

The Academic Landscape and Development of City Brand Image Research in China: Visualization based on the CiteSpace Scientific Knowledge Map

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To Link this Article: <http://dx.doi.org/10.6007/IJARBS/v13-i12/19870> DOI:10.6007/IJARBS/v13-i12/19870

Published Date: 08 December 2023

Abstract

Since the 1990s, the accelerated urbanization process in China has prompted the theoretical research on Chinese city brand image. While numerous articles on city brand image research have been published in China, most of them are in Chinese and have limited global impact. This study utilizes the bibliometric software CiteSpace to conduct systematic visualization analysis and data interpretation of core journal papers in the field of urban image in the China National Knowledge Infrastructure (CNKI) database. It aims to present the fundamental characteristics, research topics, and development trajectory of Chinese scholars in this field, as well as identify future directions.

The research reveals that China's city image theory research originated in the late 19th century, with increasing research interest observed since 2009. Both authors and institutions have yet to form a closely-knit collaborative network, with the majority of research conducted independently. The research topics primarily focus on the impact of major events on city image, the construction of city image media, city image design, and city culture. In terms of research trends, city image communication is identified as the main area of future city brand image research.

The value of this study lies in enhancing the understanding of Chinese city brand image research among English-speaking scholars, students, and professionals, providing inspiration and guidance for their future research endeavors.

Keyword: City Brand Image, City Image, CiteSpace, Visualization, Scientific Knowledge Map

Introduction

The shaping of a city's image can be traced back to ancient Rome (Lynch, 1960). However, it was not until the 1960s that theoretical investigations into city image began to emerge with the introduction of Kevin Lynch's city image theory (Lynch, 1960). The study of city image is a multidisciplinary pursuit, encompassing research from a range of fields such as urban planning (Jia & Xu, 2021; Larkham & Lilley, 2003), marketing (Kavaratzis & Ashworth, 2005; Paddison, 1993), communication (Canton-Correa & Alberich-Pascual, 2019; Shan, 2020), and psychology (Farmaki et al., 2019; Manyiwa et al., 2018), and yielding a copious amount of research findings. However, literature on city brand image as witnessed has been concentrated on Western cities, resulting in a dominance in developed countries (Wei et al., 2006; Yulong & Hamnett, 2002).

In the past few decades, as urbanization has accelerated in China, the city image has undergone a massive transformation, shifting from traditional cultural cities to modernized cities (Sun, 2012). China has made a lot of achievements in the field of city image research, and both its theoretical and practical findings have gained international attention and recognition. However, due to language obstacles, it remains marginalized on a global scale (Wu et al., 2020). The primary purpose and contribution of this paper are to give a thorough overview of the literature on Chinese cities to comprehend the approaches and way of thinking used by Chinese researchers to explore the shaping, branding, and communication of cities. In addition, it is intended that this study will improve English-speaking academics' understanding of Chinese city image research, serving as motivation and guidance for further study.

Based on the above objectives, this paper presents a literature review of city brand image research in China. To provide a thorough and organized overview of the fundamental characteristics and research dynamics of the literature in this field, and to concentrate on the primary contents and key issues in the field, this paper uses the bibliometric software CiteSpace and incorporates literature analysis methods to visually analyze and interpret data from core journal papers in the field of the city brand image on China Knowledge Network (CNKI).

Data Source and Method

The organization and distribution of significant literature are sorted out using bibliometrics and knowledge mapping, which also highlight the field's development and frontiers (Chen et al., 2015). CiteSpace 6.1.R2, a visual bibliometric software developed by Professor Chaomei Chen of Drexel University in the United States, is used to conduct this study. CiteSpace is a JAVA-based information visualization software that uses co-citation analysis and pathfinder network scaling (PF-NET) to measure the literature (collection) of a specific field to explore the key paths and knowledge turning points of the discipline's evolution, and through a series of visual mapping to form an analysis of the potential dynamics of the discipline's evolution and the detection of the front (Chen et al., 2014). Keyword co-occurrence and clustering can reveal and predict the time-series change of research hotspots in the horizontal content dimension, whereas keyword emergence and time zone mapping can reveal and predict the evolution trend of a research field from micro to macro and from single to multiple in the vertical time dimension. This paper uses CiteSpace software to carry out a multi-dimensional comparative analysis of local city brand image research in China to sketch out the academic environment, hot themes, and evolving trends of this field.

