

A BIBLIOMETRIC MAPPING ANALYSIS OF RESEARCHES ON CHINESE COLLEGE ENGLISH TEACHER PROFESSIONAL DEVELOPMENT (2001-2022)

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Abstract: Visualization analysis based on mapping knowledge domains is an emerging science and technology. College English teacher professional development research in China has already got the attention of many scholars, and the existing research results mostly in the form of papers and monographs, but the mapping analysis of researches on Chinese college English teacher professional development has not yet appeared. This study uses Cite Space visualization analysis software to analyze the research subjects, hotspots, frontiers and trends in the professional development of college English teachers. This paper collected and collated 307 articles on the professional development of college English teachers in China from China National Knowledge Infrastructure (CNKI) full-text database from 2001 to 2022 as data samples. Through the analysis, we found some problems in the study of professional development of Chinese English college teachers: a high similarity in the results and an inconsistent distribution of subjects. This study can shed light on general rules in the field of professional development of college English teachers and provide an objective and scientific reference basis for future research.

Keywords: Mapping knowledge domains; professional development; visualization analysis; CNKI

1. Introduction

In the long course of educational reform, China has gradually realized that it is very important to establish a perfect professional development system for college English teachers and guide college English teachers to conduct professional development independently. The research on the professional development of college English teachers has developed rapidly in the last 20 years, and some theoretical research results have been obtained. In the face of large and complex research results, we need to know clearly: what are the research subjects, hotspots and frontiers and trends of English teacher professional development in China in recent years?

Statement of Problems

This study aims to tackle the following problems:

a: What is the current situation of researches on the professional development of college English teachers in China between 2001 and 2022?

b: What are the research hotspots of researches on the professional development of college English teachers in China between 2001 and 2022?

c: What are the frontiers and trends of researches on the professional development of college English teachers in China between 2001 and 2022?

2. Literature Review

"Mapping Knowledge Domains, also known as knowledge domains, are produced by the combination of citation analysis and information visualization" (Wang & Cai, 2010). Knowledge domains, which date back to 1960, were formally proposed by Google in 2012 as a way to make search engines smarter, and have been popularized in academia since 2013. This paper is a research paper on the professional development of English teachers in Chinese colleges based on a knowledge graph, which has developed rapidly and is rich in research results.

2.1 Overview of Knowledge Domains Research

In the 1950s, Garfield, the founder of the Science Citation Index database, published "Science Citation Index: A New Dimension in Philology". Garfield later mapped the dynamic knowledge of DNA research based on citation data. Soon, Price G. proposed "scientific paper network" based on the data of the former (Price, 1965). Around 1981, the Institute for Scientific and Technological Information developed the SCI-Map software. In 1994, Small developed a practical application of the SCI-Map software to map scientific knowledge about AIDS. Information Visualization and Virtual Environments, published in 1999 by Dr. Chaomei Chen of Drexel University, became the first academic monograph in the field of mapping knowledge domains.

2.2 Review of Research on Professional Development of College English Teachers

Foreign studies on the professional development of English teachers did not appear until the 1970s. In the 1980s, some foreign scholars became aware of the importance of teachers to teaching and carried out theoretical studies. After the 1990s, empirical studies on the education and development of foreign language teachers began to emerge. Since 2000s, domestic scholars have begun to shift their attention to the field. Over the past two decades, major research areas in the professional development of English teachers in China include: teacher expertise and skills, teacher classroom teaching ability, teacher scientific research ability, teacher ability to use modern information technology, teacher beliefs, teacher training, and teacher professional quality cultivation. Shu (2002) and Wu (2005) showed the professional quality framework for excellent English teachers in Chinese universities. Cheng Xiaotang et al. (2010), Tian and Lou (2013), Sun et al. (2016) respectively described the regular characteristics and problems of college English teachers' professional development, and put forward suggestions regarding the current situation and problems.

3. Methodology

This study analyzes 307 core journal articles on the professional development of college English teachers in China, sourced from the CNKI database (2001–2022). Using Cite Space 6.1.R3 for visualization and knowledge mapping, it employs cluster analysis, co-word analysis, and secondary literature review to explore research structures and trends. The methodology includes data format conversion, filtering, and time-segmented processing to enhance analytical efficiency.

