

Research Hotspots and Trends in Chinese Academic Abstracts (2000-2022)

-- A Visualization Analysis Based on CiteSpace

Jingjing Zhao

Southwest Petroleum University, Chengdu, Sichuan, China

Abstract: As an integral part of academic papers, abstracts play a more and more role in the process of further internationalization and standardization of academic journals. In recent years, the academic circle of the academic paper abstract part of the research continues to heat up. This paper uses CiteSpace visualization tool to visually analyze the annual publication trend, highly cited literature and keyword frequency of the abstract of domestic academic papers from 2000 to 2022, aiming to sort out the research hotspots and research trends of the abstract of domestic academic papers. The research found that: (1) since 2000, the focus of domestic scholars on academic abstracts has changed from the writing standard of English and Chinese abstracts to genre analysis; (2) the research focus focuses on interdisciplinary comparative research and the comparative research of abstracts written by Chinese and foreign authors in the same discipline; (3) the genre research of popular subjects in artificial intelligence, big data and biotechnology has not been carried out in the world.

Keywords: Academic Paper; Abstract Research; Genre Analysis; Comparative Research; Citespace Software.

1. Introduction

As an important means for researchers to introduce scientific research achievements and quickly understand the development of related fields, academic paper abstract is a genre that researchers often need to read and write (Ge Dongmei, Yang Ruiying 2005). In addition, the abstract is also an important window for readers or journal editors to understand the main information of the paper (Jiang Meng, 2022). The official international publication on abstract research can be traced back to Cleveland's *Introduction to Indexes and Abstracts*, which argues that abstracts summarize the core of a special record of knowledge and are a true replacement for that article.

In recent years, the study of paper abstracts has received increasing attention. Foreign scholars have conducted extensive research on academic paper abstracts from different perspectives, For example: Text structure exploration (Lores, 2004; Santos, 1996; Tanko, 2017), Rhetoric Function (Breeze, 2009), interdisciplinary differences (Salager Meyer, 1992; Huckin, 2001; Samraj, 2002, 2005; Lores, 2004; Golobowski, 2009; Pho, 2008), and cross-cultural differences (Hu & Cao, 2011; Lores-Sanz, 2016; Friginal&Mustafa, 2017). Chinese journal academic papers began to adopt abstracts in the 1980s, and the study of abstracts also gradually started in the 1990s. As major domestic journals require papers to be equipped with both Chinese and English abstracts, domestic scholars are paying more and more attention to abstract research.

However, at present, the summary review of academic papers in journals in China is relatively insufficient, leading to the development context and research hotspots of this field are not clear enough, and the future research direction and focus are also unclear. For combing the domestic journal academic papers abstract part of the research trends and trends, identify the key influence in the field and important research results, for later scholars in the field of further research reference, this paper using the visualization of knowledge structure, regularity and distribution of

CiteSpace5.7R5, sorting and analyzed the CNKI journals since 2000 in the research literature published trend, high cited literature and high frequency keyword table, in order to be more intuitive, comprehensive visual knowledge map to provide scientific reference for researchers.

2. Methodology

2.1. Data Collection

China National Knowledge Network (CNKI) is one of the largest academic literature databases in China, covering a large number of academic papers, journals, conference papers, dissertations, patents, standards and other resources, with the characteristics of authority, comprehensiveness and fast update. Therefore, this study chooses CNKI (CNKI) academic journal database as the data source, using advanced retrieval mode, with the keywords "academic papers" or "journal paper" as the search term, the time span was 2000-2022, journal source category for "all journals" as the search condition. After manual elimination of conference papers, no author articles and papers unrelated to abstract research, 138 valid documents were obtained. The information of the title, author, abstract, keywords and year of the published literature are exported in txt. file format for visual analysis of knowledge graph software.

2.2. Research Tools

The information visualization software used in this study is CiteSpace 5.7R5, which is an influential tool in the field of information analysis. The main function of the software is to identify the scientific literature and analyze the knowledge graph using Java program. In this paper, 138 articles obtained after CNKI search and screening were imported into CiteSpace for visual analysis. The specific steps are as follows:

High cited literature and author statistics: identify highly cited literature and main authors by analyzing the citations of the paper.

Keyword cluster analysis: the time range was set from 2000 to 2022, the time slice was one year, and the research hotspots were identified through keyword cluster analysis.

Reading and summary of the highly cited literature: The number of literature citations can represent the influence of the literature, and the highly cited literature can reflect the focus and research trend of researchers in this field to a certain extent. Therefore, on the basis of data analysis, this study will read the abstracts and main contents of the highly cited literature, and summarize the research hotspots and future research trends of academic paper abstracts.

