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A study of the factors affecting the willingness to engage in business-university cooperation

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Abstract

While developed countries have been aware of the important role and built successful models of business-university cooperation, in Vietnam, this cooperation has not been paid enough attention to and has not yet been implemented. To improve the situation, this study develops a model of factors that affect the businesses's willingness to participate in the business-university cooperation in Vietnam. Utilizing data collected from interviews with 58 enterprises and applying the exproratory factor analysis (EFA) and the regression analysis, this study finds that two factors, which are the awareness of benefits, and barriers, affect the companies' willingness to participate in business-university cooperation. While awareness of benefits promotes the businesses willingness, barriers prevent owners/managers from engaging in such relationships. Based on the research results, some solutions are proposed to enhance the willingness of companies.

Keywords: Business-university cooperation, Regression model

1. Introduction

In the world, there is much work that has been done about business - university cooperation so far. Nevertheless, those studies are mainly about identifying different modes of cooperation or identifying factors that affect the cooperation, albeit the second issue is less often mentioned (Etzkowitz and Leydesdorff, 1995, 1996, 2000; Peters and Fusfeld, 1982; Howells, 1986). Only a few researchers begins to use quantitative methods to reveal the relation between the above factors and the strength or performance of such cooperation in both companies' and universities' perspectives (Pavlin, 2015). In Vietnam, some authors such as Le *et al.* (2018), Nguyen (2014), and Nguyen *et al.* (2017) state the importance of cooperation relating factors. Nguyen (2010) analyzes the cooperation in the Ho Chi Minh City context. However, there is

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still shortage of academic work, especially regarding the willingness to engage in a business-university relationship given that the cooperation situation in Vietnam is immature. Moreover, there is a need for studying the business role in such cooperation, because they are usually less active and more reluctant than their university partners, but their decisions to cooperate are essential for the relationship.

Vietnam is entering the 4.0 Industrial Revolution, which is not only an opportunity but also a challenge for businesses. To succeed in today's fiercely competitive environment, businesses must adapt quickly. The demand for innovation of businesses renders the motivation for developing scientific and technological research and development activities at enterprises. One of the newest and most affordable ways to help businesses is to partner with higher education institutions. In addition to obtaining scientific and technological achievements, the partnership also helps businesses with other benefits, such as human resources, reputation, etc. This is especially essential to meet the requirements of economic development and succeed in implementing industrialization and modernization of the economy of Vietnam.

In recent years, many countries around the world have been aware of how beneficial developing a university-business cooperation model is. Thereby, we can foster this form of cooperation and gain remarkable results. According to data from the Israeli Patent Office, research and development activities in Israel take place mainly at seven universities and dozens of research institutes as well as hundreds of businesses across the country. Most research results published in Israel are conducted at universities. The Israeli government has taken plenty of actions to promote the relationship between businesses and universities, especially in commercial research and development (R&D) programs. In Australia, the cooperation between universities and businesses has so far been perceived as not only being the necessary work but the extremely important one, considered as "coupling of consciousness". Collaboration has brought benefits to many parties, including students, businesses, and academics. Cooperation and cohesion between universities and businesses have become a common trend worldwide. Therefore, it is necessary to study the factors affecting the willingness to participate in higher education institutions.

The study aims to achieve two specific objectives lying in: Building an econometric model to find out the factors affecting the Vietnamese businesses' willingness to cooperate with education institutions. Based on the survey and the model result, propose solutions to improve the Vietnamese enterprises' willingness to cooperate.

The rest of this paper is organized as follows. Section 2 describes the literature review and the hypothesis development. Section 3 presents this paper's methodology. The experimental results are presented in Section 4. In Section 5, the authors discuss the results with suggestions and conclude the paper.

2. Literature review and hypothesis development

There is a great number of documents and studies on the cooperation between universities and businesses in many countries around the world (Table 1). These studies mainly focus on

two issues: (1) identifying the different modes of cooperation; and (2) identifying factors that affect the cooperation, albeit the second issue is rarely mentioned.

