

ISSN electrónico: 2172-9077

DOI: 10.48047/fjc.28.02.11

INNOVATION AND INTEGRATION: ANALYSIS OF RESEARCH HOTSPOTS AND FRONTIERS IN “CHINESE + VOCATIONAL SKILLS” EDUCATION—BASED ON BIBLIOMETRIC ANALYSIS VISUALIZED BY CITESPACE

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Fecha de recepción de la reseña: 10 July 2024

Fecha de aceptación definitiva: 10 September 2024

Abstract

The “Chinese + Vocational Skills” education is a new form of education merging international Chinese education with vocational training. This paradigm has emerged as a focal point in research on international Chinese language education. This article is aimed to effectively dissect the developmental patterns and prevailing research topics on “Chinese + Vocational Skills”, by employing CiteSpace, a tool for visualizing scientific data, to analyze pertinent literature spanning the last decade (2013–2023). The analysis offers insights into the overall landscape and evolutionary trajectory of research in this field. The findings therefrom indicate the followings: (1) Research on “Chinese + Vocational Skills” exhibits certain interdisciplinary characteristics, with an overall trend of rapid growth in research literature, but a relatively

small volume of high-quality core literature. (2) “International Chinese Language Education”, “Vocational Education”, “Chinese + Vocational Skills”, and the “Belt and Road” are current research hotspots in this field. “Chinese +”, Chinese for Specific Purpose, demand analysis, and vocational skills serve as important turning points for research on “Chinese + Vocational Skills”. (3) Research topics related to “Chinese + Vocational Skills” mainly concentrate on four aspects: international Chinese language education, vocational education, talent cultivation, as well as regions and countries, yet disparities of research endeavors exist across these fields. (4) The research frontier of the field mainly focuses on international Chinese language education, “Chinese + Vocational Skills”, international vocational education on Chinese language in vocational colleges, and internationalization of Chinese language. Addressing contemporary demands, research in “Chinese + Vocational Skills” needs to align with global economic trends, cater to the actual needs for talent with such skills, and further enhance understanding from various perspectives including educational models, national demands, and internationalization efforts, thus fortifying the capacity of “Chinese + Vocational Skills” education to serve the development of industries.

Keywords: Chinese + Vocational Skills; International Chinese Language Education; Vocational Education; CiteSpace; Visualized Analysis

1. INTRODUCTION

“Chinese + Vocational Skills” education stands as a focal point in research on contemporary international Chinese language, and heralds a new trend in the evolution of international Chinese language education. Against the backdrop of China’s rapid economic growth and the “Belt and Road” initiative, the global prominence of Chinese language continues to ascend. Presently, Chinese is integrated into the national education systems of 85 countries worldwide (Li & Zhuang, 2020; Li & Zhuang, 2023), rendering it one of the most sought-after languages globally (Zhu & Li, 2014; Singh & Han, 2014). Simultaneously, the practical demand for Chinese proficiency across various domains, including global economic trade, engineering, and cultural exchange, is on a steadfast rise (Chen & Zhang, 2021; He & Yu, 2023). Professionals featuring “Chinese + Vocational Skills” have come an urgent need in contemporary socio-economic landscapes (Bu, 2023). In the era of artificial intelligence and digitization, interdisciplinary endeavors have emerged as the predominant trend in academic development. The conceptual fusion of “linguistics +” and “+ linguistics” has been proposed in linguistic research (Lu, 2021). Similarly, within the realm of international Chinese language education, “Chinese Language +” and “+ Chinese Language” have emerged as burgeoning topics (Wu & Liu, 2020; Geng, 2021; Li et al.). Against this backdrop, “Chinese + Vocational Skills” education emerges as a novel educational paradigm integrating international Chinese language education with vocational training. Rooted in the diversification of international Chinese language education and the globalization of vocational education, “Chinese + Vocational Skills” education underscores the practical needs of

