

Knowledge Mapping Analysis of the Papers about Heqin Chen's Educational Thought in CNKI over the Past 20 Years

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Abstract

In this paper, knowledge map and network analysis are used to visualize and analyze Heqin Chen's educational thoughts published in CNKI in the past 20 years. This paper finds out the problems in existing research results and puts forward some suggestions for those problems on how to study Heqin Chen's educational thought in the future.

Keywords

Knowledge Map Analysis, Academic Papers, Heqin Chen's Educational Thought

1. Introduction

Chen Heqin (1892-1982), a famous educator, child psychologist and child education expert in modern China, is the founder of modern preschool education in China [1]. He has devoted himself to the research of educational science for a long time, covering a wide range of fields such as children's psychology, family education, early childhood education, primary education, normal education, special education, social education and literary reform, who has made great contributions in early childhood education especially [2], such as the establishment of "Living education" theory system. Besides, Heqin Chen wrote a large number of educational works, such as "Family education" and "Children psychology" etc, which are a treasure house in the history of modern education in China. He plays a vital role in the development of preschool education regarded as "the father of early childhood education" in China. Undoubtedly, studying Heqin Chen's educational thought is of great significance to the development of Chinese

contemporary education and will have a positive impact on China's educational reform [3]. Recently, a lot of high quality research findings have been achieved, mainly in the form of academic papers. By analyzing and summarizing existing theory results combining the method of content analysis with the one of information visualization, this paper aims to find out the problems of the preceding papers and give some suggestions on how study of Heqin Chen's educational thought focuses its scientific research orientation in future.

2. Research Process and Method

These papers about Heqin Chen's Educational Thought are all from CNKI periodical full-text database. According to the standard retrieval, the periodical period is set to 1998-2018. With the subject words as the retrieval conditions, the retrieval contents of Heqin Chen or Heqin Chen's educational thoughts were set. A total of 200 representative articles were obtained after removing the unrelated and non-research literature such as meeting minutes, newspaper, etc. On this basis, the key words in the effective literature are standardized. For example, the "living education" and "living education thought" are all merged into "living education", and the "young children" and "children" are merged into "children", etc. After standardization, the data source of research is finally formed. The paper has analyzed the research developing trends, research directions, research hotspots, and research characteristics by applying CNKI (National Knowledge Infrastructure) and CiteSpace5.3R1 (information visualization statistical software). Based on those papers published in CNKI, both journal information and retrieval results mainly include topics, authors, institutions, year, keywords and journal sources.

3. Data Statistics and Analysis

3.1. The General Trend of Papers about Heqin Chen's Educational Thoughts in Recent 20 years

Using the above retrieval strategy, we search the standard articles in CNKI database, and analyze the retrieval results with the result analysis function attached to CNKI. The analysis of trend in Chen Heqin's educational thoughts published in the past 20 years shows that the number of papers shows an upward trend from 1998 to 2015 in general, and decreases year by year from 2015 to 2018, as shown in **Figure 1**.

3.2. Establishment of High Frequency Keyword Matrix

Keywords can reflect the general situation and direction of research. Therefore, on the basis of keyword extraction, frequency statistics and co-occurrence matrix construction of Heqin Chen's educational thought papers published by CNKI, this paper demonstrates the scientific research achievements of CNKI in the past 20 years through cluster analysis. Statistical analysis is carried out in different ways.

General trend analysis

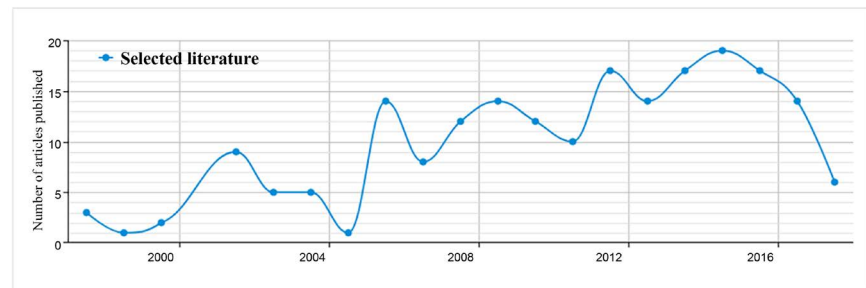


Figure 1. General trend analysis.

