleges in the pilot of industry-education integration cities—has not yet received sufficient attention. Existing studies mostly focus on mature higher vocational colleges or developed eastern regions, and lack in-depth analysis of the special circumstances of newly established colleges in central and western China within policy pilots. The medical and health industry has strong regional characteristics and policy sensitivity. Specialty group construction in newly established medical and health higher vocational colleges faces the dual pressure of rapid iteration of industrial demand and severe shortage of educational resources.

Based on this, this paper takes Yibin Medical and Health Vocational College as a case, comprehensively uses social network analysis and action research methods, and focuses on the following core questions: In the context of the pilot of industry-education integration cities, what special dilemmas do newly established higher vocational colleges face in specialty group construction? What are the deep causes of these dilemmas? How can a systematic breakthrough path be constructed? By answering these questions, this paper aims to provide theoretical support and practical reference for the precise implementation of industry-education integration policies and the connotative development of newly established higher vocational colleges.

2. Analytical Framework: A Three-Dimensional Model of Specialty Group Construction in Newly Established Higher Vocational Colleges

Specialty group construction in newly established higher vocational colleges is a complex systematic project involving the dynamic matching between internal capacity building and external environmental support. To systematically analyze its dilemmas and breakthrough paths, this paper constructs an analytical framework from three dimensions: structure, capacity, and institution.

2.1. Structural Dimension: The Matching Relationship Between Industrial Demand and Specialty Supply

The primary task of specialty group construction is to achieve a structural match between specialty supply and industrial demand. This match includes three levels: at the macro level, the match between industrial structure and specialty layout, that is, whether the college's specialty group covers the key links of the regional leading industrial chain; at the meso level, the match between job structure and capacity structure, that is, whether the curriculum system accurately connects with the typical work tasks of job clusters; at the micro level, the match between talent specifications and job standards, that is, whether graduates' abilities meet enterprise employment requirements. Due to the lack of historical data and accumulated college-enterprise cooperation, newly established colleges face information asymmetry in matching at all three levels.

2.2. Capacity Dimension: The Generation Mechanism of College Resource Endowment and Core Capacity

The capacity dimension focuses on whether the college itself has the human, material, financial, and organizational capacity to support specialty group construction. The prominent feature of newly established colleges is the "three shortages": shortage of high-level teachers, especially "double-qualified" teachers; shortage of advanced practical training equipment; and shortage of industry-education integration experience. These resource constraints limit their autonomous capacity in specialty construction, curriculum development, and practical teaching. However, resource constraints are not insurmountable—through institutional and model innovation, newly established colleges can achieve leverage-based generation of core capacity at a relatively low resource level.

2.3. Institutional Dimension: Policy Environment and Institutional Arrangements for College-Enterprise Collaboration

The institutional dimension covers two levels: government policy supply and college-enterprise cooperation mechanisms. Institutional arrangements at the government level include policy tools such as fiscal investment, land support, personnel management, and industry-education integration incentives; institutional arrangements at the college-enterprise level involve cooperation forms (order-oriented classes, modern apprenticeship, industrial colleges, etc.), benefit distribution mechanisms, and risk-sharing mechanisms. The core of institutional design lies in reducing college-enterprise transaction costs, improving cooperation stability, and forming a sustainable community of shared interests.

The above three dimensions are interrelated and progressive: institutional supply creates conditions for capacity building, capacity improvement supports structural optimization, and structural optimization is ultimately reflected in the precise matching between specialty groups and industrial demand. This framework provides an analytical tool for this study.

3. Case Presentation: Practical Exploration of Specialty Group Construction at Yibin Medical and Health Vocational College

3.1. Background and Positioning

Yibin was selected in 2020 as one of the first national pilot cities for industry-education integration and is the only national-level pilot city in Sichuan Province. In recent years, Yibin has focused on building a "1+4+4" industrial system, in which the big health industry has been identified as a key direction of strategic emerging industries. In 2022, the Nanxi District Biomedical and Medical Device Industrial Park opened, marking that Yibin's medical and health industry had entered a stage of large-scale development.

