Research Progress and Prospects of "Urban Memory" Renewal Planning Paths — Based on International Comparative Perspective

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Abstract: Urban memory is preserved not only in the collective consciousness of residents but also through tangible and intangible heritage, such as old streets, ancient buildings, and historical sites. Protecting urban memory helps maintain the city's authentic historical character and enhances its sense of belonging. This paper systematically collects and organizes research materials on urban memory planning from both domestic and international sources, categorizes and analyzes the relevant literature, and reviews the perspectives, content, methods, and planning practices in urban memory research worldwide. By summarizing these research experiences, the paper aims to deepen the understanding of urban memory theory and offer new recommendations for renewal planning practices guided by urban memory.

Keywords: Urban memory; Renewal planning; Research progress; International comparison

1. Introduction

Cities are constituted by the collective memory and the deep longing for roots that they embody. This shared awareness of urban heritage serves to unite people in the protection of the city's stability and prosperity. Urban memory is a valuable asset that is deeply embedded in the hearts of city dwellers and manifests in various forms, including material and intangible cultural heritage. This encompasses the diverse aspects of urban life, from the mottled years of old neighborhoods to the towering stature of ancient buildings, from the historical sites with their vicissitudes to the warm moments captured in old photographs and the detailed records of local histories [1]. The protection of these urban memories serves to safeguard the historical authenticity of the city, while also representing an urgent necessity to transmit the historical lineage and construct a modern city imbued with a sense of belonging and identity.

Since the 18th-century Enlightenment, there has been growing global awareness of the need to protect cultural and urban heritage, reflected in milestones like the 1960s Venice Charter. In 1999, Jicai Feng introduced

the "urban memory project" during efforts to preserve Tianjin's Old Streets, leading to similar initiatives in cities like Beijing and Shanghai [2]. The project's evolution has spurred significant theoretical advancements, laying a strong foundation for urban memory renewal and planning. These developments have also generated valuable practical cases, offering insights into the future protection and preservation of urban culture.

This paper systematically organizes and reviews research on urban memory planning, summarizing key perspectives, content, and methods from both domestic and international studies. The study analyzes specific planning cases and refines successful experiences. The study aims to deepen understanding of urban memory theory and develop practical recommendations for renewal planning strategies. Ultimately, this study seeks to support sustainable urban development and preserve cities' unique cultural identities during modernization.

2. Progress of international research

International urban memory research can be categorized into four main areas: concept definition, method deduction, empirical analysis, and literature review, with studies further divided into theoretical and practical research. This paper focuses on exploring urban regeneration pathways within the context of urban memory, aiming to systematically organize relevant literature. Using Citespace, a visualization and analysis tool, the paper constructs a scientific knowledge map of global research on urban memory and regeneration, providing an overview of the latest developments and emerging research trends.

2.1. International literature analysis

A search on the China Knowledge Network (CNKI) for the terms "city memory" and "urban memory" yielded 123 English-language articles, with 89 of them aligning with the research theme. An analysis reveals that from 1990 to 2008, publications on urban memory were limited, averaging fewer than five per year. However, since 2009, there has been a significant increase, particularly between 2013 and 2020. Research on urban memory spans multiple disciplines, including sociology, psychology, architecture, and urban studies, underscoring its interdisciplinary nature and broad scope (**Figure 1**).
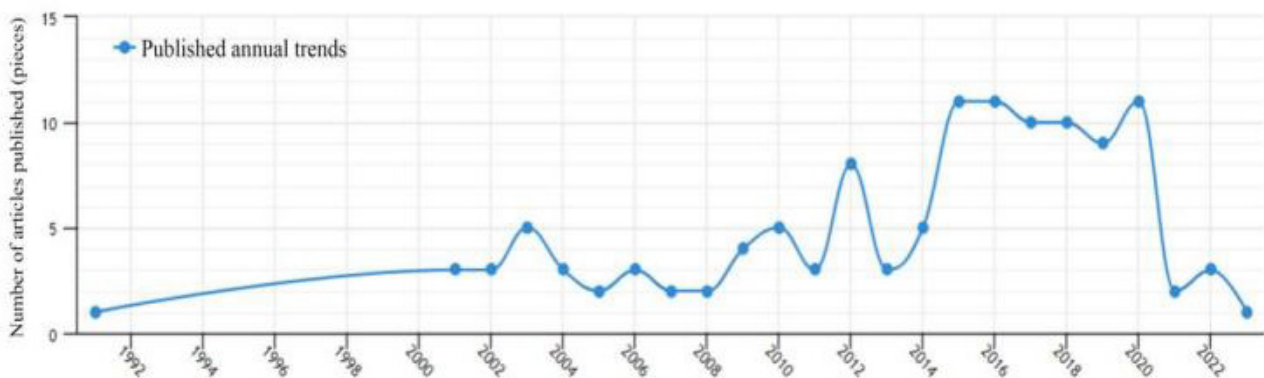