vocational professionals, emphasizing the cultivation of individuals proficient in Chinese, adept in vocational skills, and knowledgeable about local cultures. This educational model represents a synergistic fusion of international Chinese language education and vocational education, aimed at equipping foreign learners with the requisite Chinese-related vocational skills or work competencies. Its objective is to cultivate talents equipped with “professional skills, linguistic proficiency, and cultural knowledge” for global enterprises (Liang & Liu, 2024). As Chinese enterprises and technology burgeon, the integration of Chinese language and vocational skills becomes increasingly pronounced. Chinese language intersects with various sectors such as tourism, high-speed rail technology, and e-commerce, engendering diverse “Chinese + Vocational Skills” education models like “Chinese + Tourism”, “Chinese + High-speed Rail,” and “Chinese + E-commerce”. By May 2022, over 40 countries and regions worldwide have established distinctive “Chinese + Vocational Skills” programs.

The education of “Chinese+vocational skills” has had a profound impact in multiple aspects. First, in the field of education, “Chinese+vocational skills” education has promoted innovation in educational models. To begin with, this educational model integrates international Chinese education and vocational and technical education, providing a new direction for the development of international Chinese education. At the same time, it also advances the internationalization of vocational and technical education and vocational skills training, and promotes innovation in educational models. In addition, “Chinese+vocational skills” education has expanded the educational content. Through the combination of vocational skills education, the content of international Chinese education has been further expanded, so that learners can improve their vocational skills while learning the language, and the professional competitiveness of Chinese scholars may be enhanced. At last, “Chinese+vocational skills” education deepens the connotation of international Chinese education, boosts the sustainable development of international Chinese education in different regions, and effectively enhances the dissemination and influence of Chinese language and vocational skills. Based on the demand for talents with “Chinese+vocational skills”, “Chinese+vocational skills” education combines Chinese with vocational skills to effectively strengthen the economic value and applicability of Chinese, promote the innovation and reform of education types, enhance the teaching vitality and dissemination influence of Chinese in different regions, and provide a new way of thinking for language to serve social and economic development.

Secondly, In the economic field, “Chinese+vocational skills” education has a significant impact and positive role in cultivating talents, promoting local economic development, and improving employment. With the construction and development of the “Belt and Road” and the rapid development of China’s economy, Chinese is playing an increasingly important role in international business and trade. Comprehensive talents with Chinese and vocational skills can meet the needs of local industrial upgrading and promote the development of the local economy to a higher level. Cultivating “Chinese+vocational skills” talents not only provides enterprises with urgently needed compound technical and skilled talents, but also solves the problem of skilled talents shortage and high unemployment rate among young people in various countries, helping learners obtain more employment opportunities in Chinese-funded enterprises, better economic income, and higher quality of life. The original intention and purpose of “Chinese+vocational skills” education is to improve vocational skills and promote employment, especially the employment of people in countries along the “the Belt and Road”, and bring tangible economic benefits to local people. For example, in Papua New

Guinea, the Juncao technology from China has lifted millions of people out of poverty, and the Juncao industry has become the country's second largest pillar industry after coffee. The education of "Chinese+vocational skills" has helped third world countries reduce poverty, and many students have mastered Juncao planting techniques by learning Chinese. For example, the Chinese language training programs of high-speed rail between China-Laos and China-Thailand have trained compound skilled talents who understand Chinese. The "vocational skills" refer to vocational skills fields in which China is leading or at a high level in the world, such as high-speed rail technology, hybrid rice, Juncao technology, and 5G technology, etc. The education of "Chinese+vocational skills" promotes the international development of vocational and technical education in China, and also enhances the humanistic exchange and international dissemination of language, culture, and vocational skills. Therefore, "Chinese+vocational skills" education has a positive social impact in many fields and is of great significance in promoting globalization and cross-cultural communication. Presently, there is a surge of outcomes of theoretical research and practical exploration surrounding "Chinese + Vocational Skills" education. Scholars have delved into its overarching principles, focusing on developmental strategies (Liu & Tan, 2022; Xie, 2023; You, 2022), standardization (Song et al., 2022), and integration models (DU et al., 2023). Concurrently, others have scrutinized specific facets of the educational process. For instance, Zhao Yan, Wu Yongyi, and Du Xiuping have probed into talent cultivation models (Zhao & He, 2022; Li et al., 2023; Xing & Gong, 2020), teaching resource development (Wu et al., 20223; Chen & Zhao, 2023), and vocabulary elements (Du & Shi, 2022) within "Chinese + Vocational Skills" education. Overall, research pertaining to "Chinese + Vocational Skills" is burgeoning with certain empirical support, yet systematic analyses of its research status, focal points, and trends remain scant. Hence, there is an urgent need to systematically scrutinize the latest research findings in this domain to furnish scientific underpinnings and essential insights for the cultivation of professionals featuring "Chinese + Vocational Skills".