However, Yibin's higher vocational education resources have long been insufficient. As of 2023, the city had only one higher vocational college (Yibin Vocational and Technical College), whose specialty offerings were mainly engineering-oriented, and there was an obvious gap in the training of medical and health talents. Against this background, the Yibin Municipal Party Committee and Municipal Government launched the preparation for Yibin Medical and Health Vocational College in 2023, and the college was officially approved for establishment in 2024.

The college is positioned as a medical and health higher vocational college that is "rooted in southern Sichuan, serving southwestern China, and oriented toward the grassroots." In 2025, it first offered seven specialties: pharmacy, Chinese pharmacy, nursing, medical cosmetology technology, infant and toddler care service and management, rehabilitation treatment technology, and traditional Chinese medicine health preservation. In 2026, it added three specialties: medicinal diet and food therapy, traditional Chinese medicine rehabilitation technology, and elderly health care and management. It has initially formed a specialty group structure coordinated by three major directions: pharmaceutical manufacturing, health services, and digital medicine.

3.2. Main Measures for Specialty Group Construction

3.2.1. Policy-Driven Rapid Preparation

Yibin included the college's preparation in the key work of industry-education integration city construction and established a special working group led by municipal leaders to coordinate resources from departments such as development and reform, education, finance, human resources and social security, and health. In terms of funding, local government special bonds of 668 million yuan were set

up for infrastructure construction; in terms of the personnel system, flexible talent introduction mechanisms such as the "staffing pool" and "post quota system" were innovated, rapidly gathering 107 full-time teachers, among whom "double-qualified" teachers accounted for 81%.

3.2.2. Preliminary Exploration of College-Enterprise Cooperation

The college signed cooperation agreements with more than 30 medical institutions, including Yibin First People's Hospital, Yibin Fourth People's Hospital, and Yibin Hospital of Integrated Traditional Chinese and Western Medicine, to jointly build and share practical training bases. In curriculum development, it jointly established a professional construction steering committee with hospital expert groups, reconstructed the curriculum system using the work-task analysis method, and integrated typical clinical cases and job operation standards into teaching content. In talent cultivation, it explored pilot order-oriented classes and modern apprenticeship, and signed targeted training agreements with Yibin First People's Hospital, Meihua Health and Wellness, and other enterprises.

3.2.3. Institutional Design of the Dynamic Specialty Adjustment Mechanism

The college established a professional construction steering committee, with the participation of industry experts, enterprise technical backbones, and university scholars, to regularly conduct research on industrial talent demand. It designed a three-stage management model of early warning, adjustment, and exit: specialties ranked low in enrollment rate and employment rate for two consecutive years are issued a yellow-card warning, and specialties with no improvement for three consecutive years are subject to red-card exit. At the same time, one or two emerging specialty directions are selected each year for cultivation pilots.

3.3. Preliminary Results

After more than one year of construction, the college has achieved phased results in obtaining school-running qualifications, initially forming specialty groups, rapidly gathering the teaching staff, and significantly improving practical training conditions. In 2025, students participated in the Sichuan Provincial Vocational College Skills Competition and won one third prize in the infant and toddler care skills competition and one third prize in the pharmacy skills competition. The college has initially established a development pattern of positive interaction with local government, industries, and enterprises.

4. Diagnosis of Dilemmas: Structural Contradictions in Specialty Group Construction in Newly Established Higher Vocational Colleges

Although the college has made remarkable progress in a short period, in-depth investigation and analysis reveal that its specialty group construction still faces three structural dilemmas.