2.3. Research Questions

This paper will answer the following three questions:

(1) Since 2000, what are the research trends in the field of academic paper abstract in domestic journals and what are the trends?

(2) What are the key influential figures in the research field, and what is the significance of the highly cited literature for the research in this field?

(3) What are the current research hotspots and future research directions of the academic paper abstract in China?

3. Results and Discussion

3.1. Annual Trends in Publications

The change in the number of published literatures can be used as an indicator to reflect the development status and changing trend of the research field, so it is necessary to understand the changes in the number of literatures.

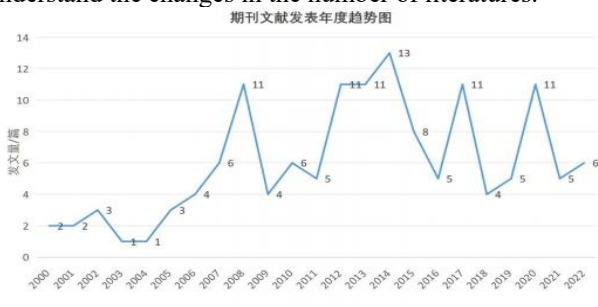


Figure 1. Abstract Annual trend chart of research literature publication

The research of domestic academic paper abstract started relatively late, as shown in Figure 1. From 2000 to 2003, the number of academic paper abstract studies published was small, about 2-3 per year, and mainly focused on the discussion of writing norms (Shen Ling 2000; Fu Zhihua 2002; Gao Jianqun, Wu Ling and Shi Ye 2003, etc.). In 2004, Ju Yumei published the article "Genre Analysis and English-Chinese Academic Paper Abstract" in CNKI, which provided a new perspective for the genre analysis of academic paper abstract and triggered extensive discussion in the academic community, as a result of a significant increase in the number of publications in that year. It marks that the academic paper abstract research has entered a new stage. From 2005 to 2008, studies on academic abstract, such as electrical and electronic engineering, finance and surgical medicine (Ge Dongmei, Yang Ruiying 2005), environmental science (Hu Chang 2006); applied linguistics (Liu Tingting 2007), and the number of publications increased year by year. It reached a small peak in 2008. From 2009 to 2014, the number of publications in this field showed a fluctuating upward trend, and the research content began to diversify, especially the move analysis and

comparative research became a hot spot. This trend was reflected in the increase of the number of literature. According to statistical analysis, the frequency of key words "move" and "comparative research" in this stage is relatively high, and the reason is that more scholars began to interpret the abstract of academic papers with the help of corpus as a research method. From 2015 to now, the annual trend of literature publication has presented a concave shape. The number peaked in 2017 and 2020, respectively. At this stage, researchers constantly explore new research directions, so the curve fluctuates. Despite the variety of research directions and fluctuating curves, the overall trend is rising, reflecting the deepening and expansion of research in this field.

Through the above analysis, it can be seen that although the research of academic papers on abstracts in domestic journals fluctuates, the overall trend is rising. The research in this field has gradually developed from the early writing specification discussion to the multiple direction of genre analysis, specific discipline application, move analysis, and continuously deepened and expanded the research content.

This analysis not only reveals the development path and dynamics of domestic academic paper abstract research, but also provides an important reference basis for future research. Understanding these changing trends will help researchers to better grasp the research hotspots and future development direction in the field.

3.2. Highly Cited Papers

In this paper, the order of cited to obtain the citation frequency of papers published by the author in different periods. Table 1 shows the top ten most frequently cited articles in the field of academic paper abstract in China. Among them, Ju Yumei (2004) compared and analyzed the macro structure of English-Chinese academic paper abstract, and derived the macro format of English paper abstract is introduction-method-result-discussion with more logical components; the common macro structure of Chinese paper abstract is method-result, with obvious insufficient logical components and great randomness. This discovery provides inspiration for Chinese scholars in writing English abstracts, that is, the established norms of English paper abstract language societies should be fully considered, rather than simply following the structure of Chinese paper abstracts and translating them directly into English. The empirical study of English undergraduate thesis abstract done by Yao Jun (2010) also has similar results. Ge Dongmei and Yang Ruiying (2005) analyzed the discourse structure and several language characteristics of academic paper abstracts of three different disciplines, and found that the discourse structure pattern of abstracts was not affected by the subject differences, but their language characteristics were different due to the different disciplines and language wheels. Xiao Zhonghua and Cao Yan (2014) combined multi-dimensional analysis with move analysis to compare the English abstracts of Chinese and foreign authors. Found significant differences in English abstracts between Chinese and foreign authors. Based on Feez's genre teaching cycle, Han Ping and Hou Lijuan (2012) discussed that graduate academic English writing teaching should not only let students understand the use of vocabulary, grammar and rhetorical resources, but should guide students to pay more attention to the external factors of the text, and go beyond the text to study the genre and subject practices. Zhou Qijun (2014) compared and analyzed the similarities and differences in the use of meta-discourse in scientific