4. Result and Discussion

Based on the procedure of analyzing the data that has been mentioned above, it is got the result of study of researches on Chinese college English teacher professional development (2001-2022). The result of study is divided into three parts. The first part is its current situation which is made up of paper quantity, distribution of research funds, leading authors and institutions. The second part is its research hotspots. The third part is its frontiers.

4.1 The current situation of researches on college English teacher professional development in China (2001-2022).

Firstly, it is the paper quantity. The following figure shows the history curve of paper quantity of reaches of Chinese college teacher professional development from 2001 to 2022.

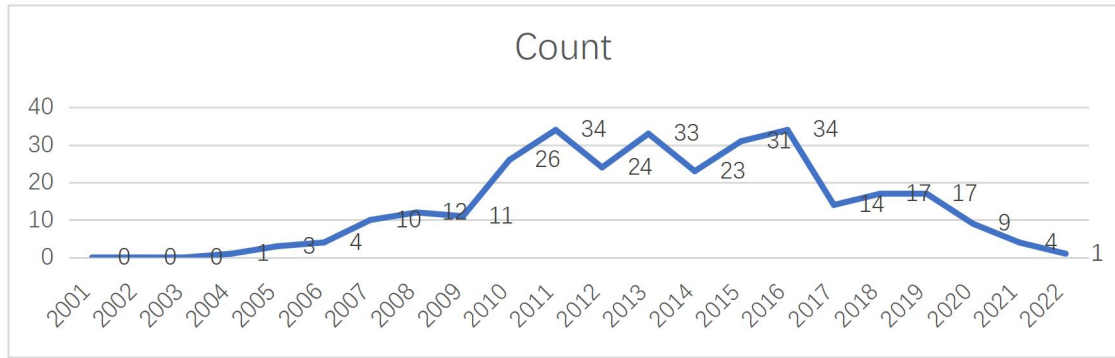


Figure 1. History Curve of Paper Quantity of Researches on Chinese College Teacher Professional Development (2001-2022)

Cite Space 6.1. R3 (64-bit) Basic is used to count 307 papers from CNKI and the number of publications in each year is presented in the form of line chart (Figure 1). The paper quantity is an inverted U-shape. This is consistent with the general law of the development of things.

Secondly, it is the distribution of research funds. In recent years, the national and social attention to the professional development of college English teachers in China has been increasing, and the research funds are more and more just as shown below in Table 1.

Table 1. Distribution of Research Funds for Chinese College Teacher Professional Development

No.	Count	Research Funds
1	3	National Educational Science Planning Project
2	2	National Social Science Foundation of China
3	2	Project on Teaching Reform in Colleges and Universities in Jiangxi Province
4	2	Philosophy and Social Science Planning Project in Guangdong Province
5	1	Teaching and Research Project of Northeast Electric Power University
6	1	Teaching Reform Project of Colleges and Universities in Shandong Province
7	1	Educational Science Planning Project of Yunnan Province
8	1	Chongqing Higher Education Teaching Reform Project
9	1	Guangdong Provincial Education Science Planning Project
10	1	Humanities and Social Science Research Project of Colleges and Universities in Henan Province

Based on visualization analysis of CNKI, we get to know that 169 in 307 papers were supported by different funds, accounting for 55% of the total data. As indicated in Table 1, five papers were supported nationally. Besides, a relatively large proportion of supports come from universities, colleges and other social research institutions.

