Research Status and Frontier Analysis in the Reconstruction of Belief Space in Confucian Gardens

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Abstract: The aim of this study is to visually illustrate the current state of research on reconstructing belief space in Confucian Gardens and analyze the key areas for future investigation. The knowledge graph, which consists of 591 academic papers on the belief space of Confucian Gardens published on Web of Science from database inception until August 2023, has been analyzed using Cite-Space software. After conducting a thorough analysis of co-citation, co-occurrence, clustering, timeline, and burst maps, the identification of three promising avenues for future research has been achieved successfully. We anticipate that advanced research in the coming years will concentrate on three areas: "reconstructing urban belief space, enhancing spatial experiences, and exploring embodied cognition".

Keywords: Confucian Gardens; Overseas China Garden; Belief Space; Reconstruction; Cultural Geography

1. Introduction

In the context of globalization and urbanization, it is apparent that traditional gardens representing various nationalities actively contribute to reconstructing belief spaces in multicultural cities, thereby exemplifying a manifestation of modernity (Bruce 2016). Researchers in cultural geography, landscape planning, and sociology have made advancements in elucidating this phenomenon from their respective perspectives. However, there is limited research on the involvement of Confucian Gardens' belief space in contributing to the reconstruction of multicultural cities.

The belief space explored in this paper encompasses a wide range of spiritual environments, including religious and non-religious spaces (Hollway, 2011), such as churches, mosques, Buddhist temples, Taoist temples, and Confucian gardens established by immigrants in multicultural cities worldwide. Their experiences and strategies in reconstructing belief systems and ethnic communities can also provide valuable insights for the reconstruction of modern Confucian Gardens abroad.

Currently, a precise definition for Confucian Gardens in China remains elusive, and the concept of the Confucian Temple courtyard closely aligned with it has not yet developed into a distinct category within Chinese classical Gardens. On the contrary, the Confucian Temple courtyard is classified as a non-classical garden type known as the Temple of Altar due to its neatly arranged cypress forest that creates a solemn ambiance (Zhou, 2008).

Referring to the definition of "church garden" provided by Polish scholars Mitkowska (1998), this paper defines a Confucian Garden as a landscaped space enclosed by walls or plants, typically constructed within Chinese communities. In addition to incorporating elements from Chinese traditional Gardens, the Confucian Garden also includes symbolic landscape elements associated with Confucian belief.

2. Sources of data and research methodologies

The data in this paper were obtained from the core literature within the Web of Science (WOS) database. The search subject terms used were TS= (Confucian Garden OR overseas Chinese garden OR sacred space OR cultural geography) AND TS= (reconstruction). A total of 856 articles were retrieved as of August 14, 2023. After excluding conference papers, book reviews, and editorial materials, a final selection of 591 articles was included following thorough data verification.

The visualization software Cite-Space was used to analyze the existing literature data and create a visual knowledge map in the field of belief space reconstruction in Confucian Gardens until August 2023. Simultaneously, by combining literary interpretation, this paper anticipates future research trends.

3. Findings and analysis

3.1 Analysis of the number of published documents

From 2007 to 2016, an average of 25.6 papers were published annually. In more recent years (2017-2022), there has been a significant increase with an average of 49 articles published per year.

The scholarly contributions to these 591 publications involved authors from a total of 73 countries, with Chinese scholars accounting for approximately 5.41% of the total. The earliest literature examines how the Chinese-styled Tiger Balm Gardens contribute to Singapore's public space reconstruction (Huang, 2007).

3.2 Analysis of highly cited literature

Table 1 Top 6 highly cited literature in WOS database. (co-citations ≥30)

Year	Author	Title	Frequency
2008	Luz	The politics of sacred places: Palestinian identity, collective memory, and resistance in the Hassan Bek Mosque conflict.	31
2009	Maddrell	A place for grief and belief: the witness cairn, isle of Whithorn, Galloway, Scotland.	70
2009	Cheong	The internet highway and religious communities: mapping and contesting spaces in religion-online.	35
2010	Wilford	Sacred archipelagos: geographies of secularization.	71
2011	Banning	So fair a house：Göbekli Tepe and the identification of temples in the Pre-pottery neolithic of the near east.	68
2011	Banks	Eco-cultural niches of the Badegoulian: unraveling links between cultural adaptation and ecology during the last glacial maximum in France.	50

