

A Study Based the Cite Space Visual Analysis - Topics Selection of 'Anxiety' for Master's Theses in Chinese International Education, 2011-2023

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Abstract

In this study, we employed the Cite Space software to conduct a bibliometric analysis of the selected topics of 'anxiety' in the master's theses on Chinese international education on China National Knowledge Infrastructure (CNKI) from 2011 to 2023. The study revealed that research in this field has demonstrated a fluctuating growth trend, with research hotspots focusing on the influence of affective factors on second language acquisition, international students' learning anxiety and teaching anxiety. Despite the wealth of research on the topic of 'anxiety' in Chinese master's degrees, the study identified several limitations, including the use of a single research method and an unclear understanding of research hotspots. To advance the field, future research should adopt a more diverse range of research methods and delve deeper into the exploration of research hotspots.

Keywords

Chinese language international education, Chinese as a second language acquisition, Emotional factors, Anxiety, Visual analysis

1. Introduction

For an extended period, researchers of Chinese as a second language have identified emotional factors as a pivotal influence on the process and outcomes of Chinese language acquisition. As research on emotional factors in China and abroad has continued to deepen and Krashen's hypothesis theory has gained traction, the Chinese emotion of anxiety has come to attract significant attention from scholars. The number of research papers on the topic of anxiety in master's theses is increasing on an annual basis. Master's students specialising in Chinese international education employ the primary research data they can obtain through practical experience to analyse the types of anxiety and the causes of its formation. They then propose strategies for addressing these factors in Chinese language teaching and learning, demonstrating a synthesis of professionalism and practicality. While a number of scholars have reviewed and synthesised the existing research on anxiety in Chinese language learning, the latest research findings are not yet fully comprehensive. Furthermore, few scholars have employed bibliometrics to systematically organise the research results on anxiety in master's theses on Chinese language international education. It is this author's belief that a comprehensive sorting of the extant research theses on anxiety in Chinese master's degrees is necessary, with specific attention paid to the shortcomings of the existing literature. It is further hoped that this study will provide a useful point of reference for future research scholars on anxiety in Chinese international education master's degree theses.

The author accessed the China Knowledge Network (CNKI) and conducted an advanced search. They selected "Master's Degree" in the dissertation column and "subject speciality name" in the first text box under the input search condition. They then entered "Chinese language international education" in the second text box. In the initial text box, designated for the input search condition, select "discipline name," then input "Chinese language education." In the second text box, designated for "abstract," select "anxiety," then input "anxiety." To ensure the selected literature is as accurate as possible, add "title" in the third text box, then input "anxiety." To ensure the selected literature is as accurate as possible, the third text box should be added, with the option of entering 'anxiety' selected. Finally, the search should be initiated. At the time of writing (15 February 2024), a total of 107 eligible papers were identified. These were then read in order, according to both title and content, before being sorted to obtain the most accurate first-hand information.

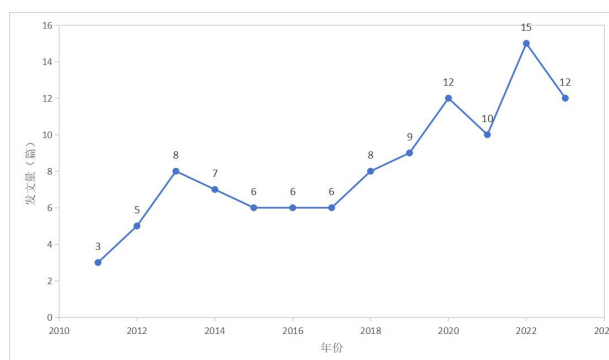
The principal research instrument employed in this study is the Cite Space 6.2.R4 software, which is founded upon a robust theoretical framework and exhibits the dual characteristics of a 'graph' and a 'spectrum'. This software is particularly effective in identifying the pivotal points and emerging frontiers within diverse research domains. The software has the advantage of enabling the detection of research hotspots and frontiers in different fields. The application of this approach to the overall investigation and analysis of the 'anxiety' topic in Han master's theses can contribute to the theoretical advancement of this field, addressing some of the limitations of traditional research methods. The author employs this software to construct keyword co-occurrence maps, cluster maps, emergent words, and strategy maps for the investigation of "anxiety" topics in Chinese international education master's theses from 2011 to 2023. The resulting knowledge maps are then interpreted in detail, thereby elucidating the keywords and strategies employed in the research of "anxiety" topics in Chinese master's theses. Furthermore, the knowledge maps are interpreted in detail to reveal the key themes, the evolution of these themes and the most cutting-edge themes in the research of 'anxiety' in Master degree of Chinese as Second Language. This provides a valuable reference point for subsequent researchers.

2. Basic information on selected topics

2.1 Analysis of bibliographic distribution and trends

A statistical analysis of the distribution and change trend of the number of documents can, to a certain extent, assist in grasping the development trend of a specific research topic, and subsequently in identifying the characteristics and development stage of the distribution of the number of documents on this research topic. In this study, we employed the Cite Space software to enumerate the number of publications pertaining to the subject of 'Anxiety' in the domain of Chinese international education master's theses from 2011 to 2023. Subsequently, we utilised the Excel software to construct a more illustrative and discernible trend graph of the publications, as illustrated in Figure 1.

Figure 1: Literature releases and trends



Source: CNKI

Figure 1 illustrates the number of articles published in the 'anxiety' category of Chinese international education master's theses and its trend from 2011 to 2023. It can be observed from this figure that: the inf There were minor declines in this field of research in 2014, 2015, 2021 and 2023. However, there is currently no significant inflection point indicating a decline. The research in this field demonstrates a steady

growth in the trend of publications from 2011 to 2013, a gentle decline from 2014 to 2017, and an irregular growth trend from 2018 to 2023, with small peaks in 2020 and 2012, and the highest peak occurring in 2022. Overall, the trend of anxiety in Chinese international education master's theses from 2011 to 2023 demonstrates a shift from steady growth to fluctuating growth. As the international status of the Chinese language continues to improve, the number of Chinese language learners is on the rise, and numerous issues pertaining to Chinese language anxiety have emerged, leading to a gradual increase in the attention of domestic researchers to this field.

2.2 Analysis of core issuing institutions

A statistical analysis of the institutions that publish academic papers can assist in understanding the predominant research positions in this field and in identifying which institutions are engaged in and actively promoting the development of the research field of 'anxiety' in Chinese.

In this section, we will employ the Cite Space software to map the co-occurrence of publishing institutions of Chinese master's theses on 'anxiety' in order to gain insight into the fundamental landscape of research institutions within this field. The Cite Space 6.2.R4 software was utilized to generate the co-occurrence map of core issuing institutions, as illustrated in Figure 2.

Figure 2: Co-occurrence of the issuing institutions



Source: CNKI

The node represents the institution, the size of which is indicative of the number of articles, while the ring represents the yearly cycle. The size of the label represents the centrality of the node, and the line represents the number of co-cited literature. The network comprises 50 nodes and 94 lines, with an overall density of 0.0757. This indicates that the cited literature sources on the topic of anxiety in Chinese master's theses are concentrated, with relatively close research and the formation of a cohesive scientific research group.

