

Influencing Factors of China's Cross-border E-commerce Talent Training Based on School-enterprise Cooperation

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Abstract: The talent training process based on the school-enterprise cooperation pays more attention to the practicality of talents. Targeted training on the cross-border e-commerce talent for the society is conducive to improving the quality of university-related students training. This paper conducts a questionnaire survey on 41 undergraduate students majoring in cross-border e-commerce in China, and selects 244 valid questionnaires for factor analysis to explore the influencing factors of China's cross-border e-commerce talent training based on the school-enterprise cooperation. The research conclusions are as follows: The main influencing factors of China's cross-border e-commerce talent training based on the school-enterprise cooperation are school training system, social policy environment and student source. Among them, the factor variance contribution rate of the school training system is the highest, indicating that it is the most critical factor affecting the training of cross-border e-commerce talents in school-enterprise cooperation.

1. Introduction

With the increasing frequency of global cross-border e-commerce activities, the development scale of China's cross-border e-commerce is also rapidly expanding. According to the data released by the "2021 China Cross-border E-commerce Market Data Report", the scale of China's cross-border e-commerce market has reached 14.2 trillion yuan in 2021, a year-on-year increase of 13.6% from 12.5 trillion yuan in 2020. Under the current background of the rapid development of China's cross-border e-commerce industry, in order to cultivate high-quality cross-border e-commerce talents, school-enterprise cooperation has developed into an important training method. The school-enterprise cooperation model is in line with the development of the times and the law of university education, and can also effectively meet the needs of enterprises for talents. School-enterprise cooperation can realize the complement of resources and strengths between universities and enterprises. At the same time, school-enterprise cooperation can also promote the quality of university teaching and broaden the scope of local cross-border e-commerce talent training [1]. However, there are also many restrictive factors in school-enterprise cooperation,

which greatly affect the in-depth cooperation of school-enterprise cooperation, thus limiting the full play of the role of school-enterprise cooperation in the cultivation in cross-border e-commerce talents. In order to explore the role of various influencing factors, this paper conducts a questionnaire survey on students in Chinese universities that offer cross-border e-commerce majors and carry out school-enterprise cooperation. This study will explore the influencing factors restricting school-enterprise cooperation from the perspective of student evaluation. The survey can not only understand students' evaluation of the major, but also have an intuitive and positive understanding of school-enterprise cooperation. Our research can provide reference for schools, enterprises and governments to solve problems in the process of school-enterprise cooperation in a timely manner, and to improve the quality of cross-border e-commerce talent cultivation in school-enterprise cooperation.

2. Literature review

2.1 Research on the school-enterprise cooperation mode

Scholars' research on the school-enterprise cooperation model can be traced back to the "sandwich" education model implemented in 1903. Since then, a series of classic school-enterprise cooperation models have emerged one after another, such as the "cooperative education" mechanism in the United States and the "dual system" mechanism in Germany. With the continuous development of scholars' research on school-enterprise cooperation mode, the premise of school-enterprise cooperation must be to establish a scientific cooperation mechanism between universities and enterprises [2]. Only under the guidance of a scientific mechanism can we promote the orderly progress of school-enterprise cooperation. At the same time, enterprises in school-enterprise cooperation must clearly put forward the specific requirements of enterprises for talents, and even promote the apprenticeship practice model of "full cooperation, full education, and full employment" [3]. However, for some universities that focus on the cultivation of technical talents, in the process of school-enterprise cooperation, the university must build a safe, efficient and internal resource sharing teaching model [4]. In addition, if the enterprise has relatively high requirements for the quality of talents, the school-enterprise cooperation can adopt the "order-based" mode, the mode of introducing enterprises into schools and entering enterprises to run schools, "Front shop and back school" model, "Academic education + higher education" model, "Education + online education" model, "mixed-ownership school-running" model, and so on [5].