academic papers, and to some extent responds to the debate about the personal and temporal choice in abstract writing. Li Ping Josta van Rij-Heyligers (2011) compared the move framework and word type used by Chinese and foreign language researchers when writing English abstract, and found that Chinese researchers showed the number of abstract moves and the frequency of conclusion moves in English

abstract writing, and the literature citation of abstract lacks detailed sources. The above research is mainly conducted from the perspective of macro abstract, analyzing the similarities and differences of English abstracts written by Chinese and foreign scholars or scholars of different disciplines, and the research results provide scientific theoretical basis for domestic abstract writing and teaching.

Table 1. Top 10 highly cited documents in the abstract of academic papers

The Number of Citations	Paper	Research Contents
523	Ju 2004	Using the genre analysis theory to compare and analyze the macro discourse structure of abstracts in English and Chinese academic papers.
430	Ge & Yang 2005	Analyzing the discourse structure and some linguistic characteristics of academic abstracts of three different disciplines from the perspective of communicative function.
166	Xiao & Cao 2014	Using the methods of move analysis and multi-dimensional analysis to compare the differences in English abstract moves between native language authors and Chinese authors in biology.
142	Han & Hou 2012	Based on Feez's genre teaching cycle model to explore how to implement genre pedagogy in the teaching of academic English writing for graduate students.
106	Feng & Zhou 2007	Analyzing the similarities and differences in the use of hedges in the abstracts of graduation theses of English majors and English abstracts of foreign core journals.
105	Zhou 2014	Compare and analyze the similarities and differences in the use of metadiscourse in the abstract of academic papers in the liberal arts and sciences.
86	Li & Josta van Rij-Heyligers 2011	This study conducts a comparative analysis of English abstracts, and observes and compares the language moves and word forms used by Chinese and foreign language researchers when writing English abstracts.
81	Zeng & Hu 2005	Exploring the linguistic expression and pragmatic function of hedges in academic abstracts.
69	Teng 2008	Comparing and analyzing the constituent elements of abstracts in English-Chinese academic papers and the distribution of the use of hedges and boosters in abstracts.
68	Yao 2010	Analyzing the distribution of discourse patterns and intervention marks in each move of English undergraduate dissertation abstracts using the theory of genre analysis.

Zeng Yuwei and Hu Fang (2005) discussed the language expression form and pragmatic function of hedges in academic abstract, and pointed out that hedges in academic abstract should be regarded as a communicative strategy. Feng Yin and Zhou Rong (2007) further found that there were significant differences between Chinese English learners when using different hedges, especially in the use of modal and mental verbs in the process of suggestion, speculation and summary, as well as the expression of subjective opinions. Teng Yanjiang (2008) compared and analyzed the distribution of ambiguous and strong modifiers in the abstract of English and Chinese academic papers, and found that the distribution of the two modifiers had obvious differences in different moves. These three studies take hedges as the entry point, gradually explore their application in academic paper abstracts, and enrich the domestic research on academic paper abstracts at the micro level.

Overall, these highly cited documents provide us with a window into the research direction and trends in the field of

academic abstract, as well as the academic influence of the corresponding authors in the research field. The purpose of these studies is mainly to improve the ability of domestic scholars to write abstracts. The research perspective covers genre analysis, Sino-English paper abstract comparison, interdisciplinary abstract differences, and hedges. The results of these studies provide a scientific basis for abstract writing and teaching in English, biology, electronic and electrical engineering, surgery and medicine, etc. However, the research objects involved in the above studies mainly focus on the discussion of traditional disciplines, and the abstract research of emerging disciplines needs to be further developed.

3.3. Research Contents

Keywords are extracted from the title or theme of the paper, which can accurately express the core content of an academic paper. Through big data measurement tools, it can extract literature keywords and draw the distribution of their

frequency, which can study the development trend and research hotspots of a certain field. In this study, CiteSpace5.7.R5 was used to transcode the imported data format for visual analysis. Keywords were selected for node types. After debugging various parameters, the co-occurrence map of keywords was obtained as shown in Figure 2. "Academic papers" is the most significant keywords, frequency is 40 times, followed by "abstract" (36), "academic paper" (35), "paper" (16), because the above four keywords cannot reflect the specific content of the study, so in the analysis of this paper choose to eliminate the four keywords, after the top 10 keywords word frequency as shown in table 2.