Figure 1. The trend of annual publication volume of international literature

2.2. Chinese literature analysis

The study utilized data from the China Knowledge Repository, focusing on Chinese periodicals and dissertations from 1999, when the China Urban Memory Project commenced, to June 2024. A search was conducted on June 1, 2024, using the term "urban memory," and another search on June 2, 2024, using both "urban memory" and "urban renewal". A total of 142 documents were identified after filtering out duplicates and irrelevant content.

Of these, 114 academic papers (59 journal articles and 55 dissertations) were selected for analysis. Temporal analysis shows a significant increase in publications related to urban memory and renewal since 2000, with the first domestic literature on the topic emerging in 2006. Initial research focused on preserving urban memory through cultural relics and historical districts. Annual dissertation output remained low until 2015, after which it surged, reflecting increased academic and social interest in urban memory as China's urbanization accelerated (**Figure 2**).
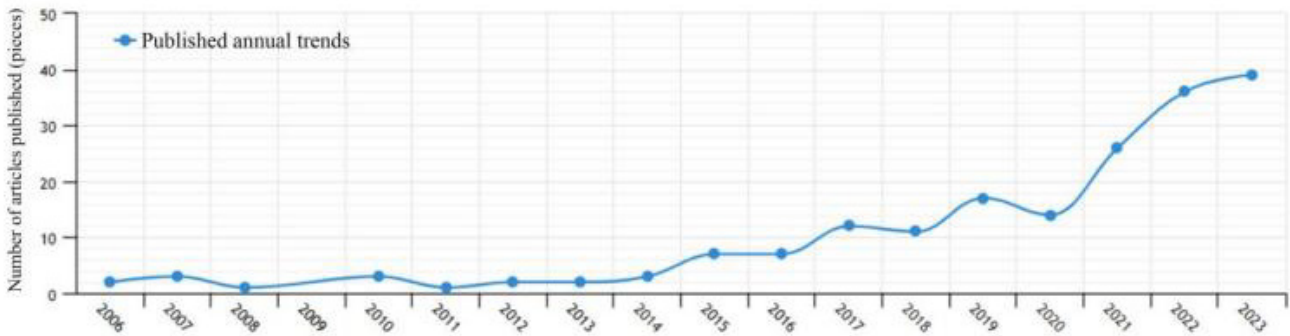

Figure 2. Trend of annual publication volume of domestic literature

Keyword co-occurrence network mapping reveals that research focuses on urban renewal, old city revitalization, cultural preservation, industrial heritage, and cultural identity (**Figure 3**). The term "preservation" is highlighted, reflecting a strong consensus on the importance of safeguarding urban memory and cultural heritage. Frequent mentions of historical sites and old city renovation underscore the emphasis on preserving buildings and districts with significant historical and cultural value. Scholars are exploring ways to integrate traditional cultural preservation with modern urban development, aiming to balance the new and old, support sustainable urban growth, and enhance cultural heritage.

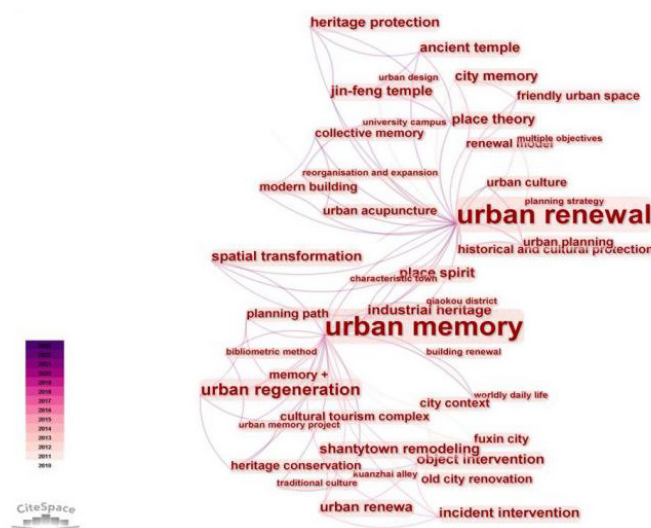**Figure 3**. Keyword co-occurrence network mapping in domestic literature

From the perspective of the dynamic evolution of research frontiers, burst detection is an effective method for accurately extracting and presenting keyword rankings in the field of urban memory and urban regeneration research in China. An examination of the evolution of these keywords reveals a clear division into three phases.