The following section presents a statistical analysis of the seven institutions with the highest number of articles, with the unit of the first author being the sole figure included in the statistics. For further details, please refer to Table 1.

Table 1: Top 7 Institutions in the Research of Anxiety in Master's Thesis of 'Teaching Chinese as a Foreign Language', 2011-2023

Institution	Publications	Categories	Characteristics
Dalian University of Foreign Languages	10	General Colleges and Universities	Language
Yunnan Normal University	10	General Colleges and Universities	Education
Beijing Foreign Studies University	8	211 Colleges and Universities	Language
Nanjing University	7	211 Colleges and Universities	General
Xinjiang Normal University	5	General Colleges and Universities	Education
Shanghai Normal University	3	General Colleges and Universities	Education
Central China Normal University	3	211 Colleges and Universities	Education

Source: CNKI

A review of the data presented in Table 1 reveals that: (1) With regard to the number of articles published by research institutions, the seven institutions that have published the most articles on the topic of anxiety in the field of Chinese language education at the postgraduate level between 2011 and 2023 have published a total of 46 articles, representing 42.99% of the total number of articles published in this field. The three institutions with the highest number of publications are Dalian University of Foreign Languages (10), Yunnan Normal University (10), and Beijing Foreign Studies University (8). These institutions represent the core of the research field on the topic of anxiety in Chinese language international education at the master's degree level from 2011 to 2023. (2) With regard to the typology of research institutions, the seven most prolific in terms of published articles are all institutions of higher education, which suggests that such institutions represent the primary locus for the study of Chinese language anxiety in China. Among these, four are general colleges and universities, indicating that these institutions occupy a significant position within this research field. (3) With regard to the nature of the research institutions in question, it can be observed that teacher training colleges and language colleges have a greater number of publications. The top seven institutions are distributed as follows: four are teacher training colleges and universities, one is a general college or university, and two are language colleges or universities. Further statistical analysis reveals that teacher training colleges and universities have the highest number of articles, with 15 institutions contributing a total of 36 articles, representing 33.6% of the total number of articles. This highlights the significant role of these institutions in research on the topic of 'anxiety' for the Chinese master's degree.

3. Analysis of research hotspots of selected topics

A research hotspot can be defined as a subject matter that attracts the attention of researchers in a particular field. Gaining insight into the research hotspots of a given field enables researchers to swiftly comprehend the core tenets of the field and identify the shared concerns of researchers within that field. In this chapter, we employ the Cite Space software to construct keyword co-occurrence maps of the 'anxiety' topics in the master's theses on Chinese international education published between 2011 and 2023. This allows us to gain insight into the general characteristics of the research hotspots in this field. On this basis, a further keyword clustering map of the Chinese anxiety research field is constructed with the assistance of Cite Space software. Additionally, the most pertinent topics within this field are subjected to further analysis and synthesis with the aid of pertinent theses.

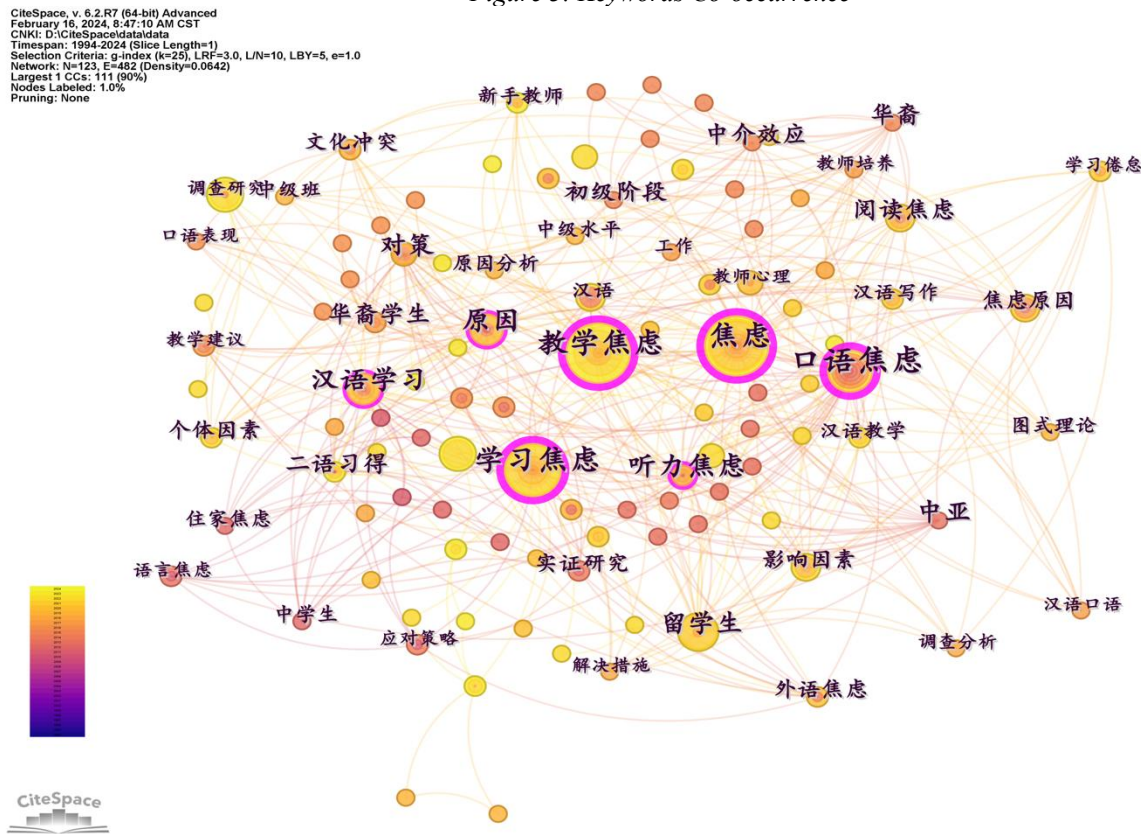
3.1 Overview of the main hotspots

Keywords are an integral component of an academic paper, serving to encapsulate the central research theme of the paper in a concise manner. Despite their limited space in an article, keywords represent the author's condensation and distillation of the article's core content. The greater the frequency of a keyword, the greater the attention researchers pay to the content of the keyword, which may be a research hotspot. In this section, we will use Cite Space software to map the keyword co-occurrence in the field of Han Shu Anxiety research in order to gain an understanding of the basic situation of the research hotspots in this field as a whole.

The Cite Space 6.2.R4 software was used to input 107 Chinese international education master's theses on 'anxiety' from 2011 to 2023. The time range was set to 2023. In order to obtain a comprehensive overview of the research output in the field of Han Shu Anxiety research, it is necessary to select the appropriate time slice and node type. For this purpose, the time slice 1, which represents a one-year interval, has been chosen.