2. RESEARCH METHODOLOGY

2.1 Data Sources

To accurately depict the developmental trends and research focal points of "Chinese + Vocational Skills" over the past decade, this study utilized the CNKI Academic Journal Database, the largest Chinese database globally. The search criteria included keywords such as "Chinese Language" and "Vocational Skills," "Chinese Language" and "vocation", with publication dates ranging from January 2013 to December 2023. The search was conducted on February 15, 2024. Initially, 886 documents were retrieved. After eliminating irrelevant content to ensure data accuracy and representativeness, a total of 243 valid documents were obtained. These were saved in Reworks format and downloaded for further analysis in this study, which involved data encoding and visualization using Cite Space.

2.2 Research Methods

This study employed scientific information bibliometrics methodology, leveraging CiteSpace 6.2.R4 (Chen, 2006), a bibliometric visualization software developed by Professor Chen Chaomei in Java.

The software was used to visualize analysis of “Chinese + Vocational Skills” research achievements over the past decade. Utilizing techniques such as keyword co-occurrence analysis, cluster analysis, and hot word emergence analysis, the study aimed to comprehend the developmental trajectory of “Chinese + Vocational Skills” research holistically, uncover latent connections among different domains within international Chinese language education, and explore the structural attributes, prevalent research hotspots, and future trends in research on “Chinese + Vocational Skills”.

2.3 Research Questions

This study addressed three main questions: (1) What are the overall trends in research on “Chinese + Vocational Skills”? (2) What are the prevailing research hotspots and current status of “Chinese + Vocational Skills”? (3) What are the anticipated future directions in research on “Chinese + Vocational Skills”?

3. RESULTS ANALYSIS

3.1 Analysis of Paper Publication Trends

Examining fluctuations in paper publications offers insights into the developmental trajectory and trends within a specific research domain. A distribution chart depicting the 243 papers in the “Chinese + Vocational Skills” field from 2013 to 2023 was created (Fig 1). The chart reveals an overall upward trend in research intensity within the “Chinese + Vocational Skills” field, accompanied by an accelerating pace of development. Based on publication trends, research on “Chinese + Vocational Skills” can be delineated into two phases. 2013 to 2018 represented an exploratory phase characterized by relatively low paper counts. In this phase, although there were studies during this period, the number of papers was relatively low, with an average annual publication of fewer than 10 papers. 2019 to 2023 witnessed rapid growth phase, marked by a significant increase in publications, indicative of heightened scholarly interest. The number of papers published increased from 11 in 2019 to 89 in 2023, nearly 8 times, and reached a peak in 2023. This indicates that the field has received significant attention from researchers since 2019, leading to a substantial increase in the past approximately five years. Against the backdrop of China’s continuous improvement in comprehensive national strength, the rapid development of Chinese language along with other disciplines such as vocational skills has become a new trend in research on international Chinese language education. Therefore, under this overarching trend, it is expected that research on “Chinese + Vocational Skills” will continue to be a focus and hotspot for scholars in the coming years.