Table 1. Studies on the cooperation between universities and businesses

Research	Viewpoint
Etzkowitz and Leydesdorff (1995, 1996, 1997, 2000); Leydesdorff (2012)	The Triple Helix model illustrates the relationship between universities - businesses - government. The model is a bloc of the three counterparts layering one another. They are separate, yet also interdependent for each other's roles.
Peters and Fusfeld (1982)	There are two types of cooperation, which are canonical and non-canonical. These types of cooperation are classified by duration of cooperation, party effort, and whether the cooperation is multilateral or unilateral.
Vedovello (1998)	Complimenting the study by Peters and Fusfeld (1982) that groups cooperation based on human resources.
Howells (1986)	There two types of cooperation: (1) Companies' operations are carried out by universities; and (2) Universities' operations are carried out by businesses.
Geisler and Rubenstein (1989)	There are four modes of cooperation: (1) Operation from companies; (2) Operations as business contracts; (3) Cooperative research; and (4) Research park.
Martin *et al.* (2000)	The growth in relations between universities and industries is due to external requests, mostly made by governmental authorities, for increased relevance and impact on economic development.
Davey and Muros (2011)	Five levels of cooperation are impact, product, result, factors, and operation. There are eight modes of cooperation, in which 4-factor groups affect the five modes of cooperation.
Pavlin (2015)	There are 4-factor groups that influence cooperation mode, among which the processes and approach and drivers groups are more dominant than barriers and organizational characteristics groups.
Lai (2011)	There are 3-factor groups that have a positive impact on willingness to engage in the industry-university collaborations: motivation of university; motivation of industry; and quality of intermediary institute.

Sources: Compiled by author

Regarding foreign studies on factors influencing the preparation or the decision to participate in the cooperation between universities and companies, results from the previous studies are mixed. Davey and Muros (2011) report the state of university-business cooperation in Europe and point out three factors affecting the cooperation. These factors include motivators, for example, the use of research in practice to improve innovation capacity. These factors also include barriers, of which funding represents the largest barrier to this relationship. Other facilitators, which create advantages and disadvantages such as mutual trust, shared goals, mutual commitment, or prior relation, also affect the relationship.

Pavlin (2015), using the survey of 397 enterprises across Europe in 2015, concludes that two dominant factor groups affecting this cooperative link are the structure and approach group, which include methods in supporting and developing career capacity of students, cooperation in strategic management, cooperation in managing and innovating the curriculum, and the driver group, which consists of the nature and level of cooperation and the objective factors. The other two groups of factors are: 1) barriers, which include barriers in complex organization structure, in individual personnel, and limitation of resources; and 2) organizational characteristics, which include business line, number of employees, number of researchers, and number of students taken in as employees. These two groups are less impactful than the two mentioned above. His results reveal that those factor groups could contribute to the performance of key university-business cooperation modes.

Also, other papers are examining the relationship between specified factors and willingness to engage in cooperation (Al-Rimawi and Al-Karablieh, 2002; Lai, 2011). By analyzing data collected from both universities and businesses in Taiwan, Lai (2011) shows that the motivation of university, the motivation of businesses, and the quality of Technology Transfer Intermediary Institute have a positive impact on the willingness to participate in university-business cooperation. Especially when the cooperation situation in Vietnam is still comparatively immature, thus, insights into the willingness to engage in the business-university relationship have high practical value.

In Vietnam, Nguyen (2010) has compiled past academic researches and proposed 4-factor groups which influence cooperation, including situational factor, organizational factor, the difference in operation characteristic, and perception of companies about the universities/institutions. The 4-factor groups are analyzed with the structural equation modeling method and based on a sample of 269 business owners or managers in Ho Chi Minh City to find out whether those factors affect the relationship between companies and universities/institutions. The results show that the situational factor and organizational factor help to promote the link between companies and universities/institutions, while the difference in operating characteristics and perception of companies about the universities/institutions hamper its success. Besides, the study states that the stronger the link is, the higher performance the companies gain.