4.1. The Tension Between Policy Dividends and Implementation Obstruction

The pilot policy of industry-education integration cities provides institutional guarantees for the college, but the transformation of policy dividends into school-running capacity is not a linear process [10]. The investigation found the following main implementation obstructions:

First, the mismatch between policy supply and college demand. Municipal-level industry-education integration policies are designed more for mature colleges and large enterprises, and insufficient attention is paid to the special needs of newly established colleges, such as teacher introduction and cultivation in the start-up stage and the construction of practical training conditions from scratch. For example, although the "staffing pool" policy gives the college the power to independently allocate staffing, because the newly established college does not yet have a mature specialty evaluation system, the scientific nature of independent allocation is difficult to guarantee.

Second, efficiency loss in multi-department coordination. The college's preparation involves multiple departments such as education, health, human resources and social security, and finance. Although a joint meeting system has been established, interest games among departments and blurred boundaries of authority and responsibility have slowed the progress of some matters. For example, in college-enterprise cooperation involving the sharing of medical equipment, the health department and the education department have different understandings of asset management and safety responsibility division, and a unified plan has not yet been formed.

Third, regional differences in policy implementation. The national level gives pilot cities certain policy autonomy, but this also leads to differences in policy intensity among cities. Compared with developed eastern regions, Yibin has limited incentives in fiscal subsidies and tax preferences, which weakens enterprises' enthusiasm for participating in industry-education integration.

4.2. The Contradiction Between Resource Integration and Sustainable Operation

The college has made breakthroughs in cooperating with medical institutions to jointly build practical training bases, but the sustainability of this model faces challenges:

First, the risk of the tragedy of the commons in equipment resource sharing. At present, the college and hospitals adopt a distribution model in which basic consumables are borne by the college and clinical consumables are borne by the hospitals. However, as the student scale expands, the frequency of use of hospital equipment surges, accelerating equipment depreciation and wear. Hospitals have begun to express concerns about excessive use of equipment. If a reasonable cost-sharing and renewal mechanism cannot be established, the cooperative relationship may gradually loosen.

Second, insufficient endogenous motivation for enterprise participation [11]. At present, enterprises participate in college talent cultivation more out of social responsibility or government calls than out of intrinsic economic interest. Taking order-oriented classes as an example, enterprises need to invest management costs and technicians' time, but it is difficult to see direct benefits in the short term. Once government assessment pressure is reduced or policy preferences expire, enterprises' willingness to participate may decline significantly.

The third issue is the stability of teacher resource sharing. The college hires hospital business backbones as part-time teachers, but these backbones have heavy primary duties, making it difficult to guarantee teaching time, and their level of teaching commitment varies. At the same time, the

college's own "double-qualified" teachers often obtain their qualifications through short-term training, and their clinical practical experience is still limited, making it difficult for them to truly be competent in integrated theoretical and practical teaching.

4.3. The Mismatch Between Grouping Logic and Implementation Capacity

The college has initially designed a grouping model of core specialties plus supporting specialties, but at the operational level it faces the following dilemmas:

First, insufficient substantive collaboration among specialties. The existing specialty group is more a cluster in the administrative sense than an integration at the curriculum and faculty levels. There is a lack of interdisciplinary curriculum design among specialties such as pharmacy, nursing, and rehabilitation, making it difficult for students to develop cross-specialty comprehensive abilities. For example, elderly health care and management requires multidisciplinary knowledge such as nursing, rehabilitation, and medication management, but the current curriculum system does not provide such integrated learning opportunities.

Second, insufficient foresight in curriculum development. The medical and health industry iterates rapidly, and new business forms such as digital medicine and smart elderly care continue to emerge. However, the college's curriculum development is more follow-up-oriented, that is, courses are set according to the current job needs of hospitals and enterprises, with insufficient forward-looking response to industrial technological change. This may lead to some of the skills students learn becoming partially outdated by the time they graduate.

Third, the disconnect between the evaluation system and specialty group goals. At present, the college's assessment of specialties still mainly uses traditional indicators such as student scale and employment rate, and lacks effective evaluation of cross-specialty collaboration at the specialty group level and contribution to the industrial chain. This evaluation orientation strengthens the territorial mindset of each specialty and hinders substantive collaboration.