The largest network of academic journals in China, the National Knowledge Infrastructure (CNKI), was selected as the paper's data source. This study employs journal category and content relevance as the criteria for selecting literature to make sure that the literature search covers representative research findings in the area of Chinese city brand image research. To begin, we conducted a bibliometric analysis of the CNKI database by subject search, using the search terms "city image," "city brand image," and "city tourism image," and using the date December 31, 2022, as the time point to determine the total number of articles published in CSSCI journals¹ (including extensions) and Chinese core journals², excluding review articles, conference papers, and book reviews. After removing review articles, conference presentations, and book reviews, the total number of published pieces was 2965. Finally, we carefully reviewed each article to exclude those that were unrelated to the topic, yielding 838 valid articles. Finally, the CNKI export function was utilized to generate a Refworks format file that was then analyzed with the Knowledge Graph software. The procedure is depicted in Figure 1.

Analysis of the study's fundamental characteristics

Analysis of published article numbers

The number of publications per year is an important indicator of the development of scientific research, and to a certain extent reflects the general trend and research intensity of the field (Wang & Chen, 2022; Wang et al., 2022). Figure 2 illustrates the overall trend in the number of articles published on China's city image research. Throughout the previous thirty years, there has been an increasing tendency in the number of expertise within the realm of city image research, exhibiting unstable fluctuations in the quantity of published works because of the frequent modifications in research focal points.

From the annual distribution of literature on Chinese city image studies, the period between 1993 and 2001 can be regarded as the initial development phase of Chinese city image research, with an average of 8 articles published per year produced per year and a total of 76 articles. During this phase, the research on city image was primarily focused on theoretical exploration, lacking practical support and case studies. At the same time, the research content was relatively narrow, mainly focusing on the definition, connotation, and formation mechanism of city image.

¹ The CSSCI, known as the Chinese Social Sciences Citation Index, is a database developed by the China Social Sciences Research and Evaluation Center of Nanjing University and is a landmark project in the field of humanities and social sciences evaluation in China. Because of the high academic level and influence of the journals and literature it includes, it is often used as an important basis for academic and disciplinary evaluation, and CSSCI (extended) generally refers to those journals whose level of operation and academic value are close to the quality of CSSCI journals, and their academic value is quite high compared with other journals, so the extended version of CSSCI journals is generally regarded as the examination period of CSSCI journals.

² Chinese core journals are the Chinese core journals of the Peking University Library, or PKU Core for short. The Peking University Core is assessed by the Peking University Library in conjunction with many academic authorities and is determined by several university libraries in China based on the citation rate, reprint rate, abstract rate, and other indicators of the journal. Peking University Core is the most authoritative in China in terms of academic influence after CSSCI and CSCD (China Science Citation Database).

The period 2002-2008 was a phase of steady growth, with an average of 21 publications per year and a total of 147 papers in the literature. At this stage, city image research gradually increased the number of case studies and focused more on the practical application and promotion of city image. Simultaneously, the research material has become more diverse, extending from city brand image to urban landscape and urban architecture. In 2008, there was a sharp decline in the number of publications, which may be related to two catastrophic events that occurred in China: the southern snowstorm and the Wenchuan earthquake. The occurrence of these two events not only had a profound impact on the development of Chinese society and economy but also had a huge impact on academic research and literary publishing.

The period from 2009 to the present was a phase of the high and fluctuating stage, basically maintaining an average of over 40 articles per year, with a peak of 54 articles, and an overall volume of 615 articles. This phase of city image research has developed more rapidly, and not only has the quantity of research results climbed, but the quality of research results has also improved significantly. The research content has become more refined and has begun to adopt a multidisciplinary approach to research, such as branding, communication, semiotics, psychology, and arts.

