

Promoting cooperation between enterprises and universities in the digital age

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ABSTRACT

In the context of global competition and the development of the 4.0 industrial revolution, collaboration between enterprises and universities is a growing trend worldwide. For enterprises, effective cooperation with universities helps them improve their scientific and technological level, enhance production processes and product quality, and increase the productivity and quality of their human resources. Therefore, the level of cooperation between enterprises and universities is increasingly important. This article points out some characteristics of cooperation between enterprises and universities in the context of Vietnam, clarifies the theoretical basis of the relationship between enterprises and universities, proposes factors affecting the level of cooperation between enterprises and universities, and then recommends some solutions to enhance cooperation between enterprises and universities in the context of Industry 4.0.

1. Characteristics of cooperation between enterprises and universities

In the context of global competition and the rapid development of science and technology, cooperation between enterprises and universities is a popular trend in the world. It has a positive impact on training, research, and development activities in universities and optimally exploits the resources of all parties. For enterprises, effective cooperation with universities helps them improve their scientific and technological level, enhance production processes and product quality, and improve the productivity and quality of their human resources. Therefore, strengthening cooperation between enterprises and universities is increasingly important.

However, the reality in our country shows that the connection between human resource training and social demand for human resources is still very limited; the supply of human resources has not met the demand for labor, which is also a matter of great concern to public opinion. Most universities mainly organize to implement existing training programs, not yet grasping the demand for human resources according to the level and profession of the labor market. Many students after graduation have not met the requirements of employers, or do not work in the field they studied. At the same time, compared to the world, especially European countries and the US, innovation on this issue in Vietnam is very slow, especially policies, mechanisms, and practical implementation solutions from the Government and ministries and branches are still lacking in synchronization. Research results at 8 higher education institutions participating in the Project "Higher education with applied career orientation" implemented by the Ministry of Education and Training (POHE) show that: Cooperation activities between universities and businesses are not numerous. Most universities mainly establish a network of about 10 strategic partners. Only Ho Chi Minh City University of Agriculture and Forestry has established strategic cooperation with 120

enterprises. Other universities have several short-term, irregular cooperation enterprises and have few partner enterprises, such as Hue University of Agriculture and Forestry; Hung Yen University of Technical Education has from 20 to 40 partners; especially in the small group like Vinh University with only 4 partners. The survey results of nearly 1,400 former students who studied at educational institutions in the Project show that: 72.8 % said that they could meet the needs of employers; 75.5 % said that "internships are really useful for the work they are doing". This helps students to be confident, dynamic, and find jobs that match their strengths and training after graduation. However, other cooperation contents and at deeper levels, following the trend of integration and sharing resources for mutual development in cooperation with enterprises, are still limited.

2. Factors affecting cooperation between businesses and universities

For the cooperation between universities and businesses to be effective and beneficial for both sides, and to consider the factors affecting this relationship, Eva M. Mora-Valentin and colleagues (2004) believe that the factors that contribute to the success of this relationship can be divided into two groups: (1) factors related to the situation; (2) factors related to the organization in the cooperation process.

In her research, Nguyen Thi Thu Hang (2008) pointed out that there are two main groups of factors affecting the cooperation between enterprises and universities as follows: (1) Group of factors related to the situation including: The existing close relationship between the two parties, the prestige/reputation of the partners, cooperation goals, the capacity of the parties when participating in cooperation ; (2) Group of factors related to the organization including: commitment between the two parties, the ability to negotiate, communicate, convey information...

From previous studies, the author proposes the following factors affecting cooperation between businesses and universities: (diagram 1)

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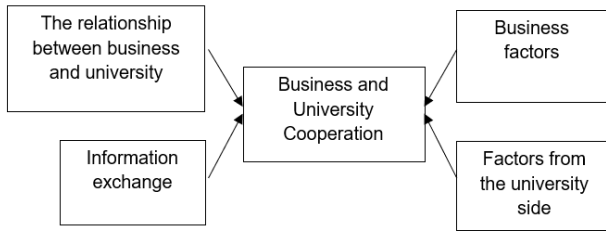


Diagram 1. Model of factors affecting the effectiveness of business-university cooperation.

The group of factors related to the existing close relationship between the two parties, this relationship has been achieved in the past due to previous agreements in projects, research activities of the enterprise with other units. Through the process of implementing the work and the results achieved when working with the partner and the experiences accumulated during the cooperation process, it will help the enterprise continue to choose this partner, and the cooperation will have many prospects for success (Menguzzato, 1992). Thus, this factor refers to issues including: the business and university have an existing close relationship; The commitment to cooperation between the university and the enterprise is fair and for the benefit of both parties; The goals of both parties are shared through cooperation; The form of cooperation between business and university is highly flexible.

