Research on the Principles and Mechanisms of Universities' Disciplines and Specialties Promoting the Development of Industrial Clusters

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Abstract: As the scientific and technological support and talent carrier of local industry development, the disciplines of local universities and colleges have always been the focus of promoting the development of industrial clusters. The development of disciplines and majors promotes and synergizes the survival and development of regional industrial clusters. Based on the analysis of the principle of the role of university disciplines in promoting the development of industrial clusters, this paper focuses on the coordination mechanism of university disciplines and industrial clusters, from the support and promotion of disciplines to industrial clusters, and the attraction and promotion of industrial clusters to disciplines and majors. , Analyzes the collaborative innovation relationship between disciplines and industrial clusters, and then puts forward corresponding suggestions on the construction of collaborative innovation mechanism between disciplines and industrial clusters from the levels of demand, talents, and platforms.

1. Introduction

University disciplines are the main source of knowledge innovation, and play an important role in incubating and promoting the development of regional industrial economy, the realization of industrial clusters, and the transformation of knowledge into productivity. The rapid development of industrial clusters with regional comparative advantages and core competitiveness as the connotation promotes the continuous deepening of the overall quality, competitive efficiency and agglomeration effect of the industry to a higher level and connotation. This further requires relying on diversified innovation coordination and regional endogenous growth, giving full play to the support and guidance of subject expertise, scientific research results and human capital, and accelerating the improvement of the self-development and innovation capabilities of the regional economy.

2. The Role of University Disciplines in Promoting the Development of Industrial Clusters

In the innovation and development of regional economy, whether industrial clusters are formed naturally, led by the market, or promoted by the government, their development and growth require a steady stream of strong and sustained power to promote and maintain. Generally speaking, there are many influences and driving factors that can promote the continuous upgrading and development of a regional industrial cluster. However, in any case, the disciplines and majors of universities, which are the training of innovative talents and the supply of scientific and technological achievements, play an important role in the development of industrial clusters. The consensus of the society. The discipline and professional structure of local universities presents dynamic compatibility with the regional industrial structure. The basic principle of this dynamic compatibility is that the triggering and promotion of industrial clusters is the result of the consistent matching of professional needs and educational services. However, due to the discipline and professional structure and industry The structure is divided into two major systems of education and economy, with their own different structures, functions, compositions and operating mechanisms. The two are independent of each other on the surface, but in essence, the coordinated development through professional positions or talent needs is both active and adaptable. , And has the essential characteristics of passive driving. Colleges and universities have the three basic functions of personnel training, scientific research and social

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service in social development, and the three are in the same line and integrated with each other. The talent training and scientific research conducted by universities based on the regional industrial structure is the foundation and foundation of the discipline construction of local universities. The social service function of universities uses professional talent training and scientific research results of the discipline to integrate human capital and technological achievements with the regional industry. The needs of cluster development are connected. At the same time, the driving force for the development and upgrading of industrial clusters comes from new ideas and new technologies for social development. It also requires high-quality professionals who are suitable for the supply of disciplines and specialties as support and carriers. As the main exporter of technology, knowledge, and talents required for the development of industrial clusters, the construction and development of disciplines and specialties of universities play an important role in promoting the integration and upgrading of industrial clusters.

3. Collaboration Mechanism between University Disciplines and Industrial Clusters

The famous American management scientist Michael Porter put forward the definition of production clusters in an article published in “Clusters and New Competitive Economics” (1998). He believes that a cluster is a phenomenon where a series of upstream, midstream and downstream industries, companies, or institutions are connected and interacted in a specific industry in a specific geographic location. The subject professional group is based on the division of social occupations. According to the needs of different knowledge systems, a number of disciplines with the same level of attributes and a number of disciplines with the same or related disciplines are organically combined to form penetration, integration, cross-complementation, and collaboration. Symbiotic subject professional group [1]. In terms of a certain meaning and practical needs, the related theories of disciplines and majors are the extension and transformation of the regional industrial clusters in economics at another level of matching in education. It is the specific application of industrial clusters theory in the education field. Industrial clusters and disciplines Groups have inherent relevance and correspondence.

