

Bibliometric Analysis of the Research of Teachers' Work Engagement from 2008 to 2018 in China

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Abstract: In this paper, by using visual analysis software CiteSpaceV5.3, 183 CKNI article in teachers' work engagement from 2008 to 2018 were analysed by literature measurement. Through the author and institution cooperation network map and cluster analysis map that generated by the software, the research status of teachers' work engagement related research can be found.: (1) The number of published papers has increased, and the research topics have been gradually enriched, but a complete system has not yet been formed; (2) The distribution of research authors is uneven, and no research authors have been found to conduct continuous and in-depth research on topics related to teacher work engagement; (3) The cooperation between research institutions is less, the cooperative relationship is loose, and the research institutions have limitations; (4) In terms of research topics, there is a lack of theoretical research on teachers' work engagement and the influence of organizational and work factors on teachers' work engagement; (5) psychological capital is the core of the research on teachers' work engagement, and the research on middle school teachers' work engagement will become a research trend.

Keywords: teachers, Work engagement, Bibliometric analysis.

1. Introduction

In recent years, discussions about the living conditions of teachers have intensified. The physical, mental and working conditions of teachers have also attracted the attention of many scholars at home and abroad. In the context of positive psychology research, researchers have gradually begun to explore the cultivation of people's positive psychological qualities, and the research direction of teachers' work status has gradually changed from job burnout to work engagement.

Work engagement is a positive, fulfilling mental state associated with work, and includes three dimensions: vitality, dedication, and focus. [1] Teachers' work engagement is a teacher's proactive attitude and love and fascination for their own work. [2] At present, the analysis of the status quo of teachers' work engagement research is mainly theoretical analysis and survey research, and some research summaries have been formed, but no systematic review and quantitative analysis research have been carried out. In order to clearly grasp the various aspects of the research on teachers' work engagement and promote the research on teachers' work engagement in China, this study takes the journal papers on teachers' work engagement collected by CNKI from 2008 to 2018 as research samples. Analyze the development process, research frontiers, research hotspots, research institutions and cooperation between institutions, author analysis and cooperation between authors, etc., and describe the results in the form of an intuitive scientific knowledge map[3]. It is presented to provide a reference for future in-depth research.

2. Research Methods and Data Sources

2.1. Research Methods

This research mainly adopts the bibliometric method, using

CiteSpace bibliometric tools to draw a keyword co-occurrence knowledge map and co-citation network view to analyze the research situation of teachers' work engagement, and to make certain predictions on the frontiers of the field of teachers' work engagement [4].

2.2. Data Sources

In the database of China National Knowledge Infrastructure (CNKI), the academic papers on teachers' work engagement from 2008-01-01 to 2018-12-31 were retrieved. (exact), an initial sample of 361 articles was obtained. The initial sample was screened, the literature unrelated to the teachers' work engagement was deleted, and the duplicate literature was eliminated, and finally 183 available sample literatures were obtained. The 183 documents were exported in reworks format to obtain the original data of this study.

2.3. Statistical Method

After importing the original data into CiteSpace software, the original data is converted by CNKI data converter to obtain a data format that can be recognized and analyzed by CiteSpace, and the final data of this study is obtained.

3. Results

3.1. Annual Distribution of Paper

A comparative review of the literature from the time dimension can reflect the attention and importance of teachers' work engagement to a certain extent. As shown in Figure 1, from 2008 to 2018, the number of teachers' work engagement literature published each year showed a wave-like development, but the overall trend was on the rise. Among them, 2008 was the least, with only 2 publications, and 2016 was the most, reaching 31.