Thirdly, it is leading authors and institutions. The visualization analysis of authors can provide a reference for researchers to introduce academic resources, cooperate with others and evaluate academic achievement. Based on the procedure of analyzing the data that has been mentioned above, Figure 2 and Table 2 are presented below:



Figure 2. Author Co-occurrence Map in the Researches on Chinese College English Teacher Professional Development

Table 2. Numbers of Publications by Leading Authors and Institutions (in Descending Order)

No.	Count	Year	Author	Institution
1	4	2016	Yang Shanshan	Guangxi University of Finance and Economics
2	3	2016	Li Xiaoxu	Lijiang Institute of Culture and Tourism
3	3	2011	Hao Yajie	Liaocheng University
4	3	2016	HU Jiangping	Jiangxi Radio and Television University
5	3	2011	Wang Dong	Jiangsu University of Science and Technology
6	3	2012	Yan Xiaoyun	Jining Normal University
7	2	2017	Lv Hongbo	Zhuhai College, Beijing Normal University
8	2	2011	Yang Fengchun	Guangxi University of Finance and Economics
9	2	2014	Gao Ruoteng	Shijiazhuang College
10	2	2017	Zhang Nan	Tonghua Normal College
11	2	2007	Wei Fuli	Hebei University of Economics and Business
12	2	2014	Qu Xiaohui	Harbin College
13	2	2011	HU Xiaoyi	Guangxi University of Finance and Economics
14	2	2012	Pan Xiaojun	Guangdong University of Technology
15	2	2015	Xu Jinfen	Huazhong University of Science and Technology

Figure 2 and Table 2 show that Yang Shanshan, Li Xiaoxu, Hao Yajie, Hu Jiangping, Wang Dong, Yan Xiaoyun, Lv Hongbo, Yang Fengchun, Gao Ruoteng, Zhang Nan, Wei Fuli, Qu Xiaohui, Hu Xiaoyi, Pan Xiaojun, Xu Jinfen are the leading authors. Through analyzing authors' academic background, we can find that many English teachers from colleges and universities becomes the majority of researchers and authors. They are participants, practitioners and developers. Meanwhile, we have to admit that the number of papers through cross-university and cross-field cooperation is small.

4.2 The research hotspots on college English teacher professional development in China (2001-2022).

Research hotspots refer to the joint study of a large number of related papers within a certain time range. A key word is a necessary part of a complete academic paper. There are usually three to five words in a paper. In the study of researches on college English teacher professional development, keywords with high frequency can be considered as the research hotspots in this field.



Figure 3. Keyword Co-occurrence Map in the Researches on Chinese College English Teacher Professional Development

Table 3. High-Frequency keywords in Researches on Chinese College English Teacher Development

No.	Keywords	Centrality	Count	Year
1	Professional Development	1.10	154	2006
2	College English	0.54	52	2008
3	English Teacher	0.11	18	2010
4	Ways	0.03	15	2008
5	Reflective Teaching	0.12	14	2006
6	Action Research	0.02	9	2006
7	Pathway	0.06	9	2010
8	Teacher	0.04	8	2008
9	Predicament	0.04	7	2011
10	School-based Teaching and Research	0.02	6	2012
11	Teacher Development	0.02	6	2011
12	Independent Colleges	0.02	5	2014
13	Strategies	0.03	5	2012
14	Teaching Team	0.03	5	2011
15	Narrative Research	0.04	4	2010
16	Peer Mutual Aid	0.01	4	2010
17	Big Data	0.01	3	1017
18	Cooperative Teaching	0.03	3	2012
19	Independent Development	0.03	3	2008

Hotspots in this study consist of research topics and development path. The statistical table of keyword frequency generated by Cite Space was classified and sorted based on the citation frequency of keywords greater than or equal to 3 and the statistics of “Centrality” greater than or equal to 0.01. According to Table 3, “professional development” has the greatest centrality: 1.10. “College English” and “English teacher” follow after it. “Professional development” is the most significant hotspot.

Among the rest of keyword frequency about the research, the most noticeable is the development paths for Chinese college English teacher such as reflective teaching (0.12), action research (0.02), school-based teaching and research (0.02), teacher development (0.02), independent development (0.03).

4.3 The Frontiers and trends of college English teacher professional development in China (2001-2022).

Cite Space can use the trend of word frequency change to extract “burst terms” with fast frequency growth. It shows that the higher the intensity of emergence is, the more attention it has received in this period. Burst terms can be used as symbol of frontiers research topic. From 2001 to 2022, there are 12

burst terms in the researches on the professional development of college English teachers in China. For the convenience of statistics, Table 4 only counts the keywords with the emergence rate greater than or equal to 1.0.