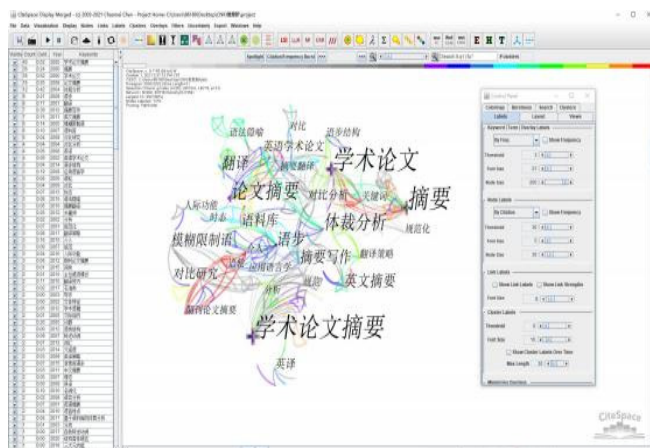


Figure 2. Co-occurrence network of keywords

Table 2. High-Frequency Keyword List

Keywords	Frequency	Keywords	Frequency
Genre analysis	12	Hedge	6
Move	9	Corpus	6
Translation	8	Comparative study	5
Abstract writing	7	Comparative analysis	4
English translation(英文翻译)	7	English translation(英译)	4

Table 3. High-Frequency Research Keywords

Keywords	Frequency
Genre analysis&Hedge&Move	27
Translation&English translation(英文翻译) &English translation(英译)	19
Comparative study&Comparative analysis	9
Abstract writing	7
Corpus	6

In the analysis of high-frequency keywords and related documents, the author noticed that the research contents represented by some key words overlap, for example, the research involved in "hedges" and "move" actually belongs to the research category of "genre analysis"; "Translation", "English translation" and "English translation" three key words are studying the English translation of the abstracts; The key words "comparative study" and "comparative

analysis" are both compared with different abstract corpora. In order to describe the whole picture of the research content more intuitively, this paper combined these keywords with included relationships in the analysis process to obtain the high-frequency research keywords table, as shown in Table 3. After careful screening and analysis, the research hotspots and research methods of paper abstracts published in CNKI in the past 22 years mainly focus on the following aspects:

(1) Abstract writing norms. Since the adoption of paper abstract in Chinese academic journals, many domestic scholars have carried out in-depth research on the standard of abstract writing. For example, Gao Jianqun et al. (2003) elaborated the classification of abstracts of academic papers, discussed the writing format and content of abstracts of various types of papers, and discussed the requirements of standardized abstract writing. Fu Zhihua (2002) proposed that the writing elements of the abstract should include the research purpose, research methods, main results and conclusions, and emphasized that the detailed expression of each element should be appropriate. Wu Xiaohong (2008) analyzed the requirements of the use of academic paper abstract writing from the perspective of modern Chinese grammar norms.

In addition, some scholars have discussed the problems and solutions. Chen Fei et al. (2015) employed case study analysis to statistically examine 100 initial submissions and 200 published articles across 20 journals. They identified issues such as pronoun errors, vague results, simplistic and empty content, and excessive background information. Through detailed examples, they proposed standardized guidelines for writing abstracts. Wang Zhende (2020) systematically sorted out the problems in the process of academic paper abstract writing, such as too large or too small, confusing the abstract with the introduction, subjective writing, the use of abbreviations or abbreviations, lack of novelty, etc., and put forward suggestions on abstract writing according to the definition and function of the abstract. These research results provide scientific guidance for scholars to write the abstract of academic papers, enrich the examples, and lay a solid foundation for the subsequent abstract research.

(2) English translation. With the continuous development of international academic exchanges, English abstract has become an important way of academic exchanges between Chinese and foreign scholars. There are three main aspects of English translation of abstract by Chinese researchers.

One is the mistranslation of the abstract. For example, Pang Sufen (2001) discussed several common ambiguities in the translation of English abstract of academic papers, and proposed solutions on how to use grammar and semantic information to avoid correlation. Wang Aiqin (2002) analyzed the cultural differences between Chinese and English, with examples of some common mistakes in academic papers translated from Chinese and English, and pointed out the methods to correct the mistakes.