Furthermore, the node type has been set to Keyword, Node Type 1, Node Type 2, Node Type 3, and Node Type 4. The time range was set as 2011-2023, the time slice was set as 1, that is to say, each year was set as a time interval, the node type was selected as Keyword, and the thresholds were adjusted as (2, 2, 20), (2, 2, 20), and (2, This indicates that the frequency of the selected node type is greater than 2, the number of times of co-occurrence is greater than 2, the co-citation coefficient is greater than 20%, and the clipping method of pathfinder network is employed to emphasise the characteristics of the important nodes. Once the software has been executed, the co-occurrence network map of Master degree of Chinese as Second Language's thesis research on 'anxiety' from 2011 to 2023 can be obtained. This is illustrated in Figure 3.

Figure 3: Keywords Co-occurrence



Source: CNKI

In the figure 3, the size of the circle is indicative of the frequency of keywords, with larger circles representing higher frequencies. The purple portion of the circle signifies the strength of the centrality of the keywords, whereby a stronger centrality is evidenced by a more pronounced purple hue on the periphery. The thickness of the connecting line between the circles is representative of the co-occurrence strength of the corresponding keywords, with thicker connecting lines denoting higher co-occurrence strengths.

Furthermore, the frequency and centrality of the corresponding keywords can be obtained through the background processing of the Cite Space software. The frequency of occurrence reflects the intensity of researchers' attention to the keyword. A higher frequency of occurrence indicates that the content reflected by the keyword is more popular. The centrality plays the role of a "medium" between the two keywords. It reflects the control ability of the keyword in the whole field and represents the main hotspots in the field to a certain extent. In this section, keywords with a frequency of at least three and a centrality of at least 0.01 are regarded as the primary foci of research on Master degree of Chinese as Second Language anxiety between 2011 and 2023, as illustrated in Table 2.

Table 2: High Frequency keywords

Keywords	Frequency (≥ 3)	Centrality (≥ 0.01)	Years
Anxiety	17	0.25	2013
Learning Anxiety	15	0.34	2011
Teaching Anxiety	14	0.22	2017

Chinese Language Learning	8	0.11	2011
International Students	8	0.07	2013
Countermeasures	7	0.06	2012
Speaking Anxiety	6	0.36	2012
Research	5	0.07	2016
Online Teaching	5	0	2022
Causes	4	0.15	2012
Causes of Anxiety	4	0.05	2012
Reading Anxiety	4	0.04	2013
Chinese Language	4	0.03	2013
Influencing Factors	4	0.01	2013
Listening Anxiety	3	0.15	2013
Learning Strategies	3	0.06	2019
Second Language Acquisition	3	0.05	2012
Individual Factors	3	0.02	2019
Teaching Suggestions	3	0.01	2014
Teaching Chinese as a Second Language	3	0.01	2013
Chinese Writing	3	0	2018
Teacher Psychology	3	0	2017

Source: CNKI

By combining the information reflected in the keyword co-occurrence mapping and the high-frequency keyword statistics table, we conducted a secondary reading of the relevant Chinese dissertations and analysed the basic characteristics of the main concerns of the research on 'anxiety' in the Chinese master's degree from 2011 to 2023.

The focus of this paper is the theme of 'anxiety' in Chinese language international master's theses. Consequently, the closely related concepts of 'anxiety', 'learning anxiety', 'teaching anxiety' and 'anxiety' are analysed and identified as the fundamental characteristics of the primary concerns of Chinese language master's theses between 2011 and 2023. The frequency of 'teaching anxiety' is, therefore, the highest and it is therefore regarded as an invalid keyword. Consequently, 'Chinese language learning', which ranks fourth, represents the most significant concern within the domain of Chinese master's degrees in anxiety. This term is observed to emerge with greater frequency and demonstrate elevated centrality, suggesting a strong correlation between Chinese master's degrees in anxiety and the Chinese language. This term is observed to occur with greater frequency and demonstrate a higher centrality, indicating that research on the subject of anxiety among Chinese language learners is closely related to the learning process and views the practice of learning Chinese as the ultimate objective.

From the perspective of research methodology, the research method of 'anxiety' for Chinese master's degrees is relatively homogeneous. A review of the high-frequency keywords statistical table reveals that the term "investigation and research" is the only keyword with high frequency and centrality. This indicates that researchers primarily employ quantitative research methods to examine the selected topics related to Chinese language "anxiety." Other research techniques, such as the comparative method and experimental method, appear to be less frequently utilized. The utilisation of alternative research methodologies, such as the comparative method and experimental method, is comparatively limited. Furthermore, an examination of the pertinent literature reveals that researchers have predominantly employed questionnaires, research scales and interviews, integrating qualitative and quantitative approaches in their investigations into the phenomenon of 'anxiety'.

From the perspective of the research objects, the research objects of the 'anxiety' category of the Chinese master's degree are more comprehensive. The keyword 'international students' is ranked fifth, indicating that researchers have conducted more studies on the Chinese language anxiety of the international student group in a non-target language environment. The keywords 'ethnic Chinese' and 'Chinese students' appear more frequently, and ethnic Chinese students are more likely to experience anxiety regarding the Chinese language in a non-target language environment. Keywords such as 'ethnic Chinese' and 'Chinese students' appear with greater frequency. As a distinctive cohort of Chinese learners, the ethnic Chinese group suggests that

researchers have directed greater attention to Chinese learners with Chinese ethnicity in the context of research on the subject of Chinese language 'anxiety'.

From the perspective of research content, the research content of the 'anxiety' category of the Chinese master's degree from 2011 to 2023 is relatively rich. Table 2-1 illustrates that research on Chinese anxiety encompasses the examination of various forms of skill-related anxiety, including speaking anxiety, reading anxiety, and listening anxiety, as well as an investigation into the underlying causes of anxiety. Furthermore, research has been conducted on the causes and influencing factors of anxiety, learning strategies and learning methods, and teachers' teaching anxiety, among other topics. It is evident that researchers have focused on the causes, influencing factors, and potential solutions to Chinese language anxiety. However, research on Chinese language skill anxiety, particularly writing anxiety, has been limited and lacks depth.

From the perspective of research time, the research hotspots on the topic of "anxiety" among Chinese master's degree holders between 2011 and 2023 emerged during the period between 2011 and 2014. The keywords "learning anxiety," "countermeasures," and "international students" appeared earlier and belonged to the earlier research hotspots. This indicates that the research field of "anxiety" in Chinese was also commenced at an earlier point in time. Furthermore, it suggests that the research field of Chinese 'anxiety' has initiated an investigation into the correlation between international students' learning anxiety and coping strategies in the target language environment at an earlier stage. 'Individual factors' and "writing anxiety" emerged subsequently and have become recent research hotspots, indicating that the research on Chinese 'anxiety' has gradually shifted towards the study of subjective factors, positive psychology theories and writing skills.