Author Analysis

Authors are the primary driving force behind the research, and by identifying the most prolific and important authors in a field, you may gain an overview of that field's research. (An et al., 2022). CiteSpace software was used to create a knowledge map of the authors of the CNKI database, with font size representing the number of articles published. The results show that the number of network nodes (N) is 641, the number of connections (E) is 227, and the density is 0.0011. Overall, there is relatively little cooperation among authors in this disciplinary field, with most research being conducted independently. Among them, the authors with the most publications are Zhang Hongyan (6 articles), Zhao Guangzhou (5 articles), Fan Chuanguo (4 articles), Li Zongcheng (4 articles), Liu Xinxin (4 articles), Dai Haibo (4 articles) and Yang Hui (4 articles). From Figure 3, the author collaboration network, it can be seen that the authors with higher publication output are mostly independent researchers, with only sporadic collaborative relationships (such as Zhao Guangzhou, Zhou Chang, and Feng Zhicheng). This suggests that a cohesive research team with strong collaboration and communication among scholars has yet to be formed in the field of Chinese urban image research, and the frequency and extent of cooperation and exchange between scholars still need to be strengthened.

Price's Law can be used to calculate the core group of authors in a research field. The specific formula is $M=0.749\sqrt{N_{max}}$, where N_{max} refers to the number of publications of the most prolific author, and M indicates the minimum number of publications that outstanding authors should achieve. The criterion for identifying a core group of authors in a field is that M is greater than or equal to 50% of the total number of papers (Wang, 1998). The most published article in the CNKI database is written by Zhang Hongyan, with six articles and an M-value of 1.84. This indicates that a total of 63 authors with more than two articles can be considered outstanding authors. The total number of papers is 149, accounting for 17.78% of the total number of publications, which is not far from meeting the recognition requirement. However, this also suggests that a core group of authors has yet to emerge on city image research in China. The multifaceted and heterogeneous nature of this field, combined with

scholars' emphasis on identifying new issues rather than delving into specific aspects in detail, may be contributing factors to this situation.

Analysis of issuing institutions

The allocation of scholarly publications across institutions is a key indicator of research proficiency in a specific domain. More specifically, the volume of publications associated with a particular institution serves as a metric for assessing the academic capability and impact of the research institution. The co-occurrence chart of issuing institutions presented in Figure 4 sheds light on the distribution of articles in the field of Chinese urban image research. The top-performing institutions, ranked by the number of articles, include the School of Journalism and Communication at Jinan University, the School of Media at Huaiyin Normal University, the School of Literature and Journalism at Sichuan University, the School of Journalism at Fudan University, the School of Journalism and Communication at Wuhan University, the Asian Media Research Centre and the School of Advertising at the Communication University of China, the Urban Science Research Centre at Nanjing University, the School of Media and Design at Shanghai Jiao Tong University, the Hubei Academy of Fine Arts, and the School of Architecture and Urban Planning at Tongji University. Notably, the majority of institutions conducting research in the field of city image are situated within the secondary schools of journalism and communication at universities.

Concerning to institutional cooperation, the co-authorship network comprises 541 nodes and 113 inter-node links, with a network density of 0.0008. These findings suggest that cooperation between research institutions is not particularly strong, and a wider and more closely connected network of collaboration has yet to be formed. Instead, collaboration tends to occur primarily between different research departments within the same university, or between research institutions located in the same region. This underscores the need for further efforts to foster collaboration and knowledge-sharing among institutions in the field of Chinese urban image research.

By Price's law, the core institutions in the domain of city image research were identified by analyzing the number of articles published by each institution. To this end, the total number of articles attributed to each institution was first aggregated within the secondary sectors, as presented in Table 1. Based on the analysis, it was found that the maximum number of articles published by a single institution was 28. The corresponding M value, which was computed to be 3.96, was then rounded up to 4. Consequently, the core institutions in the field were defined as the 34 institutions that had published 4 or more articles, thus highlighting their central role in shaping the discourse on this topic. According to the data, the Communication University of China (CUC) published a total of 28 articles, which is significantly higher than other research institutions and indicates its prominent position in this field. CUC has always been recognized as a leader in the field of journalism and communication and boasts several influential research institutions such as the Asian Media Research Centre and the State Key Laboratory of Media Convergence and Communication. The university's research achievements in the areas of city image, regional branding, digital media technology, and media industry are noteworthy. The remaining 33 universities also have strong expertise in the fields of journalism and communication or urban planning.