The second is the study of abstract translation under the guidance of concrete theory. For example, Chai Qinghua (2009) put forward the principle of English translation strategy for academic paper abstract according to the two translation methods of the text function theory proposed by Newmark, namely the connection between semantic translation and communicative translation. Zhang Zhongqiu (2010) proposed that the translation theory of Eugene Nida was applied as a concept to the translation of the abstract, with the purpose of the reader obtaining the same or equivalent

information as the reader of the original text, and the chapter as the translation unit, so that the English translation practice of Chinese abstract can be carried out smoothly. Lu Qi (2011) takes the theory of purpose, takes the requirements of the international retrieval system for the English abstract of academic papers as the standard of abstract translation, and puts forward some of the stylistic characteristics of science and technology English, combined with the translation skills of the abstract and its new trends.

The third is the English translation study of specific subject abstracts. For example, Liu Min (2007) analyzed the problems of geological miners in translation from the perspective of English linguistics knowledge. The translation technique and strategy of English abstract of academic paper are discussed. Zhang Junhong (2011) analyzed, from the perspective of functionalism, the discourse attributes and functions of the abstract of sports academic papers, and put forward suggestions to standardize the translation of the abstract of sports academic papers. Chen Xiaowei and Wang Lingling (2018) made rhetorical comparison and analysis of Chinese-English parallel texts, and found that there were obvious differences in the application of rhetorical resources of humanities and social sciences paper abstract, appeal strategy, construction methods and rhetorical means.

In general, the general direction of the English translation of abstracts in China is from extensive to specific. Researchers studied from the overall mistranslation of the abstract, to the English translation of the abstract under the guidance of specific translation theory, and the translation of specific subjects. These studies provide theoretical guidance and practical reference for the English translation of abstracts in China, and help to improve the quality of abstract translation and the effect of academic exchange.

(3) Genre analysis of the abstract. The concept of "genre" has always been in the category of literary research, but since the 1970s, it has gradually begun to penetrate into the field of linguistics and become a hot topic among linguists (Cai Yanling, Han Fengjiao 2015). At present, domestic researchers study the abstract from the perspectives of macro and micro, and the macro level focuses on the analysis of language and step structure, while the micro level focuses on the voice, tense and use. Some scholars combine the macro and micro levels, while others study one level separately.

By statistics, in addition to the above mentioned high cited literature, 2000-2022, the macro discourse structure and micro language characteristics study has five, among them, the Hu chang (2006) from the perspective of communicative function, to the chemical abstract included before and after 100 environmental science papers discourse structure and language characteristics, points out that academic papers used in the international practice, and provides an important basis for academic paper writing. Wang Li (2014) compared the writing characteristics of English speakers and learners from micro and macro aspects and found that the abstracts have both similarities and differences. Zhang Linya (2017) studied the use of tenses in each language wheel in the abstract, and proved the difference of tenses in different language theories. Zhu meijun (2010) selected 40 soft and hard science four old and new subjects of academic papers in English, the move characteristics, discourse pattern and language characteristics are analyzed, reveals the old and new subject papers in the similarities and differences between similar science and different science, and points out that the main characteristics of the subject is determined by the communicative purpose.

Ni Xiaofang, Li Lihua (2020) analyzed the structure and language characteristics of abstracts of political discourse analysis, which can provide reference for writing abstracts of such academic papers.

Only one article is studied separately from the level of macro-text discourse structure. Han Ying (2019) studied the IMRC model and CARS model on the abstract steps of academic papers of English graduate students, and obtained the characteristics and rules of abstract writing, so as to put forward some constructive suggestions for the abstract writing and academic writing teaching of master students.

There are two studies from the microscopic language characteristics alone, and both documents are hedges in the research abstract. Wang Zhou (2008) compared the abstract of Chinese and English medical academic papers, and concluded that there was no significant difference in the use of variable hedges in the English and Chinese academic papers, but the two showed a significant difference in the frequency of moderate hedges. Shi Feitong (2014) conducted an empirical study on the hedges in the academic abstract of languages, finance and physics at home and abroad. Through the data comparison, he explained the similarities and differences in the usage of hedges at home and abroad, in order to inspire the academic research.

As can be seen from Table 3."Genre analysis" and its keywords like "hedges" and "move" with inclusive relations appear the most frequently, indicating that domestic researchers pay special attention to the genre research of abstracts. In general, most domestic researchers choose to combine the macro move and the micro language characteristics, and researchers usually study the micro language characteristics of the move based on the macrostructural analysis. Research results mostly serve the English academic paper abstract writing.

(4) Comparative research. There are two main ways for comparative research of academic journals. One is to explore the influence of subject attributes on the genre structure and language characteristics of abstract. For example, He Shuang (2008) selected the Chinese and English abstracts in natural sciences for comparative analysis to reveal the characteristics of Chinese and English abstract of academic papers; Sun Ying (2010) quantified the nominal phenomenon in academic papers abstract of humanities and natural sciences, and compared the similarities and differences of nominal structure in different disciplines.

