

The Research Process of Chopin Etudes in China in Recent Twenty Years

--Visual Analysis Based on Citespace

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ABSTRACT

Based on Citespace bibliometrics software and CNKI database, this paper explores the research status of Chopin Etudes in recent twenty years by using visual analysis technology. Using Citespace bibliometrics software, the time interval is set from January 1, 2000 to August 1, 2020, and the related literatures about Chopin Etudes collected in China Journal Network (CNKI) are summarized in the form of atlas. The research data show that: (1) the research on Chopin Etude in China is more active, which emphasizes the milestone significance of genre innovation; (2) Most of the core authors' sources and institutions are music colleges and music departments of normal universities, and the research areas are concentrated in large and medium-sized cities and provincial capitals in eastern China, and they are all in a relatively independent state, mostly belonging to the category of humanities, sharing research and less cross-cutting; (3) "Playing" and "Pianist" are the research hotspots nowadays, and the artistry of music is the research direction in the future. Researchers can improve research efficiency and expand research scope by increasing research sharing and interdisciplinary research.

Key words: *Chopin Etude, Visualization, Literature analysis*

1. INTRODUCTION

With the development of the times, people pay more and more attention to the education of music, art and other artistic qualities. Among many great artists, Chopin has long been one of the most influential musicians, and his works have been valued and studied by many music learners. Among them, "Chopin Etude" is an important representative. Before this, there appeared music educators such as Cherni, kramer, Clementi, Moseles, etc., who wrote a lot of technical etudes which are still widely used today in order to create various techniques for training piano. Chopin changed the original meaning and content of etudes in the past. In Chopin's etudes, it is no longer a teaching etude for finger practice. It was Chopin who created the teaching etude into a real artistic genre-concert etude.[1]

Citespace is a software used in scientific literature to identify and display new trends and trends of scientific development, which can present a large number of abstract and cumbersome data through scientific maps such as tables and cluster maps. Scientific knowledge map is a kind of image which takes knowledge domain as the object and shows the relationship between the development process and structure of scientific knowledge. It has the dual properties and characteristics of "graph" and "spectrum": it is not only a visual knowledge graph, but also a serialized knowledge pedigree, which shows many hidden complex

relationships such as network, structure, interaction, intersection, evolution or derivation among knowledge units or knowledge groups, and these complex knowledge relationships are gestating the generation of new knowledge.[2] By observing intuitive images, the time for people to integrate data is greatly saved, and it is more convenient for people to watch and analyze big data.

2. DATA SOURCES AND RESEARCH METHODS

2.1. Data sources

All the research data used in this paper come from the full-text database of China Journal Network (CNKI). In the advanced retrieval of CNKI database, the retrieval period is set from January 1, 2000 to August 1, 2020. After searching with "Theme = Chopin Etude" and "Theme = Chopin" as the retrieval keywords, a total of 530 documents were obtained. After screening, the doctoral thesis, the perception of competition, and so on were removed

2.2. Research methods

This paper is based on Citespace document metrology software compiled by Professor Chen Chaomei. The

software is designed based on the theory of co-citation analysis and path-finding network algorithm. By drawing a visual map, presenting the evolution process of disciplines, analyzing the internal dynamic mechanism and exploring the development of disciplines, it is helpful to better understand a certain research field and find the relationship between pioneering and symbolic documents, mainstream themes, evolution trends and branches.[3]

3. THE RESEARCH STATUS OF LITERATURE ON CHOPIN ETUDES IN RECENT TWENTY YEARS IN CHINA

3.1. General trend analysis of literature publication

In this paper, 373 documents collected from CNKI are statistically analyzed. The figure is a time trend diagram of the number of documents published with the key word "Chopin Etude" in "China Knowledge Network". Through the research, it can be found that the number of research literature on Chopin Etudes has a great deal of twists and turns, with a great increase and decrease frequently (see Figure 1). It can be roughly divided into two stages: (1) stable stage (2000-2005) and (2) twists and turns stage (2006-2020).

(1) Stationary stage: from 2000 to 2003, the number of published articles increased slightly, but the overall number was small, and the number of published articles was less than ten each year, with the largest number of 7 articles in 2003, and the number of published articles was relatively stable from 2003 to 2005.