Le *et al.* (2018) also point out that the group of factors including organization, recognition, benefits, companies' characteristics, and companies' perception of the university affect the relationship between the institutions and the businesses. Data from the regression analysis of the study dictates that all five of these factor groups positively affect the cooperative relationship, among which the companies' characteristic group is the most influential. The study of Nguyen (2014) and Nguyen *et al.* (2017) show that benefits have a great impact on the decision to participate in the cooperation from the companies' perspective. Additionally, the work of Hoang and Pham (2019) highlights the importance of the relationship between institutions and businesses.

The previous studies conducted both in Vietnam and abroad present different theories with practical evidence. Nonetheless, there has not been any qualitative study conducted at the business level to analyze how these factors influence companies' willingness to cooperate. This paper will accomplish that.

As mentioned above, there have been some studies highlighting factors that influence the decision or the willingness to participate in different modes of cooperation between universities and businesses. According to the facts in Vietnam as well as previous studies, the author has built a model to include four factors: (1) awareness of benefits; (2) perception; (3) drivers; and (4) barriers. The dependent variable is the willingness level to engage in cooperation between universities and businesses, which is abbreviated as willingness to cooperate.

This model is mostly based on the work of Davey and Muros (2011) on elements and at the operation level. The studies by Pavlin (2015), Nguyen (2010), and Le *et al.* (2018) have the same conclusion about the factors that influence modes of cooperation. Therefore, those factors are used for the estimation in this model.

2.1 Awareness of the benefits

Awareness of the benefits is understood as the sharing and realizing benefits between those who educate and produce high-skilled workers (universities) and those who utilize high-skilled workers (businesses) (Le *et al.*, 2015).

Universities and businesses usually build cooperative relationships because they recognize the benefits of cooperation (Mora-Valentin, 2000). The more businesses value cooperation, the higher the level of cooperation. It is also true with the universities. The benefits are considered the purpose or the drivers of cooperation. Undoubtedly, both counterparts have to recognize the benefits to cooperate, which can be either long-term or short-term. Furthermore, the benefits need to be balanced on both sides, which means being advantageous to both parties. However, in reality, each party's definition of benefits is different. For example, businesses look for workers, technology, and cost-savings (Buisseret and Cameron, 1994; Martino, 1996; Scott, 1998) while universities are searching for financial support and better facilities (Martino, 1996; Scott, 1998; Howells, 1986; Martin *et al.*, 2000).

Cooperation between enterprises and universities stems from various potential benefits. The more benefits there are, the higher willingness to cooperate. From the aforementioned analysis, the author suggests hypothesis H1 as follows.

H1: Recognition of benefits has a positive effect on the willingness to cooperate.

2.2 Perception

The perception factor, which represents businesses' perception of the universities, is the knowledge or the assessment of the companies about the universities' assets and development such as reputation and curriculum. For example, according to Le *et al.* (2018), if companies do not know much about the universities' activities due to little advertisement, they will not approach the universities. Therefore, not only do universities need to educate students,

but they also need to build up their reputation. In doing so, understanding the needs of a company will raise the companies' perception of the universities. This increased perception determines whether the companies promote cooperation. According to the model by Hoang and Pham (2019), the establishment of the relationship between universities and companies has the greatest impact on cooperation. In this study, the authors propose to take a negative stance in the survey with questions such as "Businesses do not believe in the standards, facilities, knowledge, and curriculum of the university" or "Businesses do not know about the university's operation and information". Therefore, the authors would like to advance the hypothesis H2 as follows.

H2: Perception has a negative effect on the willingness to cooperate.

2.3 Drivers

The drivers of the business-university cooperation in this model include external factors that promote the business-university partnerships. These driver factors are the results of the situational factors in Nguyen's model (2010) and contextual elements in Trong's model (2018). These existing factors come from the universities such as facility conditions and curriculum design and the businesses such as research funding capacity. These factors also include the relationship between the university and the business themselves, which are long-term and reputable, or government policies. Overall, the more powerful these driver factors are, the higher the degree of cooperation between businesses and universities. Nonetheless, this study will not consider all the driver manifestations, but only focus on the main drivers, which are presented in the scale, and formulates hypothesis H3 as follows.