3.1 The Promotion and Collaboration of Industry Clusters on Subject and Professional Groups

Affected by the time, place, and harmony of people, the main body of the construction of local colleges and universities and the source of scientific research topics are local industrial clusters. The development of the local economy, especially the development of industrial clusters that gather regional advantageous resources, is directly related to the way out of talent training in universities and the demand for technological innovation [2]. A certain discipline and professional structure is a direct reflection of a certain industrial structure, and the optimized development of industrial clusters requires that the discipline and professional structure of colleges and universities adapt to it. However, in reality, the requirements for the depth and breadth of knowledge, competence structure and quality of the talents required or supported by the development of regional industrial clusters are not the same. This kind of demand or support will make the universities in the region establish the same level as those in the region. Majors or subject professional groups that match related industries, so that local universities can better research and develop scientific research results required by industrial clusters, facilitate and smoothly transform research results into the productivity required by regional industrial clusters, and realize that local universities can directly serve the regional economy Education mission. Especially with social progress and the widespread application of science and technology, more and more science and technology are needed for the development of industrial clusters. How to better improve one's core competitiveness and how to better obtain scientific and technological support and intellectual support requires disciplines and majors in local universities. Extensive support and promotion. Local industrial clusters and local colleges and universities collaborate in multiple disciplines and disciplines, and collaborate in educating people, in order to achieve the healthy and stable development of regional industrial clusters, and become an effective support for improving industrial competitiveness.

3.2 The Promotion and Collaboration of University Disciplines on Industrial Clusters

Only scientific discipline structure, reasonable professional scale, perfect discipline professional system can effectively cultivate and deliver the number of regional industrial clusters, qualified talents, hierarchical matching, and species. The structure, specifications, scale of college disciplines cultivate talents must be consistent with the industrial structure. Optimization and upgrading of the industrial cluster is the process of market supply and demand from unbearable to balanced development. The factors are multi-diverse, but the technical supply is the main influencing factors for the optimization and upgrading of industrial clusters, but to achieve technical effective supply and progress, especially to maintain science and technology. The reasonable structure of the main body is a high-level talent. It mainly depends on the application of the proposed discipline. Its integration development often leads to the birth of new technology, new achievements, and even accelerates the production of industrial agglomeration or emerging industries. . This requires colleges and universities through the scientific settings and adjustments of disciplines, providing effective support and scientific and technological achievements of talents, and promoting the optimization and upgrading of industrial clusters. Of course, if the college discipline cannot closely reduce the development of industrial clusters and scientific and technological needs, the situation is bound to have a hysteresis impact on the optimization and upgrading of regional industrial clusters, affecting local college social service functions.

4. Construction of Collaborative Innovation Mechanism of University Disciplines and Industrial Clusters

4.1 Market Demand Pull Mechanism

Industrial clusters and disciplines will have effective competitiveness and development ability only when they are driven by market demand. Establishing a market-demand-oriented integrated collaborative innovation mechanism, jointly exploring market demands, and promoting regional economic development is the foundation for promoting the optimization and upgrading of industrial clusters. Although the scientific research personnel in the discipline have technical and R&D capabilities, the market awareness is insufficient. The transformation of scientific and technological achievements into products requires enterprise operation and development. Therefore, enterprises and scientific and technological innovations must be closely connected with market needs to form market-oriented collaborative cooperation. Improve the scientific and technological transformation power of subject clusters and the core competitiveness of industrial clusters, and promote the healthy development of the positive interaction mechanism of the two collaborative innovations in the right direction.

4.2 Talent Innovation Leading Mechanism

The source of power for the development and growth of industrial clusters comes from technological innovation. A large number of high-quality talents and a steady stream of new ideas and concepts are the prerequisites and foundations for collaborative innovation between disciplines and professional clusters and industrial clusters. The development of industrial clusters needs to strengthen the talent innovation leadership mechanism. On the one hand, it is necessary to strengthen talent work, deepen the reform of the talent system, improve the functions of the regional talent market, provide basic conditions and social security for the introduction of talents, and attract and retain technology in the cluster. On the other hand, strengthen the connection between disciplines and talents and technologies of industrial clusters, and promote the flow of knowledge and technology within the industrial clusters and the growth of the scale of talents.

