

The Benefits and Mode of Enterprise Participation in School-enterprise Cooperation in Vocational Education

Boqu Hu, Jingyun Zheng, Yuewei Liu *

Wenzhou Polytechnic, Zhejiang, China

* Corresponding author: Yuewei Liu (Email: 670310178@qq.com)

Abstract: School-enterprise cooperation is a new model of industry-university cooperation in education, which is a way to implement the policy of combining education and production work, and to cultivate advanced skilled and applied talents with comprehensive development. At present, the development of school-enterprise cooperation in China is not sufficient. There is insufficient motivation for enterprises to participate. In order to promote school-enterprise cooperation, this paper analyzes the role and mode of enterprise participation in school-enterprise cooperation.

Keywords: School-enterprise cooperation, Vocational education, Human resources, Cooperative R&D, Cooperative model.

1. Introduction

School-enterprise cooperation is a new mode of education in which vocational schools and industries cooperate to educate people, and it is a mode of education that implements the policy of combining education and production work and cultivates advanced skilled and applied talents with comprehensive development. It is a "win-win" model that focuses on cultivating quality, learning in school and practice in enterprises, and sharing resources and information between schools and enterprises. School-enterprise cooperation is targeted to cultivate talents for enterprises, focusing on the practicality and effectiveness of talents; it has achieved the new concept of combining practice and theory in line with the needs of society, the market, and cooperation with enterprises; it not only improves the strength of education and cultivation of talents, but also contributes to the development and growth of enterprises[1]. The combination of teaching and research activities of the school and production also makes vocational education better serve the local economy and social development, and can be anxious to the urgent needs of enterprises, actively participate in new product development and technological innovation activities of enterprises, and work with enterprises to overcome technical problems. To the extent possible, the resources of both schools and enterprises can be shared effectively to realize the close integration of "production and learning". The development practice of enterprises also proves that high-quality workers are the cornerstone of the development and growth of enterprises, and to transform advanced science and technology into realistic productivity, we must rely on high-quality technically skilled talents. In the process of accelerating the transformation of economic development mode and vigorously promoting the new type of industrialization, strengthening the cooperation between schools and enterprises in vocational education is not only the natural path to promote the comprehensive development of human beings, but also an inevitable choice to improve the quality of workers and promote the innovative development of enterprises. The innovation ability of Chinese enterprises has always been an important factor limiting the development of Chinese enterprises. In order to enhance the innovation capability of enterprises, on the one hand, enterprises need to

strengthen independent innovation, and on the other hand, they need to strengthen cooperative R&D. Cooperative R&D has many benefits, such as resource sharing and complementary advantages[2]. Cooperative R&D not only lies in the ability to bring together homogeneous or complementary R&D resources, share R&D costs and risks, and improve the economy of scale effect of R&D. More importantly, through the sharing of resources and capabilities, collaborative R&D can help achieve collaborative innovation and create new knowledge and capabilities. At the same time, collaborative R&D also helps to reduce the waste of resources caused by duplicated R&D.

However, the development of school-enterprise cooperation is not sufficient. At the enterprise level, participation is not high, enterprises do not receive the necessary cost compensation, and the participants lack effective communication; at the school level, the quality of school personnel training is difficult to meet the employment requirements of enterprises, there is a serious lack of teacher resources, and difficulties in docking between enterprises and schools are prominent. In a word, there exists a large number of symbolic and formal school-enterprise cooperation, most of the cooperation stays at the level of enterprises accepting top-up internships in institutions, the degree of sharing R&D resources such as projects, equipment and personnel is low, both schools and enterprises have not yet established a win-win mechanism for cooperation, and the lack of motivation for school-enterprise cooperation and the low quality and efficiency of school-enterprise cooperation are important problems that have long restricted the development of vocational education.

In order to promote school-enterprise cooperation, this paper analyzes the benefits and modes of enterprise participation in school-enterprise cooperation.

2. The Benefits of Enterprise Participation in School-enterprise Cooperation

2.1. Access to dedicated human resources

From the perspective of skill specialization, if the human capital specialization of the skills required by the enterprise is very weak, the conversion cost of general knowledge is low,

and the enterprise generally tends to buy skills directly from the market; if the technology and process of the enterprise are very different, the conversion cost of expertise is high, and even investment in highly specialized skills cannot bring any benefit to other enterprises, and the enterprise tends to produce skills internally --investing in vocational schools; while in the scenario where the degree of specialization of skilled human capital is relatively high and the investment in skills can still bring benefits to other firms, firms are motivated to invest in skills only if the demand for skills is high (scale effect) and there are safeguards in place[3]. Differences in firms' incentives to invest in skills arise first from skill specialization (or skilled human capital specialization). That is, the stronger the skill human capital specialization, the more firms tend to invest in specialized skills; the weaker the skill human capital specialization, the more firms tend to purchase generic skills. As the main body of economic operation in the market economy, the enterprise is an important terminal for the use of the results of investment in education, i.e. the individual, as the direct beneficiary of investment in education, gets the final expression of his or her skills and innovation ability in the social and economic life mainly through the production and operation behavior of the enterprise. In the case of a well-functioning market economy, i.e. when enterprises have access to sufficient and correct market information, they can determine their requirements for the skills and quality of their employees according to their own development needs, and in this case they have a high motivation to invest in training and re-education[4].