H3: Drivers have a positive effect on the willingness to cooperate.

2.4 Barrier

In contrast to the driver factors, there are barrier factors that hinder intrinsic and effective partnerships (Trong, 2018). Therefore, to promote university-business partnerships, policies need to be implemented to break these barriers. Barriers can be inherent within the universities such as inappropriate school policies, the inefficient structure of the school's organizational structure, or within businesses such as complex procedures, poor corporate governance. The barriers can be objective such as long distances, poor faculty qualifications, or the fact that specialized departments do not promote cooperation. Howells *et al.* (1998) also suggest that the barrier or the difficulty in partnership can be divided into two processes. The first of which is the barrier to cooperation, which is understood as the drivers to decide whether or not there is a partnership. The second barrier is the difficulty in maintaining and developing the collaboration. Besides, barriers for businesses are also different from barriers for universities. There exist several other ways of dividing barriers. Van and Debackere (1988) classify barriers into three groups including cultural, institutional, and operational. Lopez-Martinez *et al.* (1994) categorize barriers into groups including structural factors, institutional factors, and individual factors.

This study also investigates some key barriers, which are presented in the scale section. Different link barriers from the university side may affect the extent to which different modes of a university-enterprise partnership are implemented in practice (Trong, 2018). The authors, thus, advance the following hypothesis.

H4: Barriers hurt the willingness to cooperate.

3. Methodology

As the hypotheses advanced in the previous section, the theoretical framework and model are shown in Figure 1 below.

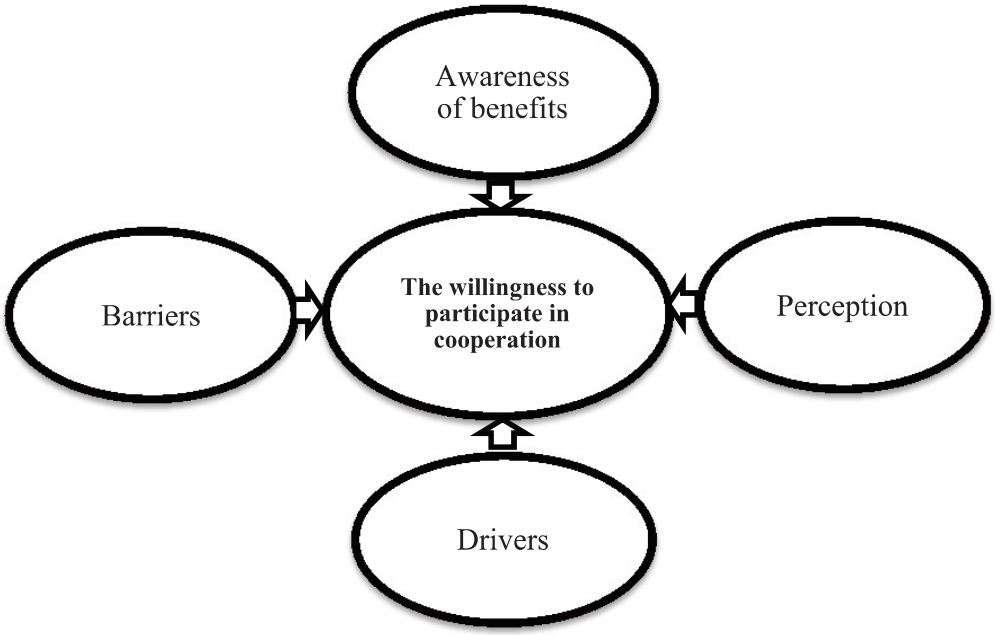

Figure 1. Model of factors affecting the willingness for cooperation (initial)

Source: Author's construction

$$Y = b0 + b1*AWARENESS + b2*PERCEPTION + b3*DRIVER + b4*BARRIER + e \quad (1)$$

in which Y is the dependent variable representing the willingness to participate in enterprise-university cooperation, which is divided into five levels; AWARENESS is the recognition of the benefits of a business, which is divided into five levels; PERCEPTION represents the understanding or evaluation of businesses about the universities regarding the reputation of the school and the school's curriculum, which is divided into five levels; DRIVER is the driver of businesses, which include existing factors and external factors that promote business cooperation with universities and is divided into five levels; BARRIER includes the intrinsic barriers and effectiveness binding obstacles, which are divided into five levels; and e is the random error.

