論文 1

A Comparative Study on the Evaluation of International Brand Major in China's Higher Vocational Electronic Commerce Based on Text Analysis:
Perspectives from Enterprises, Students, and Teachers

Kong Lingjian

【Abstract】 Following paper explores and compare evaluation of higher vocational electronic commerce brand Chinese majors in content of enterprises, students, and teachers perspectives, and differences between each of them. This study collected textual data from these three groups through an online survey, and utilizes KH Coder to conduct word frequency, co-occurrence network, and thematic analysis. It was found that enterprises and students share a similar viewpoint regarding the evaluation of International Brand Major in Higher Vocational Electronic Commerce, particularly in its alignment with societal and enterprises needs. This concurrence is evident in the emphasis on developing skilled professionals through industry-academic collaborations or practical operations. In contrast, teachers' evaluations focus more on the importance of nationalized teaching teams and high-quality educational resources for nurturing skilled talent.

【Keywords】 Vocational Colleges, International Brand Major, Evaluation, Khcoder

1. Introduction

Universities majors are talent cultivation foundation and carrier, The development of Brand Major in higher education institutions is imperative to enhance their operational capabilities, elevate the quality of talent cultivation, and augment their market competitiveness. Provinces across China have progressively bolstered the construction of Brand Major in higher vocational colleges. Notably, Shandong Province embarked on this initiative in 2006, spearheading the development of branded vocational education Major. This movement was followed by Liaoning Province in 2007, Hubei Province in 2012, Guangdong Province in 2016, and Sichuan Province in 2022, each setting forth objectives to establish these brand Major in universities. In 2021, Jiangsu Province articulated its commitment to expedite the development of high-level international talent cultivation, advanced international scientific research collaboration, and quality international cooperative exchanges, by advocating for the establishment of international talent cultivation branded specializations. However, there is a considerate gap in research concerning the evaluation of these International Brand Major. This study using the electronic commerce China's higher vocational colleges Major as a model, integrates the perspectives of the direct recipients of educational outcomes（enterprises）, the target audience for the construction of international brand major（students）, and the key influencers（teachers）into the evaluation framework, and strive to discover evaluation content with public credibility.

2. Literature Review

2.1 Literature research

Initially, in the realm of international talent cultivation research, Yang et al.（2018）examined reforms in the construction of higher education's curriculum system and teaching methods in the cultivation of global talents. Huang et al.（2021）defined the concept of internationalized talents and proposed improvement suggestions from

the perspectives of government, enterprises, and higher education institutions. Zheng et al.（2021）highlighted the shortcomings in vocational colleges' approach to cultivating internationalized talents. Jiang（2021）suggested strategies for vocational education's international talent cultivation based on principles of equality, reciprocity, inclusiveness, openness, and shared innovation. In the international context, Japan's "Strategy for International Talent Cultivation" emphasized that, beyond language and communication skills, international talents should possess independence, proactiveness, challenge-seeking, coordination, adaptability, a sense of responsibility and mission, and an understanding of foreign cultures. Seeber and Lepori（2014）identified education as 'the fourth dimension of foreign policy' and found that domestic policy support accelerates the internationalization of higher education. Soria and Troisi（2014）, applying empirical approach, discovered that participation in on-campus international activities significantly enhances students' globalization, internationalization, and cross-cultural competencies.

Furthermore, in the context of Brand Major construction research, Huang et al.（2017）emphasized that the establishment of Brand Major in higher education must strengthen the synergy with discipline construction, relying on dominant disciplines and transforming disciplinary advantages into practical choices for brand construction. Cao（2017）suggested that Brand Major construction should encompass planning and design, standardized management, reform and innovation, discipline team, infrastructure building, social services, and public opinion propaganda. Li and yang（2018）proposed implementing Brand Major construction through assigning responsibilities at various levels, decomposition of construction tasks, and implementation of standardized sub-projects management. Hua et al.（2019）observed a 'high investment, low output' trend in the construction of Brand Major at Jiangsu Province's universities, and subsequently recommended the development of a categorized performance evaluation system, promoting construction through evaluation, and implementing comprehensive process monitoring. Li et al.（2021）developed an evaluation system for the construction of higher education Brand Major, comprising six dimensions：benchmarking, visibility of outcomes, innovation in mechanisms, achievement of objectives, and others.