(2) Stages of twists and turns: from 2005 to 2008, the number of published articles increased from 4 to up to 18 in the past three years, which was the first peak of the number of published articles in recent 20 years. From 2008 to 2010, there was a slight decline, and then it rose to the highest peak of 18 articles. In 2012, it dropped sharply, dropped by 10 articles, and then rose sharply to 2014, reaching the third and last peak in the past two decades. In 2015-2017, it showed a downward spiral in general, with a short-term increase in 2018-2019. By 2020, the number of published articles was less than ten, and the number of research literature gradually decreased.

On the whole, in the past 20 years, the number of literatures published on the research of Chopin Etude was less in the first few years, more in the middle period, but gradually decreased in the later period, roughly in the shape of football with less head and tail and more in the middle period, and the overall number of published articles was limited, with only 20 articles in the year with the largest number of published articles, which fluctuated greatly and the research situation was not stable enough. I believe this research will have more room for improvement in the future.

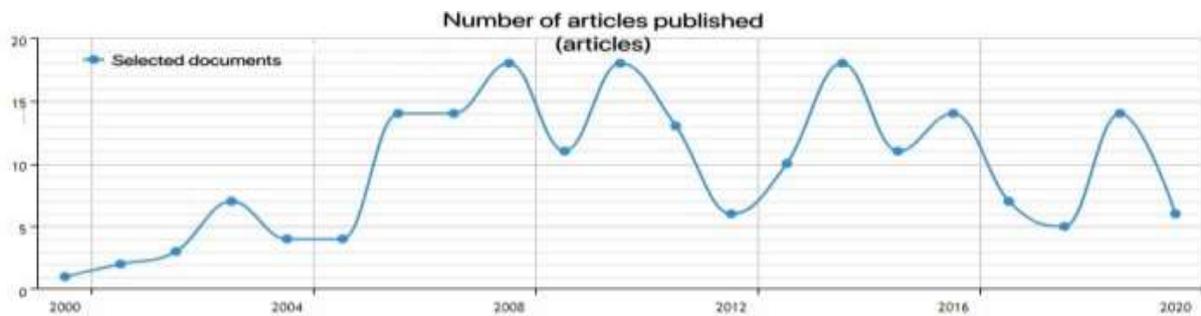


Figure 1 Trend chart of the number of published articles from 2000 to 2020

From these 373 documents, we can see that the highest cited frequency is 35 times, and some documents have not been cited, and the sources are almost all authors and journals in the field of humanities and social sciences. In terms of download volume, the highest download volume

of these 373 documents reached 1328 times, but there were also few or even zero downloads, and the researchers also concentrated in the field of liberal arts.

Table 1 Top 5 Articles Cited Most Frequently

Sorting	Author	Document name	Literature source	Year of publication	Cited frequency
1	Fang Chen	On the creative characteristics of piano music in romantic period	Chinese music	2004	35

2	Louis Kenntner, Zheng Xuemei,	Chopin and his music	journal of xinghai conservatory of music	2002	28
3	Wang Yongzhen, Tony chen	Development and evolution of foreign piano etudes	Symphony. Journal of Xi 'an Conservatory of Music	2001	26
4	Daji Racka Ya, Wuqing Bridge	Chopin and his teaching viewpoint	journal of tianjin conservatory of music	2004	22
5	Sunyue	Why is "sad Chopin" sad?—— Listening, analyzing and reading the tragic connotation of Chopin's music	Music Art (Journal of Shanghai Conservatory of Music)	2010	21

From the cited frequency, the articles with high data mainly come from the journals of conservatory of music and the journals of philosophy and humanities, which all play an important role in music research (see Table 1). In 2004, Fang Chen published "On the Creative Features of Piano Music in Romantic Period" in "Chinese Music" for 35 times, followed by Louis Kenntner, and Zheng Xuemei published "Chopin and His Music" in "Journal of Xinghai Conservatory of Music" in 2002, which was cited 28 times.

In terms of download frequency, the paper with more than 800 downloads is taken as the research object. There are 5 papers (see Table 2), which are from Chinese Music, the journals of Xinghai Conservatory of Music, Shanghai Conservatory of Music, Xi 'an Conservatory of Music and Music Exploration. Among them, the most frequently downloaded one is "On the Creation Characteristics of Piano Music in Romantic Period" published by Fang Chen in Chinese Music in 2004, with as many as 1328 times