Another way is to explore the influence of Chinese and foreign researchers on the abstract of the same discipline on their genre structure and language characteristics. For example, Liu Yonghou, Zhang Ying (2016) explored the similarities and differences in the abstract of Chinese mainland scholars and English speakers in the field of linguistics, tense and voice; Cai Yanling, Han Fengjiao (2015) made a comparative analysis of the unconventional move patterns in foreign language teaching; Feng Enyu, Wu Lei (2016) made a comparative analysis of the unconventional moves in Chinese and foreign optical academic papers to reveal the differences between Chinese and foreign abstract writing.

The high-frequency keyword "comparative research" is an important research method for Chinese researchers in abstract research. By comparing the differences between different disciplines, the researcher analyzes the abstract of Chinese and foreign scholars in the same discipline, to analyze the differences between Chinese and foreign English abstract and

make up for the deficiency of English abstract by Chinese scholars. These research results provide strong scientific support for Chinese scholars to write abstract and abstract teaching.

(5) Corpus. Corpus is an important means of studying academic English. Related research is either based on the existing academic English corpus, or based on the academic English corpus developed by scholars themselves ".(Li Tao, Zhao Wen, 2019) Whether it is the normative study of abstract writing, English translation or genre study, researchers often use corpus technology and retrieval tools to count corpus information, making the research results more digital and intuitive, and making up for the time-consuming and laborious defects of manual statistics. The number of articles selected in the corpus ranges from dozens to thousands, showing an increasing trend, which enhances the representativeness of the research results and makes the articles more convincing. Nevertheless, studies based on large-scale corpus are still very rare.

4. Research Summary and Prospects

From the perspective of the visual analysis results of domestic academic paper abstract, the development of academic journal paper abstract is mainly reflected in three aspects: research horizon, research content and research method.

(1) The research horizon is gradually broadened. The study of academic paper abstract has long attracted the attention of scholars in different disciplines, and the focus of scholars' research in this field has changed from the initial writing specification of English and Chinese academic paper abstract to the genre analysis.

Because the abstract of academic papers has specific communicative purpose, audience, internal structure and language characteristics, and English abstract is the main way for foreign counterparts to understand the domestic academic achievements, in order to realize the purpose of effective communication of academic papers, many scholars published articles to discuss the standard of abstract writing (Shen Ling 2000; Fu Zhihua 2002; Gao Jianqun, Wu Ling and Shi Ye 2003, etc.). However, from the teaching practice in recent years, although the public English teaching of non-English majors in China has made some achievements, most students still lack the ability to write academic papers in English (Guo Qiang 2006). Thus our country many scholars are aware of the defects of English writing teaching, emphasize the specific genre of social function, communication purpose and cognitive mode is to help students better understand and create the key to the specific genre convention, and suggested that the genre analysis teaching method is applied to advanced English writing teaching and academic research writing practice, to standardize the graduate student's English academic paper writing.(Xu Youzhi, et al., 2007). Therefore, in recent years, the perspective of genre analysis has become the focus of academic English research field.

(2) The research content is becoming increasingly diverse. The research perspective guides the diversification of the research content to some extent. Domestic genre research content in the field of academic papers abstract mainly has two aspects, one is for the characteristics of a single subject research, such as environmental science (2006), science and technology (Xiao Zhonghua Cao Yan 2014), foreign language teaching (Cai Yanling, Han Fengjiao 2015), optical (Feng Enyu, wu lei 2016), linguistics (liu yonghou, zhang ying

2016), electronic information (Lu Sijie, PangChaowei 2022), etc., this research mainly discusses the macro move structure and tense, voice, modal and other microscopic language characteristics. The second is interdisciplinary comparative research, which mainly explores the influence of subject attributes on the genre structure and language characteristics of the abstract. For example, electrical and electronic engineering, finance and surgical medicine (Ge Dongmei and Yang Ruiying 2005); Arts and Science (Zhou Qijun 2014); Natural Sciences and Humanities and Social Sciences (He Shuang 2008). These scholars conducted comparative studies on multiple disciplines, which revealed the commonalities and differences in the abstract text structure and linguistic characteristics of different disciplines.

It can be seen from the literature review that although the existing studies have found the personalized genre characteristics of paper abstracts of some disciplines, the diversity of academic genres will inevitably lead to the diversity of academic papers. Therefore, in future studies, scholars can devote themselves to the multidisciplinary exploration of this research field, to ensure the coverage of a wider range of disciplines. Pay particular attention to some emerging disciplines and the most popular subjects discussed internationally, such as artificial intelligence, big data, biotechnology and so on.