5. Interdisciplinary Promotion Mechanism

Industrial clusters are generally based on regional resources and exist with regional industrial chains as the core. To build a discipline and professional cluster that is compatible with regional

industrial clusters, a “discipline and professional chain” that fits the “industrial chain” should be built not only within universities, but even among universities. The development of interdisciplinary integration is the inevitable way to promote innovative talents, compound talents and applied talents. Colleges and universities should base themselves on the regional natural endowments and start with advantageous disciplines. On the one hand, they should continue to nurture interdisciplinary emerging disciplines and majors to lead industrial innovation and development; on the other hand, they should expand disciplines related to advantageous disciplines, carry out the construction of emerging interdisciplinary majors, and promote and deepen the development of industrial clusters. . Universities can only continue to improve their disciplines based on regional resources and emerge as new interdisciplinary disciplines, and actively integrate into the talent and technological innovations of industrial clusters, promote the deep innovation and integration of industrial clusters and discipline clusters, and promote the flow of knowledge. , Talent gathering and technological fission can solve the various complex problems faced by the innovation and development of industrial clusters and promote the healthy development of industrial clusters.

6. Industrial Policy Promotion Mechanism

In the innovation coordination mechanism between disciplines and industrial clusters, the government plays a role as a protector and promoter of collaborative innovation. Through government policy promotion, the development and improvement of the collaborative innovation mechanism between industrial clusters and disciplines can be accelerated. The government, as a policy maker and promoter of industrial clusters, adopts industrial policies, such as local resource supply balance, regional industrial structure optimization, and industry development direction guidance; science and technology policies, such as science and technology awards, project support, achievement transformation, park construction, and capital investment And so on, connect and gather related universities, industries, and enterprises to promote the healthy development of industrial clusters. When formulating industrial policies, it is necessary to fully consider the possible heterogeneity of national and local development, effectively integrate the goals, and avoid the problem that the heterogeneity of local and national goals causes industrial policies to effectively serve industrial clusters. , While determining the development of industrial clusters, make overall plans to ensure the effective and rapid transmission and implementation of policy information, making the formulation of industrial policies more operational and implementable.

7. Platform Innovation Support Mechanism

Due to the influence of natural endowments and other traditional factors, in industrial clusters, the endogenousness of regional high-tech enterprises or leading enterprises is insufficient. To a certain extent, regional industrial clusters lack technology diffusion and innovation, and there is no innovation collaboration platform between industrial clusters to communicate with each other. , Especially limited by the inherent path dependence, some companies not only have difficulty giving up their original production and processes, but even opposing leading high-tech companies. At the same time, due to the transmission of information and knowledge in the industrial cluster, an atmosphere of innovation will be promoted. At the same time of innovation, it is also easy to be imitated, which becomes an obstacle to development and hinders the company's motivation for continuous innovation. Therefore, in order to realize the in-depth integration of disciplines and industrial clusters facing the needs of regional economic development, it is necessary for the leading universities in the disciplines of colleges and universities, the leading enterprises in the industrial clusters and the relevant departments of local governments to jointly build an innovation platform. In the process of constructing industrial clusters’ interaction and collaborative innovation, establish regional industrial cluster innovation centers or platforms in accordance with the principle of “collaborative sharing and innovation leading”, establish stable formal or relationships, extend the industrial chain, and increase the number of enterprises within the industrial cluster The interdependence between. In accordance with the needs of industry development in the industrial

cluster, the collaborative innovation center makes full use of the resources of the collaborative innovation center, gathers high-end talents and innovation resources in the development field, uses existing R&D centers, experimental sites, and innovation bases, closes school-government-enterprise cooperation, and integrates internal resources , To build a platform for collaborative innovation, improve the level of scientific research, solve common technical problems faced by industry and industrial development or major problems in production practices, lead regional industrial development, and form a new mechanism for collaborative innovation of regional industrial clusters.

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[2]Heilongjiang Province Educational Science Planning 2021 key project “Inheritance and Development of Rural Culture in Ideological and Political Education of University Business Management Courses” (Project Number: GJB1421489).

[3] The results of the 2020 Heilongjiang Provincial Undergraduate University Basic Scientific Research Business Expenses Key Project “Research on the Diversified Integration of Enterprise Management Disciplines and Collaborative Education Model from the Perspective of Industrial Clusters” (project number: 2020-KYYWF-0551).

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