Table 2 Top 5 Articles with the highest download frequency

Sorting	Author	Document name	Literature source	Year of publication	Download frequency
1	Fang Chen	On the creative characteristics of piano music in romantic period	Chinese Music	2004	1328
2	Louis Kenntner, Zheng Xuemei,	Chopin and his music	Journal of Xinghai Conservatory of Music	2002	1140
3	Sun Yue	Why is "sad Chopin" sad?—— Listening, analyzing and reading the tragic connotation of Chopin's music	Music Art (Journal of Shanghai Conservatory of Music)	2010	1022
4	Li Jia	Piano Music Style in Romantic Period	Symphony (Journal of Xi 'an Conservatory of Music)	2011	928
5	Xu Bing	A Comparative Analysis of Chopin Etudes and Liszt Etudes	Explorations in Music	2007	809

It can be concluded that the research literature on the theme of "Chopin Etude" is not much, and the research enthusiasm needs to be improved. At the same time, most of these research authors and institutions belong to the field of humanities and social sciences, but there are few in the field of science and engineering. In fact, although music is more perceptual in people's impression, such as prose and novels, which are elegant and profound and thought-provoking, at the same time, music is inextricably linked with science and technology, such as the time value represented by each note. The proportionality of musical form conception before and after music can be used in mathematical calculation. For example, today's popular classic cases such as "music robot" and "artificial intelligence composition", which combine music with science and technology, all show that music is not only a humanistic category. The ultimate goal of rational understanding of musical works in music art is not to make some abstract rational judgments on musical works, but to obtain better, deeper and higher-level musical works by integrating this rational understanding into the complete aesthetic experience of musical works.[4] To sum up, our future research on music can not only be limited to humanistic thinking, but also can be cross-analyzed with science and engineering disciplines, so as to obtain a brand-new way of thinking and research methods, which will certainly get more inspiration and results.

3.2. Analysis of core authors

Core authors mean authors who appear relatively frequently and publish a large number of papers in the research journals of this paper.

It can be seen from the co-occurrence map of authors drawn by Citespace that Chang Hua, Li Tingqiang, Huang Ying, Liang Quanbing, Yao Manhua, etc. (see Tables 3 and 4). Among them, Chang Hua ranked first with 18 articles and was cited frequently. Huang Ying has the highest prominent rate, and its articles are downloaded more frequently.

Professor Chang Hua has the highest number of articles. Among them, "Chopin Practice" study and exploration series (20 in total) written by her, "Let Music Drive Skills, Let Skills Show Music", was first published in "Piano Art" in 2006, and the download volume of each work in the series was about 400, with a maximum of 528 times. Taking several specific etudes in Chopin Etudes as examples, this work analyzes the technicality and musicality of these etudes and tells them separately, covering a wide and detailed area, which has important theoretical guiding significance for piano learners to improve their performance level and musical literacy.

Table 3 Top 3 Authors with the highest number of publications

Sorting	Number of articles published (articles)	Author
1	18	Chang Hua
2	13	Li Tingqiang
3	6	Liang Quanbing

Sorting	Emergence rate (%)	Author
1	1.5%	Joyce Wong
2	1.0%	Liu Chan
3	1.0%	Qian Yangjie
4	0.5%	Lynn Yang
5	0.5%	Zhang Yue

Citespace bibliometrics software is used to analyze the authors, and the analysis results are shown in the figure (see Figure 2). According to the statistical data, "Chopin Etude" has formed researchers mainly including Chang Hua, Li Tingqiang, Huang Ying, Liang Quanbing, Yao Manhua, etc. However, the whole research situation is not concentrated, the whole research is scattered, no formal research team has yet been formed, and there are few vertical and horizontal connections, and the researchers are in a relatively independent state, sharing research.

Table 4 Top 5 authors with the highest emergent rate

Sorting	Emergence rate (%)	Author
1	1.5%	Joyce Wong
2	1.0%	Liu Chan
3	1.0%	Qian Yangjie
4	0.5%	Lynn Yang
5	0.5%	Zhang Yue



Fig. 2 Cluster knowledge map of authors

3.3. Analysis of core institutions

Core authors mean institutions with relatively high frequency and relatively large number of published papers in the research journals of this paper. By observing the co-occurrence map of institutions drawn in Citespace, we can conclude that several institutions with high activity are Shenyang Conservatory of Music, Shanghai Conservatory of Music, Wuhan Conservatory of Music, Shandong Normal University Conservatory of Music, Yuxi Normal

University Art College, etc. (see Table 5 and Table 6).Among them, Shenyang Conservatory of Music, Shanghai Conservatory of Music and Wuhan Conservatory of Music were cited frequently for 4 times.From the emergent rate, the emergent rate of Shenyang Conservatory of Music is 5.0%.According to the statistics of relevant data of core institutions, most of the research core institutions of Chopin Etudes in China are concentrated in the music departments of professional music colleges and normal universities, mostly concentrated in some large and medium-sized cities, and distributed in all provinces and cities in China.