2. 2　Evaluation

In the realm of international talent development research in higher education, the literature encompasses both conceptual elucidation and the construction of systems and enhancement measures, as well as discussions pertaining to the international cultivation of talent in specific disciplines. However, most studies primarily focus on current state analyses and implementation strategies, while there are few researches on the index system related to the evaluation of the implementation effect. Currently, vocational education is transitioning towards a higher level of international exchange and cooperation. Consequently, there is an urgent need to develop an evaluative framework for international vocational education that reflects national economic development trends and regional characteristics.

In terms of research on the construction of brand major in university, studies at the undergraduate level are relatively comprehensive, with the elaboration of construction pathways, the assessment and testing of performance, and the development of evaluation systems. However, these are largely macroscopic descriptions based on commonalities, and there is a lack of research on the construction of brand major in vocational education, which fundamentally differs from undergraduate education.

3.　Advanced Research Methods and Data Analysis Techniques

3. 1　Innovative Research Methodologies

Upon collecting textual data, analysis is conducted using KH Coder, a widely-utilized software for unstruc-

tured text analysis. KH Coder is renowned for its robust capabilities in quantitative content analysis and text data mining. It supports multiple languages including Chinese, Japanese, English, French, and German. The software excels in performing a variety of functions such as frequency analysis of words, part-of-speech analysis, context-specific keyword identification, search capabilities, automated categorization, clustering, summary generation, correlation analysis, visualization and prediction of text. Through importing text into KH Coder, it allows for the direct extraction of analytical results, significantly reducing the need for manual intervention.

3. 2 Data Collection and Processing Methodology

The data was collected through the questionnaire star, a questionnaire collection platform to create a free expository research questionnaire. The survey targeted three distinct groups：employees of e-commerce companies, vocational college students in e-commerce major, and professional educators in the field. The survey yielded 135, 105, and 89 effective responses from each group respectively. In the analysis phase, conducted using KH Coder, a Chinese stop-words list "cn_stopwords" was implemented to enhance the relevancy of the text data analysis. To ensure the analysis accurately reflected the core content of the study, common but non-essential terms such as "E-commerce", "Major", "Vocational college", and "Student"—frequently found in research titles—were additionally excluded from the analysis.

4. Textual Visualization Analysis

4. 1 Comparative Analysis of High-Frequency Words

High-frequency words, those that appear frequently and are commonly used in a text, reflect its central theme. To conduct this research, this paper extracted high-frequency words from texts reflecting the perceptions of enterprises, students, and teachers towards International Brand Major in China's Higher Vocational Electronic Commerce. These words were analyzed to identify the key issues of interest to enterprises, students, and teachers. The analysis results are presented in Table 1：

Table 1：Top 10 High-Frequency Words and Comparative Frequency Analysis

	Enterprises Perspectives	Frequency	Students Perspectives	Frequency	Teachers Perspectives	Frequency
1	Practice	48	Abilities	50	Internalization	81
2	Academic program	42	Knowledge	31	Faculty	41
3	Abilities	37	Managerial	31	Global	40
4	Sector	37	Reticulation	20	Collaborative	26
5	Market	33	Corporations	17	Pedagogical	23
6	Pedagogical	28	Technical ability	14	Corporations	21
7	Corporations	24	Manipulate	13	Teachers	19
8	Collaborative	23	Societies	10	Abilities	18
9	Marketing	20	Demand	10	Exchanges	17
10	Teachers	17	Practice	9	Academic program	16

Analysis of Table 1 reveals distinct perspectives based on different stakeholders. From the enterprises viewpoint, words like "Practice", "Abilities", "Sector", "Market", "Corporations", and "Collaborative" are prominent, reflecting real-world social and market needs. From the students' perspective, terms such as "Abilities", "Reticulation", "Corporations", "Technical ability", and "Practice" are frequent, highlighting practical aspects of operations. In contrast, the teachers' perspective is dominated by words like "Internationalization", "Faculty", "Global", "Collaborative", "Teachers", "Exchanges", and "Academic program", indicating a focus on international communication and cooperation.