Through the research on the factors affecting the decision or the willingness to engage in modes of cooperation between universities and businesses, the authors developed a

questionnaire related to the mentioned factors to conduct field surveys in Vietnam. To collect data, the authors use 24 questions divided into two groups. The formal survey is conducted from December 2019 to February 2020. The survey is conducted by sending printed questionnaires and online questionnaires to the heads of departments or higher-ranking officials in 100 businesses of different industries listed in the Viet Nam Yellow Pages.

Those businesses are picked up from a business dataset compiled by random selection to avoid bias in research.

To collect data, the authors use the questionnaire chart, which is improved by profound opinions from five business owners/managers and one lecturer. The survey questions are divided into two main groups. The first group consists of five questions from Question 1 to Question 4. These questions are used to learn specific information about the businesses such as type, size, number of years of operation, and the current level of cooperation with universities. Question 5 exploits the business's assessment related to the willingness to link with higher education institutions.

The second group with Questions from 5 to 24 is designed to investigate the businesses' perception with the following Likert scales: 1) Very unimportant; 2) Unimportant; 3) Normal; 4) Important; 5) Very important. This group considers the evaluation of the importance of factors affecting the model of scientific and technological cooperation between higher education institutions and businesses from the businesses' perspective.

4. Empirical results

The number of survey questionnaires received is 58 out of a total of 100 questionnaires sent out, which is equivalent to a response rate of 58%. All of these 58 questionnaires are valid. Out of 58 respondents, 48 enterprises have cooperated with universities in at least one form. Out of these 48 enterprises, 30 enterprises have cooperated with universities at a very low level and only four enterprises responded they are very often involved in cooperation activities with higher education institutions. Based on the results obtained from the SPSS software, the relationship of the factors affecting the willingness to participate in each form of cooperation is shown as follows:

Table 2. Descriptive statistics

Variable	Min	Max	Mean	Standard error	Coefficient of variation
AWARENESS	1	5	3.58	0.768	0.215
PERCEPTION	1	5	3.17	0.711	0.224
DRIVERS	1	5	3.42	0.857	0.251
BARRIERS	1	5	3.08	0.838	0.273
WILLINGNESS	1	5	2.97	1.092	0.368

Source: Author's calculation

Through Cronbach's Alpha test, the reliability of 13 observed variables of four different factors is confirmed, which is presented in Table 2, according to three criteria: Cronbach's Alpha coefficient, total correlation coefficient, and Cronbach's Alpha coefficient if eliminating variables (Trong, 2018).

Table 3. Cronbach's Alpha test

Factor group	Observable variables	Cronbach's Alpha coefficient
AWARENESS	6	0.867
PERCEPTION	2	0.734
DRIVERS	2	0.780
BARRIERS	3	0.746

Source: Author's calculation

The scale is assessed to be sufficiently reliable to conduct the EFA, which analyzes the correlation between variables and the correlation between observed variables and factors, thereby, determining the necessary set of variables for research. When applying EFA with multiple unsatisfactory variable types, only two perceived benefits and barriers were retained after others are eliminated because their factor loadings are not higher than 0.75, given the sample size is 58 (Hair *et al.*, 1998). The results of the EFA and rotation matrix are presented in Table 3 and Table 4.

Table 4. KMO coefficient and Bartlett test of factor analysis

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.737
Bartlett's Test of Sphericity	Approx. Chi-Square	130.568
	Df	15
	Sig.	0.000

Source: Author's calculation

Table 5. Rotational matrix table

Variables	1	2
AWARENESS	0.886	
AWARENESS	0.771	
AWARENESS	0.765	
AWARENESS	0.759	
BARRIER		0.861
BARRIER		0.849

Source: Author's calculation

The EFA shows that the set of six observed variables is eligible to be included in the correlation analysis and regression. Accordingly, the research model is modified as shown in Figure 3.