Table 4. High Frequency Burst Terms in the Researches on the Chinese College English Teachers (2001-2022)

No.	Keywords	Year	Strength	Begin	End	2001 - 2022
1	Classroom Teaching	2001	1.14	2006	2010	
2	School-based Teaching and Research	2001	2.37	2007	2009	
3	Ways	2001	1.95	2008	2009	
4	Reflection	2001	1.96	2009	2011	
5	Countermeasures	2001	1.84	2012	2013	
6	Peer Mutual Aid	2001	1.39	2013	2014	
7	Capacity of Scientific Research	2001	1.23	2014	2016	
8	Teacher Education	2001	1.91	2016	2018	
9	Restricting Factors	2001	1.14	2016	2019	
10	Big Data	2001	1.28	2017	2020	
11	English Teacher	2001	3.17	2018	2019	
12	Paths	2001	1.82	2019	2020	

In Table 4, the longest time of duration of keywords is “Classroom Teaching” which began in 2006 and ended in 2010. Its strength is 1.14. Another 5 keywords such as “Capacity of Scientific Research”, “Teacher Education”, “Restricting Factors”, “Big Data” and “Paths” which ended in 2016, 2018, 2019, 2020 can be seen as frontiers.

The above-mentioned six keywords have all appeared since 2014, and their emergence rates are 1.23, 1.91, 1.14, 1.28, 3.17, and 1.82 respectively. The end year of their emergence is closer and closer to 2022. They can be considered as frontiers. More importantly, the six frontiers can be understood logically as shown below:

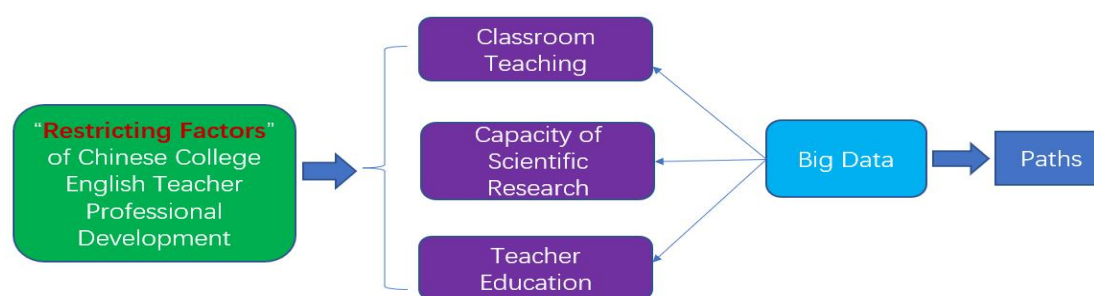


Figure 4. The Logical Relationship of the Six Burst Terms

Just as shown in Figure 4, the “Restricting Factors” of Chinese college English teacher professional development usually consist of “Classroom Teaching”, “Capacity of Scientific Research” and “Teacher Education”. “Big data” technology will change the face of disciplines, esp. English. College “English Teachers” and students should become “Big Data” research leaders and pioneers. Teachers can use information technology to reform teaching contents, teaching methods and management modes so as to improve “Classroom Teaching”. Teachers can also use “Dig Data” to improve “Capacity of Scientific Research”, accept education and training for “Teacher Education”, and finally find “Paths” for their professional development so as to realize the ultimate goal of professionalism.

The logical relationship among the six burst terms, which is centered around the development path for college English teachers are frontiers, also indicates the first trend of researches on Chinese college English teacher in the future.