Analysis of research developments**Analysis of research hotspots****Keyword co-occurrence analysis**

Keywords are often extracted from the core of the literature, so statistics and analysis based on high-frequency keywords can be used to identify research hotspots in an academic field (Li & Chen, 2016). The findings from the visualization of keyword co-occurrence, using the LLR algorithm by Citespace software, are presented in Figure 5, having set the threshold for presentation. In this figure, the size of the node circles corresponds to the frequency of occurrence of keywords, while the number of lines connecting the nodes reflects the degree of association between the keywords. The top 16 keywords with a minimum word frequency of 12 were identified as high-frequency keywords, while duplicates and less relevant terms were excluded to accurately depict the distribution of hot spots in the field of Chinese city image research over the past three decades.

The field of city image research is characterized by a rich diversity of keywords, all of which are closely interconnected. Notably, the term "city image" appears with the highest frequency and serves as the central point of the entire knowledge map, thus occupying a pivotal position in research. Alongside "city image", the term "city tourism image" also features prominently and represents an important branch of city image research. Furthermore, keywords such as city image communication, city image construction, city image design, city branding, and city culture highlight various themes within the field of city image research.

Keyword Cluster Analysis

Keyword clustering is the grouping of all keywords in a field according to the same or similar characteristics, and thus the classification of literature topics (Li & Chen, 2016). Topics that form categories with a high number of keywords can represent hot topics of research in a field over a certain period. The one-click clustering function of CiteSpace software was employed to generate a clustering map of keywords in the field of Chinese city image research, as presented in Figure 6. The clustering results are accompanied by labels for each category, with smaller label values denoting a higher degree of interrelatedness among the keywords within the category. The value of Modularity (Q value) is 0.692, while the value of Silhouette (S value) is 0.9241, both of which signify a significant clustering structure and convincing and effective clustering outcomes.

Based on the clustering results, the top 10 clusters of Chinese city image research are identified as "city image", "city brand image", "tourism image", "city image construction", "city design", "city image communication", "short video", "city image positioning", "city culture", and "social media" (Figure 6). By combining the clustering themes and the main keywords (Table 2), the hot topics of Chinese city image research can be broadly categorized into the following four areas.

Firstly, the impact of major events on the image of a city. Major events, including political, economic, cultural, and sporting events, are typically organized by or authorized by the government and leverage specific government resources. These events have a far-reaching impact on the city and aid in accomplishing the city's developmental objectives (He, 2013). Examples of such events include large sporting events, festivals, cultural events, and significant exhibitions. Liu (2011) argues that major events have an innate ability to shape the brand image of a city with their radiance and influence. Fei (2012) notes that major event strategies have unique

operational mechanisms, including theme-driven, media mobilization, and audience experience, making them an effective communication tool for city image.

In recent years, scholars have increasingly focused on the impact of major events on cities, leading to a multitude of studies on measuring their effects, spillover factors, and perception differences among groups. For instance, Hu (2011) used statistical data to analyze the 2008 Beijing Olympic Games' impact on Beijing's competitiveness in terms of economic development, industrial structure, and city image. Liu and Wang (2019) investigated the influence of the Beijing Winter Olympics on residents' perceptions of the city, while Liu and Li (2022) employed a questionnaire survey and empirical tests to examine the possible effects and mechanisms of sporting events on a city's image and behavioral intentions using Shanghai as a case study.

Secondly, research on the construction of city image media. The media construction of city image is an important aspect of city image communication research (He, 2011). The image of a city is predominantly shaped through mass communication channels and online platforms. In fact, in most cases, residents rely on local mass media such as radio, television, newspapers, and new media platforms to gain a comprehensive understanding of the city's information (Dai, 2012). From the perspective of media technology, research on the construction of urban image media can be divided into two stages. The first stage is during the era of mass media, where urban image promotional films played a significant role in constructing the image of a city. The second stage is during the internet era, where short videos have become the primary medium for constructing the image of a city (Jiang & Ye, 2018).

In the era of mass media, the urban image was mainly conveyed through television images, with the most prominent form being the city image promotional film (Sun, 2020). The city image promotional film is a visual text based on visual symbols to construct and convey the urban image and cultural concept. City image promotional films, as an important medium for city brand communication, are of significant importance in enhancing the visibility, reputation, and competitiveness of a city (Wang, 2022). Numerous scholars have conducted in-depth research on Chinese urban image films. For instance, Nie (2011) analyzed the creative methods employed in Chinese urban image films using a sample of 350 urban advertisements from 108 cities. Wang (2022) explored the transformation and optimization strategies of urban image promotion films in the new media era from the perspectives of narrative concepts, themes, and strategies. Through the design of audio-visual symbols for city images, city image films have concentrated on constructing a space for the production of meaning through the medium of the city (Li & Tian, 2017). Therefore, many scholars have analyzed urban image films from the perspective of meaning construction. For example, Zhen (2021) applied Jacques Lacan's "mirror" theory from French psychoanalysis to analyze the premises, foundations, methods, and results of meaning construction in urban image promotion films.