The 200 papers were imported into CiteSpace in reworks format, and then the CiteSpace parameters were set: the time span was set to 1998-2018, the years per slice was one year, the term source selected title, abstract, author keywords and keywords, node type selected keywords. After the parameter is set up, run the CiteSpace software to generate **Figure 2** and **Figure 3**. In addition, by counting the number of keywords cited, the results show that the top 10 keywords are: Heqin Chen, live education, Preschool education, Children, Kindergarten, Preschool teacher, Special education, Inspiration, Educator, Curriculum reform and so on. As shown in **Table 1**. It shows that the focus of the research on Heqin Chen's educational thoughts is mainly in the above aspects.

3.3. Construct High Frequency Keywords Co-Occurrence Network Knowledge

Based on the above operations, the results of **Figure 2** and **Figure 3** are generated. As shown in **Figure 2**, the larger the font, the higher the frequency of research keywords. The co-occurrence network graph clearly reveals the research focus and research direction of CNKI in the past twenty years, which is consistent with **Table 1**. In order to understand the research direction of Heqin Chen's educational thought further in recent years, this study shows the keyword changes in the past 20 years through the time zone visualization function of Citespace, as shown in **Figure 2**.

From the time sequence of the key words in the chart, we can see that the research on Chen Heqin's educational thought in CNKI in the past 20 years has three characteristics: from 1998 to 2005, the research keywords are "Heqin Chen", "living education", "children", "kindergarten", "curriculum reform" and "special education"; from 2005 to 2015, the research keywords are "preschool education", "education workers", "educators" and "inspirations"; from 2015 to 2018, the research of keywords gradually decreases. From this point of view, in the past 20 years, the research topic of Heqin Chen's educational thought has changed from theory to practice, and combines theory with practice; at the same time, the previous research results are very abundant and mainly concentrated in preschool education about research on family education, children's psychology, "living education" theory and the application of Heqin Chen's early childhood

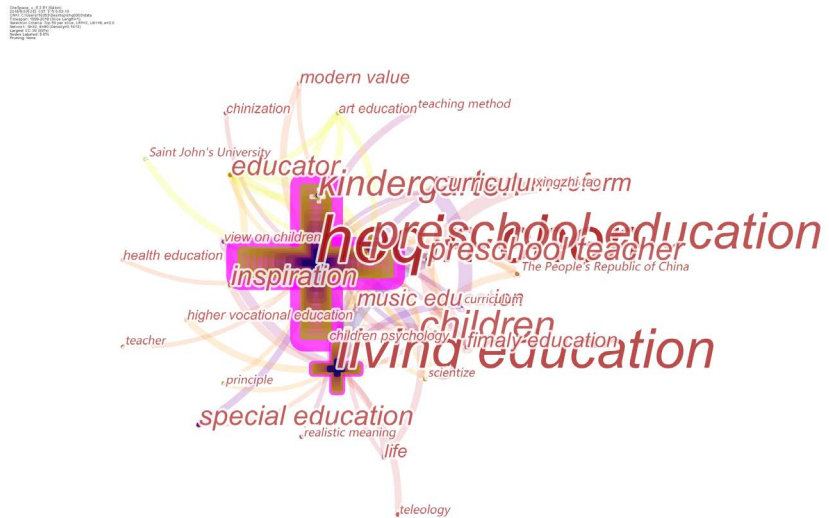


Figure 2. Keywords network knowledge map.



Figure 3. The evolution of keywords.

Table 1. High frequency keywords.

keywords	frequency	keywords	Frequency
Heqin Chen	203	Preschool teacher	16
Living education	98	Special education	15
Preschool education	57	Inspiration	15
Children	24	Educator	13
Kindergarten	18	Curriculum reform	12

education thought in kindergarten practice, but the number of research in recent three years has rapidly decreased.

