

Knowledge Pedigree of the Image Study of Chinese Universities (1993-2022)

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Abstract: With the rapid development of Internet technology and the need of world first-class university construction, the image problem of universities has become an important and complex proposition faced by researchers and university administrators. This paper takes 495 articles from the Chinese core periodical database and master and doctoral thesis library from 1993 to 2022 as samples, adopts the method of bibliometrics analysis, and uses the CiteSpace software to draw the knowledge map of university image research, and obtains the hot issues and evolution track in the research field. The results show that the research on the image of universities in China mainly focuses on the brand design and identification of the image of universities, the research on public relations and the research on communication. It focuses on strategy research and lacks basic theoretical research and empirical research. The psychological mechanism of university image cognition and the effect of marketing communication under the effect of network media have become a new research trend.

Keywords: University Image; Genealogy of Knowledge; Bibliometrics; CiteSpace.

1. Introduction

First-class universities not only need to possess excellent academic capabilities and institutional systems to attract and retain academic talent, but also need to have a favorable academic atmosphere and image. [1] The competition in higher education is increasingly globalized. In order to enhance their global competitiveness, governments in Europe and Asia have begun implementing university alliance programs to improve the reputation and image of their higher education systems. [2] For universities, highlighting the importance of cultural soft power in the overall university development is a key measure towards becoming a world-class university. In the current context of the deepening development of the Internet, the university image, as a powerful tool of cultural soft power, not only affects the overall reputation and evaluation of a university, but also reflects the true value of the university.

With the development of higher education in our country, the university image has become a common concern for university administrators, academic researchers, and the public in their school selection process. Research on university image branding primarily focuses on the elements of brand construction. Researchers have found that the university image identification system plays a significant role in enhancing the university image. Clarifying and planning the development concepts, behavioral norms, visual elements, and campus environment of universities is beneficial for shaping university brands and enhancing the university image. [3]

From the perspective of research content, the current study on university image is fragmented and scattered, with a greater emphasis on strategic research related to university image management itself, making it difficult to grasp the historical trajectory and hot topics in university image research. Additionally, the development of internet technology has made communication more convenient, further increasing the difficulty and importance of university image construction. Therefore, it is crucial to understand the

development trends and research hotspots in university image research over the past few decades. Using a knowledge framework approach helps to gain insights into the focal points of university image research, clarify the research trajectory, and provide theoretical support and guidance for further governing university image.

2. Data Sources and Research Methods

2.1. Data Sources

The research object of this paper is related studies on university image in domestic universities. In order to ensure the comprehensiveness and representativeness of the data, the CNKI (China National Knowledge Infrastructure) database is chosen as the data retrieval tool. The Chinese core periodical database is selected as one of the samples for this research. Considering that there have been numerous master's and doctoral theses in the field of university image research in the past two decades, excluding this portion of the sample would affect the overall assessment of research achievements in this field. In order to gain insights into the research trends in the entire field of university image, we used the themes, keywords, and titles to search for "university image," excluding literature that was clearly unrelated to this research. We obtained 234 samples from Chinese core journals and 261 samples from master's and doctoral theses, resulting in a total of 495 valid samples.

2.2. Research Methods

Traditional literature review methods are difficult to comprehensively summarize the research hotspots and key literature in a field, and researchers may easily fall into the trap of purely subjective judgment. With the assistance of citation analysis tools like CiteSpace, subjective judgment can be combined with objective evidence effectively. In this study, we ultimately chose CiteSpace, a software developed by Chinese-American scholar Chaomei Chen, as the data analysis tool. CiteSpace is an information visualization software developed using Java language. It is mainly based

on cocitation analysis theory and pathfinder network scaling to quantitatively explore the key paths and turning points in the evolution of specific research fields. It generates a series of visual graphs to provide an overall analysis of the dynamic mechanisms and cutting-edge developments in the discipline's evolution.

3. Data Analysis Results

3.1. Disciplinary Fields of University Image Research

As an emerging interdisciplinary field, the top three disciplines in university image research are higher education, journalism and communication, and art design. This is closely related to the research object of university image: the field of study is still focused on higher education institutions, with a significant number of scholars from educational management involved. Additionally, due to the close relationship between media and image, scholars in journalism analyze university image from a textual perspective, while communication scholars focus more on the effects and mechanisms of information dissemination in university image. Researchers in film and art study university image from the perspective of specific image-building measures, such as documentaries and visual identity design for universities. Some scholars in business management and urban planning also pay attention to the coupling relationship between university image and urban economy. In summary, as an interdisciplinary research field, university image research is approached from various angles by researchers from different academic backgrounds. The main contributors are still educational administrators and journalism and communication scholars. However, it should be noted that cross-disciplinary research in this field is still lacking, and empirical studies and specific mechanism research on university image are also relatively scarce.

