

# Research on the Construction of Characteristic Specialty Cluster in Application-Oriented Colleges under the Integration of Industry and Education

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**Keywords:** Integration of production and education, Application-oriented colleges, Characteristic cluster construction

**Abstract:** At present, the practical teaching in application-oriented undergraduate colleges has not formed an efficient management system. There are some problems in the construction of professional clusters in transitional colleges and universities, such as low position, separation of production and education, limited resources, separation of production and education, strangers between schools and enterprises, professional convergence, serious homogenization of talent training, difficult employment of college graduates and so on. The construction of specialty groups plays a vital role in the high-quality development of Applied Undergraduate Colleges and universities, making industry and education fully integrated in resources and information. Strengthen the cooperation between industry and education, build a platform for collaborative technological innovation, and build a platform for innovation and entrepreneurship between government and school, so that the construction of professional clusters can face industrial clusters, highlight the characteristic advantages, deepen the integration of industry and education, and innovate collaborative management. Build professional clusters around industrial chain, practice platform, integration of production and education, and innovate the construction mode of professional clusters by establishing phased methods. Strengthen the reform of teaching staff, curriculum construction, teaching management, school-enterprise cooperation, improve the supporting facilities of professional cluster construction and other aspects of overall planning and step-by-step implementation, and promote the construction of professional clusters.

## 1. Introduction

With the rapid development of economy and the prominent structural contradictions of higher education, the talent structure and quality of colleges and universities can not meet the needs of market economic structure adjustment and industrial upgrading. Based on this, the state has issued a series of policies and documents on industry education integration, leading the industry education integration model to gradually extend to the construction of characteristic specialty clusters of application-oriented colleges. Professional cluster is an important breakthrough for the sustainable development of Local Application-oriented Colleges and universities, which promotes the healthy development of colleges and universities and meets the needs of local industrial chain and innovation chain. This requires colleges and universities to implement interdisciplinary and interdisciplinary teaching in the teaching process according to the idea of supply side structural reform and in combination with the characteristics and advantages of disciplines and specialties of colleges and universities in the region.

However, application-oriented undergraduate universities still face some operational problems in the practice of building professional clusters, and there are still outstanding difficulties in optimizing and upgrading professional clusters and pushing forward the transformation of universities in depth. Many local colleges and universities are facing the double test of students and enterprises, and they can't correctly understand their position and role in the local social system. The quality monitoring and evaluation system of practical teaching is not clear, and the connection between professional clusters and industrial clusters lacks top-level planning and substantive promotion, and the qualitative evaluation index of macro-management guidance of professional clusters is lacking. Some local colleges and universities have outdated knowledge and discussion on

the construction of professional clusters, and the process assessment and monitoring are insufficient. Therefore, it is of great significance to clarify the thinking direction of professional cluster construction and promote the mutual integration of professional cluster and industrial cluster.

## 2. Significance of the Construction of Characteristic Specialty Clusters in Application-Oriented Colleges under the Integration of Industry and Education

The construction of professional clusters is to meet the requirements of industrial chain and innovation chain for talent training. It is driven by innovation, takes key areas as breakthroughs, integrates the resources and advantages of colleges and universities, is conducive to resource sharing and gathering innovative elements, and enables Application-oriented Undergraduate Colleges and universities to seize opportunities and enhance their core competitiveness. In addition, the construction of specialty groups is related to the survival and long-term development of the University, promotes the integrated construction of disciplines and specialties and the integrated construction of management mechanism and system, is the guarantee basis for providing high-quality and highly skilled innovative talents, is conducive to optimizing the professional layout of Applied Undergraduate Colleges and Universities, and improves the ability to serve regional economic and social development. It is a strategic choice for the optimization of professional structure and the adjustment of professional layout.