2.2 Research on the cross-border e-commerce talent training

Many scholars have also done some research on the cultivation of cross-border e-commerce talents. With the vigorous development of the cross-border e-commerce industry, the industry's demand for cross-border e-commerce talents has grown rapidly [6]. However, the training process of cross-border e-commerce talents is a training process of compound talents. The needs of enterprises for cross-border e-commerce talents are more focused on the practical ability of talents [7]. Universities should not only cultivate talents' knowledge in e-commerce, but also cultivate foreign language ability, international legal cognition ability, and international cultural communication ability [8]. Therefore, the cultivation of cross-border e-commerce talents requires not only the active cooperation of relevant professional teachers, but also the cooperation of relevant enterprises. Moreover, with the dynamic changes of the cross-border e-commerce industry and its external environment, the training process of universities for cross-border e-commerce talents will also change accordingly. This is mainly because the requirements of enterprises for cross-border e-commerce talents are constantly changing [9]. Therefore, it is very difficult for

universities to cultivate cross-border e-commerce.

2.3 Research on the influencing factors of cross-border e-commerce talent training based on the school-enterprise cooperation

A small number of scholars have carried out certain research on the related influencing factors of the school-enterprise cooperation and the cross-border e-commerce talent training. Some scholars believe that the school-enterprise cooperation is the only way to cultivate talents in cross-border e-commerce [10]. Only through the school-enterprise cooperation can universities cultivate high-quality cross-border e-commerce talents who can meet the needs of enterprises [11]. In this process, many factors will affect the training effect of cross-border e-commerce talents. In terms of the cross-border e-commerce enterprises, these factors include the development level of the enterprise itself, the scale of the enterprise's demand for cross-border e-commerce talents, and the treatment of relevant talents by the enterprise [12]. In terms of universities, these factors include the teaching ability of universities in cross-border e-commerce, the practical opportunities that universities can provide for students, and the curriculum settings of universities on cross-border e-commerce [13]. In addition, factors such as the cooperation mechanism between universities and enterprises, the attitude of the local government to the relevant cooperation, and the external competitive environment in which the enterprise is located will also play a certain role in varying degrees [14].

Although scholars have carried out some research on the cultivation of cross-border e-commerce talents in the context of school-enterprise cooperation, the existing research tends to discuss the training objectives and teaching characteristics. Most of the influencing factors related to cross-border e-commerce talent training in school-enterprise cooperation are also qualitatively derived. The scientific and persuasion are lacking. As more and more undergraduate universities adopt the school-enterprise cooperation model to cultivate cross-border e-commerce talents, it is necessary for us to identify the influencing factors based on the school-enterprise cooperation talent cultivation. At the same time, in order to ensure the scientific and validity of the research conclusions, this paper uses quantitative analysis methods to identify relevant influencing factors.

3. Data collection and testing

3.1 Data sources

The subjects of this survey are mainly students majoring in cross-border e-commerce in domestic undergraduate universities. In order to determine the scientific nature of the survey questionnaire, this survey first selected 30 students to conduct a small-scale survey. By analyzing the results of small-scale surveys and eliminating unreasonable survey topics, the final survey questionnaire content was determined. The distribution of the survey questionnaire is mainly conducted through face-to-face, email and WeChat mini-programs. The students surveyed came from 44 domestic universities with cross-border e-commerce majors or related courses. The statistical method used in this research is the Likert 5-point scale. During the survey, the authors recovered a total of 273 questionnaires, of which 244 were valid questionnaires, with an effective rate of 89.4%.

3.2 Data testing

3.2.1 Descriptive statistical analysis

In order to examine the scientific nature of the survey data samples, this paper firstly conducts

descriptive statistical analysis on the data, and analyzes the mean and standard deviation of the data samples. The results of descriptive statistical analysis are shown in Tab. 1.