Table 5 Top 5 Institutions with the highest cited frequency

Sorting	Cited frequency (times)	Institutions
1	4	Shenyang Conservatory of Music
2	4	Shanghai Conservatory of Music
3	4	Wuhan Conservatory of Music
4	3	Music Collgeg of Shandong Normal University
5	3	Yuxi Teachers College School of Music and Art

Table 6 Top 5 Institutions with the Highest Emergence Rate

Sorting	Emergence rate (%)	Institutions
1	5.0%	Shenyang Conservatory of Music
2	2.5%	Wuhan Conservatory of Music
3	2.5%	Beijing Normal University
4	2.0%	Yuxi Teachers ' College
5	2.0%	Henan University

Citespace is used to cluster the publishing units and their cooperative relations, and the analysis results are shown in the figure (see Figure 3). Statistics show that the research institutions of Chopin Etudes are mostly located in eastern China, such as Shenyang, Wuhan, Nanjing, Sichuan, Yuxi, Shandong and other regions, while there are few research institutions in western China.These areas of the core institutions have gathered most domestic scholars who have studied Chopin Etudes, and most of them have been engaged in the research of classical music for a long time. With profound background, strong strength, advantages of developed regions and convenience of international cooperation, the cited frequency and the number of published articles are in the forefront.At present, these institutions are also the main force in the field of music research in China, but most of them are in an independent research state and have not yet formed a large-scale research team.

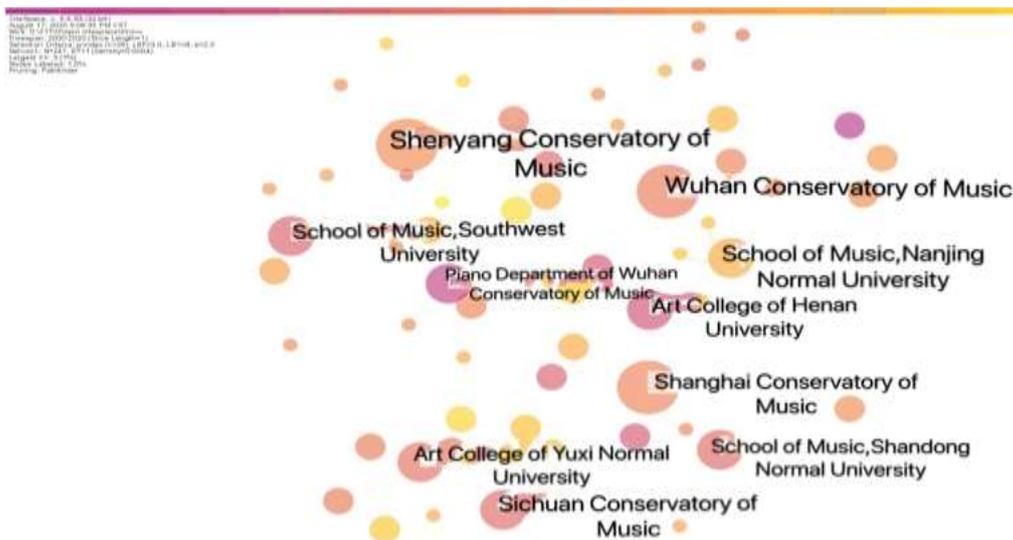


Fig. 3 Cluster knowledge map of publishing organizations

4. RESEARCH HOTSPOTS AND FRONTIER ANALYSIS

Set relevant parameters in the function and parameter page of Citespace software, set the time span to 2000 -2020, set the time slice to 1, select keyword for Node Type, select Top50 for each time slice, that is, select the top 50 data extraction objects, select Cosine for connection strength, and get keyword co-word network clustering.

4.1. Analysis of Research Hotspots

It can be seen from the table that the research hotspots of Chopin Etudes from 2000 to 2020 are Chopin, Etudes, Pianists, Piano Music, Playing Skills, etc. (see Table 7), among which Chopin appears the most frequently for 160 times. According to the statistical analysis data, the research field of Chopin Etude has concentrated research in genre analysis, performance techniques, pianists, creative techniques and artistic features.