The group of information exchange factors refers to issues including commitments, agreements between the two parties and the ability to negotiate, communicate, and convey information, specifically including the following components: Universities and businesses regularly exchange information; The quality of information exchanged

ensures accuracy and timeliness; The content of information exchanged (programs, cooperation plans, etc.) ensures accuracy and completeness.

The group of factors related to the enterprise refers to the following components: The interest and support of the enterprise leaders in training cooperation with the university; The enterprise always has financial resources for cooperation with the university; The enterprise's field of operation is close to the university's training major.

The group of factors from the university side includes: The university has an orientation towards cooperation with enterprises; The university is proactive in approaching and proposing forms of cooperation with enterprises; The university's training quality meets the needs of society; The university's training program is suitable for the standards and professional criteria of enterprises; The university's reputation is demonstrated through cooperation with enterprises; The university is given autonomy.

It can be seen that, in fact, the above factors often have a positive impact on the cooperation between enterprises and universities. However, when implementing cooperation, there are problems that hinder and reduce the connection between enterprises and universities. The main factors can be divided into the characteristics of each organization's operations and the perception of the partner's operations on issues that are not consistent with their own views, such as the enterprise's perception of the universities, or the broken trust in the partner, the organizational culture is not compatible with the system, etc. Due to the conditions of this study, the author has not mentioned the factors that reduce the connection between enterprises and universities.

The expected observed variables in the research model are shown in Table 1 as follows:

Table 1. Observed variables in the research model of cooperation between enterprises and universities.

Factor	Observation variable
Relationship between businesses and universities (4 observed variables)	The businesses and universities have a close relationship already.
	Commitment to cooperation between universities and businesses is fair and beneficial to both parties.
	The goals of both parties are shared through cooperation.
	The form of cooperation between universities and enterprises is highly flexible*
Information exchange (3 observed variables)	Universities and businesses regularly exchange information*
	The quality of information exchanged ensures accuracy and timeliness*
	Information exchange content (programs, cooperation plans, etc.) is guaranteed to be accurate and complete*
Factors from the enterprise side (3 observed variables)	Interest and support of business leaders in training cooperation with universities
	Businesses always have financial resources for cooperation with universities *
	The business's field of operation is close to the university's training major.
Factors from the university's side (6 observed variables)	The university has a vision to cooperate with businesses.
	The university is proactive in approaching and proposing forms of cooperation with businesses.
	The university's training quality meets the needs of society.
	The university's training program is suitable for the standards and professional criteria of the enterprise*
	The university's reputation is demonstrated through cooperation with businesses.
	Universities are given autonomy.

Source: [7] and New development by the author (variables marked with * are additional variables).

3. Some recommendations to enhance cooperation between businesses and universities

- Enterprises and universities need to change their awareness and perspective on cooperation with the principle of "mutual understanding and mutual benefit from cooperation"; at the same time, there should be a mechanism so that scientists should not only care about protecting intellectual property or copyright, and vice versa, enterprises should not be too worried about keeping technological secrets.

- The two sides need to maintain regular channels of contact and communication, share information and ideas through specialized cooperation departments or through joint projects and activities, including development plans, to build long-term strategic cooperation.

- Enterprises and universities need to harmoniously combine benefits and responsibilities in implementing cooperation in the direction: universities prioritize research, technology transfer, provide high-quality human resources, and advise on business issues; conversely, enterprises have orientation, build investment plans for research and development, and receive results for commercialization. Enterprises play the role of information providers so that universities can grasp the needs of the technology market and the labor market.

- The university needs to develop policies and regulations on cooperation and appropriate remuneration to encourage scientists and individuals to participate and actively exploit cooperation with businesses. In parallel with registering, establishing, and transferring intellectual property rights to businesses, to have a source of investment revenue for research and development. Build a database of partner businesses, and actively access funding sources from businesses. Proactively invite managers from businesses to participate in the university's training and research activities.

- Enterprises need to create policies to promote and build a creative culture in enterprises, promote research and development activities in enterprises; Have mechanisms and policies for scientists at universities to participate in projects and share academic knowledge with enterprises.

Conclusion

In our country, the cooperation between universities and enterprises has been of interest to the Party and the State for the past two decades. Documents declaring policies and guidelines affirm: Universities must be centers for scientific and technological research, technology transfer and application in production and life; closely linking enterprises, labor-using establishments, training establishments and the State to develop human resources according to social needs; considering enterprises as the center of innovation, application and technology transfer, the most important source of demand in the science and technology market...

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