The highly cited literature data in the WOS database are summarized in Table 1 by publication year, covering disciplines such as sociology, cultural geography, and anthropology. Luz (2008) pioneered the study of the crisis faced by minority ethnic religious buildings during urban renewal processes. Subsequently, scholars such as Maddrell (2009) and Wilford (2010) have used "secular geography" to explain reconstructing architectural belief spaces in countries like Scotland, the United States and Australasia. At the same time, Cheong (2009) proposed that Geographic Information System and the Internet can enhance emotional transmission of ethnic community experiences. Furthermore, Banning (2011) and Bank (2011) separately examined the ritual sites in ancient settlements in Turkey and France, expanding both the temporal and geographical dimensions covered by this study.

After analyzing Table 1, we have identified two key aspects characterizing research on belief Gardens reconstruction: a concentration of highly cited literature before 2011 and a shift in research focus since 2009 from conflicts in urban public spaces to multi-ethnic integration and the promotion of harmonious coexistence.

3.3 Analysis of the Co-occurrence Map for Keywords

Using Cite-Space software, we generated a visually representative co-occurrence map that illustrates the keywords associated with this study (Figure 1). This visualization consists of 465 interconnected keyword nodes connected by 648 lines. The keywords "sacred space, religion, and politics" in the upper left corner of the map have limited relevance to this study; Instead, the remaining less prominent keywords reveal three promising avenues that can provide substantial guidance for future research.

The first avenue concentrates on urban spatial issues encompassing "geography-city-places". The second avenue investigates landscape diversity through "history-landscapes-diversity". The third avenue delves into subjective embodied cognition, such as "perceptions-pilgrimage-management".
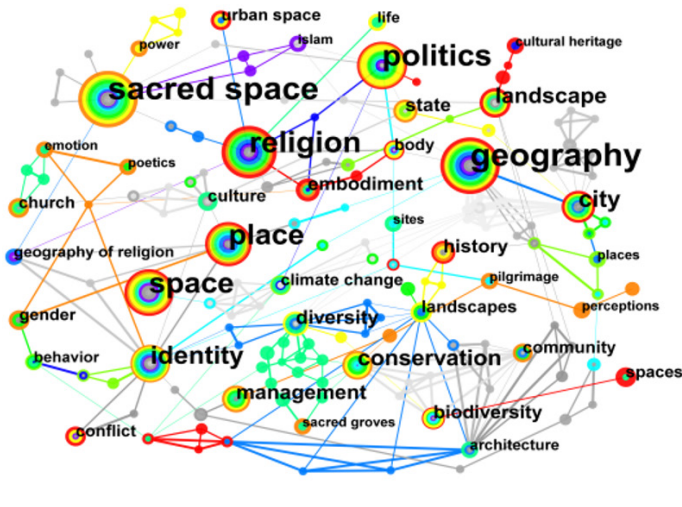
Figure 1 Co-occurrence map

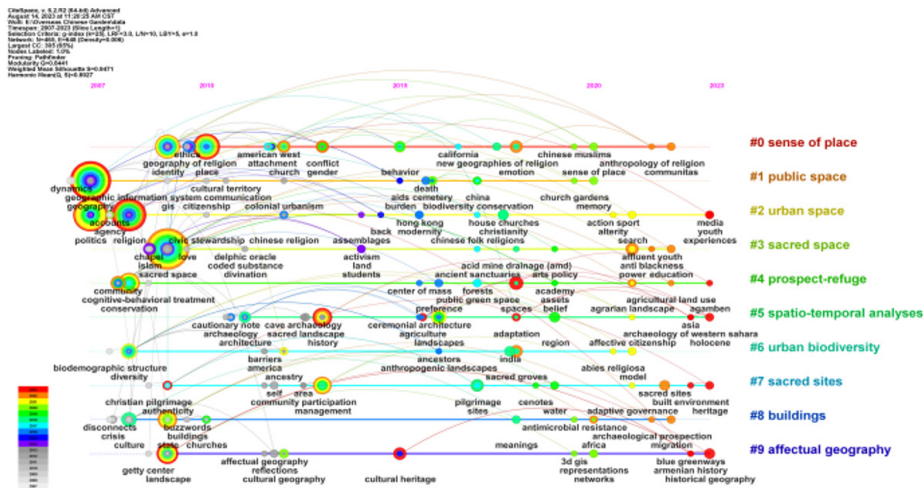## 3.4 Analysis of the Keyword timeline Map and its evolution