High-frequency words semantic analysis suggests a considerate degree of similarity between enterprises concerns and students regarding International Brand Major in China's Higher Vocational Electronic Commerce development, particularly focusing on practical skills cultivation skills essential for enterprises. On the other hand, the teachers' focus is primarily on the international expansion of the teaching faculty and curriculum, which significantly differs from the former perspectives. Additionally, the words "enterprise" and "capability" are common high-frequency terms across all three groups (enterprises, students, teachers), reflecting a shared assessment content for "developing student capabilities based on enterprise's needs".

4. 2　Comparative analysis of co-occurrence networks

Co-occurrence networks are graphical representations constructed from the relationships between high-frequency words. These networks reveal the inter-connectedness of information content, uncover extended thematic information, and analyze the evolutionary process of disciplinary thematic structures. The results of co-occurrence through the function of co-occurrence network are shown in Fig. 2. In the analysis results, the size of each bubble indicates the frequency of a word's occurrence. Bubbles of the same color represent a single node cluster, while the thickness of the connecting lines signifies the degree of closeness between the two thematic words.

Initially, the analysis of the co-occurrence network for high-frequency words in the field of International Brand Major in China's Higher Vocational Electronic Commerce, from an enterprises' perspective (Figure 1), re-
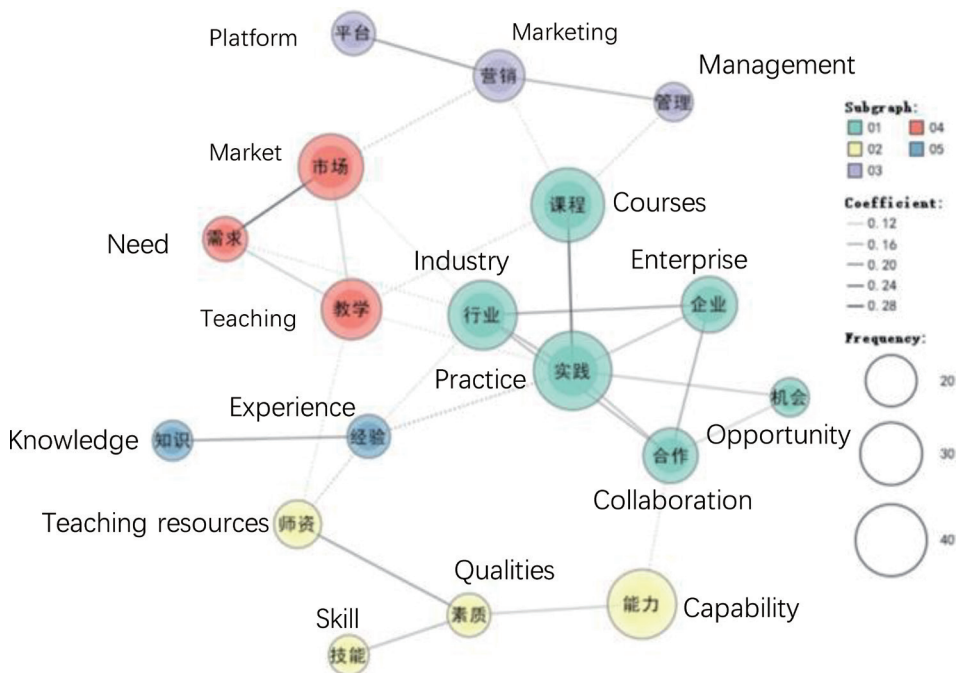