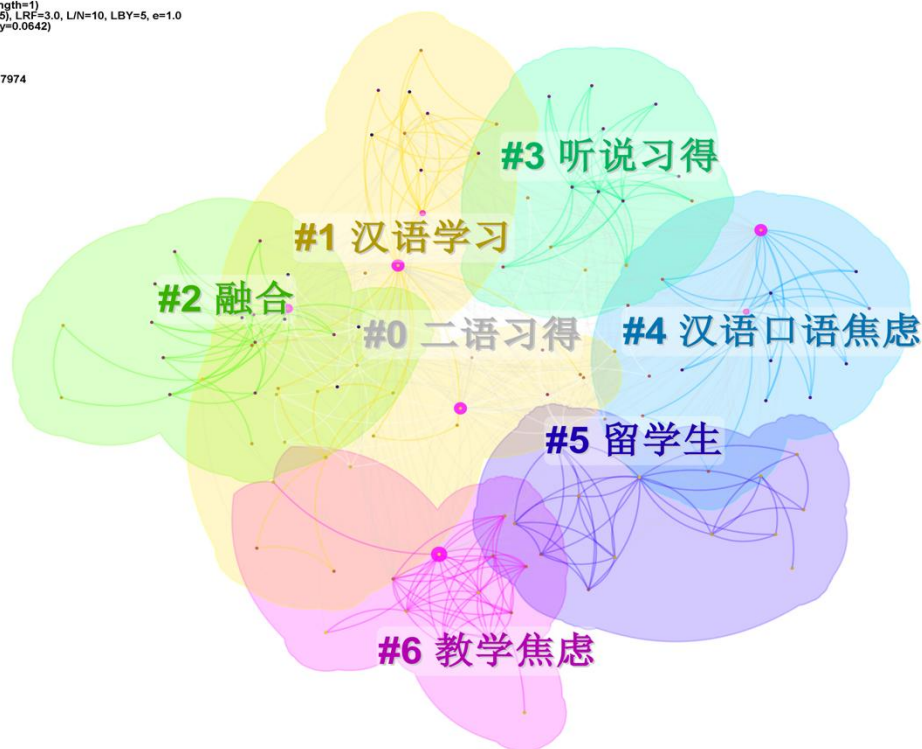
3.2 Analysis of Hot Spot Themes

In light of the above discussion, we employ the Cite Space software to construct keyword clustering maps of research on the Chinese master's degree in anxiety, utilising keyword co-occurrence mapping to illustrate the most prevalent topics in this field in a more intuitive and transparent manner. This section employs Cite Space software to construct a keyword clustering map of Hanshok 'anxiety' based on the keyword co-occurrence map. This is done to illustrate the salient topics of research within this field in a more intuitive, clear, and concise manner, and to analyse these topics individually with the relevant literature.

The specific operation is to maintain the aforementioned parameters, select 'keyword' as the node type, utilise the clustering functionality of the Cite Space software to extract keywords and name the clusters, and employ the LLR algorithm (Log Likelihood Ratio). The algorithm was then executed, and the results of the keyword clustering map for the Chinese Master's Degree between 2011 and 2023 were obtained. This period marks the inaugural occurrence of this degree in China's history. Subsequent execution of the software yielded the keyword clustering map for the Master degree of Chinese as Second Language research on anxiety between 2011 and 2023, as illustrated in Figure 4.

Figure 4: Keywords Clustering Mapping

CiteSpace, v. 6.2.R7 (64-bit) Advanced
 February 16, 2024, 9:26:33 AM CST
 CNKI: D:\CiteSpace\data\data
 Timespan: 2011-2023 (Slice Length=1)
 Selection Criteria: g-index (k=25), LRF=3.0, L/N=10, LBY=5, e=1.0
 Network: N=123, E=462 (Density=0.0642)
 Largest CCs: 111 (90%)
 Nodes Labeled: 1.0%
 Pruning: None
 Modularity Q=0.4686
 Weighted Mean Silhouette S=0.7974
 Harmonic Mean(Q, S)=0.5903



Source: CNKI

Figure 4 illustrates that the value of the mapping module $Q=0.4686$ is greater than 0.3, while the value of the average profile $S=0.7974$ is greater than 0.5. These outcomes indicate that the clustering results are satisfactory. The 'Cluster Explorer' function, accessible via the Cluster menu, enables the export of cluster members contained in each cluster. This is demonstrated in Table 3.

Table 3: Keywords Cluster

Cluster	Cluster members	Years
Second Language Acquisition	Causes of Anxiety, Residency Anxiety, Russian Language Students, Willingness to Communicate	2016
Chinese Language Learning	Learning Strategies, Study Anxiety, Reading, Thai Students	2016
Integration	Intercultural communication, Myanmar students, causes, Spain	2016
Hearing and Speaking Acquisition	Correlational analyses, American college students, test anxiety, empirical studies	2014
Spoken Chinese Anxiety	Anxiety factors, Listening anxiety, Chinese comprehension, Anxiety tests	2013
International Students	Chinese language teaching, Advanced level, Africa, Upper intermediate level.	2017
Teaching Anxiety	Online teaching, pre-service Chinese language teachers, M.A. in International Chinese Language Education	2019

Source: CNKI

As shown in the figure and table above, there are seven keyword clusters in the Chinese 'anxiety' category, namely: Cluster 0 Second Language Acquisition, Cluster 1 Chinese Language Learning, Cluster 2 Integration, Cluster 3 Listening and Speaking Acquisition, Cluster 4 Oral Chinese Anxiety, Cluster 5 International Students, and Cluster 6 Teaching Anxiety. After further observing the members of each cluster and reading the related literature, cluster 3 Hearing and Speaking Acquisition and cluster 4 Oral Chinese Anxiety are combined into one theme, and the hot themes of 'Anxiety' of the Chinese Master's Degree in 2011-2023 are as follows: research on the emotional factors in the process of second-language acquisition,

research on Chinese language learning in different cultures, research on Chinese language learning using multiple research methods, and research on Chinese language learning in different cultural contexts. Research on anxiety in Chinese language learning, research on anxiety in listening and speaking acquisition, research on international students' anxiety, and research on teaching anxiety. According to the order of appearance of different themes, the following is an analysis of the above six hot topics in conjunction with the contents of related papers.