Many application-oriented colleges have built a typical model of professional cluster construction. Through the establishment of professional clusters, we can efficiently realize the functions of training applied talents and serving the society, integrate and develop the three functions of “talent training”, “scientific research” and “social service”, implement a series of incentives and guidance measures for the construction of teaching staff by relying on professional clusters, increase the proportion of “double-qualified and double-capable” teachers, stabilize the professional scale, connect the industrial structure and optimize the professional layout. It is helpful for application-oriented undergraduate universities to fundamentally solve the problems that talent training is out of touch with employment demand, teaching and scientific research is out of touch with social demand, strengthen professional connotation construction, improve school-running efficiency, and thus promote the connotative development of transitional universities.

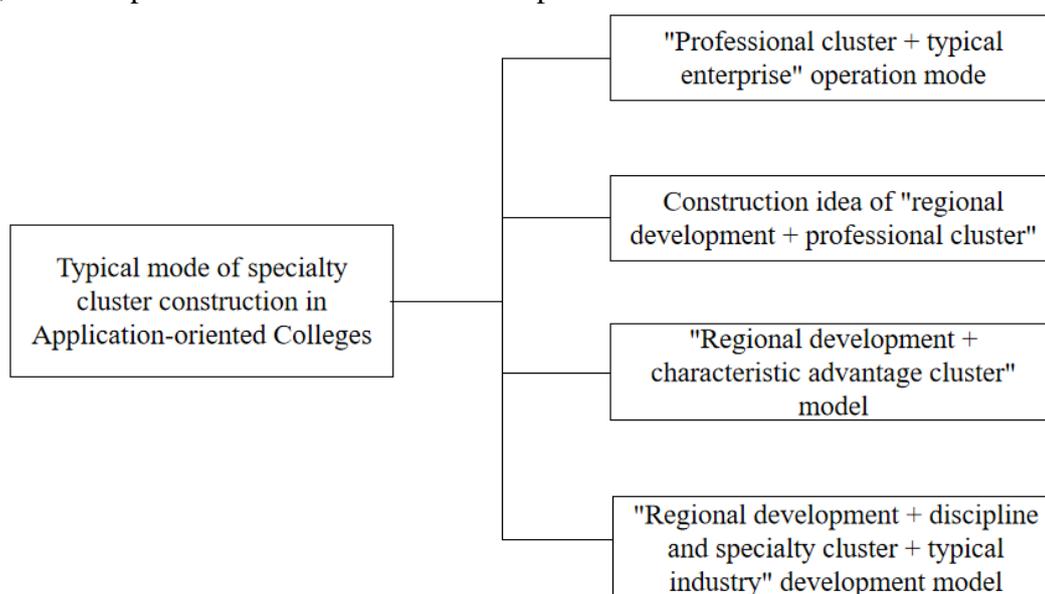


Fig.1 Typical Model of Professional Cluster Construction in Application-Oriented Colleges

## 3. Difficulties in the Construction of Characteristic Specialty Clusters in Application-Oriented Colleges under the Integration of Industry and Education

First of all, the practice teaching base on campus is managed and used by all teaching units, and

some teaching units pay more attention to construction than management. For universities in transition, they should also consider the limitation of their own resources and the optimization of teaching staff, which leads to poor coordination and inefficient use. The increase in the number of majors in application-oriented colleges is undoubtedly a dispersion of limited resources, and all departments, including relevant teaching departments, lack due attention and coordination, which restricts professional development and is not conducive to resource sharing.

Secondly, due to the lack of teachers, curriculum without characteristics, insufficient practical conditions, lack of training facilities, unclear characteristic direction and other reasons, the application-oriented undergraduate colleges do not have high recognition of practical teaching instructors, the goal of professional clusters is not clear enough, the relevant teaching ideas, teaching management and teaching operation are still in the exploratory stage, and the allocation of full-time practical teaching teachers is insufficient. The college keeps the specialty, the specialty keeps the teachers, and the teachers keep the curriculum. There are no provisions to assess the construction scale, cost, effect and talent training quality of professional clusters. Each link has a relatively clear boundary, and no one is willing to give up.