3.2 Analysis of Research Hotspots

Keywords serve as concise summaries of paper topics and are often used to identify hot issues within a research field. In this study, keyword co-occurrence analysis was conducted on papers from 2013 to 2023, generating two keyword co-occurrence frequency tables of “Chinese + vocational skills” keywords (Table 1, Table 2). In keyword co-occurrence analysis, frequency and centrality are two important indicators (Chen et al., 2012). The higher the co-occurrence frequency of the keyword, the higher the centrality, indicating that the keyword is more important in the field

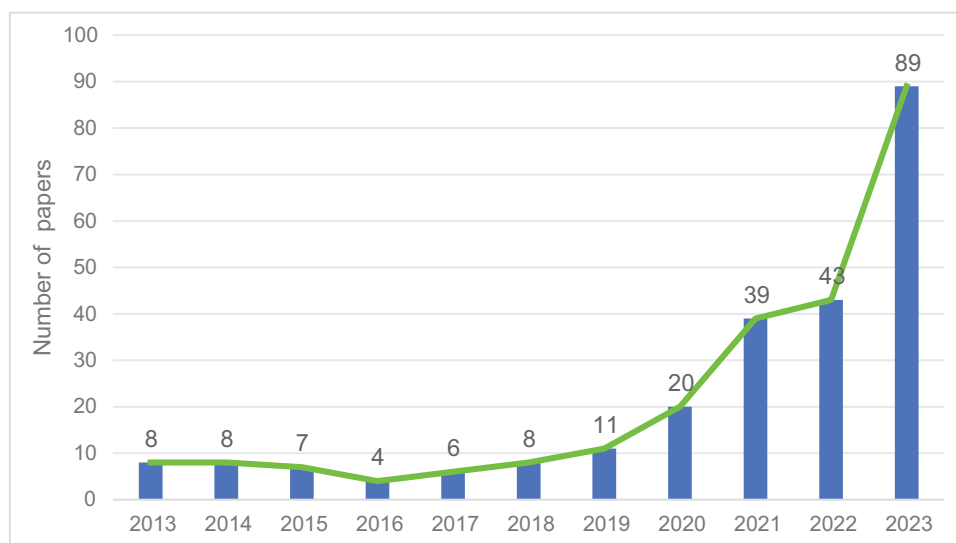


Fig. 1 Annual Distribution of Research Papers on “Chinese + Vocational Skills” (2013–2023).

Table 1 Keyword Co-occurrence Frequencies for 2013–2023 (Top 10 Sorted by Frequency).

No.	Frequency Count	Centrality	Year	Keyword
1	39	0.01	2021	International Chinese Language Education
2	31	0.2	2015	Vocational Education
3	26	0.01	2021	Chinese + Vocational Skills
4	25	0.05	2019	Belt and Road
5	15	0.19	2014	Confucius Institute
6	13	0.05	2016	Vocational Colleges
7	12	0.21	2013	Vocational Skills
8	11	0.06	2013	Talent Training
9	10	0.22	2017	Chinese Language Education
10	10	0.08	2019	Talent Training Mode

(Chaomei, 2017). At the same time, it also shows that this keyword is the common concern of researchers, that is, the research hotspot.

From Table 1, it can be seen that high-frequency keywords include: “International Chinese Language Education” (39), “Vocational Education” (31), “Chinese + Vocational Skills” (26), “Belt and Road” (25), “Confucius Institutes” (15), “Vocational Colleges” (13), etc. However, not all high-frequency keywords have high centrality. Therefore, relying solely on keyword frequency may not accurately identify research hotspots. In Citespace software, nodes with centrality greater than 0.1 are generally

Table 2 Keyword Co-occurrence Frequencies for 2013–2023 (Top 10 Sorted by Centrality).