3.2.1 Research on Emotional Factors in the Process of Second Language Acquisition

A representative study on anxiety and affective factors in the process of second language acquisition is that of Ou Yijun (2023), in which the effects of one-on-one teacher-student interaction on students' anxiety, pleasure and communicative willingness were explored. The study revealed that students' anxiety, pleasure and communicative willingness in dialogue practice exhibited dynamic fluctuations. The interrelationship between these emotions and communicative willingness was intricate. The content and form of interaction exerted a considerable influence on these emotions, while students' motivation and teachers' attitudes were also pivotal factors. The findings of this study have implications for teaching practice with regard to differentiated instruction, and also provide a basis for further research. Mayu Tsuchida (2021) concentrated on the academic Chinese writing anxiety experienced by international students who had come to China with the objective of obtaining academic qualifications. The study employed questionnaires and interviews to ascertain the levels of anxiety experienced by international students, which were found to be moderate. The students cited a range of reasons for their anxiety, including language use and chapter factors. Furthermore, the study investigated students' coping strategies, including emotional regulation and self-regulation processes, which were identified as beneficial in enhancing academic writing abilities and alleviating anxiety. Xuemeng Di (2021) conducted a comparative study of the learning anxiety of international Chinese-speaking students and Russian-speaking students. The findings indicated that international Chinese-speaking students exhibited lower levels of anxiety and demonstrated greater self-confidence in learning. The study recommended focusing on student differences, providing a relaxed classroom environment, and encouraging cultural teaching. In a study conducted by Wang Yaru (2018), the relationship between Chinese language learners' listening anxiety and motivation and its effect on performance was explored. The findings indicated that beginner Chinese language learners exhibited moderate levels of listening anxiety and motivation. However, no significant correlation was identified between anxiety, motivation and listening performance. Additionally, the study highlighted the influence of various factors, including gender and age. Luo Li (2017) concentrated on the anxiety experienced by Tajikistani students when learning spoken Chinese. The study revealed that the students' gender and the time spent learning Chinese had no significant impact on their anxiety levels. However, there was an interaction effect, indicating that students should enhance their self-learning abilities, teachers should improve their professional skills, and effective classroom activities should be developed. In a study conducted by Lin Zhen (2012), the focus was on the residence anxiety of incoming Chinese secondary school students in intercultural communication. The findings indicated that the anxiety level of students decreased after intercultural communication. The influencing factors were identified as personal factors and social support, among others. The study put forth recommendations for mitigating residence anxiety with the aim of enhancing communication efficacy.

In conclusion, these studies emphasise the influence of affective factors, such as anxiety and motivation, on learners during second language acquisition. They also highlight the role of teachers in creating a positive learning environment and providing effective teaching strategies. Concurrently, the studies also elucidate the multidimensionality and intricacy of anxiety in intercultural communication, and how these anxieties can be assuaged through a plethora of strategies.

3.2.2 Research on Chinese Language Learning in Different Cultural Contexts

A review of the literature on the manifestation and effects of Chinese learning anxiety in different cultural contexts revealed that Li Siyu (2023) investigated the relationship between language learning anxiety and learning strategies among Spanish Chinese learners. The study employed both quantitative and qualitative methods and found that students' anxiety levels varied at the beginning and end of the semester, and their strategy choices changed. Additionally, students with low levels of anxiety performed better, and anxiety was negatively correlated with the frequency of strategy use. Zhao Peng (2020) investigated the correlation between Thai students' Chinese reading and classroom anxiety. The study revealed a positive correlation

between classroom anxiety and reading anxiety, and a negative correlation between reading anxiety and HSK reading scores. Additionally, the analysis examined the influence of individual factors, such as age and gender, on anxiety levels. In a study conducted by Yu Jing (Wilma Hugo, 2019), the relationship between Chinese language learning motivation, learning anxiety and learning strategies was investigated among secondary school students in the Western Cape province of South Africa. The findings revealed that learning anxiety was positively correlated with cognitive strategies and negatively correlated with motivation, memory strategies and metacognitive strategies. Additionally, motivation was found to be positively correlated with all learning strategies. Bao Huan (2014) conducted a study on Chinese test anxiety among American college students. The study analysed the characteristics and influencing factors of anxiety and proposed coping strategies. It was found that students who had studied Chinese for a longer period of time exhibited lower levels of anxiety. Furthermore, personality was identified as an important factor affecting anxiety. Sasha (2013) conducted a study on the anxiety experienced by Russian students in Chinese language classrooms. The study employed a nationalisation perspective to analyse the anxiety condition of Russian students in Chinese language classrooms and proposed countermeasures to reduce anxiety. In 2011, Taehee Kim investigated the impact of anxiety on the acquisition of Korean Chinese language and put forth strategies for coping with it. The study employed a questionnaire-based approach to examine the psychological factors influencing Korean students' language learning. It proposed the use of teachers' body language, group learning, and teaching media as potential strategies for reducing language anxiety.

In conclusion, these studies demonstrate the manifestations and consequences of Chinese language learning anxiety across diverse cultural contexts, as well as the interrelationship between learning strategies, motivation, test performance, and anxiety. The findings offer invaluable insights for Chinese language teaching practice and strategy development, particularly in regard to reducing learners' anxiety and enhancing learning efficiency and test performance.

3.2.3 Using Multiple Research Methods on Chinese Learning Anxiety

A closer examination of the details of the relevant nodes and the corresponding literature reveals that this type of research employs a range of research methods to investigate and conduct relevant studies. This subsection not only analyses the content of the relevant studies but also provides a summary of the research methods used in the relevant literature, offering insights for researchers interested in exploring the emotional factors in Chinese language learning.

These studies have a common focus on the theme of anxiety in Chinese language learning, but each of them has explored it in depth from different perspectives and approaches. Zhu Fengjiao (2022) selected 85 Chinese language learners from the Confucius Institute at the University of León, Spain, as the research subjects. The research employed a questionnaire survey, classroom observation and interview as its methods of data collection, and the data were analysed using the SPSS software. The theoretical basis and conceptual definition of Chinese language learning anxiety were also explored. The application of Chinese language learning anxiety in the Confucius Institute at the University of León, Spain, revealed that students exhibited moderate to high levels of anxiety in general. It was observed that students' anxiety in Chinese learning was predominantly medium-high, with interpersonal anxiety being the most prevalent and Chinese classroom anxiety the least. Furthermore, the study incorporated the variable of peer pressure, examined the influence of motivation type on learning anxiety, and proposed strategies to mitigate learning anxiety and enhance learning effectiveness. These findings aim to inform Chinese language teaching in Spain. In 2020, Hu Shuxiang conducted a study of 75 international students from Myanmar studying at five universities in Kunming. The research employed a variety of methods, including questionnaires, interviews, statistical analysis and classroom observation, to examine the current situation of international students from Myanmar. The study identified that the majority of international students exhibited moderately high levels of Chinese language learning anxiety, as conceptualised by Horwitz's framework on foreign language anxiety. The identified forms of anxiety included self-evaluation, being asked questions, and test anxiety. Individual factors, such as gender and age, have been found to influence anxiety levels. However, the length of time spent learning Chinese does not appear to be a significant factor. In response, both teachers and students have proposed a range of strategies to help international students overcome their anxiety and succeed in learning Chinese. In line with the cross-cultural theory research perspective, particularly the Anxiety and Uncertainty Management Theory (AUM Theory) of Gutiérrez, Huang Wei (2016) examined the influence of anxiety and uncertainty on communication in the context of cultural conflict and integration, as illustrated

in the film *Scrappy*. The study also explored strategies for managing these factors. Anxiety and uncertainty in cultural conflict were examined by combining the AUM Theory with a case study of the film, with the aim of elucidating the process of communication and the relationship between individual adaptability, group differences and anxiety and uncertainty. Additionally, suggestions for effective communication in the preparatory and conducting stages of intercultural communication were put forth.

The studies presented here share a common focus on the theme of anxiety in Chinese language learning. However, they also offer insights from different perspectives and approaches. Zhu Fengjiao's study focuses on the learning environment of Confucius Institutes, Hu Shuxiang's study focuses on the international student population, and Huang Wei's study provides a theoretical framework and practical guidance from the perspective of cross-cultural communication. These studies not only reveal the multidimensional features of learning anxiety, but also provide valuable insights and suggestions for Chinese language teaching and intercultural communication.