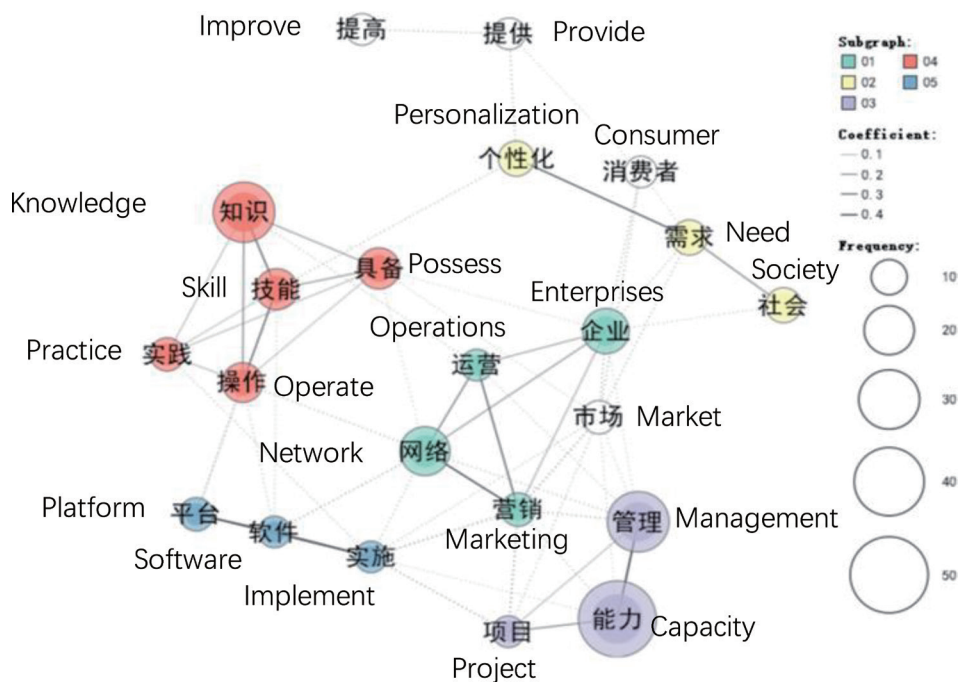Fig. 1：Co-occurrence Network Analysis from an enterprises Perspective

Fig. 2：Co-occurrence Network Analysis from a Students Perspective

veals three major clusters. These are the "Practice"-centered cluster, which is primarily associated with keywords like "Enterprises", "Industries", "Courses" and "Collaboration"; a "Capability"-centered cluster, linked with "Qualities", "Skills" and "Teaching resources"; and a "Market"-centered cluster, connected with "Need" and "Teaching". These clusters reflect the emphasis of enterprises in the Evaluation of International Brand Major in China's Higher Vocational Electronic Commerce. They highlight the need to adapt to enterprises and industry demands, optimize course content through enterprise-school partnerships, and focus on developing high-quality, skilled professionals.

Second, the analysis of the co-occurrence network for high-frequency words in the field of International Brand Major in China's Higher Vocational Electronic Commerce, from a student's perspective（Figure 2）, identifies four major clusters. These include : a "Network"-centric cluster, closely related to keywords such as "Enterprises", "Operations", "Marketing" and "Market"; a "Knowledge"-centric cluster, linked with "Skills", "Practice" and "Operation"; a "Capability"-centric cluster, associated with "Project", "Management". and a "Demand"-centric cluster, connected with "Personalization", "Society" and "Needs". These clusters reflect the emphasis of students in the Evaluation of International Brand Major in China's Higher Vocational Electronic Commerce, emphasizing the adaptation to societal demands and the importance of acquiring specific skills and management capabilities relevant to real-world enterprises environments.