3.4. High-Yield Authors and Cooperative Networks

According to Price law ($N = 0.749 \times n_{max}$, in which n_{max} is the number of

papers published by the most productive authors in the statistical years), the minimum number of papers published by the core authors of Heqin Chen's educational thought research is four, that is, the authors who have published four or more papers can be called the core authors of Heqin Chen's educational thought research team [4].

According to the function of CNKI software, the following distribution map of high yield authors (the top five authors) generates. They are Shuguang Huang (5 articles, accounting for 2.5% of the total volume), Gui Huang (5 articles, accounting for 2.5% of the total volume), Yongjun Su (4 articles, accounting for 2.0% of the total volume), Jingzheng Tian (4 articles, accounting for 2.0% of the total volume) and Bifang Yan (4 articles, accounting for 2.0% of the total volume) (Figure 4).

Author co-occurrence can reflect the core authors in a certain research field and their cooperation intensity and mutual citation relationship, so as to evaluate the academic influence of researchers scientifically. In order to explore the cooperative relationship between authors, CNKI generated the author's knowledge map as Figure 5 shows. Each dot represents an author. The larger the dot, the more literature the author has published on Chen Heqin's educational thoughts. The smaller the number of links between points, the less cooperation between authors. It finds out that Heqin Chen's educational thought research mainly focuses on individual research with less teamwork, and fails to form a cohesive research team.

3.5. Major Research Institutions and Periodicals

Through the analysis of the author units of the above 200 articles, we know that the main publishing institutions are (the top five): Nanjing Normal University (11 articles, accounting for 5.3% of the total volume), East China Normal University (10 articles, accounting for 4.8% of the total volume), Yingtian Vocational and Technical College (9 articles, accounting for 4.3% of the total volume), Hunan Normal University (9 articles, accounting for 4.3% of the total volume), and Shaanxi Normal University (7 articles, accounting for 3.4% of the total volume) (Figure 6).

Besides, the source of periodicals can reflect the quality and level of research. From Figure 7, it shows that there are five main periodicals of Heqin Chen's

Author distribution

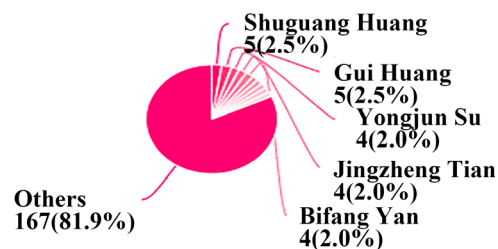


Figure 4. Author distribution.

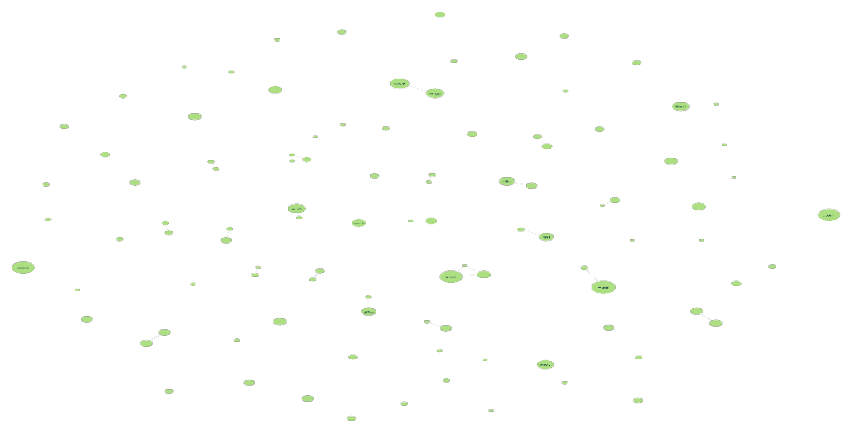


Figure 5. Analysis of the author collaboration network.

Institution distribution

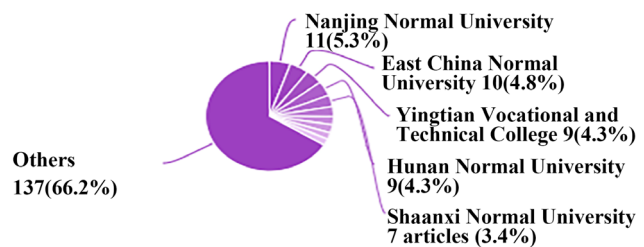


Figure 6. Distribution of research institutions.