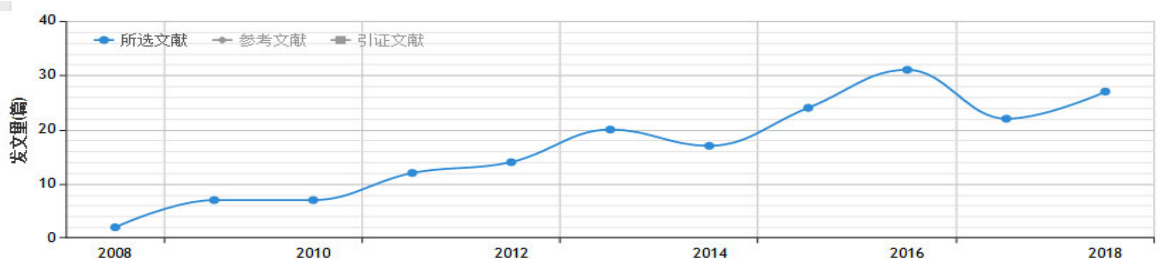


Figure 1. Line chart of the amount of teachers' work engagement

3.2. Research Author Analysis

It can be found from Figure 2 that, from a microscopic point of view, there are more author nodes for researching teachers' work engagement. From the point of view of cooperation relationship, there are many cooperation between the research authors of Chinese teachers' work engagement, and there are 82 cooperation relationships, forming a certain cooperation network. From the thickness of the lines, it can be seen that most of the cooperative relationships are relatively close.

From a macroscopic analysis of the institutions and units where the cooperating authors are located, it is found that the cooperation in related research is mainly divided into the following situations: cooperation with authors from the same institution and unit; cooperation with authors from different units of the institution; and collaboration with authors from

different institutions. Statistics show that there are many authors' cooperation between the same institution and different units, and very little cooperation between different institutions and different units, only 3 places (Qi Yajing, Wu Xinchun; Bai Jianying, Wang Huilian, Kong Jing, Liu Caixia, Ji Jingmin, Zhang Yan; Gao Keqing, Yu Lehom, Tang Guojie). Therefore, at present, there is no good author cooperation network in the field of Chinese teachers' work engagement research.

Figure 3 shows that most of the main authors are continuously concerned and devoted to the work of research teachers. For example, Li Yongzhan, who has published the most papers, has produced research results from 2015 to 2018. 2016 was a flashpoint for related research, with a sharp increase in the number of publications. After a blank period in 2017, a new research peak appeared in 2018, and two authors entered the field of research by teachers.