No.	Frequency Count	Centrality	Year	Keyword
1	6	0.43	2021	Chinese +
2	4	0.26	2020	Chinese for Specific Purpose
3	5	0.24	2021	Demand analysis
4	10	0.22	2017	Chinese Language Education
5	12	0.21	2013	Vocational Skills
6	31	0.2	2015	Vocational education
7	15	0.19	2014	Confucius Institute
8	2	0.18	2022	SWOT
9	9	0.1	2017	Teaching Chinese to Speakers of Other Languages
10	7	0.1	2014	Thailand

considered important positions in the network map, representing significant turning points and research hotspots in the field to some extent (Chen et al., 2012). Table 2 presents the keyword co-occurrence frequencies sorted by centrality. From Table 2, it can be observed that keywords such as “Chinese +” (0.43), Chinese for Specific Purpose (0.26), Demand Analysis (0.24), Chinese Language Education (0.22), Vocational Skills (0.21), Vocational Education (0.2), Confucius Institutes (0.19) are turning points in the network map. Although keywords like “Chinese +” (6), Chinese for Specific Purpose (4), Demand Analysis (5), Chinese Language Education (10), and Vocational Skills (12) have a relatively low frequency, they are important nodes in recent years’ research. This indicates a shift in international Chinese education research from the exclusive focus on language teaching to the integration of Chinese language (as a base) with other disciplines. Keywords with high centrality like “Chinese +”, Chinese for Specific Purpose, Demand Analysis, Vocational Skills, and Thailand, indicates that research on international Chinese language education is shifting from the singular focus on Chinese language teaching to studying other vocational skills through the medium of Chinese language.

3.4 Analysis of Research Topics

To better explore the research topics related to “Chinese + Vocational Skills”, this study included a keyword clustering analysis and a keyword clustering network map for the years 2013 to 2023 (Fig 2). Additionally, a keyword clustering information table was created (Table 3). Keyword clustering entails the formation of interconnected clusters within a research domain, each representing keywords with similar research topics, identified by high-frequency words in titles found in respective articles.

In CiteSpace, a Modularity $Q > 0.3$ typically indicates a significant and rational modular structure in the generated network map (Chen, 2015). The Modularity Q of our study’s network map is 0.8365 (> 0.3), suggesting a well-structured network map with clear cluster delineations. The Mean Silhouette value gauges the average homogeneity of the clustering network map, ranging from

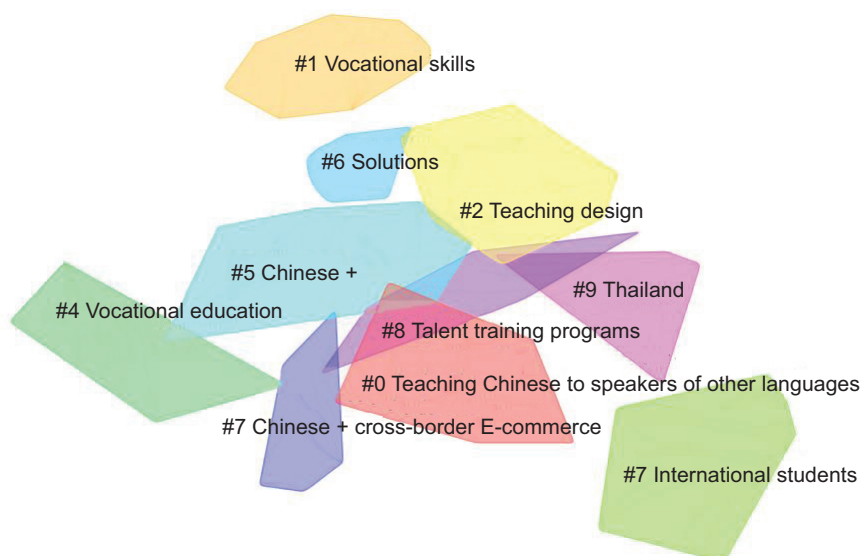


Fig. 2 Keyword Clustering Analysis Network Map.