Table 1: Descriptive Statistical Analysis Results of Related Influencing Factors

Questionnaire items	Average value	Standard deviation	Number of questionnaires
C1 Lack of sufficient communication between universities and cross-border e-commerce companies.	2.8043	1.09473	244
C2 The guarantee and restraint mechanism for cooperation between universities and cross-border e-commerce enterprises is not perfect.	2.8172	1.18529	244
C3 The cooperation between universities and cross-border e-commerce enterprises is loose.	2.7033	1.09631	244
C4 The talents cultivated in the current school-enterprise cooperation cannot meet the needs of society.	2.7942	1.19036	244
C5 The society attaches little importance to the training of cross-border e-commerce talents in school-enterprise cooperation.	2.8403	1.09951	244
C6 School-enterprise cooperation cross-border e-commerce talent training is in a single form.	2.8872	1.14872	244
C7 Universities lack a curriculum system that adapts to the needs of cross-border e-commerce companies.	2.7381	1.15375	244
C8 Lack of high-quality cross-border e-commerce lecturers in university teaching staff.	2.9125	1.09483	244
C9 Insufficient legal content and funding for school-enterprise cooperation.	2.7742	1.17943	244
C10 The overall quality of college students is relatively low.	2.7640	1.19063	244
C11 Low social recognition of school-enterprise cooperation in cross-border e-commerce talent training.	2.8731	1.09882	244
C12 The teaching management ability cultivated by cross-border e-commerce merchants in school-enterprise cooperation is low.	2.7499	1.14839	244
C13 The difference between school-enterprise cooperation and cross-border e-commerce talent training for ordinary undergraduates is small.	2.7903	1.08462	244
C14 Students majoring in cross-border e-commerce in school-enterprise cooperation have poor learning attitudes.	2.8646	1.17634	244

Data source: Collated according to the school-enterprise cooperation questionnaire survey data.

As shown in Table 1, the average value of the descriptive characteristics of the 14 school-enterprise cooperation cross-border e-commerce talent training factors obtained by the questionnaire survey is between 2.7033 and 2.9125. At the same time, the mean of all influencing factors is greater than 2.7032. Combining with the standard deviation data of the questionnaire scores, it can be seen that the importance of the 14 characteristic indicators that obtain the

influencing factors of cross-border e-commerce personnel training in school-enterprise cooperation are above the general level. At the same time, the importance of most of the items is above the important level. The above results verify that the 14 school-enterprise cooperation cross-border e-commerce talent training influencing factors in the questionnaire survey meet the requirements of this paper's influencing factor model construction.

3.2.2 Reliability and validity testing

Based on the above descriptive statistical analysis, in order to further determine the scientific of the survey data samples, this paper also conducts reliability and validity tests on the relevant data. The reliability and validity test can further determine whether the research items are scientific or not.

1) Reliability testing

First of all, this paper will conduct reliability analysis on the questionnaire data. Reliability analysis was performed using Cronbach's α reliability coefficient. Because Cronbach's α reliability coefficient is the most commonly used reliability coefficient [15]. Moreover, scholars generally believe that the reliability coefficient should preferably be above 0.8. And when the reliability coefficient is between 0.7 and 0.8, the sample is also acceptable [16]. In this paper, Cronbach's α coefficient was used to test the internal consistency of the questionnaire, and the obtained α value was $0.937 > 0.8$. This result clearly shows that the questionnaire has good internal consistency.

2) Validity testing

After completing the reliability analysis, the validity analysis of the survey data on the influencing factors of China's cross-border e-commerce talent training based on school-enterprise cooperation is carried out. Validity analysis is to test how well the measurement results represent the initial variable information. Validity analysis is generally done by KMO and Bartlett testing [17]. In order to verify whether the survey data is suitable for factor analysis, this paper uses SPSS 20.0 statistical software to conduct KMO and Bartlett testing on the questionnaire data. The KMO value of the questionnaire in this paper is $0.938 > 0.9$, the approximate chi-square test value of the Bartlett testing is 2904.725, and the Sig. value is $0.000 < 0.05$. This data result shows that the data collected by this questionnaire is very suitable for factor analysis.