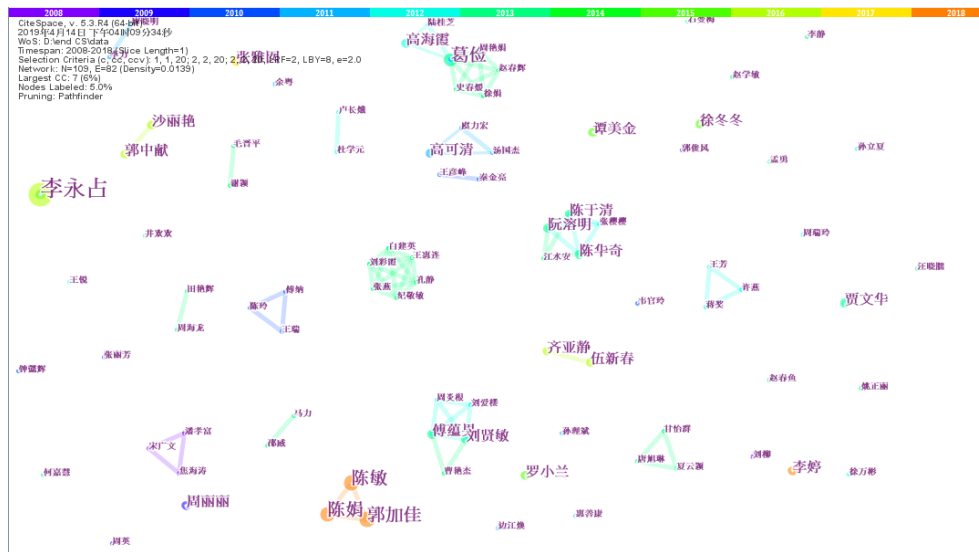


Figure 2. Author's cooperation network analysis map

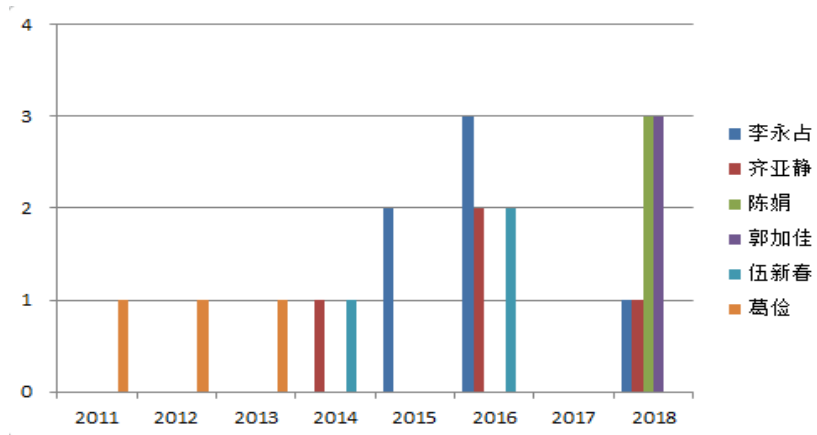


Figure 3. Annual publication volume of main authors

3.3. Research Institutional Analysis

As can be seen from the figure, the institution with the highest number of publications (the size of the node) is the Teacher Education College of Pingdingshan University, followed by the Beijing Key Laboratory of Applied Experimental Psychology, School of Psychology, Beijing Normal University.

In terms of the closeness of cooperation, there are many and thicker connections between nodes of various research institutions. It can be seen that the cooperation network

between most research institutions is relatively close. The cooperation network between a few institutions is relatively sparse, and there are some institutions that cooperate infrequently and loosely.

In terms of the geographical distribution of research institutions, among the 9 institutions with a high volume of publications, there are 1 in Henan, 1 in Beijing, 1 in Jiangsu, 1 in Shanxi, 1 in Fujian, 1 in Liaoning, 1 in Zhejiang, and 2 in Beijing. It can be seen that most of the main research institutions are concentrated in economically developed or relatively developed and educational provinces.

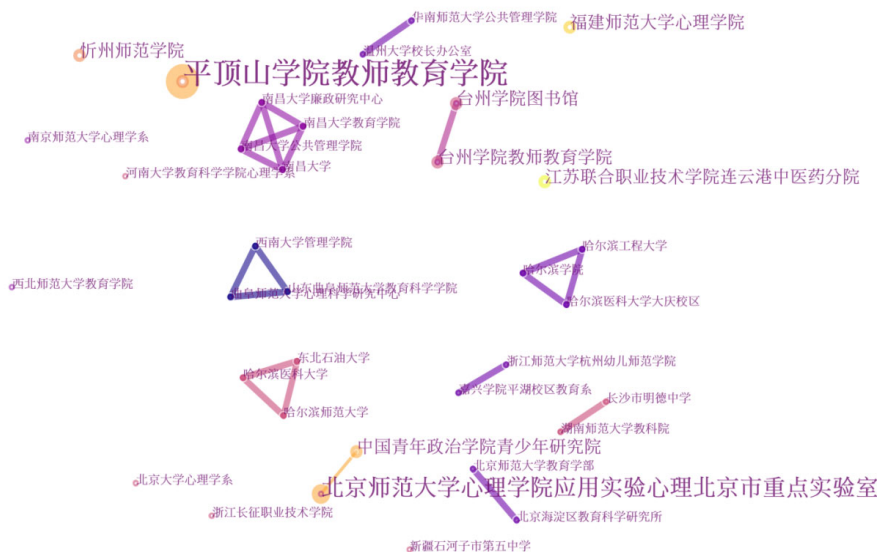


Figure 4. A map of cooperation relationships among research institutions

3.4. Research Hotspot Analysis

The keyword co-occurrence network analysis is performed. After running, a keyword co-occurrence network analysis graph with 134 nodes and 313 connections is obtained, as

shown in Figure 5. It can be found from the figure that the high-frequency keywords include: primary school teachers, work engagement, psychological capital, job requirements, primary and secondary school teachers, relationship, job burnout, and so on.