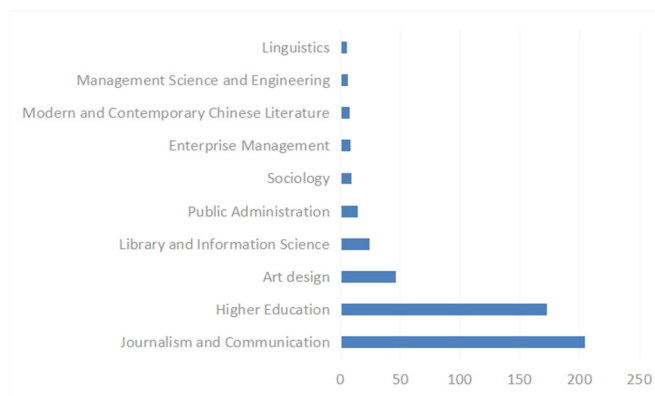


Figure 1. Distribution of Disciplinary Fields in University Image Research

3.2. Co-occurrence Network Analysis of Keywords

By selecting and presenting the co-occurrence frequency of keywords in a matrix format, we can reflect the research focus. In total, there are 69 nodes and 82 edges in the network, with a network density of 0.035. This indicates that the research content on university image in domestic literature is relatively scattered, and a common circle of citations has not yet been formed. The academic network is not tightly connected enough.

Overall, keywords such as "university image," "image

communication," "new media," "image construction," and "communication strategies" appear frequently in the literature. This suggests that: first, there is a significant amount of existing research on countermeasures related to university image; second, there is a close relationship between media management and university image construction.

Table 1. High-frequency Keywords in University Image Research and Their Centrality

Index	Keyword	Frequency	Intermediary Centrality
1	University Image	34	0.09
2	College Image	30	0.26
3	Image Shaping	21	0.25
4	Image Construction	9	0.05
5	University Promotional Videos	8	0.02
6	New Media	8	0.04
7	Brand	7	0.03
8	Public Relations	6	0.10
9	Campus Culture	6	0.00
10	Media Image	4	0.00

As shown in Table 2, instead of simply listing high-frequency and centrality keywords, the keyword clustering method in CiteSpace can be utilized to identify distinctive clusters of terms and explore the hot knowledge groups in this field over the past twenty years.

Table 2. Main Knowledge Clusters and High-frequency Keywords in University Image Research

Knowledge Cluster	High frequency keywords
Research on Brand Identification of University Image	University image, campus media, public image, crowdsourcing theory, brand design, brand image, visual recognition system, image positioning, image value, targeted positioning, visual communication, overall image
Research on Public Relations of University Image	Image building, colleges and universities, Services marketing, local colleges and universities, city image, core competitiveness, organizational image, media image, sports students, educational function, Services marketing
Research on the Communication of University Image	Campus media, WeChat public platform, media era, university promotional videos, information publishers, university image, harmonious coexistence, internal public relations, university culture, campus public opinion, and social public opinion environment

By clustering high centrality keywords and high-frequency keywords, the research on university image can be categorized into the following major areas:

Research on University Image Brand Recognition: This aspect primarily draws on brand research approaches from the field of enterprise management. It considers university image as an asset and explores the premium effect of a good

reputation on universities. A favorable university image is the most valuable intangible asset for universities, serving as a powerful tool for market positioning, future prospects, and global presence.[4] For instance, Xie Ming suggests the establishment of a specialized institution for image shaping and brand development in ethnic colleges, utilizing marketing theories to systematically plan future brand, image, and communication strategies. [5] Zhang Qian analyze the cultural image construction in universities in Lanzhou University based on the concepts of identity recognition, behavioral recognition, and visual recognition within the UIS framework.[6]

Research on University Image and Public Relations: This aspect views universities as organizational entities from an organizational management perspective and explores how organizational communication can enhance organizational value. The study of university image and management from the perspective of public relations has not received sufficient attention, which significantly affects and restricts a university's social reputation, public image, and its ability to serve the local community.[7] Xu Jianfen suggests that university image is not innate but highly malleable, and achieving established goals requires coordination of internal public relations in universities to enhance institutional cohesion.[8]