(3) The research methods are constantly updated and deepened. When scholars study academic paper abstracts, the corpus is widely used by researchers as a research method, which is also one of the high-frequency keywords retrieved in this study.

The biggest advantage of corpus research is that it is different from intuition. Based on large sample examples of language usage, it provides information about the frequency and distribution of vocabulary and grammar features through retrieval and statistics, so the conclusion is convincing (Xu Fang, 2015). Li ping and Josta van Rij-Hey ligers in the observation and comparison of Chinese and foreign language researchers writing English abstract using move framework and word type research: " based on the corpus of genre analysis can not only clearly show the macro structure of the paper, and through the bottom-up analysis can show the microstructure of words using specific type. Computer-based word frequency and keyword search software can conduct an objective analysis of the abstract corpus, show its unique word type, so as to reveal the word characteristics of academic paper abstract writing ". This study found that most of the "comparative studies" involved in the abstract of academic papers were based on the research methods of the corpus. The researchers enhanced the credibility of the research results by increasing the corpus and expanding the subject to enhance the scope of the research results. Future research should further broaden the research perspective to cover more disciplines, especially emerging and international hot disciplines. At the same time, we should continue to deepen the application of corpus methods, and use more diversified and authoritative corpus sources to improve the scientificity and credibility of the research. This will help to more fully understand and improve the writing norms and quality of academic paper abstracts, and promote the international dissemination and influence of domestic academic achievements.

5. Conclusion

The purpose of this study is to provide subsequent scholars

with reference on the research status and future research direction in the field of academic paper abstract, and to make a visual analysis of the domestic academic paper abstract research from 2000 to 2022. The research results show that the research of domestic academic paper abstract has experienced a process from slow growth to fluctuating growth. The main research method is corpus analysis, and the research direction covers the comparison of interdisciplinary abstracts and Chinese and English abstracts in the same subject. The research results have some enlightenment for the study of academic papers in China: the future research can explore the genre characteristics of abstracts in the international emerging and popular subject fields, and conduct extended research in the traditional disciplines that have not been involved. By broadening the research perspective and deepening the research methods, future research will help to improve the writing quality of domestic academic paper abstracts, and promote the international dissemination and influence of domestic academic achievements.