In recent years, the rapid development of mobile short video platforms, represented by Douyin, has provided new carriers and channels for the construction and dissemination of urban images. Unlike traditional urban promotional films, short video platforms feature ordinary people as disseminators and protagonists of urban images. This shift has attracted the attention of many scholars and become a hot topic in the study of urban images. Some scholars focus on how short videos construct urban images. For example, Du and Chen (2019) analyzed the short videos of Chongqing, Xi'an, and Chengdu on Douyin, and analyzed the construction process of the three western cities' images on the platform from three aspects:

the subject of dissemination, the content of dissemination, and the effect of dissemination. Other scholars have explored the strategies for the dissemination of urban images on short video platforms. Deng and Zhao (2019) combined the consumer behavior model proposed by the Japanese advertising agency Dentsu (Sympathize-Identify-Participate-Share & Spread, abbreviated as SIPS) to propose strategies for better serving the dissemination of urban images on emerging short video platforms. H. Zhang (2019) explored the content selection, audience orientation, and media selection strategies in the construction and dissemination of "media images" of cities in the era of all media. In short videos, people use media to create images and shape city images through symbolized urban landscapes. Therefore, some scholars have explored the construction of urban images in short videos from a semiotic perspective. For example, Qin and Li (2021) analyzed 15 short videos that recorded cities and their comments and bullet comments on the Bilibili website from three dimensions: symbol construction, rhetorical logic, and discourse practice, to clarify the relationship between symbol presentation and urban image shaping in short videos.

Thirdly, City image design. In the early stages of city image research, city image design was mainly attributed to the field of urban planning. With the introduction of marketing theory into the field of city image, city image design gradually shifted towards the field of city branding and became an important component of city brand image research. City image design is a cross-disciplinary study that mainly involves the fields of design, architectural planning, and city branding.

Since the 1990s, China has made considerable efforts in the modernization and renovation of its cities, with many cities exploring and striving to create distinctive urban landscapes (Wan & Zhen, 2001). At this time, scholars mainly focused on discussing the necessity, connotation, principles, content, and methods of urban image design (Chen, 1994; Chen, 1998; Zhang, 1996; Zhang, 2001).

The modernization process of Chinese cities has brought about a new look to urban areas, but at the same time, it has also resulted in the homogenization of urban appearances. In the 21st century, scholars introduced the CI theory from marketing into the field of urban planning, emphasizing the combination of materiality, utilitarianism, and aesthetics in city image design (Wan, 2001). City CI utilizes the theory and methods of the CI system to combine (X. Huang, 2020) with city design, achieving an interdisciplinary intersection between urban planning, art design, and marketing. Currently, research on city image design mainly focuses on two aspects: Landscape design, such as the design of urban humanistic and natural landscapes (T. Huang, 2020; X. Huang, 2020; Yu & Yin, 2016), and city brand image design (Du, 2021; Zhao & Huang, 2015).

One important aspect of urban brand image design is the city's tourism image (Xie & Li, 2010). The tourism image of a city refers to the comprehensive evaluation and overall impression of the city's tangible tourism resources and intangible cultural aspects in terms of their level of achievement, development, style, personality, and prospects among the both the internal and external public (Wu, 2008). The tourism image of a city is an important component of the urban image system (Li, 1998). The tourism image of a city serves as the city's business card and plays a guiding and even a symbolic role in the city's promotion. The design of the tourism image of a city has become a major theme of urban and tourism studies (Li & Yuan, 2004). The design of the tourism image of a city mainly focuses on the positioning and shaping of the city's tourism image (Gu, 2000; Hou et al., 2009; Ma, 2006; Meng & Liu, 2003; Sun & Wu, 2018; Xie & Li, 2010) as well as the perception of the tourism image of a city (Chen, 2011; Li et al., 2017; Liu et al., 2015; Pei et al., 2014; Tan et al., 2021; Xu et al., 2015).