5. Analysis of Causes: The Interaction of Institutional Environment, Organizational Capacity, and Actor Network

The above dilemmas do not exist in isolation; they are the result of the interaction of three factors: institutional environment, organizational capacity, and actor network.

5.1. Institutional Environment: Insufficient Systematicness and Precision of Policy Tools

From the institutional perspective, the pilot policy of industry-education integration cities has a tendency in tool design to emphasize the macro and neglect the micro, and to emphasize supply while neglecting transformation. The national-level policy framework clarifies directions and principles, but pays insufficient attention to the adaptability of newly established colleges as a special subject. In the process of policy transformation, municipal governments often simply apply the higher-level framework and lack special designs for the zero-start stage of newly established colleges.

Specifically, existing policy tools are more supply-oriented, such as fiscal subsidies and land support, while there is insufficient design of demand-side tools (such as government purchase of services and priority procurement rights of employers) and environmental tools (such as the industry-education integration credit system and technical standard alignment platforms). This leads to policy incentives being concentrated more on the "construction" stage, while effective arrangements for the "use" and "continuation" stages are lacking.

5.2. Organizational Capacity: The Capacity Vacuum Period and Growth Curve of Newly Established Colleges

Newly established colleges generally face a capacity vacuum period in the early stage of establishment: management systems are not yet sound, the teaching staff is not yet stable, college-enterprise relations are not yet deep, and school-running characteristics have not yet formed. At this stage, colleges are highly dependent on external resources, but their ability to digest and absorb external resources is extremely limited.

Taking Yibin Medical and Health Vocational College as an example, the college gathered 107 full-time teachers within one year, but most of them are recent master's graduates lacking teaching experience and industry practice experience. Although these young teachers have relatively high educational levels, their abilities in curriculum development, college-enterprise communication, and practical guidance are obviously insufficient. The gap between teacher capacity and the requirements of specialty group construction constitutes a key bottleneck restricting development.

5.3. Actor Network: Looseness and Asymmetry of Interest Linkages

From the perspective of actor-network theory, industry-education integration is essentially a process in which multiple subjects—government, colleges, enterprises, industry associations, and others—build an actor network around the common goal of talent cultivation. The effective operation of this network depends on the formation of stable interest linkages and role identities among subjects.

However, in the practice of specialty group construction in newly established colleges, the actor network shows obvious looseness and asymmetry. The government's role emphasizes initiation and assessment, but its intervention in process coordination and risk backstopping is insufficient; enterprises' participation is more driven by external incentives than endogenous demand, and interest linkages are fragile; the role of industry associations has not yet been fully brought into play, and occupational competence standards and information alignment platforms are absent; colleges, as the core actors of the network, lack the resources and authority to mobilize other subjects. This loose network structure makes cooperation difficult to deepen and sustain.

6. Breakthrough Paths: A Three-Stage Progressive Systematic Plan

Based on the above diagnosis of dilemmas and analysis of causes, this paper proposes a three-stage progressive breakthrough path of precise policy delivery, flexible resource

allocation, and endogenous capacity growth, aiming to systematically respond to the structural contradictions in specialty group construction in newly established higher vocational colleges.

6.1. First Stage: Precise Policy Delivery—From Flood Irrigation to Targeted Measures

The core meaning of precise policy delivery is to change the current one-size-fits-all supply model of industry-education integration policies and design layered and classified policy toolkits according to the differing needs of newly established colleges at different development stages.

6.1.1. Establish Special Support Policies for the Start-Up Stage of Newly Established Colleges

It is suggested that pilot cities, within the existing industry-education integration policy framework, add a special channel for the start-up stage of newly established colleges [8]. Specific measures include: including newly established colleges in the scope of government "one college, one policy" support and giving customized resource allocation according to their specialty group construction plans; establishing an industry-education integration start-up fund to specifically support the first batch of cooperation projects between newly established colleges and enterprises; and giving enterprises cooperating with newly established colleges tax reductions or fiscal subsidies higher than general standards in the first three years to compensate for the relatively high transaction costs in the early stage of cooperation.