The initial phase is characterized by an emphasis on the content and carriers of urban memory, with scholars engaged in the process of elucidating the connotations of urban memory and its materialized manifestations. The second phase of this evolution shifts the focus to urban design and old city renewal, emphasizing the importance of preserving and integrating urban memory in the renewal process. The third phase of the research focuses on urban planning and cultural memory planning. It explores how to pursue more scientific and rational urban renewal paths under the guidance of urban memory, to achieve a harmonious symbiosis between cultural heritage and modern development.

Keywords	Year	Strength	Begin	End	2006 - 2023
Historical areas	2006	1.2	2006	2010	
Public Space	2007	0.87	2007	2016	
Preservation	2007	0.6	2007	2016	
Memory	2010	1.79	2010	2014	
Old city renewal	2014	2.5	2014	2017	
Urban context	2007	1.28	2014	2016	
Urban design	2014	1.12	2014	2016	
Urban memory	2006	0.8	2014	2015	
Organic renewal	2018	0.95	2018	2019	
Urban renewal	2018	0.95	2018	2019	
Historical buildings	2018	0.75	2018	2020	
Micro-renewal	2020	1.25	2020	2023	
Renewal design	2020	0.93	2020	2023	
Urban planning	2020	0.62	2020	2023	
Cultural memory	2021	0.82	2021	2023	

Figure 4. Top 15 keywords with the strongest citation bursts

2.3. Summary

In the context of urban memory research, there has been a notable convergence of perspectives across international boundaries. In contrast, Chinese domestic research has tended to concentrate on the central domains of architectural and archival studies. Scholars from a range of countries have devoted considerable attention to the core value of urban memory resources, the richness of its multidimensional measurement methods, and the complex and subtle interaction mechanisms between urban memory and urban construction. In recent years, international research has concentrated on the utilization of state-of-the-art technology to ensure the effective safeguarding and transmission of valuable urban memory through intelligent means. Conversely, in China, the research trend is undergoing a subtle but significant shift, with an increasing emphasis on urban memory as a core principle guiding the exploration of urban renewal pathways. In particular, urban memory planning, an innovative planning concept, is becoming a subject of extensive discussion and attention in the academic world. This approach not only offers a new perspective on urban development but also facilitates the seamless integration of urban planning theory and practice, thereby demonstrating its potential for infinite possibilities and vitality.

3. Progress of research on urban memory

3.1. Concept of urban memory

There is currently no consensus on a clear definition of urban memory. Internationally, the concepts of urban memory and collective memory are largely analogous. Hofmannsthal first introduced the concept of "collective memory" in 1902, and Rossi later posited that urban memory is a form of collective memory, with cities serving as repositories [2–3]. The French social psychologist Henri Wallon also discussed collective memory in his 1925

book, defining it as shared experiences and emotions within a group [4].

In China, scholars offer varied interpretations of urban memory. Gu defines it as historical vestiges in cities and buildings that record information [5]. Wang et al. view urban memory as a dynamic process where interactions between urban subjects and objects over time transform physical spaces into meaningful sites [6]. Yu describes urban memory as a comprehensive understanding of the urban spatial environment's historical significance, encompassing urban form, imagery, and meaning [7]. Despite differing perspectives, a common definition can be extracted: urban memory is the collective perception of the urban spatial environment, embodying the city's historical culture and spatial imagery. Shaped by collective experiences, urban memory evolves over time and encapsulates the essence of the urban environment, with its core value lying in its inheritance and continuity.