Fourthly, the examination of city image and city culture. The creation and dissemination of a city's image is a substantial systemic project with significant strategic implications that necessitates consideration from multiple perspectives. The cultural aspect of a city's image is regarded as its essence (Tu, 1998). Within the context of economic integration, competition among regions and cities is ultimately a contest for cultural power. Culture, therefore, is not only a country's soft power but also a city's (Chen, 2015). Consequently, the study of city culture cannot be disregarded when examining a city's image. In China, research on the cultural image of cities has been increasingly concentrated over the last two decades. Early investigations primarily centered on the relationship between culture and city image, seeking to integrate the cultural characteristics of cities into the construction of city image to augment their cultural appeal and influence. For instance, Zhang (2002) extensively explored the connection between city culture and city image, while Fan and Chen (2009) discussed the significance of a city's characteristic culture in building its image.

In recent years, research in the field of city image culture has become increasingly specialized, moving from a general study of urban culture to a focus on historical and cultural heritage that possesses regional characteristics. Scholars have paid particular attention to intangible cultural heritage, which is unique to a specific region and embodies distinctive cultural characteristics. It serves as a microcosm and carrier of a city's culture and social history, frequently represented as a symbolic element in the promotion of a city's image (Xue & Li, 2020).

The relationship between intangible cultural heritage and city image has become a hot topic in the field of urban image research in China. This research explores how to integrate a city's intangible cultural heritage into the construction of its image, to enhance the city's cultural heritage, fostering cultural self-confidence, and improving the sense of local identity (Chen, 2015; Qian, 2016; Xie & Tu, 2015; Xue & Li, 2020).

Research Trends

Keywords serve as a succinct synopsis of the primary topics discussed in an article. An examination of the frequency with which certain keywords appear over time can provide insight into the research trends within a given field. In the software tool CiteSpace, nodes representing keywords are selected and analyzed for co-occurrence using the Timezone View method. The resulting keyword map (Figure 8) illustrates the evolution of keywords within the domain of Chinese city image research over various periods.

In the 1990s, the keywords related to city image research included city image design, city image construction, urban landscape, theme parks, cultural landscapes, city personality, tourism image, economic development, etc. During this period, research on city image primarily focused on shaping a city's image through the creation of attractive urban landscapes to attract tourists and promote economic development. At this time, city image research was still classified within the domain of urban planning.

From 2000 to 2007, the focus of urban image research gradually shifted towards the marketing of urban images, with concepts such as marketing ideology, corporate identity (CI) practices, CI strategies, image positioning, brand image, city image films, and urban culture becoming the dominant keywords during this period. This transition was driven by a growing recognition of the importance of branding in shaping urban images and the need to develop effective marketing strategies to promote a city's image and attract investment.

From 2008 to 2016, the successful hosting of the Beijing Olympic Games, Shanghai World Expo, other large-scale sporting events gave rise to a new set of keywords, including major

events, large-scale sporting events, World Expo, Asian Games, festive events, perception, cultural soft power, urban image dissemination, and external communication. In addition, this period witnessed the emergence of new keywords such as city image promotional videos, city promotional videos, image construction, content analysis, visual symbols, and individual case studies, making research on city image promotional videos from different perspectives one of the hot topics of this period. Cities such as Chongqing, Chengdu, Wuhan, and Xi'an also emerged as keywords, and individual case studies were also one of the hot topics during this period. Keyword perception and empirical investigation also appeared during this stage, showing a shift in research methods. Overall, city image research during this period gradually developed into a more diverse and specialized field.

After 2017, new media has become a significant research hotspot in the field of urban image, with related keywords including new media environment, new media dissemination, all-media, big data, social media, micro-videos, and vlog videos. During this period, many cities have used promotional videos featuring local cultural characteristics or hosted festival galas rich in cultural elements to promote their urban image, which has been widely disseminated on social media and have generated broad influence. Consequently, many programs have become the focus of scholars' research, such as the "Oriental Satellite TV Mid-Autumn Festival Gala," "Discovering China's Henan Province," "One Minute Guangdong," and "Golden City Lanzhou." With the deepening promotion of the "One Belt, One Road" initiative in China, research on cities along the route has been on the rise, involving keywords such as "One Belt, One Road" background and the Silk Road Economic Belt. In this period, the keywords related to the city image are abundant, and the research area is constantly expanding and refining, with scholars keen on pursuing current hot topics and conducting research.