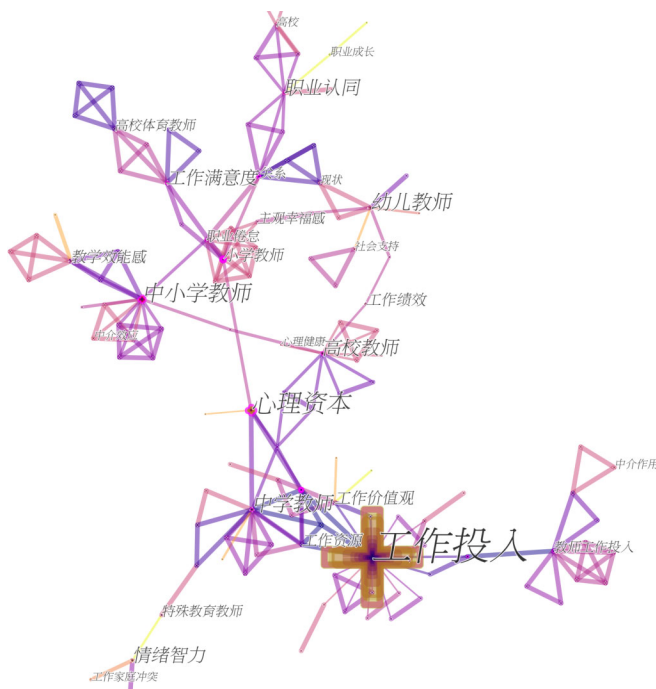


Figure 5. Keyword co-occurrence network analysis map

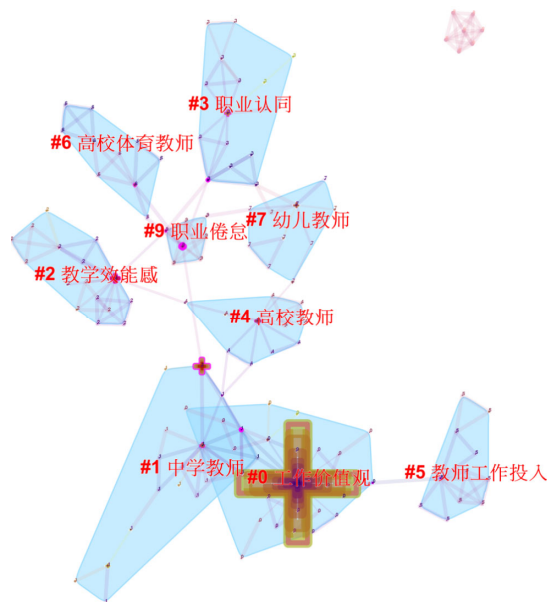


Figure 6. Keyword co-occurrence network map

3.5. Keyword Cluster Analysis

In order to better display the situation of hot topics, the keyword clustering function of CiteSpace software is used to cluster and analyze the relevant literature of Chinese teachers' work engagement research, and the network map of keyword co-occurrence is obtained[5], as shown in Figure 6.

It can be seen from the map that there are currently 9 clusters in the research field of teacher work engagement in my country, 1 insignificant cluster and 8 significant clusters. The insignificant clustering is #8, which is due to the poor clustering effect.

It can be seen from Figure 6 that there are currently 9 clusters in the field of teachers' work engagement in my country, 1 insignificant cluster and 8 significant clusters. The insignificant clustering is that the clustering effect is poor, and the clustering subject words cannot be formed and cannot be displayed in the map. The 8 significant clusters are: #0 work values, #1 middle school teachers, #2 sense of teaching efficacy, #3 professional identity, #4 college teachers, #5 teachers' job engagement, #6 college physical education

teachers, #7 preschool teachers, #9 Job burnout.

Among them, #0 work values, as the largest cluster, has the most complete knowledge structure, covering different types of teachers, and the research perspectives range from individual to organization, theory to measurement. The knowledge structure of #1 middle school teachers can be roughly summarized into two modules: the influence of work factors on teachers' work engagement, and the influence of individual psychological factors on teachers' work engagement. The main components of #2 teaching efficacy are teachers' cognition of their work and teachers' treatment. #4 the clustering of college teachers mainly gathers related researches on the impact of college teachers' salary system and organizational factors on teachers' work engagement. The remaining clusters contain fewer and fewer keywords, and the knowledge structure becomes looser.

3.6. Development Trend Analysis

CiteSpace uses the time zone view function to depict and present the evolution trend of related research fields in the time dimension, clearly showing the update and mutual influence of the literature, as shown in Figure 7:



Figure 7. Time zone diagram of the evolution of teachers' job engagement

From the perspective of the local distribution of teachers' work engagement research fields, from 2008 to 2018, the key nodes were psychological capital, primary and secondary school teachers, kindergarten teachers, college teachers, teaching efficacy, and special education teachers. Click the node "psychological capital" to get the evolution time zone diagram of the "psychological capital" variable in teachers' work engagement (Figure 8). It can be found that the nodes associated with it are: job requirements, middle school teachers, job burnout, mediation, work -Required resource model, core self-evaluation, emotion regulation self-efficacy,

quality of life, etc. It can be seen that from 2008 to 2018, Chinese scholars have more explored the relationship between "psychological capital" and the above research variables.