Finally, the analysis of the co-occurrence network for high-frequency words in the field of International Brand Major in China's Higher Vocational Electronic Commerce, from a teacher's perspective（Figure 2）, reveals two major clusters. The first cluster, centered on "Internationalization", predominantly connects with keywords such as "Teams", "Teaching", and "Teachers". The second, focused on the "International" aspect, is linked to "Communication", "Collaboration" and "Coursework". These clusters reflect the emphasis of teachers in the Evaluation of International Brand Major in China's Higher Vocational Electronic Commerce, emphasizing the provision of superior educational resources and services to meet the demands and development of international markets.
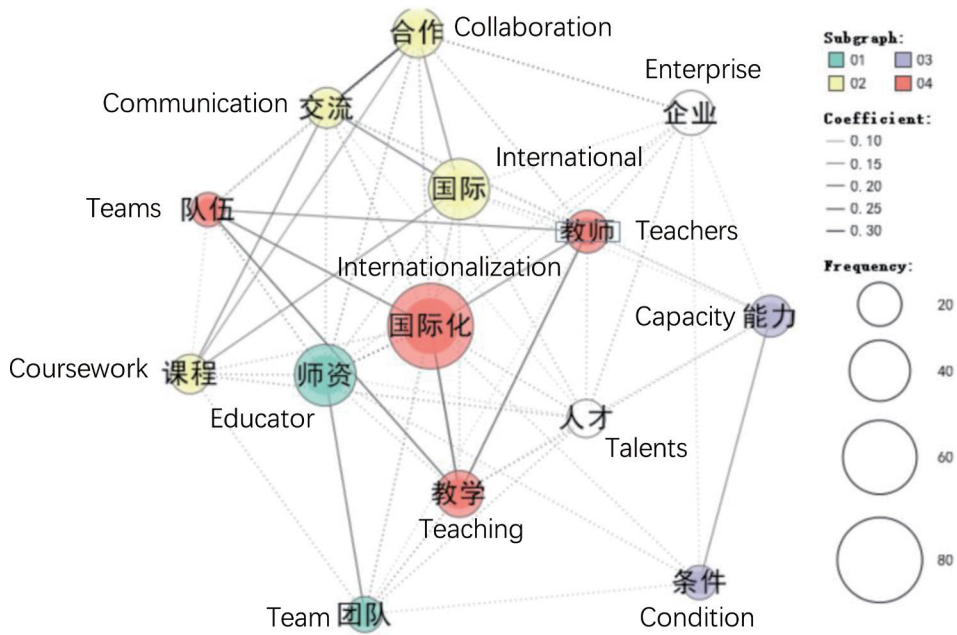
Fig. 3：Co-occurrence Network Analysis from a Teacher's Perspective

4. 3　Comparative Analysis of Themes

Initially, an analysis of themes from the perspective of enterprises in International Brand Major in China's Higher Vocational Electronic Commerce（see Table 2）, it is found：Topic 0 primarily encompasses the ability to adapt to industry and market demands, and to cultivate high-quality skills and knowledge talents through enterprises collaboration. Topic 1 emphasizes the need for professional courses to be relevant to practical applications, with occupational competencies and management skills aligning with market and industry growth requirements. Topic 2 reflects the alignment of teaching capabilities with enterprises and market demands, with faculty possessing extensive expertise in marketing and management.

Furthermore, students' perspective topic analysis in International Brand Major in China's Higher Vocational Electronic Commerce（see Table 3）, it is found：Topic 0 primarily focuses on the ability to cultivate skillful talents in networking, marketing, platform operation, and management. Topic 1 underscores the ability to meet market and societal needs, fostering skills in software and platform operation, as well as project management. Topic 2 highlights proficiency in enterprises management and practical operational skills.

Finally, an analysis of themes from the perspective of teachers in International Brand Major in China's Higher Vocational Electronic Commerce（see Table 4）, it is found：Topic 0 underscores the significance of an international faculty, highlighting their role in offering students access to superior educational resources and environments. Topic 1 focuses on the availability of international teaching resources, pivotal in nurturing talents equipped with a global perspective. Topic 2 centers on the presence of an internationally diverse teaching staff, emphasizing their proficiency in fostering skill-based talent development.