Source distribution

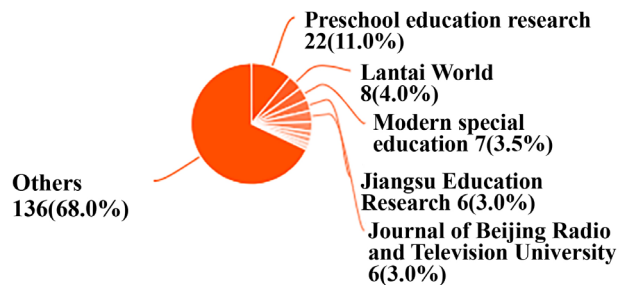


Figure 7. The distribution of source journals.

educational thought research: Studies in Early Childhood Education (22 articles, accounting for 11% of the total volume), Lantai World (8 articles, accounting for 4% of the total volume), Modern Special Education (7 articles, accounting for 3.5% of the total volume), Jiangsu Education Research (6 articles, accounting for 3.0% of the total volume), and Journal of Open Learning (6 articles, accounting for 3.0% of the total volume).

4. Conclusions

The application of citation analysis method based on knowledge map and social

network analysis in academic research field has been generally recognized and welcomed by academic circles. In this paper, CiteSpace and CNKI are used to visualize the research results of Heqin Chen's educational thoughts published on CNKI in the past 20 years. As a consequence of this, it finds out the existing problems in the previous research, and puts forward some suggestions on the future research direction.

From the above analysis, it shows that the study of Heqin Chen's educational thoughts mainly focuses on the field of early childhood education, including theoretical research and practical research with rich contents, which covers kindergarten curriculum, infant psychology, and the enlightenment of living education thought to the reality of infant education, etc. At the same time, there are also the following problems in the existing studies. First, high-quality research results mainly concentrated in the early stage, the number of research results is becoming less and less and the quality of research is not high in recent years. The reasons are as follows: on the one hand, the study of Chen Heqin's educational thoughts is relatively mature, and posterity is hard to innovate; on the other hand, there is a tendency to attach importance to practical research and neglect theoretical research in China, which has a certain negative impact on Chen Heqin's educational thought research. Secondly, the inspiration of those researches to the reality only stays at the theoretical level, lacking of practical suggestions or strategies. Thirdly, the number of prolific authors in Heqin Chen's educational thoughts is relatively small with small number of articles published relatively. What's worse, there is little cooperation among these high-yield authors. Lastly, there are only one core periodical in the main source of the journals, most of which are ordinary periodicals.

Therefore, according to the above problems, this paper holds that the following aspects should be paid attention to in the future research on Heqin Chen's educational thoughts. First of all, we should continue to strengthen the research on Heqin Chen's educational thoughts combining the needs of social development. Heqin Chen's educational thoughts are very rich, especially the idea of early childhood education. Combining with the actual situation of the development of preschool education in China, it is of great significance to fully dig and utilize the value of Chen Heqin's educational thought for the development of preschool education with local characteristics in China so that it has fresh meaning of the times. Next, more emphasis should be placed on strengthening the combination of theoretical research and practical research. That is to say, the content of research should be specific and practical [5]. At present, China's research on Heqin Chen's education published in CNKI is limited to the theoretical level, lacking specific strategy research, and the theoretical level of research needs to be deepened. Then, the core team of Heqin Chen's educational thoughts is built up. Scholars studying Heqin Chen's educational thoughts in China are relatively scattered and lack of cooperation, which is not conducive to further study. By strengthening exchanges and cooperation among scholars, it is conducive to

improve the level of scientific research. Therefore, it is very necessary to strengthen the construction of the core research team.

The shortcomings of this study are that the scope of the study is limited to CNKI, not related to books and other databases, and the sample size of literature is not very large.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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