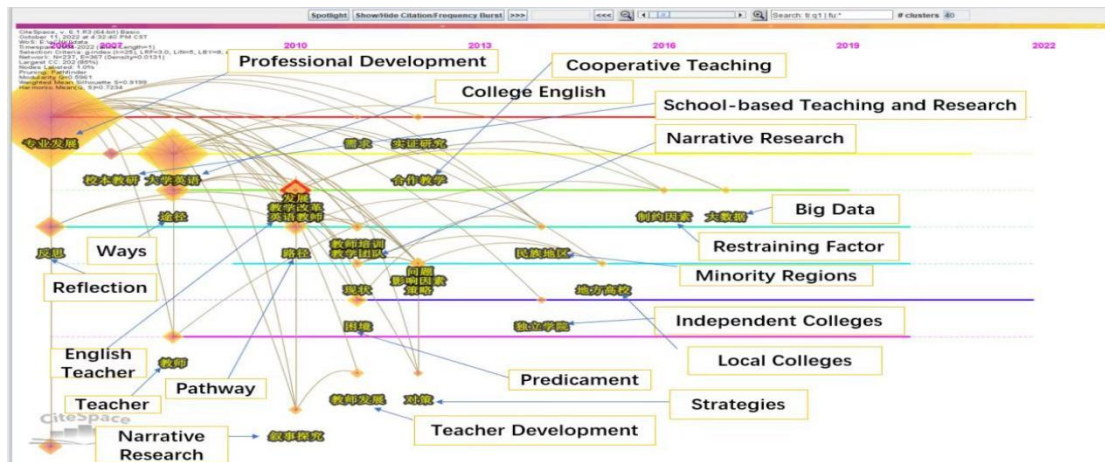


Figure 5. Timeline Map of Key Words in Researches on Chinese college English Teachers

The second research trend is the focus on research objects, especially college English teachers in independent colleges and minority regions. Independent colleges cooperate with social organizations or individuals other than state institutions, and use non-state financial funds to set up colleges and universities. In addition, minority regions refer to areas where ethnic minorities mainly gather and live. China's ethnic minorities are mainly distributed in the western, northern and other border areas. The state implements the strategy of large-scale development of the western region to promote the development of ethnic minority areas. The professional development of college English teachers in minority areas is also worthy of attention, which involves the overall English level of college students in minority regions.

The third research trend is the focus on research methods. In addition, empirical research methods such as case study method, narrative research, questionnaire, and interview are also included.

5. Conclusion

In this study, Cite Space visualization software, CNKI visualization software and Excel office software were used to analyze and study the relevant literature on college English teacher professional development in China (2001-2022). This study reviews and prospects the researches on college English teacher professional development through “knowledge graph”, “table data” and “literature study”. In terms of the research on professional development of English teachers in China (2001-2022), this paper explored its basic situation, research hotspots, frontier and trends.

As to the first problem, the three aspects like paper quantity, distribution of research funds, leading authors and institutions are illustrated with data. The research results show that the paper quantity is an inverted U-shape. This is consistent with the general law of the development of things. The project funding from national and provincial level to colleges and universities has also increased. Among about 250 authors, Yang Shanshan, Li Xiaoxu, Xu Jinfen are the leading authors.

As to the second problem, it can be divided into two hotspots, one is the research object, and the other is the development path. The research object is “Professional Development”. It echoes the fast social development in China. The development path as a hotspot mainly consists of “reflective teaching”, “action research” and “school-based teaching and research”. College English teacher can follow the path to develop themselves.

As to the third problem, there are 12 high frequency burst terms in the researches. The 12 burst terms form the frontiers of the study. The longest time of duration of keywords is “Classroom Teaching”. In addition, “Scientific Research Ability”, “Teacher Education”, “Restricting Factors”, “Big Data” and “Paths” are burst terms in the past seven years, therefore, they are frontiers. Researchers’ great attention and concern should be poured upon them.

Based on the above-mentioned solution to the three problems, this study can now predict the future research trends of college English teacher professional development in China as follows. The first trend is on the development path based on the above-mentioned frontiers. The second trend is on the research objects, especially college English teachers in independent colleges and minority regions. The third trend is on the research methods. They can be diversified from the common qualitative analysis in the

past to the analysis of qualitative analysis combined with quantitative data.

Any study can't avoid its flaws. The data source of this study is CNKI, which has given us good literature, while the corresponding researches in other literature databases is not considered. Through manual selection and correction, the optimal state has been presented, but there may be some deviations due to the influence of personal ability and experience. In the future research, Ucinet, Bibexcel and other visualization softwares can be further used to deepen the current study.

Founded Project

The Eighth Batch of the Doctoral Enhancement Program at Zhuhai College of Science and Technology

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