3.2.4 Research on Anxiety in Listening and Speaking Acquisition

The following studies investigate the role of anxiety in the acquisition of listening and speaking skills: Zhuang Jin (2015) conducted a study on the Chinese learning anxiety and listening and speaking acquisition of international students at Anhui University. The study employed a combination of questionnaires, classroom observation, and interviews to investigate the relationship between learning anxiety and the level of listening and speaking acquisition. The findings revealed that learning anxiety can be classified into five distinct categories: negative evaluation anxiety, classroom anxiety, communication anxiety, test anxiety, and Chinese language anxiety. Additionally, the study demonstrated that international students' learning anxiety was generally moderately high and significantly negatively correlated with the level of listening and speaking acquisition. It was determined that international students' anxiety in learning Chinese was typically moderate, exhibiting a significant negative correlation with the level of listening and speaking acquisition. There are notable differences in learning anxiety between male and female students. Male students tend to exhibit lower levels of anxiety, while female students demonstrate superior listening abilities and conversely, lower proficiency in speaking. Additionally, classroom anxiety and daily communication anxiety are negatively correlated with the acquisition of listening and speaking skills. It is evident that learning anxiety exerts a significant influence on the development of listening and speaking abilities within the classroom setting. Bao Huan (2014) conducted a questionnaire survey utilising the Chinese Test Anxiety Scale in conjunction with individual interviews, yielding 80 valid questionnaires from American college students engaged in the study of Chinese at Nanjing University between 2013 and 2014. It was discovered that Chinese test anxiety was prevalent among American college students, yet the number of students exhibiting high levels of anxiety was relatively low. The primary factors influencing anxiety were identified as the duration of Chinese language learning and personality traits. The findings indicated that as the time spent learning Chinese increased, anxiety levels decreased. Additionally, the study delved into the characteristics of Chinese test anxiety and the coping strategies employed by students to manage their anxiety. The two studies highlighted the detrimental impact of learning anxiety on the listening and speaking abilities and test scores of Chinese learners, particularly international students. They also put forth corresponding pedagogical suggestions and coping strategies. The findings of these studies provide invaluable insights for the enhancement of Chinese language teaching methodologies and the optimisation of Chinese language learning outcomes for international students. In 2019, Kim Soyun conducted a study on Korean students' anxiety in learning spoken Chinese. The objective was to quantify the level of anxiety experienced by Korean students in learning spoken Chinese, with the aim of enabling teachers to gain a deeper understanding of the issue and to improve their teaching efficiency. This was achieved by using the FLCAS (Foreign Language Classroom Anxiety Scale), a questionnaire survey of Korean international students at University Q and students majoring in The study of the Chinese language at University K revealed that Chinese language proficiency improves, while speaking anxiety decreases. It was found that the higher the HSK level, the lower the speaking anxiety. Additionally, students who study Chinese in China have lower anxiety than those who study in Korea. Furthermore, the longer the time spent studying abroad, the lower the speaking anxiety. Finally, different universities and periods of study have different influences on speaking anxiety. In 2018, Chen Xia conducted a study on Chinese listening anxiety among international students from Central Asia. The study involved the design of a personal information questionnaire, a Chinese listening anxiety scale, and a cause scale. The data was then analysed using SPSS 17.0, and the results

indicated that listening anxiety was related to individual factors. For example, nationality, gender, duration of study, family members' Chinese-speaking status, and personality were identified as influencing factors, while classroom factors (e.g., self-confidence, teacher-student communication, speed of recording playback, classroom error correction) were also found to impact listening anxiety. Additionally, strategies to mitigate anxiety were proposed. Sasha (2013) conducted a study on Russian students' Chinese classroom anxiety, describing the nature of anxiety experienced by Russian students in the Chinese classroom, analysing the underlying causes, and proposing coping strategies.

These studies collectively highlight the influence of language anxiety on second language acquisition and endeavour to elucidate the distinctive anxiety profiles of learners in diverse cultural settings through quantitative investigation. The findings of these studies are of paramount importance for Chinese language educators, as they provide insights into how to adapt their pedagogical approaches, mitigate students' anxiety, and enhance the efficacy of their instructional practices.

3.2.5 Research on International Students' Anxiety

The extant literature on international students' experiences of anxiety in different cultural contexts and at different stages of their learning journeys includes: In a study conducted by Hu Yuming (2022), the anxiety experienced by Asian and African students engaged in the learning of spoken Chinese was explored. The findings indicated that Asian students exhibited a greater vulnerability to speaking anxiety than their African counterparts. This was found to be associated with factors related to their cultural background, attention to evaluation, and self-evaluation. This is associated with their cultural background, attention to evaluation, and self-evaluation. The study proposes that educators should facilitate interaction between students, be mindful of the 'silent period' experienced by students, and consider cultural and psychological factors to develop tailored teaching strategies. In a study conducted by Hu Yingshan (2021) on writing anxiety among international students at the intermediate and advanced levels of Chinese language learning, it was found that international students generally exhibited varying degrees of writing anxiety. This anxiety was found to be associated with factors such as gender, HSK scores, and writing scores. The study put forward recommendations for students and educators to assist students in overcoming writing anxiety. Wu Beier (2021) concentrated on the anxiety experienced by advanced-level international students in Chinese reading. The study illuminated the extant state of reading anxiety among international students through survey and data analysis and proposed measures to alleviate anxiety, with the objective of aiding students in enhancing their reading abilities. Feng Xiaomin (2018) conducted a study on the anxiety experienced by Cambodian students engaged in the learning of Chinese as a non-target language. The study analysed the factors influencing students' anxiety and proposed measures to alleviate it, including improvements to teaching methods and students' coping strategies. Sasha (2013) investigated the issue of anxiety experienced by Russian students in the context of Chinese language learning. The study employed anxiety tests and analyses to examine the nature of students' anxiety and proposed strategies to mitigate it, with the aim of enhancing the effectiveness of Chinese language teaching in Russia.

These studies collectively emphasise the significance of affective factors in second language learning and propose strategies for reducing anxiety in international students with diverse cultural backgrounds and at different stages of their learning journey. The findings from these studies provide valuable insights that inform the practice and development of Chinese language teaching.