Thirdly, although the school-enterprise cooperation is based on the documents issued by departments at all levels, it still lacks the overall planning from the height of university development and the overall layout of majors. Universities don't pay attention to the important role of school-enterprise cooperation in promoting their own development, and students don't have enough time for experiment and training, so they don't have enough opportunities to practice in the production line of enterprises. The transformation of colleges and universities lags behind the pace and needs of industrial development, and the operational mechanism of professional cluster construction is still in the initial exploration stage. Under the integration of industry and education, application-oriented colleges need to deepen their understanding of the connotation of "industrial development is the core of professional development". In many colleges and universities, the platform of collaborative elements of integration of production and education is slow to build, and the construction of different professional groups is not fully integrated with related majors. The research work of some universities in transition needs to be extensive and in-depth, which can't really stimulate students to study and practice the professional knowledge, and the efficiency and construction effect are greatly reduced.

#### **4. Measures for the Construction of Characteristic Specialty Clusters in Application-Oriented Colleges under the Integration of Industry and Education**

First, open and share the teaching resources of the practice base on campus. The construction of shared curriculum platform should always adhere to the demand orientation, focus on the talent training objectives of professional clusters, and combine the characteristics of each major in the cluster to scientifically orient the development direction and optimize the discipline layout. Excavate the global resources under the background of the Internet, set up the practice base in school and the practice center of innovation and entrepreneurship for resource sharing, and promote the curriculum reform of practice teaching. Teachers and students should exchange and study together to cultivate students' innovative spirit and practical ability.

Second, the construction of professional clusters should be oriented to industrial clusters. At the implementation level, the construction of professional clusters should not only go deep into the local industrial chain, but also consider the actual situation of local economic development, build an off campus practical education base of professional clusters, and carry out industry university research cooperation between schools, governments and enterprises. In order to deepen the integration of industry and education, application-oriented undergraduate colleges and universities should cooperate closely with enterprises and scientific research institutes, combine the regional development orientation and the needs of industrial development, concentrate advantageous resources and improve the curriculum system, training conditions and teacher construction of talent training.

Third, establish an effective integration mechanism of production and education. It is necessary

to integrate the specialty construction and discipline direction into the local industrial chain, promote the deep participation of enterprises in personnel training, and deeply integrate the teaching system links such as courses and practices, so as to help establish a long-term and stable cooperative relationship among various interest communities in the professional chain. Professional clusters in colleges and universities should also promote the development of enterprises and industries, and initially form a stable and mutually beneficial cooperation system between schools and enterprises in personnel training. Government-enterprise co-construction of innovation and entrepreneurship platform can enhance students' innovation ability, and lay a solid foundation for realizing the sharing, co-construction and win-win between school and enterprise.

## 5. Conclusions

To sum up, in the context of the integration of industry and education, in view of the multiple practical difficulties of the current construction of professional clusters, application-oriented colleges and universities should build professional clusters based on the integration and sharing of limited resources, seize the coming challenges and opportunities, deepen the reform of physical education in Colleges and universities, and realize the transformation to high-level application-oriented undergraduate colleges and universities. The integration of industry and education is the key to guide the construction of professional clusters. Government schools and enterprises jointly build an innovation and entrepreneurship platform, so as to improve the level and quality of practical teaching management in Applied Undergraduate Colleges and universities, and cultivate more high-quality applied talents to adapt to the transformation and upgrading of regional economy. Industry cluster construction is the starting point and breakthrough for colleges and universities to achieve successful transformation, which is conducive to highlighting the characteristics and advantages of colleges and universities. Application-oriented colleges and universities should innovate the training mode of sports professionals, adhere to scientific construction principles and methods, and establish a school enterprise cooperative education mechanism combining industry and education. The construction of high-level professional clusters is the key carrier of school-running characteristics and brands. Enterprises can take advantage of the trend, actively carry out stable and efficient school-enterprise cooperation with transformation universities, and innovate the talent training mode of professional clusters; Build a collaborative technology innovation platform, improve the social service ability of professional clusters, and realize the talent training system based on career development and promotion path by relying on professional clusters and post groups.

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