6.1.2. Establish a Rapid Response Mechanism for Cross-Departmental Policy Coordination

In response to the problems of multi-headed contact and coordination difficulties faced by newly established colleges, it is suggested that a single-window service mechanism for industry-education integration be established at the municipal level. The office of the municipal leading group for industry-education integration should serve as the unified external interface, receive college demands in a centralized manner, and then assign them to relevant departments with limited-time feedback on handling results. For complex matters involving multiple departments, an ad hoc task force mechanism for case-by-case deliberation should be launched, directly coordinated and promoted by the leading group. This mechanism can effectively reduce the institutional contact costs of colleges.

6.1.3. Innovate Milestone-Based Policy Fulfillment Methods

Change the traditional policy fulfillment model of prior application and post-assessment, and introduce a milestone-based phased disbursement mechanism. Key nodes in specialty group construction (such as the approval of the first batch of specialty demonstrations, the completion of the first practical training base, and the opening of the first order-oriented class) should be set as milestones for policy fulfillment, and a corresponding proportion of policy resources should be disbursed each time a milestone is achieved. This method not only incentivizes colleges to accelerate construction progress but also reduces the risk of one-time government investment.

6.2. Second Stage: Flexible Resource Allocation--From Static Possession to Dynamic Sharing

The core meaning of flexible resource allocation is to break through the traditional mindset of resource possession, build a resource-sharing network based on the right of use, and realize the dynamic flow and value maximization of resources among multiple subjects.

6.2.1. Build a Regional Resource-Sharing Pool for Industry-Education Integration

It is suggested that the municipal government take the lead in integrating the equipment resources of medical institutions and pharmaceutical enterprises in the region and establish an industry-education integration resource-sharing platform. Colleges, enterprises, and hospitals can all publish information on idle equipment on the platform, and other subjects can apply to use it as needed. The platform should provide unified scheduling and establish use records and cost-sharing mechanisms. This sharing-pool model can effectively resolve the contradiction between insufficient equipment in newly established colleges and idle equipment in enterprises, reducing costs for all parties.

6.2.2. Explore a Revolving-Door Talent-Sharing Mechanism

In response to the problem of insufficient teacher capacity, it is suggested that a two-way embedding system be established in which college teachers enter enterprises and enterprise backbones enter classrooms. Establish special industry-education integration posts, with special fiscal subsidies, to support colleges in introducing high-level technical talents from enterprises as industrial professors; at the same time, support young college teachers to take full-time training at cooperating enterprises for 3–6 months as visiting practice scholars, during which wages are paid by the original unit and enterprises provide practice subsidies. This revolving-door mechanism can realize benign flow and two-way empowerment of talents between colleges and enterprises.

6.2.3. Design Cooperation Contracts with Risk-Sharing and Benefit-Sharing

In response to the insufficient sustainability of college-enterprise cooperation, it is suggested that market-oriented contract tools such as performance-based bet agreements be introduced to clarify the rights and obligations of both parties and the risk-sharing mechanism. For example, in order-oriented class cooperation, it can be agreed that if students work in the enterprise for two years after graduation, the enterprise returns the training costs previously invested by the college; if students leave early, the college returns the living subsidies paid by the enterprise. This bet design can effectively reduce the opportunistic risks of both parties and enhance cooperation stability.

6.3. Third Stage: Endogenous Capacity Growth--From External Blood Transfusion to Self-Blood-Making

Endogenous capacity growth is the ultimate goal of the breakthrough path, aiming to help newly established colleges form sustainable internal capacity on the basis of policy support and resource injection.