3.2.6 Research on Teaching Anxiety

In addition to studies on learners' anxiety, in recent years, researchers of Chinese master's theses have increasingly focused on teachers' teaching anxiety. Representative studies in this area include: In a study conducted by Li Kunge (2023), the phenomenon of anxiety in online internship teaching of master's degree in Chinese international education was explored. The findings indicated that the students enrolled in these programmes generally exhibited a moderately high level of anxiety. This anxiety was found to originate from three main sources: the change in teaching mode, personal factors and student-related factors. The study recommended improvements in IT skills, psychological resilience, collaboration and communication, as well as the fostering of greater support from educational institutions. Wang Yu Xinhui (2023) conducted an investigation into the teaching anxiety experienced by pre-service Chinese language teachers during their internships in China. The study revealed the realities, sources, and manifestations of teaching anxiety and proposed strategies to inhibit it. The level of anxiety was found to be related to the length of teaching hours,

students' grade levels, Chinese language proficiency, and teaching styles. Wan Mengjiao (2023) concentrated on the teaching anxiety of novice teachers of Chinese language classes for online Chinese children. The study, which employed questionnaires and interviews, revealed that these teachers experienced anxiety in the following areas: pre-class preparation, classroom performance, classroom atmosphere and order, classroom questioning, and teaching feedback. The study then proposed appropriate adjustment strategies. An Cong (2022) conducted a survey on the online teaching anxiety of pre-service Chinese language teachers. The results demonstrated that these teachers exhibited elevated anxiety levels in the domains of pre-course preparation, classroom teaching, and classroom management. Consequently, the study proposed corresponding intervention strategies. In a study conducted by Yu Junxiu (2022), the reading anxiety of Chinese language learners was investigated. The findings indicated that the subjects exhibited a moderately high level of reading anxiety, which was associated with various factors, including age, grade, nationality, and reading duration. Additionally, the study proposed coping strategies for both learners and educators. In a similar vein, Li Bichun (2019) examined the nexus between cultural conflict and identity anxiety in cross-cultural settings. The study employed Lin Mae's novel as a case study to illuminate the challenges confronting Chinese culture in a foreign land and the dilemmas modern individuals face regarding their beliefs and humanity.

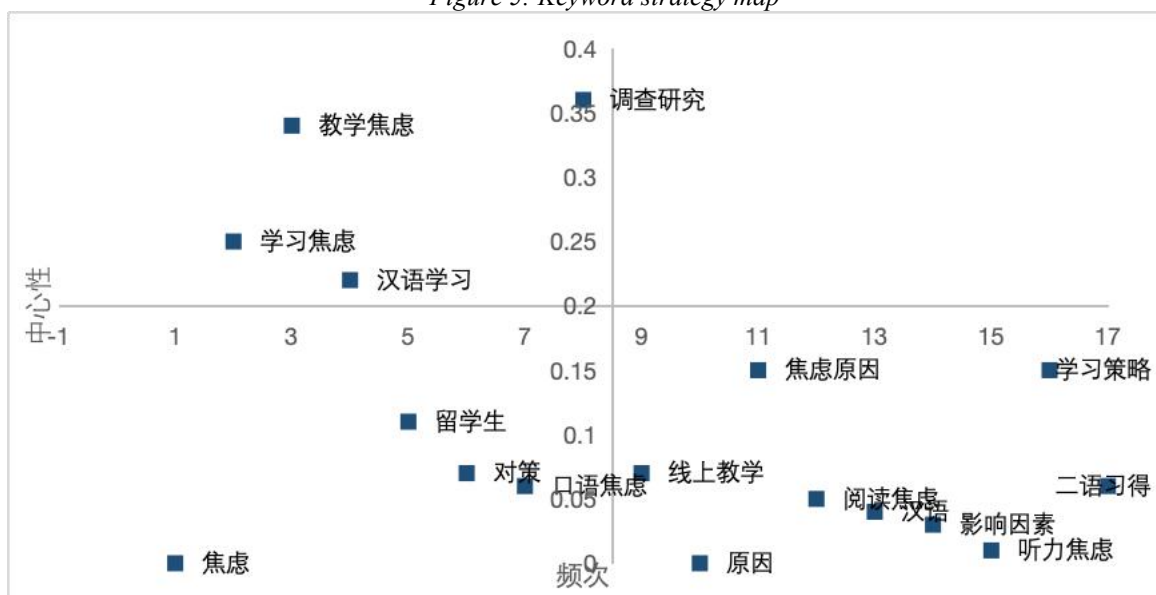
These studies collectively address the issue of anxiety in Chinese language teaching, put forth strategies to mitigate teachers' anxiety from diverse viewpoints, and offer invaluable insights into Chinese language teaching practice and research.

4. Analysis of development trends

The keyword strategy map is a visual coordinate map that can intuitively determine the future development trend of research hotspots, which is divided into four quadrants, each quadrant representing the development trend of different research hotspots, and researchers can determine the future development trend of research hotspots distributed in different quadrants accordingly.

This section is based on the relevant data in the statistical table of high-frequency keywords in Chapter 2, and according to the suggestion of Xia Enjun et al. (2017), the frequency of keyword occurrence is used as the horizontal coordinate axis, the centrality is used as the vertical coordinate axis, and the median of frequency and centrality is used to indicate the origin of the coordinates. Using EXCEL software to draw a keyword strategy map for the study of the 'fear' category of Han Shu Shu, the 22 high-frequency keywords are represented in the four quadrants of the keyword strategy map, as shown in Figure 5.

Figure 5: Keyword strategy map



Source: CNKI

Figure 5 illustrates that the research hotspots in the category of 'Anxiety' of the Han Shu Shu category are distributed across three quadrants between 2011 and 2023. Notably, there is no distribution in the first quadrant, and the largest number of distributions is observed in the fourth quadrant. The following four quadrants will be analysed in turn.

Quadrant 1: Mainstream focus. The research hotspots distributed in this quadrant are characterised by high frequency and high centrality, indicating that these research hotspots have reached a mature stage of development. However, as illustrated in the figure, the absence of research hotspots in this quadrant indicates that the development of research on the 'anxiety' category of Master degree of Chinese as Second Language is still in its early stages and has not yet formed the mainstream focus of research.

Quadrant 2: Characterised by high potential research hotspots. Survey research and teaching anxiety are notable for low frequency and high centrality. Despite their infrequent appearance, these keywords are closely related to other topics and represent new research areas with significant potential. As the internationalisation of the Chinese language continues, research on teaching anxiety is likely to become a prominent topic.

Quadrant 3: Silo domain. These themes are characterised by low frequency and low centrality, as well as being immature in their own development and poorly connected to other themes. However, they may be on the verge of being researched, for example, attitudes towards learning. Other keywords indicate the potential for studies to evolve into emerging research areas, including speaking anxiety, international students, and countermeasures.

Quadrant 4: Periphery. Keywords situated within this quadrant are distinguished by a high frequency and low centrality. They are more mature and are gradually being marginalised. As illustrated in Figure 3-1, the fourth quadrant comprises a greater number of keywords, including reasons for anxiety, learning strategies, and others.

In conclusion, there is no dominant research focus on anxiety in Chinese master's degree programmes. Instead, future research may concentrate on teaching anxiety, speaking anxiety, and related topics.

5. Frontier analyses

In comparison to hot research, cutting-edge research is more oriented towards subsequent research. As posited by Professor Chen Chaomei (2009), the utilisation of surge topical terms is a more efficacious methodology for the identification of disciplinary development than the deployment of more frequent title words. Accordingly, the 'Find Burst Phrases' algorithm in Cite Space software can be employed to extract terminology exhibiting a sudden increase in frequency, which can be utilized to detect and analyze the trend of the research frontiers of the subject areas. In this chapter, we will employ the Cite Space software to analyse the nodes of emergent words in the research of 'anxiety' in the Chinese master's degree from 2011 to 2023. This analysis will allow us to identify the cutting-edge themes in this research field.