Research on University Image Communication. This aspect is mainly divided into the research on communication content and the research on image management under crisis communication. Regarding how to use the media to influence the sender and receiver, output communication content, and achieve communication effects, Bian Donglei and Zhang Xiyin [9] analyzed the relationship between mass media coverage during the transformation period and university image building. Lan Xiaoxia [10] discussed university image promotion from a communication perspective and proposed

that university image promotion has a global and comprehensive nature. Due to the increasingly diverse channels through which the public receives information and the varying levels of awareness and acceptance of different types of information, establishing good communication concepts, selecting valuable content for communication, and ensuring smooth communication channels play an important role in enhancing the influence of universities in the trend of integrated media development. With the significant changes in communication technology and communication methods, crises in universities have also frequently occurred. Zeng Yan advocated the use of image repair theory to analyze the phenomenon of crisis communication in universities and establish a sound crisis communication management mechanism to protect the university image.[11] Hou Yuejuan suggested exploring the paths to enhance university image communication by improving media literacy of communicators, enhancing the relevance of communication content, innovating communication methods, and paying attention to online public opinion monitoring.[12]

4. Evolution of Research Progress

The previous discussion has addressed the current hot topics in the field of university image research. The literature volume has noticeably increased since 2004, indicating a growing attention to this field. There was a period of decline in research activity, but since 2016, there has been a rebound in research literature. This finding aligns with the descriptive analysis presented earlier. Table 3 reveals that there are only three highly salient keywords, reflecting the relatively narrow focus on research objects, perspectives, and methods in university image studies over the past two decades. It also indicates the prevailing trend of communication-oriented research in the field of university image studies.

Table 3. Data Table of Highly Salient Keywords

keyword	Concentrated occurrence rate	Concentrated occurrence time	1993-2022
University image	3.89	2000	
New media communication	3.69	2014	
University brand promotion	4.07	2016	

Based on the distribution of key node keywords, keyword salience, and the visualization of temporal co-occurrence network, the research on university image over the past two decades can be broadly divided into three developmental stages.

4.1. The First Stage: Emerging Discussions (1993-2002)

This stage can also be referred to as the period of research on university image brand recognition. A total of 40 articles were published, accounting for 8.08% of the total research sample, with an average annual growth rate of 12.98%. Researchers primarily approached the topic of university image from the perspective of educational management. They believed that a university image should primarily consist of teaching, research, humanities, and environmental aspects. Establishing, maintaining, expanding, and enhancing university image was considered a perpetual theme and a prerequisite for creating prestigious schools and achieving

social and economic benefits.[13] During this period, due to rapid changes in the external environment, such as universities becoming autonomous entities facing society, many universities needed to raise funds and faced intense competition in student enrollment and graduate allocation systems. Many researchers, drawing on theories of corporate image design, began to consider the necessity of shaping the image of universities.[14][15] The introduction of Corporate Image System (CIS) design into university image construction, creating the University Image System (UIS), was a focal point of research during this period. By systematically designing the conceptual, visual, and behavioral recognition aspects of universities, a distinctive and competitive university image could be developed.[16] Zhao Zekuan, in his doctoral thesis, explored the relationship between CIS design and innovation in university management. The research found that the image and brand of Chinese higher education institutions in the transition from elite education to mass education played an increasingly

significant role in attracting talents, student enrollment and employment, improving the quality of education and teaching, and expanding the influence of universities. The application of UIS theory represented a new attempt and extension of CIS theory in a broader range of organizations.[17] In summary, during the emerging stage, research on university image primarily drew references from corporate brand management theory and focused on the study of visual image recognition in universities, providing a theoretical foundation for further research on university image in the Internet era.

4.2. The Second Stage: Extension Discussions (2003-2011)

This stage can also be referred to as the period of research on university image public relations. A total of 207 literature articles were published, accounting for 41.82% of the total research sample, with an average annual growth rate of 9.66%. During this period, there was a greater emphasis on applying public relations theories to the study of university image, demonstrating two characteristics: first, a concentrated discussion on the inherent connection between university brand construction and image management, which extended the previous stage's focus on applying corporate image design to university image; second, a specific analysis of image construction issues in different categories of universities. The CIS model, derived from brand management theory, includes mind identity, behavior identity and visual identity. In 2004, the China Youth Daily reported that Renmin University of China took the lead in initiating visual image recognition among national universities. To develop this system, Renmin University established the "Image Construction Committee," responsible for guiding the planning, implementation, promotion, review, and acceptance of the university's visual image recognition system, ensuring its unified, comprehensive, and thorough implementation throughout the university. The visual image recognition system is divided into two major systems: the basic system, which includes the university logo, standard colors, standard fonts for the Chinese and English names, and their combinations, and the application system, which consists of the derivative use of the basic system in office supplies, environmental arrangements, public relations gifts, and other aspects. Ma Shiting believes that the current research on university brand image system is mostly limited to qualitative exploration of brand image dimensions and shaping, with few empirical studies, and he first established an evaluation system for university brand image [18]. Qian Linlin recognized that due to the unique characteristics of higher education, when applying theories of corporate image strategy, it is necessary to pay more attention to the public welfare and service nature of higher education. She proposed the approach of shaping a service-oriented university image and studying university image construction from a service marketing perspective [19]. Researchers believed that education in 21st century China has entered the era of branding. They pointed out the importance of shaping university brands for the development of universities themselves and for gaining competitive advantages in the higher education market, especially considering the issues of unclear positioning, lack of distinctiveness, and weak brand consciousness in Chinese universities, as well as the emphasis on hardware construction while neglecting software construction [20]. However, the study of university image construction and management from the perspective of public relations has not received the attention it deserves, which