Judging from the overall development trend of teachers' work engagement research, new research themes appeared every year, the research themes were continuously updated, gradually gained attention, and the research results continued to increase. It can be seen that teacher work engagement is a continuously developing field of research.

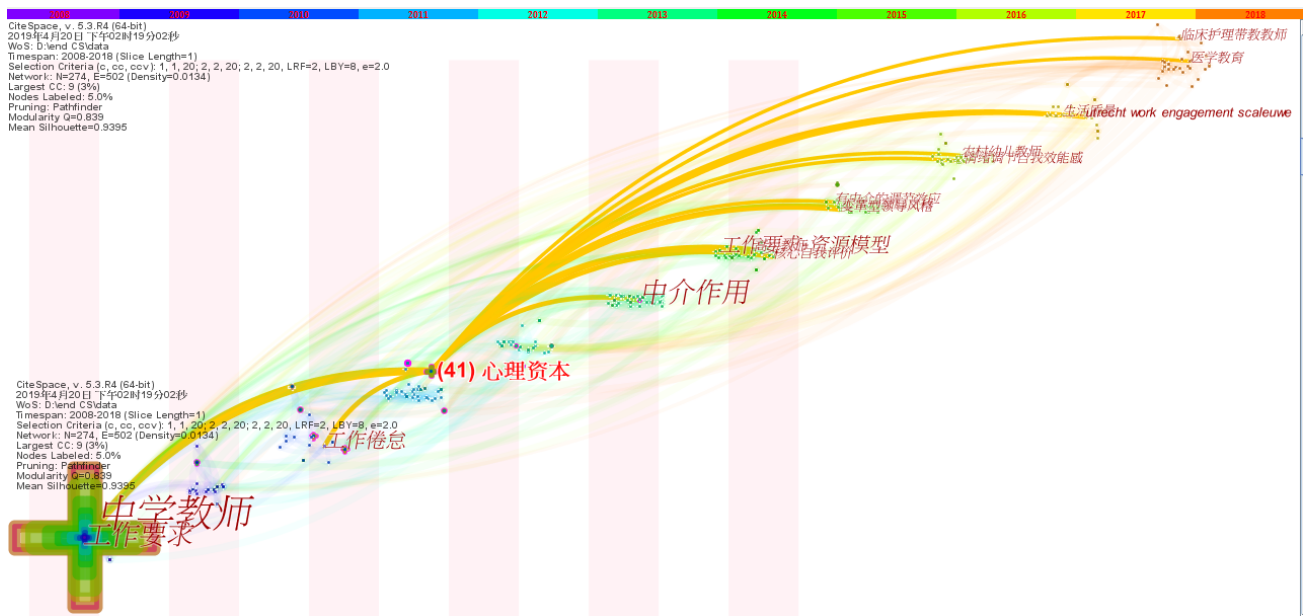


Figure 8. Time zone diagram of the evolution of "mental capital" variables in teachers' job engagement

3.7. Research Front Analysis

The research front is one of the two important concepts formed by CiteSpace on the basis of citation-based analysis disciplines and information based on information visualization. In CiteSpace, the research front of a discipline is represented by highlighted words in the main text and cited references describing ideas. In this study, mutation detection and analysis of words appearing in titles, subject headings, abstracts, keywords, etc. in the research literature of teachers' work engagement were conducted to determine the research frontier in this research field.

According to the mutation detection analysis, a ranking

map of the salient values of the research fronts terms was obtained, as shown in Figure 9. The blue area in the figure represents the years 2008-2018, and the red area represents the duration of the frontier terms. After analysis, two mutation keywords were obtained, namely psychological capital and primary and secondary school teachers. The research front in 2014-2016 is psychological capital, and the research front in 2016-2018 is primary and secondary school teachers. It can be seen that the main research objects in the future are primary and secondary school teachers, and a perfect system may be formed in the field of work engagement research of primary and secondary school teachers.