The term 'emerging words' is used to describe keywords that appear with greater frequency or are used more frequently over a shorter period of time. The analysis of emerging words can provide insight into the research frontiers of a given field, as changes in word frequency can indicate emerging trends. In this paper, we employ the 'Burstiness' function in Cite Space software to analyse the top 19 emergent words in the research of 'anxiety' from 2011 to 2023. The keywords represent emergent words, the Year and Strength represent the time of emergence of emergent words and the strength of emergent words, Begin and End represent the time of emergence of emergent words, the light blue time period represents the time period when the keywords have not yet appeared, the dark blue time period represents the time period when the keywords have appeared, and the red time period is the time period when the keywords have emerged. The red period indicates the time during which the keyword is observed. Please refer to Figure 6 for further details.

Figure 6: Top Keywords with the Strongest Citation Bursts

Top 19 Keywords with the Strongest Citation Bursts

Keywords	Year	Strength	Begin	End	2011 - 2023
汉语学习	2011	1.11	2011	2014	
语言焦虑	2011	1.07	2011	2013	
口语焦虑	2012	1.27	2012	2015	
对策	2012	1.2	2012	2016	
实证研究	2012	1.02	2012	2014	
焦虑原因	2012	0.84	2012	2013	
汉语	2013	1.27	2013	2015	
课堂焦虑	2013	0.83	2013	2016	
阅读焦虑	2013	0.56	2013	2015	
教学建议	2014	1.39	2014	2017	
考试焦虑	2014	1.02	2014	2016	
华裔学生	2016	1.16	2016	2017	
文化冲突	2016	0.82	2016	2019	
汉语写作	2018	0.91	2018	2019	
听力焦虑	2013	0.91	2018	2019	
个体因素	2019	0.84	2019	2020	
相关性	2020	1.02	2020	2021	
写作焦虑	2021	0.88	2021	2023	
汉语教学	2013	0.62	2021	2023	

Source: CNKI

As illustrated in Figure 6, the earliest words identified in the studies of 'anxiety' within the Chinese master's degree category are 'Chinese language learning' and 'language anxiety'. This indicates that these subjects were the primary focus in the initial stages of the research. In recent years, the earliest words to emerge are 'Chinese learning' and 'language anxiety', indicating that these were the subjects of interest in the initial period. The most recent occurrences are "writing anxiety" and "Chinese teaching," which indicate that the content reflected by these words has been a topic of attention in recent years. In terms of the intensity of emergence, the keywords with high emergence intensity in the research of the 'anxiety' category of the Chinese master's degree include 'teaching advice' and 'speaking anxiety'. In recent years, the keyword "teaching advice" has reached a frequency of 1.39, indicating that research on teaching advice has been a prominent focus within the field in recent years. The keyword with the lowest intensity is 'reading anxiety', which has an intensity of only 0.56. This indicates that reading anxiety has received less attention than teaching advice in recent years.

6. Conclusion

This paper employs bibliometrics to statistically analyse the chronological distribution of literature, core issuing institutions, and research on the topic of 'anxiety' in Chinese international education master's theses in the CNKI database from 2011 to 2023. Additionally, it utilises knowledge mapping and bibliometrics to examine the prevailing topics, development trends, and cutting-edge subjects related to 'anxiety' in Chinese international education master's theses in the CNKI database from 2011 to 2023. A knowledge mapping analysis and literature analysis method were employed to examine the evolution of key themes, trends and cutting-edge topics related to anxiety in Chinese-language master's theses on international education from 2011 to 2023. The findings yielded the following conclusions:

The initial observation of the research on 'anxiety' in Chinese international education master's theses from 2011 to 2023 indicates a general trend of fluctuating growth, from a relatively stable baseline, with some fluctuations. The trend of 'anxiety' in Chinese international education from 2011 to 2023 demonstrates a general trajectory from a period of steady growth to one of fluctuating growth. In terms of the number of articles published, the top three institutions are Dalian International Studies University, Yunnan Normal University, and Beijing Foreign Studies University. The largest number of articles were published by teacher training colleges and universities, which constitute the main force in the research of 'anxiety' in the Chinese master's thesis.

Secondly, the most frequently discussed topics in the field of Chinese international education master's theses on anxiety from 2011 to 2023 include the study of emotional factors in the process of second language acquisition and the study of Chinese language learning. The study of anxiety in Chinese language learning using multiple research methods, the study of anxiety in listening and speaking, the study of anxiety in international students, and the study of anxiety in Chinese language learning in international students. Research on international students, and research on teaching anxiety.

Thirdly, the development trend of research on selected topics of anxiety in Chinese international education master's theses from 2011 to 2023 is characterised by a lack of dominant research focus. However, there is a potential for future research to explore teaching anxiety and speaking anxiety as promising avenues in this field.

Fourthly, the cutting-edge themes of research on 'anxiety' in Chinese international education master's theses from 2011 to 2023 will be as follows: The initial focus of researchers was on the themes of 'Chinese language learning' and 'language anxiety'. Subsequently, the theme of 'writing anxiety' emerged as a prominent area of interest. In recent years, the most prevalent themes have been those of writing anxiety and teaching Chinese as a foreign language. The field is currently dominated by research on teaching suggestions. In recent years, research on reading anxiety has received less attention than research on teaching suggestions.

A review of the literature on anxiety in Chinese international education reveals a relatively rich research output over the past decade. New research perspectives have emerged, including studies on teaching anxiety, writing anxiety, and the teaching of Chinese as a foreign language. New research perspectives have also emerged, including studies on teaching anxiety and writing anxiety among teachers. However, this field also presents some challenges. These include the absence of dominant research topics, the need for more diverse research methods, and further investigation into emerging research areas.

It should be noted that this paper is not without limitations. Primarily, the utilisation of the Cite Space software is constrained by the researcher's professional expertise and experience. Consequently, there is a need to further investigate and learn about the software's other functions. Secondly, it is acknowledged that the interpretation of the map may vary, given that it is subjective and open to individual understanding. Thirdly, this paper focuses on the 'anxiety' of Chinese international education master's theses. Thirdly, this paper constructs and draws keyword co-occurrence network diagrams, clustering diagrams, strategy diagrams, emergence diagrams, and so forth. It then analyses each of these diagrams separately. However, there is still a lack of correlation analysis between the diagrams, as well as a lack of time zone diagrams due to time constraints. These would help to observe the development trend of the Chinese master's thesis field in a more effective manner.

The development trend of the selected fields of Master degree of Chinese as Second Language.

These shortcomings provide a direction for future development of this study. In the future, we will continue to strengthen our understanding of Cite Space software and increase the application of other functions of the software in our study. This will further improve the current study. Secondly, we will adopt a global perspective to further grasp the correlation between the individual maps. This will help us to further address the shortcomings of the current study.

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Conflicts of Interest

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