Figure 2 The timeline map and evolution analysis of keywords

In the intensive phase (2007-2011), high-frequency keywords focused on "sacred space, geography, politics, and place" in the keyword timeline map (Figure 2), indicating a shift towards secular narrative in geography. During the transitional period (2012-2016), scholars tended to conduct more practical research that benefits society with core keywords such as "sacred landscape, communication participation, ceremonial architecture, and cultural heritage". The stable phase (2017 to present) emphasized investigating the interaction between garden spaces and individuals' embodied cognition with core keywords including "public green space, emotion, pilgrimage, and sacred sites".

3.5 Analysis of the Keyword Cluster Map

The LLR algorithm was used to cluster keywords using Cite-Space software, and the resulting clusters were displayed in the upper-left corner of Figure 3. Among them, modules with a Q value above 0.3 and an average contour S value exceeding 0.7 demonstrate that these ten representative clusters meet the data requirements. The integration of these clustering results generated Table 2, summarizing three research emphases: reconstruction of architectural belief space, urban belief space, and urban-rural belief space.

The first research emphasis focuses on reconstructing the sense of place in ceremonial architecture from an architectural and religious

sociological perspective (Maddrell, 2009; Della, 2018; Poon, 2010).

In the second research emphasis, clusters 1 and 2 focus on reconstructing belief spaces in multicultural urban renewal through integrating urban planning, landscape architecture design (Qian and Kong, 2018; Murat, 2016). Clusters 3 and 4 excel in historical investigations of architectural remnants and exploring spiritual meanings within ancient settllments (Morehart, 2010; Banning, 2011).

In the third research emphasis, clusters 5 and 7 utilize spatial remote sensing technology and Eco-cultural niche models for spatio-temporal analysis, providing valuable references for establishing Confucian ancient pilgrimage sites (Monteleone, 2021; Banks, 2011). Conversely, clusters 6 and 9 focus on promoting harmony between humans and nature by approaching urban green space systems from the perspectives of biodiversity and affectual geography (Jaganmohan, 2018; Hayden, 2010).
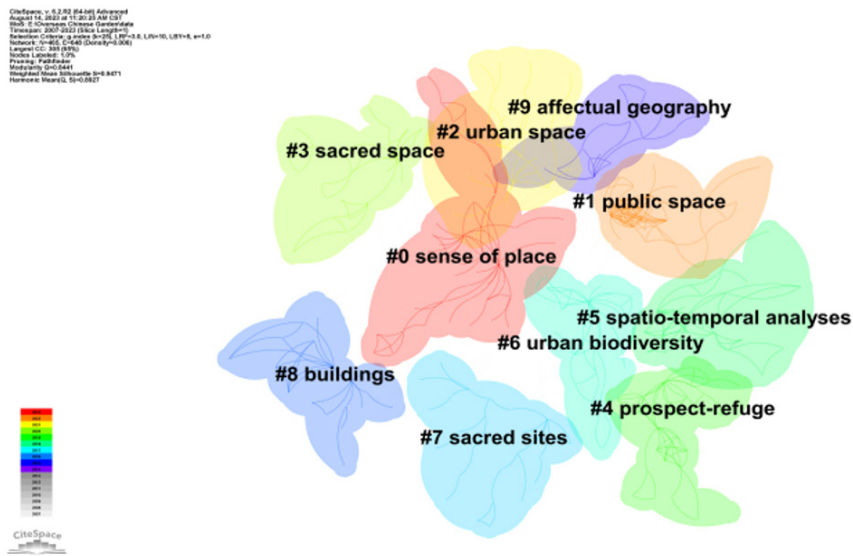

Figure 3 The keyword cluster map

Table 2 Analysis of the keyword cluster map

Cluster ID	Label	Size	Research emphasis
#0	sense of place	42	reconstruction of architectural belief space
#8	buildings	19	
#1	public space	30	reconstruction of urban belief space
#2	urban space	30	
#3	sacred space	28	
#4	prospect-refuge	27	
#5	spatio-temporal analyses	26	reconstruction of urban-rural belief space
#7	sacred sites	25	
#6	urban biodiversity	25	
#9	affectual geography	17	

3.6 Frontier analysis in the reconstruction of belief space in Confucian Gardens

The "Burstness" feature in Cites-Space was utilized to identify the emerging data of all keywords in the literature, and these findings are depicted in Figure 4.