greatly affects and restricts the social reputation, public image, and the ability to serve the local community of universities [21]. Of course, many researchers in this period also discussed the different applicability of brand management theories in the image construction of different universities. In summary, during this period, the research methods regarding university image construction still followed the path of corporate brand management, the research scope began to expand, and there was an increasing awareness of the differentiated characteristics of university image construction.

4.3. The Third Stage: In-depth Discussions (2012-2022)

This stage can also be referred to as the period of research on university image communication. A total of 248 literature articles were published, accounting for 50.1% of the total research sample, with an average annual negative growth rate of 6.9%. The typical feature of this period is the involvement of media in university image research, especially with the emergence of new media and online media. Some scholars have also noticed the differences between these media and traditional media in constructing university image. Huang Yuqing and Wang Naikao focused on the university official website as an important platform for school promotion. They conducted content analysis on the news content of colleges and universities over the past decade from five aspects: university mind identity system, university behavior identity system, university visual identity system, university personnel identity system, and university disciplinary identity system. They compared it with the desired brand image to gain some useful insights [22]. Yuan Jing believed that the university portal website, as the university's "online business card," is an important platform for the public to understand university information and an overall representation of the university's image in the online world. Applying brand image recognition theory and taking the UIS university brand image recognition perspective, she discussed the performance, issues, effects, and development direction of the Wuhan-based universities' brand image recognition elements in the process of university portal website communication [23]. The emergence and development of university Weibo (microblogging) has brought new opportunities for shaping and disseminating university images. Ma Renyi took the Weibo account of Shanghai Jiao Tong University as an example and analyzed its methods, characteristics, and theoretical effects on shaping and disseminating the image of Shanghai Jiao Tong University [24]. Feng Lu explored the shaping and communication of university image through the official WeChat account of Lanzhou University. The study found that the official WeChat account of Lanzhou University shapes the university's image based on the characteristics and needs of different images. Articles related to comprehensive strength and faculty have the best communication effects. It is recommended to focus on communication skills and emotional communication to better facilitate the dissemination of Lanzhou University's image [25]. Therefore, during this period, the research on university image was closely related to internet media. Researchers combined the characteristics of different media to explain the effects, problems, and possible approaches to university image construction, expanding the scope of university image research and enriching the combination of university image research and media management.

5. Conclusion and Outlook

In this study, we used the bibliometric visualization method based on CiteSpace to analyze a total of 495 literature articles related to university image research in the Chinese core periodical database and the database of master's and doctoral dissertations from 1993 to 2022. We created co-occurrence networks of keywords, keyword clustering networks, and temporal visualization networks. The results of bibliometric analysis are as follows: (1) The number of literature articles on university image research in China is positively correlated with the scale of university enrollment and internet penetration rate. (2) The main research topics of university image research focus on brand design and identification of university image, public relations research on university image, and communication research on university image. Currently, the research field is primarily dominated by communication scholars and higher education administrators. With the rapid development of the internet and new media technologies, media's role in shaping university image, including media strategies for university image and crisis communication management of university image, has become increasingly important and popular. This is also a topic of common concern for communication researchers and university administrators that requires exploration and resolution. (3) Previous university image research has mainly focused on applied strategies and advisory studies, while fundamental theoretical research on university image and empirical research on communication effects are severely lacking. Currently, this field has not formed a mature academic network or a substantial number of high-quality academic achievements.

As an academic research field, the lack of micro-level empirical investigations on university image hinders the understanding of the cognitive psychology mechanisms and marketing communication effects of university image, as well as the establishment of a systematic university image evaluation system, which contributes to evidence-based university practice and management.

Due to the differences in university systems and policies between countries, there are significant differences in research orientations. Therefore, it is necessary to adapt university image construction to the internal and external environments of Chinese universities. University image construction cannot be separated from the essence of university culture. It is important to explore the core spirit and establish a comprehensive action guide for university image construction. University image is a long-term internalization process, and many current studies are still at the conceptual, principled, and strategic levels, lacking systematic and in-depth empirical investigations. In addition, online communication is a weak link in the current practice of university image building in China, and it is a problem that needs to be addressed. How to guide universities to create socially satisfying images in the online environment and maximize the social value of effective image communication is a major practical issue that requires the attention of researchers and administrators. This study provides a certain theoretical pathway to address these challenges.

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