6.3.1. Build a Problem-Oriented, Action-Learning Teacher Development Model

Change the traditional teacher development path of "sending out for training" and establish an action-learning mechanism in which projects drive teams and practice promotes growth. The specific approach is to transform real problems in specialty group construction (such as the

development of a certain core course or the design of a certain practical training project) into action-learning projects for teacher teams. Teacher teams complete project tackling under expert guidance and achieve capacity improvement in the process of solving problems. This model embeds teacher development into the actual work of specialty group construction, realizing learning by doing and doing by learning.

6.3.2. Establish an Industry-Driven, Dynamically Iterative Curriculum Development Mechanism

In response to the problem that curriculum content lags behind industrial technological updates, it is suggested that a dynamic curriculum iteration mechanism of semester-based revision and annual restructuring be established. At the end of each semester, organize joint college-enterprise curriculum review to quickly revise curriculum content according to industrial technological changes and student feedback; at the end of each academic year, organize in-depth curriculum restructuring discussions to adjust curriculum modules and teaching priorities according to industry development trends. At the same time, introduce the concept of micro-courses to quickly embed new industrial technologies and standards into the existing curriculum system in a modular way, improving the agility of curriculum updates [12].

6.3.3. Create an Ecological Closed Loop of "Support Through Services and Development Through Contributions"

Newly established colleges should actively integrate into the overall situation of regional economic and social development and take social services as an important way to build capacity and obtain resources. Specifically, relying on specialty advantages, they can carry out public welfare activities such as technical training, health services, and science popularization for the grassroots, establish a brand image and accumulate social capital in service. At the same time, feed cases, data, and relationship resources accumulated in social services back into teaching, realizing a virtuous cycle of service, teaching, and research. When a college becomes an indispensable talent supplier and technical service provider in the region, its development will obtain sustainable ecological support.

7. Conclusion and Discussion

Taking Yibin Medical and Health Vocational College as a case, this paper systematically analyzes the dilemmas and breakthrough paths of specialty group construction in newly established higher vocational colleges in the pilot of industry-education integration cities. The study finds that in the process of using policy dividends to promote specialty group construction, newly established colleges face three structural dilemmas: the tension between policy dividends and implementation obstruction, the contradiction between resource integration and sustainable operation, and the mismatch between grouping logic and implementation capacity. The deep causes of these dilemmas lie in the insufficient systematicness of the institutional environment, the vacuum-period characteristics of organizational capacity, and the looseness of the actor network.

On this basis, this paper proposes a three-stage progressive breakthrough path of precise policy delivery, flexible resource allocation, and endogenous capacity growth. The logic of this path is: precise policy delivery solves the problem of the first driving force and ensures that policy dividends can be effectively transmitted to the college side; flexible resource allocation solves the problem of resource constraints and helps colleges achieve efficient operation at a relatively low resource level; endogenous capacity growth solves the problem of sustainable development and promotes colleges to shift from external blood transfusion to self-blood-making. The three-stage path is progressive and mutually supportive, constituting a systematic solution for specialty group construction in newly established higher vocational colleges.

The theoretical contributions of this paper are as follows: First, it shifts the research perspective from mature colleges to newly established colleges, revealing the unique dilemmas of this special subject in the implementation of industry-education integration policies; second, it constructs a three-dimensional analytical framework of structure, capacity, and institution, providing a theoretical tool for systematically understanding specialty group construction issues; third, it proposes a three-stage breakthrough path model, enriching the theoretical system of industry-education integration policy implementation and vocational education capacity building.

The practical value of this paper lies in providing a systematic plan for specialty group construction for Yibin Medical and Health Vocational College and similar newly established colleges, and providing replicable experience and reference for the coordinated development of vocational education and industry in central and western China. Of course, this study also has certain limitations: the particularity of the case study may limit the universality of the conclusions; the research period is relatively short, and the long-term effects of some strategies need further testing. Future research can conduct multi-case comparisons and use longitudinal tracking methods to test the sustained effects of the three-stage path.

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