Enterprises should establish a reasonable human capital structure, take the initiative to dock with schools, cooperate with colleges and universities, and participate in all the work of school-enterprise cooperation in talent training. Through close articulation and cooperation, we can accelerate the training of talents in shortage in the manufacturing industry, and we can better improve the quality of talent training so that they can match the requirements of enterprises. Cultivate employee loyalty and support practical teaching.

2.2. Get High-Tech

Transaction cost theory explores whether firms should produce their own products or go to the market to buy them. Transaction cost theory suggests that for a given transaction, different governance structures need to be chosen to match it, and the choice is based on minimizing costs. Costs here include both production and transaction costs, and since production costs are relatively fixed, it is mainly transaction costs that play a role in determining them. If a firm has access to resources and can produce all of its products independently, then it does not need to trade with other firms. However, this is usually not the case, and it is often beneficial for a business to trade with other companies or to engage in other forms of cooperation.

Technological innovation is a high-risk, uncertain and complex system engineering, and the goal of industry-university-research cooperation for enterprises is to reduce the excess costs due to uncertainty of technological innovation[5]. When the transaction cost of University-Industry Cooperation in innovation is lower than the cost of in-house technology development, enterprises are willing to choose to cooperate with universities and research institutions. From the perspective of transaction costs, some of the motivations for enterprises to participate in University-

Industry Cooperation include (1) reducing R&D costs, (2) generating knowledge spillover benefits, and (3) gaining R&D economies of scale.

According to resource dependency theory, an organization's most important survival goal is to find ways to reduce its dependence on external key resource supply organizations and to find a way to influence those supply organizations so that key resources can be held in a stable manner. Resource dependence theory asserts that resources vary greatly among firms and are not completely free to flow, and that many resources cannot be traded in the marketplace through pricing. Organizational talents, for example, which are measured by convention, may provide a longer-term competitive advantage in the marketplace than tangible resources such as machinery and equipment. Yet, it is not possible to purchase it from the market. At the same time, no company can have all the resources it needs in relation to its growing goals, and there is always a strategic gap between resources and goals. Therefore, in order to obtain these resources, the company interacts with other organizational entities in its environment that control these resources, which leads to organizational dependence on resources. Because of this dependency, organizations try to dominate their environment and plan their responses to episodic events; strive for intimacy; and avoid dependence on markets and dependence on technologized opportunities.

Industry-university-research cooperation is an important way for enterprises to solve the scarcity of technological resources. When it is difficult for enterprises to obtain the required R&D resources through market transactions or M&A channels, seeking cooperation with universities and research institutions to obtain scarce technological resources becomes an important choice for them. Resource dependence theory points out several purposes for enterprises to cooperate with universities: (1) to obtain basic and applied research results from universities to promote the development of new products and processes in enterprises; (2) to obtain human resources including high-quality graduates and teachers; (3) to bring in university professionals; (4) to communicate with professionals to obtain solutions to specific problems; (5) to conduct training for enterprise employees; (6) to increase prestige and strengthen corporate image through university recommendations; and (7) Build a good social network.

2.3. Internalization of technology spillover

Technology spillover is the process by which the new knowledge acquired by a firm through technology development activities spills over to other firms through various channels (employee turnover, tangible products, etc.) without the receiving firm paying anything for it, thus reducing the cost of technology development for the firm. Profit-maximizing enterprises will allocate part of their resources to the development of new products or new production technologies, provided that they believe that there are unused technological opportunities, new markets, or that they believe that the benefits they get from innovation can cover their costs[6]. Due to the spillover effect of technological knowledge, the results and benefits obtained by the enterprises through independent R&D will not be fully captured by themselves, and part of them will spill over to other enterprises participating or not participating in R&D. In this way, enterprises not participating in R&D at all will apply the results of other innovative enterprises for free in the process of production and manufacturing.

Internalizing spillovers to address the problem of revenue appropriation is one of the key motivations for collaborative R&D. The appropriation of innovation benefits by firms is important to maintain innovation-based competitive advantage, and the appropriation of innovation benefits is not only the protection of innovation results, but also the incentive for technological innovation through the protection of innovation results. Due to the externality characteristic of R&D activities, it becomes an important strategic behavior for firms to internalize the external benefits generated by R&D activities through cooperative R&D between firms.