Top 2 Keywords with the Strongest Citation Bursts

Keywords	Year	Strength	Begin	End	2008 - 2018
心理资本	2008	2.6796	2014	2016	
中小学教师	2008	2.4874	2016	2018	

Figure 9. The ranking chart of the salient value of frontier terms in the work of teachers

4. Discussion

4.1. The Number of Published Papers Has Increased, And the Research Topics Have Gradually Been Enriched, But A Complete System Has Not Yet Been Formed

According to the research results, the number of literatures devoted to research by teachers is relatively small, but the number of published papers shows an overall upward trend, which has received a certain degree of attention and development. New subject words appear every year, and research themes are gradually enriched, but the connection between themes is not close, and a complete research system has not been formed.

4.2. Collaboration Between Research Institutions Is Not Enough

The results show that there is less cooperation between research institutions and looser cooperative relations, especially the cooperation between different domestic research institutions and the cooperation between domestic and foreign research, which limits the research horizon; secondly, research institutions have limitations, and it has not received much attention and support from key national universities, which may be one of the reasons for the slow growth of research results in this research field and the slow improvement of research level. Therefore, future research should pay attention to strengthening the cooperation between research institutions. Domestically, it is necessary to strengthen cooperation between developed regions and underdeveloped regions, educationally strong provinces and educationally backward regions, higher education institutions and primary and secondary schools, and provincial and municipal institutions and rural schools. Collaborative relationships can also be established between government or education departments and research institutions, helping research results to better inform relevant policy formulations. In foreign countries, it is necessary to strengthen study exchanges and cooperation between domestic and foreign scholars, broaden research horizons, and learn from advanced research methods.

4.3. Study Authors Are Unevenly Distributed

The main authors of the research are mainly distributed in East China and North China, and there are fewer researchers in the West, South and Central China, which is not conducive to the overall development of teachers' work engagement research. In addition, no research authors have been found in this research field who have continued and in-depth research on topics related to teacher work engagement. From 2008 to the present, most of them are research authors with a short period of several years, or more research authors who have newly entered the research field. The cooperation network of research authors is also not close. Most of the research authors who have cooperative relationships are teachers or students from the same school. There is less cooperation between research authors from different schools in China and between domestic and foreign authors, which is not conducive to the field. continue to develop well. Therefore, researchers should pay attention to improving the awareness of research cooperation.

4.4. The Research Topic Is Not Comprehensive

Researchers lack the theoretical research on teachers' work engagement and the influence of organizational and work factors on teachers' work engagement. First, the theoretical basis is the basis for conducting research. The concept of work engagement was introduced from abroad. There has not yet been an authoritative and consistent definition and measurement tool in line with the national conditions. Most of the measurement tools are used to directly translate the questionnaires of foreign scholars. Secondly, no matter what job position, an individual's work engagement has a great relationship with the organization, work environment and other factors, such as organizational commitment [6], organizational support [7], organizational justice [8], salary system [9-10], colleague relationship [11], etc. However, there is little research on this aspect in the field of teacher work engagement research in my country. Therefore, it is necessary to strengthen and enrich the research on the theme of teachers' work engagement, and pay attention to the localization of research.

5. Conclusion

Combined with the visual analysis software CiteSpaceV5.3, the analysis results of 183 literatures in the field of teachers' work engagement research in China from 2008 to 2018 have come to the following conclusions: (1) The number of published papers has increased, and the research topics have been gradually enriched, but a complete system has not yet been formed; (2) The distribution of research authors is uneven, and no research authors have been found to conduct continuous and in-depth research on topics related to teacher work engagement; (3) The cooperation between research institutions is less, the cooperative relationship is loose, and the research institutions have limitations; (4) In terms of research topics, there is a lack of theoretical research on teachers' work engagement and the influence of organizational and work factors on teachers' work engagement; (5) psychological capital is the core of the research on teachers' work engagement, and the research on middle school teachers' work engagement will become a research trend.

Acknowledgment

This work was supported by the Guangdong Provincial Educational Science Planning Project "Research on Influencing Factors and Intervention Strategies of Teachers' Work Engagement in Primary and Secondary Schools in Northern Guangdong" (2017GXJK156).

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