Figure 2. A revised model of factors affecting the willingness for cooperation

Source: Author's compilation

The two groups of factors mentioned above by Pearson analysis demonstrate a linear correlation with the dependent variable Y and are eligible to be included in the regression analysis. The results are presented in Table 5.

Table 6. Correlation between the dependent variable Y and the independent variable

		AWARENESS	BARRIER	Y1
AWARENESS	Pearson correlation	1		
	Meaning level from two sides			
BARRIER	Pearson correlation	0.405**	1	
	Meaning level from two sides	0.002		
Y	Pearson correlation	0.396**	-0.391**	1
	Meaning level from two sides	0.002	0.002	

Notes: *, **, and *** represent significance at the 10%, 5%, and 1% level, respectively, using 2-tailed tests.

Source: Author's calculation

After running the SPSS software, the authors obtained the estimated parameters presented in Table 7:

Table 7. Parameters in the regression

Model	Non-standardized coefficient		Standardized coefficient Beta	Value t	Level of significance	Multi-collinear	
	B	Standard error				Acceptance	VIF
1 (Coefficient)	2.091	0.500		4.185	0,000		
AWARENESS	0.853	0.131	0.663	6.498	0,000	0.836	1.196
BARRIER	-0.812	0.126	-0.660	-6.466	0.000	0.836	1.196

a. Dependent variable: Y

Adjustment factor R^2: 0.504

Source: Author's calculation

The two variables AWARENESS and BARRIER are significant at the significance level of less than 5%. The results also show that there is no multi-collinear problems in this model due to the value of VIF being less than 2. Based on the standardized beta coefficient of multivariate regression analysis results, the regression equation obtained is:

$$Y1 = 0.663*AWARENESS - 0.660*BARRIER + e$$

Therefore, the hypothesis H1, which states that the recognition of benefits positively affects the willingness to participate in cooperation, is confirmed. Additionally, the hypothesis H4, which suggests that barriers have a negative effect on the willingness to participate in cooperation, is supported. Moreover, the hypothesis H2, which proposes that the perception of benefits to have a positive effect on the willingness to cooperate, and the hypothesis H3 stating that drivers have a positive effect on the willingness to cooperate, are not supported during EFA.

Discussion

After analyzing the data in the survey related to the willingness to take part in the cooperation, the survey results are several folds. Firstly, the willingness to engage in cooperative forms of enterprises is not high with an average score of 2.97 out of 5. This result represents a poor cooperation situation in Northern Vietnam. Secondly, there is no evidence of the impact of the perception and driver factors on the dependent variable. Specifically, these factors are shown to be eliminated during EFA. This finding implies that there are some problems with questions about perception and drivers. It may come from either the failure in designing questions, which makes questions ambiguous, or respondents' non-cooperation. Thirdly, the perception of benefits has a positive effect on the dependent variable, while the barrier factor has a reverse effect. The magnitude of the impact of the two factors on willingness is approximately equal with standardized beta coefficients of 0.666 and -0.660, respectively, at the significance level of 0%). Fourthly, the R2 coefficients adjust at a fairly good level of 50.4%, revealing that the change of variables depending on the businesses' willingness to participate in cooperative forms is explained well with the independent variables in the model. This result suggests that not many other factors influence the level of participation that the model has not taken into account or been overlooked.

These results agree with the studies of Howells *et al.* (1998), Van and Debackere (1988), Lopez-Martinez *et al.* (1994), Mora-Valentin (2000), Nguyen (2014), Le *et al.* (2018), yet contradict the study of Davey and Muros (2011).

5. Recommendations

Recommendations for improving the willingness of businesses to engage in various forms of cooperation with higher education institutions are based on enhancing perceived benefits and reducing barriers of business-university cooperation, as suggested by the above results.