2.4. Social benefits

Enterprises are bound and influenced by social norms. The involvement of enterprises in university-industry cooperation activities to develop talent may not be motivated by economic efficiency, but rather by a ritualistic management strategy[7]. By integrating into their formal structure such socially recognized elements of the environment as university-industry cooperation for talent development, firms can maximize their legitimacy and enhance their resource acquisition and viability. According to organizational sociology, external legitimacy or normative pressure comes mainly from coercive pressure from politics, laws, policies, etc., normative pressure related to professional or industry regulations, subordination pressure related to the expectations of society at large, and relational pressure. Companies should not only pursue profit maximization, but also contribute to society, which means that they are required to take certain social responsibility and participate in talent training. Companies internalize some values and norms into their own business model or corporate culture through the institutionalization process in the social environment, and thus take their participation in talent development as a matter of course or as an intrinsic value pursuit.

3. Mode of enterprise participation in school-enterprise cooperation

The typical modes of university-enterprise cooperation are summarized as six modes: industry-university cooperation education, continuing engineering education, engineering research center, enterprise postdoctoral workstation, on-campus industry-university-research combination and university science and technology park. According to the relationship of cooperation subjects, they are divided into intra-university industry-university-research cooperation mode, two-way consortium cooperation mode, multi-way consortium cooperation mode and enterprise-based mode; according to the functional area, they are divided into "talent cultivation cooperation", "research and development cooperation" and According to the functional area, it is divided into "talent training cooperation", "research and development cooperation" and "production and operation cooperation".

3.1. Introduction of enterprises to the school

After the introduction of enterprises into the school, that is, part of the production line of enterprises is built in the campus, the school can implement the combination of "theory learning" and "on-the-job practical training" mode of school operation. This model not only solves the problem of insufficient space for enterprises, but also solves the problem of insufficient internship and training equipment for schools, and truly achieves the multi-win way of sharing resources

between enterprises and schools, and obtaining the combination of "industry-university-research".

3.2. Combination of labor and teaching, alternating engineering

The implementation methods are roughly adopted as follows: A. Work-study rotation system - students of the same major and the same grade are divided into two halves, half of them attend classes at school and half of them go to enterprises to work or receive practical training, rotating by semester or school quarter; B. Fulltime labor and after-work classes system - students are employed full time in enterprises, working on top of shifts and using after-work to study, linking the contents of learning and labor through lectures and discussions, etc. Students learn the systematic curriculum at school and go to the enterprise as skill enhancement training. Some Western countries, such as Germany, have vocational and technical colleges with this model, and some Chinese colleges also need to explore this model.

3.3. School-enterprise interaction

Enterprises provide internship bases, equipment, and raw materials, and enterprises participate in the development of the school's teaching plan and assign professional staff to participate in the school's professional teaching. Excellent managers or technicians from enterprises come to schools to teach and promote mutual employment between schools and enterprises[8]. Engineers from enterprises come into schools to teach students, while teachers from schools give training to employees from enterprises to improve the quality of employees. Through the mutual employment of school and enterprises, students get skills training in the teaching process, both to improve professional skills and the process of producing products for enterprises, creating value for enterprises, not only to solve the contradiction of the shortage of practical training materials fees, but also to train students' excellent skills, to truly realize the education of people in the process of generating income, in the process of generating income to educate people.

Through school-enterprise cooperation, enterprises get talents, students get skills and schools get development; thus realizing the win-win result of "complementary advantages, resource sharing, mutual benefit and common development" between schools and enterprises.

3.4. "Order" type cooperation

Students are enrolled in a job, and graduation is employment. Realize the synchronization of enrollment and recruitment, teaching and production, internship and employment association, students are composed of students selected by the school and employees recruited by enterprises, the implementation of education by enterprises and schools together, training and examination content from the needs of enterprises, opened for the professional skills and internship courses required by enterprises, enterprises play a more important role in specific vocational training.

According to the needs of enterprises to carry out short-term skills training, after the training, by the company organization assessment qualified, you can be employed according to the contract. This cooperation is highly targeted, highlighting the flexibility and openness of vocational skills training, training out students with strong adaptability, high employment rate and good employment stability. The

shortcoming of this cooperation model is that the school is very passive, how many people are trained and when they are trained is entirely based on the needs of enterprises, and the school has no initiative. This is a primary mode of cooperation, which is generally used more in secondary schools and colleges.

4. Recommendation

The concept of the other party of school-enterprise cooperation-enterprises must also be changed. In the context of increasing labor shortage and industrial transformation and upgrading, how can enterprises get excellent graduates from vocational colleges and improve their understanding of vocational education, which is also the main body of vocational education. To proactively participate in the process of talent training in vocational colleges and universities, we have to make efforts from vocational schools and enterprises themselves in order to develop the school-enterprise cooperation in vocational education. Enterprises in schoolenterprise cooperation must set up a strategic vision and look into the future in order to establish a deep schoolenterprise partnership and achieve a permanent and sustainable win-win situation.

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