

The Current Situation, Hot Spot and Trend of Cross-Border E-Commerce Talent Cultivation Research

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Abstract. The cross-border e-commerce industry is in a critical stage of development, especially in small and medium-sized enterprises. Based on the bibliometric analysis of the relevant literature on the cultivation of cross-border e-commerce talents in CNKI database from 2014 to 2021, this paper draws the following conclusions: The research on cross-border e-commerce talent training is expected to grow steadily in the short term. However, the impact factors of journals, authors and inter-agency cooperation need to be further improved; Cross-border e-commerce, talent training, business English, school-enterprise cooperation, talent training mode, higher vocational colleges, 'the Belt and Road', teaching reform, innovation and entrepreneurship are the hotspots in the field of cross-border e-commerce talent training; It is expected that the research on the theme of agricultural products and cross-border e-commerce talents will be a research trend.

Keywords: Cross-border e-commerce; Talent training; Bibliometrics; CiteSpace

1 Introduction

With the progress of technology, online shopping has gradually become a craze, and e-commerce has a profound impact on economic development. During the epidemic period, the import and export trade volume of cross-border e-commerce platforms showed a phenomenon of rising instead of falling. Due to the rapid development of the industry, the current talent pool, talent quality and talent structure are far behind the market demand. This paper studies the current situation, hotspots and trends of cross-border e-commerce talents training, and analyzes the time distribution, highly cited literature, keywords provides some reference for solving the shortage of talents in the cross-border e-commerce industry, saving trade costs and improving trade efficiency.

2 Methods and Data Sources

The scientific knowledge map is often used to analyze the literature of a certain subject field, excavate and discover the hidden phenomena and laws of discipline development [1]. The most representative analysis tool is CiteSpace [2]. CiteSpace.5.8.R1 is used. Enter

"cross-border e-commerce * talent training" in CNKI database for subject search (date: August 21, 2021). After excluding irrelevant articles, finally 1579 items were obtained.

3 Analysis of basic research

3.1 Analysis of published journals, literature and authors

Table 1. Training of cross-border e-commerce talents TOP20 journals

Journal	U-JIF	Journal	U-JIF
Market Modernization	0.33	Modern Marketing (Business Edition)	-
E-commerce	0.49	Economic and Trade Practice	-
China Business Theory	0.449	Guide To Science And Technology Economy	0.124
Foreign Trade and Economic Cooperation	0.413	Journal of Hubei Open Vocational College	0.148
Modern Business Trade Industry	0.294	Business Economic Research	1.399
Modern Vocational Education	-	Chinese and Foreign Entrepreneurs	-
Marketing	-	Rural Economy And Science-Technology	0.254
Chinese Market	0.309	Think Tank Era	0.094
Modern Economic Information	0.153	Industry and Technology Forum	-
Modern Commercial Industry	0.325	Modern Marketing (Late Edition)	0.288

The number of papers published increased, which was greatly improved in 2016, and remained relatively flat in 2018-2020, peaked in 2021. As shown in table 1, the impact factors of published journals are basically not high, only Business Economic Research (core periodical collection, 27 articles) is >1. Modern Commercialization and E-commerce have more than 80 articles. The number of articles published in China Business Theory, Foreign Trade and Economic Cooperation and Modern Commercial Industry is between 50 and 80. The number of articles published in other journals is about 20-50 articles. The highly cited literature can be divided into the research on the training mode of cross-border e-commerce talents (4 articles), demand characteristics (2 articles), training path analysis (2 articles), and so on. The most cited article is "Demand Analysis and Training Path of Cross-border E-commerce Talents in Zhejiang Province" by Chen[3], in which the training path of cross-border E-commerce talents is studied and explored; The most cited author is Sun[4,5]. His highly cited article studies the mode exploration and path research of cross-border e-commerce talent training. The network relationship of main authors of "Research on Cross-border E-commerce Talents Training" composed Node =254 and Link =39. The network density is 0.0012, indicating domestic scholars are in an independent research state. According to Price's Law [3], the number of papers published by the core authors in the cross-border e-commerce talent training research field is about 2.37, which is lower than the average. There are 28 core authors, and 111 articles have been published. The number of articles published by core authors only accounts for 7.03% of the total number of articles published in this field, which is obviously lower than the standard percentage of 50%.

3.2 Analysis of issuing bodies

The main author network map of domestic cross-border e-commerce composed of Node = 252 and Link = 11 is obtained. Threshold = 5, and network density = 0.0003. The institutions with a large number of publications are Hunan Foreign Trade Vocational College (28 articles), Compulsory Business Vocational and Technical College (18 articles), Changjiang Vocational College (12 articles), Shazhou Vocational and Technical College (11 articles). It can be seen that most mainstream universities generally lack research in this field and the cooperation intensity of each institution is not high.