References

- [1] Cao, Y. & R. Xiao. 2013. A multidimensional contrastive study of English abstracts by native and non-native writers. *Corpora*, 8(2), 209-234.
- [2] Friginal, E., & Mustafa, S. S. (2017). A comparison of U.S.-based and Iraqi English research article abstracts using corpora. *Journal of English for Academic Purposes*, 25, 45-57.
- [3] Golebiowski, Z. (2009). Prominent messages in education and applied linguistics abstracts: How to appeal to their prospective readers? *Journal of Pragmatics*, 14, 753-769.
- [4] Huckin, T. (2001). Abstracting from abstracts. In M. Hewing (Ed.), *Academic writing in context* (pp. 93-103). Birmingham: University Birmingham Press.
- [5] Lorés, R. (2004). On RA abstracts: From rhetorical structure to thematic organization. *English for Specific Purposes*, 23, 280-302.
- [6] Lorés-Sanz, R. (2016). When the local becomes international: The lexico grammar of rhetorical moves in English and Spanish sociology abstracts. *Languages in Contrast*, 1, 133-158.
- [7] Pho, P. D. (2008). Research article abstracts in applied linguistics and educational technology: A study of linguistic realizations of rhetorical structure and authorial stance. *Discourse Studies*, 10(2), 231-250.
- [8] Samraj, B. (2002). Disciplinary variation in abstracts: The case of wildlife behaviour and conservative biology. In J. Flowerdew (Ed.), *Academic discourse* (pp.40-56). New York: Pearson Education Ltd.
- [9] Samraj, B. (2005). An exploration of a genre set: Research article abstracts and introductions in two disciplines. *English for Specific Purposes*, 24, 141-15.
- [10] Salager-Meyer, F. (1992). A Text-type and Move Analysis Study of Verb Tense and Modality Distribution in Medical English Abstracts. *English for Specific Purposes*, 11(2), 93-113.
- [11] Santos, M. B. D. (1996). The textual organization of research paper abstracts in applied linguistics. *Text*, 16(4), 481-499.
- [12] Tankó, G. (2017). Literary research article abstracts: An analysis of rhetorical moves and their linguistic realizations. *Journal of English for Academic Purposes*, (27), 42-55 .
- [12] Han Ping, Hou Lijuan. Exploring the Cultivation of Academic English Writing Ability of graduate Students from the Perspective of Genre Analysis [J]. *Foreign Language Community*, 2012, (06) :74-80.
- [13] XIAO Zhonghua, Cao Yan. Foreign Language Teaching and Research,2014,46(02):260-272+321. (in Chinese)
- [14] Wang Zhou. A comparative study of hedges in English and Chinese academic abstracts: a corpus-based study [J]. *Journal of Huazhong University of Science and Technology (Social Science Edition)*,2008, (06):59-63.
- [15] Liu Yonghou, Zhang Ying. A Comparative study on abstract writing of academic papers in international journals between Chinese and foreign scholars [J]. *Foreign Language Field*,2016, (05) :20-27.
- [16] Zhou Qijun. A contrastive study of meta-discourse in academic abstracts [J]. *Journal of Foreign Languages*,2014, (03) :114-117.
- [17] Ju Yumei. Genre analysis and English abstract Texts [J]. *Foreign Language Teaching*,2004, (02):32-36.
- [18] Li Ping,Josta van Rij-Hey ligers. A comparative analysis of the genre of academic paper abstracts based on corpus [J]. *Journal of Xi 'an International Studies University*,2011,19(01):39-44.
- [19] GE Dongmei, Yang Ruiying. Genre analysis of academic abstracts [J]. *Modern Foreign Languages*,2005, (02) :138-146+219.
- [20] Zeng Yuwei, Hu Fang. Hedges in English Academic abstracts [J]. *Shandong Foreign Language Teaching*,2005, (02) :40-42.
- [21] Yao Jun. Discourse Patterns of English thesis abstracts and Author Involvement: An empirical study of English undergraduate thesis abstracts [J]. *Foreign Language Teaching and Learning*,2010,31(04):29-33.
- [22] Teng Yanjiang. A comparative analysis of the distribution of Qualified modifiers in English and Chinese academic abstracts [J]. *Foreign Language and Foreign Language Teaching and Learning*,2008, (11) :40-43.
- [23] Feng Yin, Zhou Rong. Investigation and analysis of hedges in academic paper abstracts -- Based on a comparative study of English major graduation thesis and foreign journal papers [J]. *Foreign Languages and Literature*,2007, (02) :108-112+144.
- [24] Sun Ying. A comparative study of nominalization metaphors in abstracts of Academic Papers [J]. *Journal of Hubei University of Economics (Humanities and Social Sciences Edition)*, 2010,7 (09):129-131.
- [25] FENG Enyu, Wu Lei. A comparative analysis of unconventional moves [J]. *Journal of Xiamen University of Technology*, 2016,24(06):60-64. (in Chinese)
- [26] He Shuang. A comparative analysis of the structure of Chinese and English academic abstracts [J]. *Journal of Chengdu University (Education Science Edition)*,2008, (05) :113-114+118.
- [27] LI Qingming, Zhang Min. A contrastive analysis of Discourse structure in Chinese and English academic Abstract [J]. *Journal of Changchun University of Science and Technology (Social Science Edition)*,2012,25(01) :66-68.
- [28] CAI Yanling, Han Fengjiao. A comparative study of unconventional steps in abstracts of Chinese and foreign academic papers: A case study of empirical academic papers on foreign language teaching [J]. *Journal of Henan University of Technology (Social Science Edition)*,2015,11(01) :126-131.
- [29] Yu Qiangfu. A corpus-based comparative study on hedges in English abstracts of mechanical engineering academic papers [J]. *Journal of North China University of Science and Technology (Social Sciences Edition)*, 201,21(01) :127-132.
- [30] Zhang Linya. A study on tenses in abstracts of English academic papers from the perspective of genre analysis [J]. *Journal of Baoji University of Arts and Sciences (Social Science Edition)*,2017,37(02) :101-104.

- [31] Liu Tingting. Analysis of Genres of academic paper abstracts in Applied Linguistics [J]. Journal of Anhui University of Technology (Social Science Edition),2008, (05) :118-121.
- [32] Hu Chang. An analysis of the genre of abstracts of environmental science papers [J]. Environmental Science and Technology,2006, (09) :112-114+121.
- [33] Jiang Meng. A comparative study on thematic progression patterns in English abstracts of Linguistic dissertations [J]. Journal of Hefei University (General Edition),2022,39(03) :60-65. (in Chinese)
- [34] Ma Yuanyuan. Research Review of Academic Paper Abstracts (2000-2019) -- Visualization Analysis based on CNKI [J]. Journal of Social Sciences, Harbin Normal University, 2019,11(02):153-156.