3.3 Extracting factors and naming factor variables

In this paper, principal component analysis method is used for factor analysis. First, this paper selects common factors whose eigenvalues are greater than 1, and uses the maximum variance method for factor rotation. Finally, this paper obtains 3 common factors, the cumulative contribution rate is 80.186%, and the cumulative contribution rate is greater than 80%. The results show that the first 3 common factors can reflect the overall information situation more comprehensively. The resulting factor loading matrix is shown in Tab. 2.

Based on the factor analysis of the collected data, the authors extracted 3 common factors. According to the analysis of variance contribution rate, it is sorted in descending order of importance. This paper concludes that the 3 common factors are the school training system (38.209%), the social policy environment (21.439%), and the issue of students' academic conditions (20.538%). The factor analysis results showed that the common factor 1 had a larger load on C6, C7, C8, C9, and C13. Therefore, this factor can be summarized as the school training system. In the common factor 2, the indicators with a greater degree of influence are C1, C2, C3, C4, C5, and C11. Thus, the common factor 2 can be generalized as the social policy environment. The common factor 3 has a large load on C10, C12, and C14, which can be summarized as the issue of student-originating academic conditions.

Table 2: Factor loading matrix

Influencing factor characteristic items	Common factor			Contribution rate(%)
	1	2	3	
C13	0.799	0.527	0.225	38.209
C9	0.706	0.535	0.391	
C8	0.754	0.541	0.482	
C7	0.728	0.502	0.397	
C6	0.701	0.441	0.331	
C11	0.341	0.792	0.435	21.439
C5	0.389	0.774	0.388	
C4	0.442	0.721	0.314	
C3	0.583	0.739	0.309	
C2	0.471	0.756	0.436	
C1	0.390	0.772	0.419	
C14	0.334	0.394	0.748	20.538
C12	0.317	0.408	0.720	
C10	0.381	0.417	0.733	

4. Research results and implications

4.1 Research results

In this survey, the average value of the 3 public factors of school-enterprise cooperation and the 14 projects included in the students' evaluations are all above 2.70. The lowest is C3 (the cooperation between universities and cross-border e-commerce enterprises is loose). The highest is C8 (The teaching staff lacks high-quality cross-border e-commerce lecturers in universities). It shows that students believe that the factors that have a greater impact on the cultivation of cross-border e-commerce talents in school-enterprise cooperation are at the social and university levels. However, the overall quality and learning quality of students have relatively little impact on the school-enterprise cooperation.

4.1.1 School training system

According to the variance contribution rate, the school training system factor accounts for the largest proportion, accounting for 38.209%. The results show that the school training system is the biggest influencing factor restricting school-enterprise cooperation in cultivating cross-border e-commerce talents. At present, the school-enterprise cooperation model in my country is still dominated by traditional "academic talents", and the cultivation of "cross-border e-commerce talents" has not really been realized. When arranging the curriculum system, universities still give priority to theoretical education, which cannot be substantively differentiated from the academic education of ordinary undergraduates.

In this case, the school unilaterally cultivates talents, cannot well research and develop market demands, and understand the development needs and trends of industries and enterprises. The courses, majors, teaching content and teaching plans set by universities are seriously out of touch with enterprises. The teaching progress of universities cannot keep up with the speed of

technological innovation of enterprises, resulting in that the training of cross-border e-commerce talents is far from the requirements of enterprises. Among them, the existing faculty construction of the university does not match the construction of the faculty required for school-enterprise cooperation. This situation has become the key to influencing universities to cultivate cross-border e-commerce talents that adapt to economic and social development. In addition, the connection between universities and enterprises is only a formality, and the depth of cooperation is superficial. The existence of this situation is also not conducive to the cultivation of "cross-border e-commerce talents". In addition, the content of school-enterprise cooperation is relatively simple, and the company only provides a short internship period for students in school. This also leads to the fact that the application of theory in practice is often unsatisfactory, and the advantages of school-enterprise cooperation cannot be fully utilized.