Firstly, it is important to promote perceived benefits from business-university cooperation. In particular, it is essential to provide economic and financial mechanisms such as funding,

grants, and subsidies, stimulus packages taxation concessions, which are specially designed for parties in business-university cooperation. Universities should develop mechanisms to increase the benefits of scientific and technological cooperation activities with their business partners for their leaders, lecturers, and students. For example, their staff should gain recognition of the academics for their cooperation activities with businesses. Such recognition should be a part of the assessment of work performance for academics or a replacement of teaching workload. Another suggestion for university parties is to diversify forms of business-university cooperation, which are appropriate for the needs and conditions of each specific type of business, therefore, maximize values gained. For businesses, they need to change perceptions and views on cooperation with universities, which should be based on mutual understanding and mutual benefit. Specifically, it is necessary to view this cooperation as a business strategy of seeking business opportunities and innovations.

Secondly, it is no less important to minimize obstacles between businesses and universities. For the government, it is suggested that it should bridge information between businesses and higher education institutions through measures such as providing information, organizing seminars, setting up specialized, and consulting departments. Through these measures, businesses have the opportunity to be aware more of the benefits gained from participating in cooperation. And at the same time, they can solve the problems, remove barriers caused by the lack of information. Besides, they could enact different legal mechanisms for scientific and technological forms of cooperation such as research centers and nurseries to eliminate barriers of business-university cooperation, to protect and to support these forms of development. Meanwhile, both universities and businesses need mechanisms and policies to promote an entrepreneurship culture and a culture of innovation for themselves. They should also maintain contact and share information to minimize barriers in cooperation.

The research model is incomplete due to both objective and subjective reasons. Some enterprises are wary of the survey, which leads to a small sample size and/or incomplete answers. The estimation model is mainly accepted from previous studies conducted abroad without any qualitative research in Vietnam. The questionnaire for the four groups of factors mentioned above is not consistent with the Vietnamese businesses' psychology, which links to the incomplete exploration of the author's aspects and resources. Also, the author's limited resources are a shortcoming of this study.

Due to the limitations mentioned in the above section on the research, including both objective and subjective causes, the author proposes several directions for future research in this area. Firstly, qualitative research on enterprises aims at examining the factors affecting the willingness and choice of cooperation with universities, heading to build models and questionnaires that are appropriate to the reality of Vietnamese enterprises should be conducted. Secondly, qualitative and quantitative research aims to identify models of cooperation preferred by businesses and universities when participating in bilateral cooperation is important. Thirdly, researching similar models from the perspective of students and group of participants in higher education institutions should also be carried out.

6. Conclusion

Internationalization and integration have increased the competition in many sectors of Vietnam's economy (Pham and Tran, 2017). Nevertheless, education in Vietnam has lagged behind developed countries (Pi-Yun and Cuong, 2020). Collaboration between businesses and higher education institutions is becoming more necessary in the 4.0 Industrial Revolution. To catch up with the above trend, studying the factors affecting the willingness to enter into cooperation from an enterprise perspective plays an important role.

Through the synthesis of domestic and foreign studies, the study provided a theoretical basis and from there established an initial research model with four groups of factors affecting the willingness to participate in the cooperation of businesses. These factors include recognition of benefits, perception, drivers, and barriers, which are corresponding to four hypotheses.

By collecting 58 respondents from a survey of businesses and applying the quantitative research methods such as the steps of Cronbach's Alpha reliability test that analyzed EFA and multivariate regression, two factors identified that have an impact on the willingness to participate in the forms of cooperation are recognition of benefits and barriers. In particular, the recognition of the benefits factor has a positive impact on the willingness to participate in the forms of cooperation between businesses and higher education institutions. The barriers factor has a negative impact on the willingness of businesses. Notably, the impact of the Barriers factor on the willingness is considerable. The above results are consistent with other studies that have been conducted both inside and outside of Vietnam (Mora-Valentin, 2000; Nguyen, 2014; Le *et al.*, 2018). Furthermore, from the enterprise survey results, the authors find that the willingness of surveyed enterprises is not high. Therefore, in the coming time, to encourage Vietnamese businesses to be willing to participate in this cooperation process, it is necessary to have appropriate solutions both from enterprises, universities, and the government.

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