3.2. Relevant elements of urban memory

The elements of urban memory are characterized by a richness of connotation and diversity of form [8]. Mariam posits that collective memory can be conceptualized as a vast repository, comprising both tangible and intangible social and cultural resources. Scholars engaged in domestic research have established a clear classification of urban memory elements. Zhu posits that urban memory comprises subjects and objects, as well as time and space [9]. Additionally, Zhou posits that the urban memory subject, ontology, and object are the fundamental constituents of urban memory [10]. A synthesis of the views of scholars from home and abroad reveals that the constituent elements of urban memory can be classified into three principal categories. The first category comprises the subject elements, which include the owner and the retainer of the memory. The second category is that of the object elements, which can be further subdivided into two subcategories: the material elements, which include the elements of the natural environment, spatial form, structures, and landscape; and the immaterial elements, which include the elements of names and symbols, literature, special skills, and so on.

3.3. The measure methods of urban memory

The study of urban memory is intrinsically linked to the methodologies used for measurement and analysis, incorporating perspectives from sociology, history, psychology, and geography. Traditional methods such as historical document collection, field surveys, and oral history research are now enhanced by emerging technologies for data collection. For example, Daniel employed information interaction techniques and recording devices to capture psychological and sensory responses in landscape spaces, while Maria utilized textual analyses, coding techniques, and GIS to explore urban memory themes [11–12].

In China, research on urban memory has evolved from qualitative to quantitative methods and now embraces a comprehensive approach. Initially relying on local records and historical archives for qualitative descriptions, it has developed to include field surveys, questionnaires, and landscape planning. The integration of modern information technology reflects a trend towards diversified and scientific research methods. Future research is expected to increasingly utilize modern information technology for dynamic simulation and scientific prediction of changes over time.

Despite being in the exploratory stage, domestic research has provided rich methodological guidance. Cao et al. used a quantitative approach to assess residents' engagement with the urban environment, focusing on the Beijing Central Axis [13]. Wang developed a cognitive measurement index system for urban memory and Zhou used mathematical statistics and equation modeling to analyze residents' urban memory in Nanjing Fuzimiao [14–15]. Scholars such as Li, Zhang, Kang, and Ding have used a multi-method approach to analyze subject elements, integrating historical images, media contexts, online public opinion, and questionnaires [16–19].

For object elements, researchers like Wang and Wu have conducted meticulous field research and literature analysis to extract elements of the natural environment, spatial form, and built structures [20–21].

3.4. Renewal planning practices guided by urban memory

The theory of urban memory has been widely adopted in urban regeneration planning globally. It guides the shaping of urban space and landscape. Overseas scholars like Till analyzed the potential of collective memory in urban regeneration, especially for war-torn cities [22]. They proposed "memory engineering" and "memory care" to create emotionally resonant cities. Inwood focused on conserving urban memory related to racial equality and examined monumental landscapes in urban settings and their social implications [23].

The concept of the "urban memory project" in China originated in 2002 when it was initiated by domestic archival administrative institutions as a practical activity. In comparison to archival science, the practice of urban memory theory has not kept pace with the development of planning disciplines. The majority of research in this field is concentrated on the protection and reuse of historic districts. For example, the Xuanwu District Urban Memory Planning in Beijing and the Renewal in Suzhou are both successful cases of applying the theory of urban memory in the practice of renewing historic districts [6,14,20]. This resulted in the formation of an urban design framework comprising the four elements of "memory storage – memory extraction – memory integration – the expression of results."

In conclusion, based on the assumption that the subject, object, and time are the three fundamental elements of planning, it can be stated that the concept of urban memory planning is based on the idea of "memory fragmentation, memory deposition and layering and memory collage and reproduction." The collation of memory fragments serves to summarize urban memory, thereby forming urban memory data. The process of memory deposition and layering involves an evolutionary analysis of the memory material on the subject, object, and time factors, which serves as the foundation for the design of urban memory. The memory collage reproduction method involves the collation of memory elements about the subject, object, and time factors within a spatial context, thereby creating a unified representation of memory across past, present, and future timeframes.

4. Research review

4.1. Research perspectives and contents are constantly enriched

As the humanities continue to evolve, the study of memory has expanded from its roots in psychology to encompass a multitude of other disciplines, including anthropology, sociology, cultural studies, communication studies, history, geography, and more. This interdisciplinary approach has led to the emergence of a complex and multifaceted field of research. International research on urban memory has evolved from an initial focus on the significance of visual landscapes to a more nuanced approach that considers the cognition and memory of subtle objects. This progression has led to the utilization of interdisciplinary memory measurement methods to excavate urban memory and preserve it within urban architecture and cultural landscapes. Research topics include the geographical study of war memory, national independence, and other commemorative themes, with case studies predominantly featuring sculptures and individual buildings. However, there remains a lack of research adopting a planning and design perspective that incorporates the theory of urban memory.