4.1.2 Social policy environment

A good social policy environment not only mobilizes the enthusiasm of school-enterprise cooperation, but also increases the satisfaction of both parties. The social policy and environmental factors accounted for 21.439% of the variance contribution rate. This means that the social policy environment will also have a certain impact on school-enterprise cooperation. At present, the vast majority of school-enterprise cooperation in China is still dominated by universities and passively cooperating with enterprises, lacking effective government guidance. Although some achievements have been achieved in the short term, it is difficult to form a driving force for sustainable development in the long-term mechanism. And most school-enterprise cooperation forms are loose and lack effective connection. Most school-enterprise cooperation is short-term and shallow-level cooperation, and there are few long-term cooperation. In addition, the society's recognition of school-enterprise cooperation in cultivating cross-border e-commerce talents is low, and it does not pay enough attention. The quality of ordinary college students in my country is uneven. At the same time, the university does not pay enough attention to school-enterprise cooperation, which leads to the deviation of the ability of students majoring in school-enterprise cooperation. In the end, it is difficult to form students' professional knowledge and practical ability to meet the requirements of enterprises and society.

4.1.3 The problem of students' academic situation

In the process of school-enterprise cooperation, the overall quality and learning ability of students will also have an impact on the cultivation of talents. Among the 3 common factors, the contribution rate of the student's academic situation factor is relatively weak, accounting for 20.538%. Generally speaking, the scores of many cross-border e-commerce majors are much lower than those of similar ordinary undergraduates. Most of the majors admitted to the college entrance examination are the second batch of undergraduates. This restricts the quality of students in school-enterprise cooperation to a certain extent. Compared with ordinary undergraduates in the same major, the overall quality of students majoring in cross-border e-commerce is relatively low. These students have poor understanding and mastery of knowledge, which makes it difficult for school-enterprise cooperation to achieve the desired effect. At the same time, students entering majors related to school-enterprise cooperation have relatively poor performance in learning enthusiasm. Students do not pay much attention to learning, which increases the difficulty of teaching management.

4.2 Implications

From the perspective of student evaluation, this paper discusses the relevant influencing factors

of cross-border e-commerce talent training in school-enterprise cooperation. The research in this paper has played a positive role in strengthening the follow-up cooperation between schools, enterprises and the government. School-enterprise cooperation is a cooperation built on the orientation of social needs. School-enterprise cooperation can cultivate high-quality cross-border e-commerce talents. School-enterprise cooperation is also an important way to deepen the internal mechanism of industry-university-research institutes.

In order to ensure the all-round development of school-enterprise cooperation, schools need to carry out teaching reforms. Schools should focus on the characteristics of majors in curriculum design, and pay attention to the organic combination of professional learning in school and practical experience in enterprises. At the same time, the school should also build a team of teachers who can integrate scientific research results and practical experience in teaching, and continuously optimize the teaching system. In addition, enterprises should also strengthen school-enterprise cooperation from a strategic perspective, promote the understanding of economic and social development, and cultivate long-term vision and forward-looking awareness. Enterprises should also be able to expand new areas of school-enterprise cooperation and actively participate in school personnel training plans. From a government perspective, the government is an important medium for school-enterprise cooperation. The government must not only be able to issue relevant laws and regulations, but also play a coordinating role as a "middleman" to ensure school-enterprise cooperation and balanced regional development in an orderly manner. At the same time, the government must be able to establish a monitoring and evaluation mechanism to promptly correct irregularities in the school-enterprise cooperation process. Through the effective implementation of these measures, the society's growing demand for high-quality cross-border e-commerce talents can be met. Through multi-party cooperation, a good school-enterprise cooperation environment can also be created, and a long-term mechanism for school-enterprise cooperation cross-border e-commerce talent training can be formed.

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