4 Research hotspots and trend analysis

4.1 Keyword co-occurrence network analysis

Set network nodes as keywords, the threshold =10 to get Table 2 (there are 494 nodes, 850 links, density 0.007,). Intermediary centrality higher than 0.1 witnessed a research hotspot (Table 2) [4][5]

Table 2. Cross-border e-commerce personnel training research Keywords TOP10

Frequency	Centrality	Starting year	Keyword
1344	0.99	2014	cross-border electricity commerce
514	0.45	2014	personnel training
122	0.12	2015	business English
119	0.16	2015	School-enterprise cooperation
108	0.15	2015	Personneltraining mode
103	0.15	2016	Higher vocational colleges
98	0.13	2016	the belt and road initiative
84	0.12	2015	reform in education
81	0.15	2016	Innovative entrepreneurship
64	0.06	2016	integration between industry and education

4.2 Keyword clustering and burst analysis

Latent semantic index (LSI) algorithm is used to cluster keywords, and a clear keyword clustering knowledge figure (Figure 1 a) is obtained by adjusting the threshold. The modularity q of module value is 0.6526, which shows that the overall network structure is remarkable, the average contour value S is 0.8868, shows that the clustering result is efficient and convincing. Apart from cross-border e-commerce and talent training itself, the cluster scale of teaching reform is the largest, followed by talent training mode and cross-border e-commerce talent cluster scale. Clustering mainly focuses on talent demand, talent training and so on. Teaching focuses on teaching reform, integration of production and teaching and business English. In addition, there is a corresponding teaching discipline cluster-higher vocational colleges. The outbreak of emergent words can be used to help predict the research hotspots and trends in the future [6]. Burstness is selected to detect pop-up words, and the parameter γ is adjusted to 0.52, the parameter MD is adjusted to 2, and other parameters remain unchanged by de-default to generate a keyword pop-up figure (Figure 1 b). Keywords mainly began to appear in 2014,

among which keywords such as dual-cycle economy emerged earlier, while keywords such as agricultural products were relatively backward. The emergence time of Top12 keywords is 2-3 years. It can be seen that the relevant development trend of cross-border e-commerce industry, from the international trend to the precise industry and part, from the overall development trend to the diversified development model.

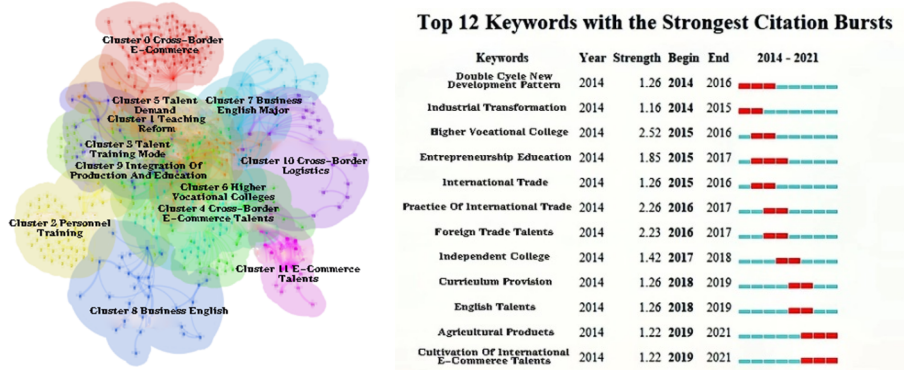


Fig. 1. Keyword clustering(a) and keyword burst word detection(b)

4.3 Strategic coordinate analysis

Strategic coordinate analysis describes the hotspots in a field through attention and novelty [7]. If there are m co-occurrence keywords to form I clusters, and there are n keywords in each cluster, and Y_{ij} is used to represent the co-occurrence year of the j keyword in the I cluster, the calculation formula [8] is:

$$KNW_i = \frac{1}{N} \sum_{j=1}^n Y_{ij} - \frac{1}{M} \sum_{g=1}^m Y_g, \quad (i = 1, 2, \dots, I) \quad (1)$$

KNW_i represents the novelty of the i -th cluster, $\frac{1}{N} \sum_{j=1}^n Y_{ij}$ represents the annual average of the co-occurrence of N keywords in the i -th cluster, and $\frac{1}{M} \sum_{g=1}^m Y_g$ is the annual average of the co-occurrence of M keywords.