During the initial and medium period (2007-2016), "knowledge, geography of religion, and space" emerged as burstness keywords, reflecting cultural geographers' focus on explaining the reconstruction of urban belief spaces in multicultural cities. Since 2017, keywords like "state" and "politics" have gained prominence, reflecting a growing interest in addressing coexistence and competition among ethnic communities in multicultural cities.

The keywords "perception" and "embodiment" exhibit the highest level of emergence in 2022, followed by "residents, tourism, and sacred sites", all relevant to faith-based tourism behaviour.
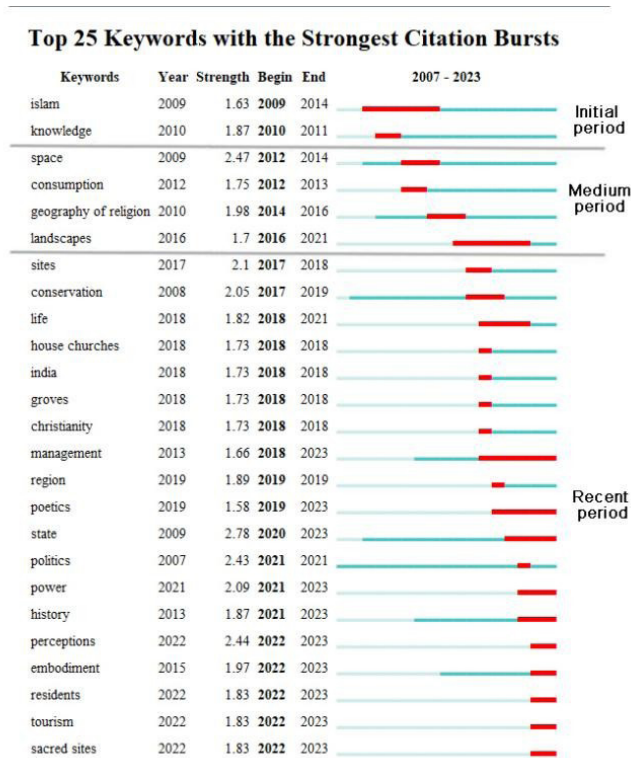
Top 25 Keywords with the Strongest Citation Bursts

Keywords	Year	Strength	Begin	End	2007 – 2023	
islam	2009	1.63	2009	2014		Initial period
knowledge	2010	1.87	2010	2011		
space	2009	2.47	2012	2014		Medium period
consumption	2012	1.75	2012	2013		
geography of religion	2010	1.98	2014	2016		
landscapes	2016	1.7	2016	2021		
sites	2017	2.1	2017	2018		
conservation	2008	2.05	2017	2019		
life	2018	1.82	2018	2021		
house churches	2018	1.73	2018	2018		
india	2018	1.73	2018	2018		
groves	2018	1.73	2018	2018		
christianity	2018	1.73	2018	2018		
management	2013	1.66	2018	2023		
region	2019	1.89	2019	2019		Recent period
poetics	2019	1.58	2019	2023		
state	2009	2.78	2020	2023		
politics	2007	2.43	2021	2021		
power	2021	2.09	2021	2023		
history	2013	1.87	2021	2023		
perceptions	2022	2.44	2022	2023		
embodiment	2015	1.97	2022	2023		
residents	2022	1.83	2022	2023		
tourism	2022	1.83	2022	2023		
sacred sites	2022	1.83	2022	2023		

Figure 4 Keywords Burst Map

4. Conclusion

The aforementioned analysis suggests that recent cutting-edge research on garden belief space has primarily focused on "reconstructing urban belief space, enhancing spatial experiences, and exploring embodied cognition". Consequently, the reconstruction of belief space in Confucian Gardens is likely to emerge as a prominent research topic. When Confucian Gardens participate in the urban space renewal of multicultural cities overseas, their planning, construction, and management should draw upon these frontier research findings. Future modern Confucian Gardens can transmit elegant spatial experiences and embodied cognition to showcase the contemporary value and universal significance of Chinese traditional garden culture.

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