0 to 1. A Mean Silhouette value approaching 1 signifies higher homogeneity in clustering. A Mean Silhouette value exceeding 0.5 is considered highly reliable for clustering results (Sun et al., 2019). Our study's network map has a Mean Silhouette value of 0.9647 (0.5), indicating a high degree of reliability.

Figure 2 is the keyword clustering network map, generated using the Log-Likelihood Rate (LLR) algorithm, which yielded ten different clusters representing various research themes: #0 Teaching Chinese to Speakers of Other Languages, #1 Vocational Skills, #2 Teaching Design, #3 International Students, #4 Vocational Education, #5 Chinese +, #6 Solutions, #7 Chinese + Cross-border E-commerce, #8 Talent Training Programs, #9 Thailand (as shown in Table 3). Among these ten clusters, #0 Teaching Chinese to Speakers of Other Languages and #1 Vocational Skills are the two largest clusters over the past decade, each comprising 25 keyword nodes and exhibiting the most intricate co-occurrence relationships. Consequently, Teaching Chinese to Speakers of Other Languages and Vocational Skills stand out as prominent themes in recent years. Furthermore, the analysis of research topics revealed that studies on “Chinese + Vocational Skills” have consistently revolved around four key factors: International Chinese Language Education, Vocational Education, Talent Training, as well as Regions and Countries. Clusters #0, #3, #5, and #7 are linked to International Chinese Language Education, clusters #1 and #4 relate to Vocational Education, clusters #2, #6, and #8 pertain to Talent Training, while cluster #9 is associated with Regions and Countries. This underscores how research on “Chinese + Vocational Skills” embodies interdisciplinary collaboration between International Chinese Language Education and Vocational Education, reflecting the outcomes of interdisciplinary integration and innovation. Additionally, it also indicates that such research focuses on cultivating “Chinese + Vocational Skills” talents under various regional and national contexts.

Table 3 Information on the largest 10 clusters of keyword.

Cluster ID	Size	Silhouette	Mean (Cite Year)	Label (LLR)
#0	25	0.961	2018	Teaching Chinese to Speakers of Other Languages
#1	25	1	2014	Vocational Skills
#2	23	0.935	2019	Teaching Design
#3	22	1	2018	International Students
#4	21	0.952	2017	Vocational Education
#5	21	0.925	2021	Chinese +
#6	18	0.976	2016	Solutions
#7	11	0.966	2021	Chinese + Cross-border E-commerce
#8	10	1	2017	Talent Training Programs
#9	10	0.915	2019	Thailand

3.5 Analysis of Research Frontiers and Trends

To delve deeper into the recent trends and emerging frontiers in research on “Chinese + Vocational Skills”, the Burst Detection Algorithm in CiteSpace was used (Wei et al., 2018). This algorithm sifted through the titles, abstracts, and keywords of articles in the selected database to identify burst keywords, generating a table of burst keywords (see Table 4). Burst keywords refer to keywords that experience sudden increases in relevance within a certain period. They serve to highlight instances where the citation frequency of literature abruptly increases, thereby indicating significant shifts in research focal points during certain periods. Table 4 shows the top 10 burst keywords spanning from 2013 to 2023, alongside their burst strength and duration. Notably, there are five burst keywords with a burst strength exceeding 2: Teaching Chinese to Speakers of Other Languages (4.42), International Chinese Language Education (3.98), International Students (2.67), Chinese + Vocational Skills (2.66), and Chinese Language + (2.56). Furthermore, the keyword “Chinese Teaching” demonstrated burst occurrences lasting over five years, from 2014 to 2021.