4.2. Research methods and measurement methods tend to be diversified

International urban memory research uses geographical fieldwork and methods from humanities and social sciences, including documentary research and oral history. In China, research methods have become more

advanced, with approaches to assess core, object, and temporal elements. "Top-down" assessments are qualitative, analyzing official media and government documents to understand historical development and local resources. "Bottom-up" assessments combine qualitative methods (such as questionnaires and interviews) with quantitative techniques (such as statistical analysis) to measure public memory and cultural identity. Most current research is qualitative, but future studies are expected to use empirical methods from sociology and psychology to explore the degree of urban memory and influencing factors.

4.3. Theoretical exploration and applied research on urban memory planning practice need to be improved

The concept of urban memory is open to a variety of interpretations, and there is a paucity of research that is generally accepted by the academic community on its constituent elements. Regarding measurement and quantification, scholars have proposed numerous methods combining qualitative and quantitative research. However, the specific measurement accuracy and quantitative validity of these methods require further investigation. In terms of practical implementation, a unified approach to urban memory planning has yet to emerge, and the available planning practices remain relatively limited in scope. Most international research on urban memory focuses on smaller objects and individual buildings, with relatively few examples of holistic planning practices. Consequently, it is challenging to offer guidance on planning practices based on urban memory in China. Domestic research on urban memory lacks a comprehensive understanding of the overall characteristics of the subject, object, and time elements. Furthermore, there is a paucity of localized research on the construction of specific urban memory projects, the preservation of historical district memories, and the characteristics of collective memory. In conclusion, planning practices based on urban memory are still in their infancy. Current planning updates guided by urban memory are relatively simple, focusing primarily on historical districts, historical areas, and important urban heritage conservation areas. There is less application to industrial heritage areas and other urban districts, and the guiding role of urban memory in urban renewal has yet to be fully demonstrated.

5. Conclusion

The acceleration of urbanization has led to extensive urban renewal and reconstruction projects that have significantly damaged urban memory. Celebrated architect Professor Ruan Yisan once observed: "In the context of large-scale urban development, our country's distinctive cities and those with long histories have progressively lost their unique memories. The differences between thousands of cities are becoming smaller and smaller, and their appearance is deteriorating." In light of the gradual fading of urban memory and the emerging phenomenon of "city amnesia", research on urban memory theory must be adjusted to align with contemporary characteristics and urban contexts. Future research may present the following major trends.

5.1. Growing interdisciplinary collaboration

Despite differences between urban planning and other disciplines, there are numerous areas of overlap. Future research on urban memory theory will require a multidisciplinary approach, integrating diverse research pathways and methods, drawing upon the knowledge and expertise of other disciplines, expanding the scope and vision of the research, and coordinating with other fields.

5.2. Technological innovation and smart city construction

In the context of smart city construction, it is necessary to rethink the theoretical framework, planning methods,

and technical paths of urban memory. The measurement and preservation of urban memory require constructing an urban memory database centered on people and their activities, using a smart city spatial-temporal information cloud platform. Future research and practice should leverage digital and network technologies to restore, store, disseminate, and pass on urban memory.

5.3. A unified path for superimposing urban memory

Currently, urban memory research primarily relies on data mining and information extraction from historical materials. Future research may consider past, present, and future memories in a unified manner, ensuring the sustainable development of urban memory.

5.4. Creation and activation of memory

Future research should place greater emphasis on the creation and activation of memory, aiming to make urban memory a superposable, fluid, and active urban context. Future planning practices should consider the memory retention of urban residents and tourists, explore how to create an open public participation mechanism, and allow ancestral and existing memories to be superimposed in the city, better activating, utilizing, shaping, and updating urban memory.

Urban memory represents the identity and cultural lifeline of a city and a source of spiritual strength for its inhabitants. While current research and planning practices in urban memory have yielded notable results, there is a need for greater participation from a diverse range of stakeholders and the integration of interdisciplinary perspectives in the future. The protection and inheritance of urban memory is a challenging and ongoing endeavor.

Disclosure statement

The authors declare no conflict of interest.

Author contributions

Study idea conceptualization: Ziyan Huang
Data analysis: Longyan Huang
Study writing: Ziyan Huang

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