Research Frontiers

The analysis of burst words is used to detect emerging words with high-frequency changes and fast growth rates and to analyze the frontiers and development trends of a research field (Chen et al., 2010). By utilizing the Burstness function of CiteSpace to generate the burst terms in the field of urban image research and sorting them according to their burst year (as shown in Figure 9), it is possible to predict the research frontiers in this field. In Figure 9, "Keyword" represents the detected burst keywords, "Year" represents the initial year of detection, "Strength" represents the burst strength, "Begin" and "End" represent the starting and ending years of the burst keywords, and the red squares represent the burst frequency. This study selected the top 25 keywords to illustrate the burst situation of keywords in the field of urban image research.

The keyword co-occurrence map of the research field on Chinese city images, as presented in Figure 9, exhibits two distinctive features. First, regarding the starting and ending years of the keywords represented by "begin" and "end", "urban image design" and "urban image construction" were earlier research hotspots, while the timeframes for the emergence of hotspots such as short videos and urban spatial formation were relatively later. Second, the enduring popularity of "urban cultural" and "microfilm" lasted for a shorter period of four years, while "city tourism image" and "city image dissemination" remained as hot research topics for the longest period of twelve years.

As shown in Figure 9, the keyword co-occurrence map of China's city image research field presents two characteristics. Firstly, from the perspective of the start and end years of the keywords indicated by "begin" and "end" that have become research hotspots, "urban image

design" and "urban image construction" were earlier hotspots, while the time for a short video and urban spatial formation to become hotspots was relatively late. The sustained popularity of "city culture" and "micro-film" was relatively short (4 years), while the prolonged hot period of "city tourism image" and "city image dissemination" was the longest (12 years).

Early research on the city image was primarily located within the field of city planning, which was a hot topic in city planning and management as noted by (Sun, 2012). Scholars believed that city planning must involve the design of the city image, and should employ an integrated operation of urban management theory and modern design concepts to achieve the goal of shaping city image (Chen, 1994). Therefore, the earliest focus of research in the field of the city image was primarily centered on how to design city images.

Cities are unique social and cultural spaces that belong to the third space, which combines materiality and sociality (Liu & Zhang, 2017). In recent years, with the rapid development of network media, the construction of urban image by media has become increasingly important, and public awareness of urban image has begun to shift to the "media space" beyond the physical space (Zhang, 2020). Short video technology, a new and widely applied communication technology in recent years, has revolutionized the original mechanism of urban image generation, transforming the media function from the past of "recording urban image" to gradually "participating in the generation of urban image" (Kong, 2020). This functional transformation has attracted widespread attention from scholars, making a short video and city space a popular academic hotspot in recent years.

The field of urban image studies is a constantly changing one, with scholars' focus on urban images varying from era to era, and thus the research hotspots also change accordingly. Urban culture and micro-films received much attention and pursuit from researchers in the short term, but they quickly faded away as research interest diminished and new hotspots emerged. Urban tourism image and urban image communication are important branches of urban image research, and their long-term prominence is related to the long-term stability of the research focus. Research results can provide important theoretical and practical guidance for the economic, cultural, and social development of cities. Therefore, these studies have always received high attention from both academia and practice, and their research value and practical value are constantly being recognized.

Secondly, from the perspective of the strength highlighted by the keyword "Strength," "urban image construction" occupies the first place with an index of 12.99. This is related to the acceleration of China's urbanization process and the intensification of competition among cities. Many cities aim to attract talent and investments through urban image construction. The second is "short videos." Although this keyword appeared relatively late, its strength is high, far higher than the keywords other than urban image construction. The short video has become an indispensable and important means of urban image dissemination in today's context. Its significant communication advantages have led many cities to utilize short videos to promote their urban image, thereby becoming "internet-famous cities" and attracting a large number of tourists. Researchers of city images have begun to pay attention to the role of short videos in the dissemination of city image, investigating how to shape the urban image and improve its visibility and reputation through short videos (Deng & Zhao, 2019; Du & Chen, 2019; Jie, 2019; Wan, 2021; Z. Zhang, 2019). Therefore, "short video" has become a "hot spot" in current research on city image.