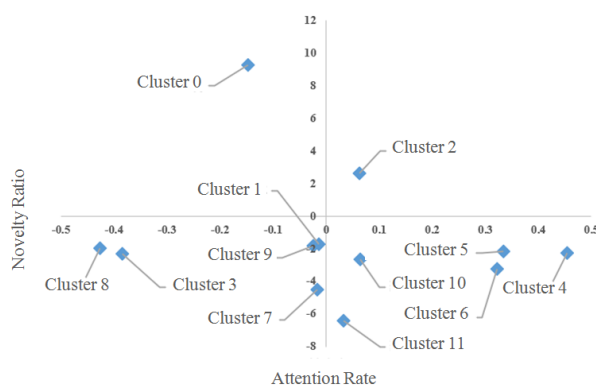
F_{ij} is used to represent the co-occurrence frequency of the J keyword in the first cluster, and the calculation formula of 'attention' is:

$$KC_i = \frac{1}{N} \sum_{j=1}^n F_{ij} - \frac{1}{M} \sum_{k=1}^m F_k, \quad (i = 1, 2, \dots, I) \quad (2)$$

KC_i represents the attention of the first cluster, $\frac{1}{N} \sum_{j=1}^n F_{ij}$ represents the average co-occurrence frequency of N keywords in the first cluster, and $\frac{1}{M} \sum_{k=1}^m F_k$ is the average co-occurrence frequency of M keywords.

Table 3. Clustering novelty and attention calculation results

Cluster label	Novelty	Attention
Cluster 0 Cross-border E-commerce	-0.14746	9.291342
Cluster 1 teaching reform	-0.01403	-1.71269
Cluster 2 personnel training	0.062892	2.63346
Cluster 3 talent training mode	-0.3853	-2.301
Cluster 4 Cross-border e-commerce talents	0.45358	-2.27039
Cluster 5 Talent Demand	0.334385	-2.18215
Cluster 6 Higher Vocational Colleges	0.322799	-3.22493
Cluster 7 Business English Major	-0.0166	-4.50372
Cluster 8 Business English	-0.42612	-1.94896
Cluster 9 Integration of Production and Education	-0.024	-1.80742
Cluster 10 Cross-border Logistics	0.064564	-2.63995
Cluster 11 e-commerce talents	0.032528	-6.40197

**Fig. 2.** Cross-border e-commerce talent training research strategic coordinate map

The calculation results are shown in Table 3. Scatter chart Figure 2, the abscissa is set to novelty, and the ordinate is set to attention. The novelty and attention of the first quadrant are greater than zero can be treated as a hot research topic. "Talent cultivation" is the only cluster with positive attention and novelty among all clusters, indicating that scholars focus more in the research of cross-border e-commerce talent cultivation. However, its attention and novelty are not high. The second quadrant can be understood as potential research topics. "Cross-border e-commerce" is the most concerned cluster, indicating that the proportion of papers in recent years is still at a high level, but the novelty is low, indicating literature focusing on this area in recent years is lower than that in earlier years. The attention and novelty of the third quadrant are < 0 , which can be understood as a marginal research topic. "Business English major" has the lowest attention and novelty. Since the embryonic period of cross-border e-commerce related research, the research on "Business English" has followed closely. With the rapid development of translation software and the related research may have reached a certain level, which eventually leads to its low novelty. The fourth quadrant can be understood as the basic

research theme. Cross-border e-commerce plays an increasingly important role in international trade. Due to the lack of emerging related talents, more scholars pay more attention to "cross-border e-commerce talents", thus the novelty is the highest among the 12 clusters. "E-commerce talents" may have the lowest attention because of their large research scope.

5 Conclusions

In this paper, the basic situation, research hotspots and development trend of cross-border e-commerce talent training are discussed according to the visual analysis results of CiteSpace. Draw the following conclusions:

The research results of cross-border e-commerce talent training have reached a certain scale, and the quantity and quality of related documents still need to be further improved, and there is still much room for improvement in industry development. Teaching reform, talent training mode and cross-border e-commerce talents are the three largest clusters in the field of cross-border e-commerce talents training (except themselves). It is expected that the research on agricultural products and cross-border e-commerce talents will be a hot topic for some time to come. For the problem of cross-border e-commerce talent demand, we can try to evaluate the cross-border e-commerce ability, such as job matching evaluation, motivation demand evaluation, cognitive ability evaluation to help enterprises allocate resources reasonably. Accurate recruitment of talents is the most important goal at present. The effect of reducing costs and increasing benefits at the recruitment level is to carry out accurate recruitment to the end, use talent evaluation tools to efficiently and accurately understand the inherent ability and motivation needs of candidates or employees.

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