In terms of time, burst keywords prior to 2019 were primarily related to “Han Chinese Teaching”, indicating that research hotspots before 2019 mainly focused on the study of Chinese language teaching alone. Burst keywords from 2019 to 2021 included Teaching Chinese to Speakers of Other Languages, International Students, Chinese Language +, Chinese Language Teaching, Demand Analysis, and Confucius Institutes. This suggests that during this period, research on international Chinese language education shifted away from solely focusing on Chinese language teaching to incorporating keywords such as “Chinese +”, international students, demand analysis, and Confucius Institutes, emphasizing the exploration of students’ diverse needs in learning Chinese. Burst keywords from 2022 to 2023 included International Chinese Language Education, Chinese + Vocational Skills, Vocational Colleges, and Internationalization. This indicates that the recent prominent research topics and frontiers have revolved around International Chinese Language Education, Chinese + Vocational Skills, international talent cultivation in higher vocational colleges, and the internationalization of Chinese language.

Table 4 Top 10 Keywords with the Strongest Citation Bursts.

No.	Keywords	Year	Strength	Begin	End	2013–2023
1	Teaching Chinese to Speakers of Other Languages	2013	4.42	2019	2020	
2	International Chinese Language Education	2013	3.98	2022	2023	
3	International Students	2013	2.67	2020	2021	
4	Chinese + Vocational Skills	2013	2.66	2022	2023	
5	Chinese Language +	2013	2.56	2019	2020	
6	Chinese Teaching	2013	1.57	2014	2021	
7	Demand analysis	2013	1.53	2021	2021	
8	Vocational Colleges	2013	1.5	2022	2023	
9	Internationalization	2013	1.41	2022	2023	
10	Confucius Institutes	2013	1.32	2020	2021	

The burst keywords at different stages validate the dynamic development and changes in research topics within the field of international Chinese language education. Moreover, the four burst keywords from 2022 to 2023 indicate that current research on international Chinese language education is closely integrated with vocational education, vocational skills, and various new technologies. The expanding scope of integration, particularly the emergence of burst keywords such as “Chinese + Vocational Skills” and “Internationalization,” demonstrates the exceptional linguistic service capabilities and vitality of Chinese in serving new technologies and skills.

4. CONCLUSION AND FUTURE RESEARCH DIRECTIONS

4.1 Conclusion

Presently, research on “Chinese + Vocational Skills” is experiencing a phase of rapid expansion. Analysis of the research landscape reveals the following:

- (1) Regarding the temporal distribution of publications, research on “Chinese + Vocational Skills” can be broadly categorized into two phases: an initial exploratory phase (2013–2018) and a phase of rapid growth (2019–2023). Overall, there is a discernible trend of rapid growth in publications, though with a scarcity of high-quality core papers.
- (2) Keyword co-occurrence analysis highlights “International Chinese Language Education”, “Vocational Education”, “Chinese + Vocational Skills”, and the “Belt and Road” as the current research hotspots in this domain. “Chinese Language +” (0.43), Chinese for Specific Purpose (0.26), Demand Analysis (0.24), Chinese Language Education (0.22), and Vocational Skills (0.21) serve as important turning points in research on “Chinese + Vocational Skills”.

The emergence of these research turning points signifies a shift in the study of international Chinese language education from a singular focus on Chinese language education to exploring the acquisition of other skills through the Chinese language.

- (3) The results of keyword clustering analysis reveal that research related to “Chinese + Vocational Skills” predominantly revolves around ten research topics, including Teaching Chinese to Speakers of Other Language, Vocational Skills, Teaching Design, International Students, Vocational Education, Chinese +, Solutions, Chinese + Cross-border E-commerce, Talent Training Programs, and Thailand. These ten research topics can be grouped into four major categories: International Chinese Language Education, Vocational Education, Talent Training, as well as Regions and Countries. Consequently, research on “Chinese + Vocational Skills” represents a collaborative exploration between International Chinese Language Education and Vocational Technical Education, focusing on talent cultivation in “Chinese + Vocational Skills” across various regional and national contexts.
- (4) The findings from burst keyword analysis indicate that the research frontiers in this field predominantly center around international Chinese language education, “Chinese + Vocational Skills”, vocational education in vocational colleges, and the internationalization of Chinese language education. It also indicates that the integration of international Chinese language education with vocational education has become the main direction and trend of current development.