Table 7 Top 6keywords with the highest frequency

Sorting	Key words	Frequency of occurrence (times)	Year
1	Chopin	160	2000
2	etude	70	2001
3	Chopin etude	39	2000
4	The Pianist	24	2001
5	Piano music	19	2002
6	Composer	19	2003

4.2. Research Frontier Analysis

By counting the prominent words in the research field of Chopin Etudes, we can reach the research frontier in this field (see Table 8). Statistics show that the research frontiers of Chopin Etudes are Chopin, Etudes, Chopin Etudes, Liszt, Piano Music, etc. It can be concluded that the keyword with the highest emergent rate is Chopin, which appeared in 2000, reaching 57%. Emergent words are mainly concentrated at the beginning of the 21st century, focusing on genre, melody and composer, which further proves the milestone significance of Chopin Etude in piano music genre. Combining skills and art perfectly will help music learners to form a higher aesthetic comprehension and explore the deeper meaning of music.

Table 8 Top 6 keywords with the highest emergent rate

Sorting	Key words	Emergence rate (%)	Year
1	Chopin	57%	2000
2	etude	40%	2001
3	Chopin etude	31%	2000
4	Liszt	29%	2002
5	Piano music	11%	2002
6	Piano etude	10%	2009

5. CONCLUSION

In this paper, the literature on Chopin Etude in recent 20 years is analyzed by Citespace bibliometrics software, and the visual knowledge map and detailed table information of the research status, research hotspots and research frontiers of this work in China from 2000 to 2020 are obtained. The emergence rate of core authors and core institutions and the number, time, frequency and emergence rate of key words as well as the year of emergence are analyzed, so that the development of this topic can be more comprehensively understood.

5.1. Research status and characteristics

- (1) According to the data, it is concluded that the number of published articles in the research of Chopin Etudes is generally fluctuating, showing an olive-shaped situation with less head and tail and more middle period, and the overall number of published articles is small, so the research is more active, but it can be more active.
- (2) The key words of this study focus on "pianist", "piano music" and "playing skills", which are generally centered on the education and connotation of piano music, and focus on genre analysis and the study of playing skills. This shows that China pays more attention to piano teaching and analysis at present, which is a manifestation that the country is becoming more and more developed and the people are living and working in peace and contentment. At the same time, Chang Hua, Li Tingqiang, Huang Ying, Zhu Xianjie, etc., who are relatively independent, have not formed a research team at present.
- (3) From the point of view of core institutions, the institutions with a high number of articles are mainly concentrated in the economically developed large and medium-sized cities in the east of China, but few in the western region, mostly in the music departments of professional music colleges and normal universities, and the core authors are mostly from these institutions, but at the same time, the research status of the institutions is relatively independent, and there is little research sharing.

5.2. Problems in current research

(1) Researchers and research institutions are in a relatively independent research state, without travel research teams and research areas. This will lead researchers to share less research methods and achievements, and it is easy to repeat research and cluster research, which will cost more time and energy and lead to poor results.

(2) From the published sources, the research literature of Chopin Etudes almost all comes from researchers and institutions in the field of humanities, and there is little participation in the field of science and engineering, which leads to people's single thinking and makes it difficult to find a new breakthrough in the field of music.

5.3. Prospects for the future of research

(1) From the analysis of research hotspots and frontiers, it can be concluded that the genre of etudes, pianists, playing skills and artistic features are all hot topics in the research of Chopin etudes at present, and their related key words have a high emergent rate. It can be seen that China has paid more and more attention to the research of piano music connotation and piano education in recent twenty years, and the influence of piano art has entered thousands of households, and the people's needs for a better life have been further met.

(2) From the perspective of core institutions and core authors, researchers have little contact with each other, share less research, and have not formed a large-scale research team. In the future, we can try more linkage between institutions and authors, and actively share research results with each other, which can avoid duplication of research, waste time and effort, and make up for research vacancies in niche areas in time, which will definitely greatly improve research efficiency and make research coverage deeper and wider.

(3) At present, the research field is mostly concentrated in the field of liberal arts. We can try the cross-study of liberal arts and sciences, use scientific thinking, expand new ways of thinking and research methods, pay equal attention to the beauty of music art sensibility and the rational calculation of structural connotation, and explore new mysteries of music.

To sum up, the rich connotation and significance of Chopin Etude, which is now presented in the public's field of vision, can not be separated from the hard work and dedication of all researchers. We should reflect on the problems existing in the research, carry forward the advantages of research, improve the comprehensive research level of scholars, reduce the independent state of research, expand the research field of scholars, try to cross disciplines and make joint efforts to create new glory in the academic field of music.

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