Conclusion

This study conducts a bibliometric and visualization analysis of core journal articles in the field of Chinese city images in the CNKI database from 1993 to 2022. The research status and development trend are characterized by several features as follows:

In of the basic characteristics of the research, the study of Chinese urban image has gone through three stages: the initial development phase, steady growth phase, and the high and fluctuating phase. The publications were concentrated after 2009. Since 2019, the research on the city image has cooled down, and the number of publications has begun to decline. However, based on the previous trajectory of the development of urban image, the appearance of the decline in the entire research field cannot be taken as evidence of a decline. Perhaps new research hotspots in the future will bring new opportunities to the study of urban image.

A tight collaborative network has yet to be formed among core authors in the field of Chinese urban image research, and most of them still operate independently. Although urban image research involves multiple disciplines and is considered interdisciplinary, the majority of publications are produced by secondary institutions of universities in the field of journalism and communication. Collaborations between institutions are not close, with most collaborations occurring between different research institutes within the same university or between universities in the same region. The main research focuses of highly cited literature are urban image shaping and communication, urban culture, and new media.

In terms of research hotspots, the study of Chinese city image has the following characteristics: Firstly, research topics demonstrate the diversity and keep up with current trends. The academic community responds to real-world demands, with the number of published papers and research themes closely following real-world issues, resulting in a variety of research topics. Secondly, the disciplinary perspective has become more diversified. From the stages of Chinese city image research and the evolution of keywords, scholars have gradually expanded from urban planning to a range of disciplines such as art, marketing, communication, literature, semiotics, and psychology. Thirdly, research tends to be primarily applied rather than theoretical. The vast majority of research in the field of Chinese urban image focuses on strategic research, such as the shaping and communication of city images or summarizing relevant facts. There is a lack of theoretical construction and the proposal of systematic frameworks. Most of the theories come from the research findings of Western scholars.

In terms of research trends, the study of the city image has shifted from city image shaping to city image communication. With the development of new media technology, the communication of city images has shifted from mass media to social media, and short videos have become the main research focus. In terms of research methods, empirical research has begun to emerge. Although purely discourse-based research still dominates the current research, in the long run, empirical research will become a future development trend.

The systematic review of research on the Chinese city brand image not only aids in identifying weaknesses in the current body of literature but also helps to delineate future research directions. Analyzing the focal points and shortcomings of prior studies provides guidance for scholars and researchers, directing future research efforts towards addressing theoretical gaps and resolving practical issues.

Outlook

City image is a field under rapid development. For the past thirty years, Chinese scholars have made unremitting efforts in the field of city image and have achieved fruitful results. Based on recent research trends and combined with research achievements in the field of urban image abroad, future research on the city image in China should focus on the following aspects:

Firstly, standardize research methods. Research methods in Chinese city image studies are lacking, and the majority of the retrieved papers are purely speculative. Although there were a few empirical studies between 2017 and 2019, overall, the research methods were not standardized. In the future, Chinese city image research should emphasize research methods. Whether quantitative or qualitative, standardized research methods are essential.

Secondly, clarify the role of stakeholders. In the process of shaping, disseminating, and managing city image, various stakeholders are involved, such as the government, residents, tourists, and enterprises. It is necessary to clarify the role of these stakeholders in the shaping, dissemination, and management of city image, as well as their relationships with the city image.

Thirdly, pay attention to audience perception. In China, the shaping of a city image is a top-down government-led behavior, lacking participation and feedback from the audience. Future research should focus on the audience's perception of city image, understand the effect of city image shaping and dissemination, and make targeted adjustments to the city image.

Although this work has contributed, it still has some shortcomings and limitations. Firstly, although CiteSpace was used for quantitative analysis and visualization of information in the field of Chinese city image, due to the vigorous development of this field, this study can only be seen as a preliminary work. Secondly, this study only analyzed Chinese core articles from the CNKI database and did not include some excellent articles published by Chinese scholars internationally, thus limitations still exist.

Acknowledgments:

This study was supported by the Research Project Plan of Anhui Universities in 2022 (GRANT NO. 2022AH051559) and the Key Research Project of Huainan Normal University at School Level in 2021 (GRANT NO. 2021XJZD015)

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