4.2 Future Research Directions

4.2.1 *Exploration of the “Chinese + Vocational Skills” Education Model*

“Chinese + Vocational Skills” constitutes a significant aspect of research in the field of international Chinese language education. In the era of globalization, there is a growing demand in the global market for talents proficient in both Chinese language and vocational skills. Traditional Chinese language instruction alone may not suffice to meet market demands. Instead, Chinese language education needs to integrate with various professions, industries, and technologies to cater to a wider range of vocational skill domains. By fostering such integration, the “Chinese + Vocational Skills” education model facilitates a transition from merely learning Chinese to utilizing it effectively within professional contexts (Li & Liu, 2021; Yu et al., 2023). The “Chinese + Vocational Skills” education model encompasses not only talent cultivation models in universities and vocational schools but also training models for employees in companies and enterprises. It involves the process of learning, applying, and using Chinese language for communication in various professional contexts. Exploring the curriculum frameworks, practical approaches, teaching resources, instructional methods, and evaluation systems tailored to the needs of different stakeholders is an essential component of the “Chinese + Vocational Skills” education model. This exploration serves as a crucial direction for current and future research endeavors.

4.2.2 *Research on Country-Specific Demands for “Chinese + Vocational Skills”*

“Chinese + Vocational Skills” education serves as a practical education type that supports local socioeconomic development. It aims to meet and adapt to the diverse needs of different countries for talents proficient in both Chinese language and vocational skills. This type of education not only

enhances the service capacity and practical value of Chinese language in the international community, but also integrates Chinese language with local economic development, promoting learners to master both Chinese language and vocational skills, thereby enhancing their employability and contributing to family prosperity. Therefore, it is essential to conduct analyses of the demands for “Chinese + Vocational Skills” education in different countries. For instance, following the opening of the China-Laos High-Speed Railway in 2022, there has been a significant surge in demand for talents proficient in both Chinese and railway technologies in Laos. After the outbreak of the conflict between Russia and Ukraine, economic and trade cooperation between China and Russia became even closer. According to a report from the Russian newspaper *Businessman* dated August 2023, the demand for learning Chinese among Russians increased by 600%, leading to a surge in demand for talents proficient in both Chinese language and economic and trade skills. Given the diverse national conditions and varying needs across regions such as Southeast Asia, Central Asia, Africa, and Europe (Li & Wei, 2023; Li & Zhuang, 2024), there is an urgent need to conduct a detailed analysis of country-specific demands for “Chinese + Vocational Skills” talents based on each country’s industrial development needs and local economic requirements; and to enhance and tailor the “Chinese + Vocational Skills” education model to different countries and regions, thereby improving the capabilities of the “Chinese + Vocational Skills” education to serve industries.

4.2.3 *Research on the Internationalization of the Chinese Language*

Presently, the global reach of the Chinese language is rapidly expanding. Its usage is becoming increasingly pervasive in linguistic landscapes worldwide, with frequent presence of Chinese language signage at airports in various countries, such as Suvarnabhumi Airport in Thailand and Charles de Gaulle Airport in France. Numerous international organizations, including the United Nations, have designated Chinese as both an official language and a working language, with April 20 celebrated as “Chinese Language Day”, significantly boosting the language’s influence. With China’s swift economic growth and the overseas expansion of Chinese technologies and enterprises, the utilization of the Chinese language in economic and trade domains is becoming more widespread. Consequently, there is a growing global demand for proficiency in the Chinese language, with Chinese gradually emerging as the world’s second most spoken foreign language (Li & Wang, 2018; Li & Tang, 2020). The exploration and implementation of “Chinese + Vocational Skills” enhance the utility and economic value of the Chinese language, facilitate its integration and advancement across various industries, and elevate its level of internationalization. Therefore, the integration and advancement of the Chinese language in diverse industry sectors will become new focal points for research.

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