Table 2：Thematic analysis based on Enterprises Perspectives

Topic 0	TF	Topic 1	TF	Topic 2	TF
Industry	0.23	Practice	0.29	Teaching	0.22
Cooperation	0.14	Curriculum	0.25	Market	0.19
Enterprise	0.09	Ability	0.20	Teachers	0.13
Demand	0.09	Platform	0.08	Innovate	0.09
Education	0.09	Occupation	0.07	Opportunity	0.09
Quality	0.09	Marketing	0.06	Enterprise	0.08
Skill	0.08	Administration	0.02	Marketing	0.08
Knowledge	0.06	Demand	0.01	Administration	0.05
Market	0.06	Industry	0.00	Experience	0.05
Experience	0.05	Market	0.00	Knowledge	0.02

Table 3：Thematic Analysis from the Perspectives of Students

Topic 0	TF	Topic 1	TF	Topic 2	TF
Knowledge	0.26	Ability	0.57	Administration	0.26
Network	0.18	Demand	0.10	Enterprise	0.14
Marketing	0.08	Market	0.09	Have	0.12
Platform	0.07	Software	0.09	Operation	0.11
Consumption person	0.07	Project	0.09	Society	0.08
Operations	0.07	Society	0.01	Practice	0.08
Personality turn	0.07	Platform	0.01	Skill	0.07
Implement	0.07	Provide	0.01	Increase	0.07
Skill	0.05	Knowledge	0.00	Knowledge	0.02
Provide	0.05	Administration	0.00	Individuation	0.02

Table 4：Thematic analysis based on Teachers Perspectives

Topic 0	TF	Topic 1	TF	Topic 2	TF
Teachers	0.32	International	0.22	internationalization	0.56
Cooperation	0.20	Teaching	0.18	Ability	0.12
Curriculum	0.13	Enterprise	0.16	Team	0.09
International	0.09	Exchange	0.13	Personnel	0.08
Teacher	0.09	Teacher	0.06	Technology	0.07
Ranks	0.07	Condition	0.06	Ranks	0.02
Condition	0.03	International students	0.06	Study abroad	0.02
Visual field	0.03	Resource	0.06	Visual field	0.02
Resource	0.02	Visual field	0.03	Cooperation	0.00
Ability	0.01	Personnel	0.02	Teachers	0.00

5. Conclusion

Triggered by globalization trends, production sector has stable demand on global vision talents. This shift has thrust International brand major to the forefront of academic attention within higher education institutions, marking them as a pivotal focus in developing future professionals. This study, centering on China's higher vocational Electronic Commerce Major, delves into and elucidates the assessments made by corporations, students, and tertiary education faculty regarding the nurturing of globally-oriented talents within this domain. Enterprises predominantly appraise this specialty for its alignment with industry and market requisites, hinging on collaborative enterprises engagements and pragmatic course structures to cultivate high-caliber, skill-oriented professionals, while also underscoring the necessity for faculty to possess profound expertise in marketing and management. Students predominantly underscore the program's alignment with market and societal exigencies, emphasizing the acquisition of competencies in digital marketing, platform management, and operational skills inherent to professional and managerial talent development. A notable consonance exists in the perceptions of enterprises and students towards the value of international brand specializations. Teachers on the evaluation of higher vocational e-commerce majors are mainly reflected in the availability of international faculty, can provide students with better educational resources and conditions of hardware and software, and to cultivate skilled personnel.

It has been found that both enterprises and students tend to have a consistent evaluation of the evaluation of International Brand Major in Higher Vocational Electronic Commerce, mainly reflected in adapting to the needs of society and enterprises, cultivating skilled talents through school-enterprise cooperation or practical operations, while teacher evaluation focuses on high-quality teaching resources such as national educational teams for preparing skillful and knowledgeable talents.

（孔　令建・こう　れいけん　客員研究員　常州機電職業技術学院専任教師）

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