

Study on Measuring Urban Memory of Old Neighborhoods in Jiaozuo Jiefang District

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Abstract: Urban memory is a crucial catalyst for shaping the spirit of urban spaces. This study focuses on the old neighborhoods in Jiaozuo's Jiefang District. It analyzes urban memory from four angles: the people who hold the memories, the ways memories are preserved, the key elements of memory, and the emotions tied to these memories. It then sums up the key elements and patterns of urban memory. The study proposes ways to refresh the old neighborhoods, aiming to protect and carry forward urban memory in Jiaozuo's Jiefang District and offer new ideas for urban renewal.

Keywords: Old Neighborhood, Urban Memory, Urban Memory Measurement

1. Introduction

Urban memory, generated by people as the subject of memory, is a dynamic and continuous process that occurs within specific urban spaces, evolving over time. It integrates the past and present of a city and extends into the future ^[1]. Urban memory is essential for cultivating the spirit of urban spaces; preserving it safeguards the soul and essence of a city ^[2].

During the renewal of Jiaozuo's Jiefang District old neighborhoods, there are several challenges. These include the disconnection between historical and modern urban memories due to spatiotemporal evolution ^[3], the deterioration of the spatial environment hindering emotional transmission among residents ^[4], and the disruption of community memory continuity by digital and virtual networks^[5]. Additionally, there is insufficient utilization of the neighborhood's intangible elements and consideration of memory-related emotions. Therefore, this study selects the old neighborhoods in Jiaozuo's Jiefang District as the research focus. It aims to uncover urban memory elements and explore strategies for enhancing neighborhood renewal. This will help maintain the historical continuity of the city and re-establish the unique identity and character of the old neighborhoods.

2. Research Methods and Processes

2.1 Overview of the Study Area

Jiefang District, a central and old urban area in Jiaozuo, is rich in diverse historical and cultural resources. It has a network of cultural heritage sites, historical buildings, and districts, showcasing the city's historical evolution and local features^[6]. This study focuses on the old neighborhoods in Jiefang District, covering three sub-districts: Minzhu, Minsheng, and Xinhua, with a total area of 8.98 km². Although these sub-districts are located in prime areas with convenient transportation, their prolonged use has resulted in visible deterioration and outdated infrastructure. The loss of urban memory has become a pressing issue, urgently requiring preservation and revitalization efforts.

2.2 Questionnaire Design

Using a literature review, web content analysis, and on-site interviews, this paper concludes the urban memory elements of Jiaozuo's Jiefang District's old neighborhoods and designs a questionnaire for residents. This study selects Rose Park, the former site of Peking Syndicate Limited, Shengli Street, Xinhua Street, Martyrs' Cemetery, Heping Street Market, Jiaozuo Tourist Bus Station, Dayangshu Culinary Commercial Street, Xuesheng Road, Dasha South Street, as nodes for measuring urban memory. The memory elements of these urban memory measurement nodes include the following two types. The

first is material, including historical buildings, architectural styles, and architectural types. The second is non-material, covering historical evolution, intangible cultural heritage skills, and street names.

2.3 Research Process and Method

This study mainly uses field surveys and interviews. During the field survey, photos and observations are taken to understand the spatial form and layout of the old neighborhoods in Jiefang District. Interviews with residents are also conducted to enrich the information. The survey is carried out from August 1 to 14, 2024. It includes both on-site and online questionnaires. A total of 108 questionnaires are distributed to the neighborhood residents, with 100 being valid. The questionnaire data is analyzed from four aspects: the people who hold the memories, the ways memories are preserved, the key elements of memory, and the emotions tied to these memories.

3. Research results

3.1 Analysis of Memory Population

The study focuses on residents of Jiaozuo's Jiefang District old neighborhoods. Statistics on valid respondents are tabulated (Table 1). The gender ratio is balanced (47 male, 53 female). Most respondents are elderly or middle-aged. Nearly half (49%) have a college degree or above, indicating a well-educated population. Over 40% are government/ public institution employees or students. About 63% have lived there for over 5 years.

Table 1 Memory Population Information Table

Project	Category	Percentage/%
Gender	Men	47
	Woman	53
Age	Under 20	6
	20-35	32
	36-50	13
	51-65	15
	Over 65	34
Educational Level	Primary School	22
	Secondary School	29
	University	33
	Graduate	16
Occupation	Government/Public Institution	10
	State-Owned Enterprise Employee	2
	Regular Employee	6
	Teacher	8
	Private Business Owner	2
	Farmer	0
	Unemployed/Unemployed/Retired	36
	Student	32
Whether Currently Residing Within the Area of Jiefang District's Old Neighborhoods	Yes	92
	No	8
Length of Residence in Jiefang District's Old Neighborhoods	Short stay	8
	Within 1 year	5
	Within 5 years	24
	5 years-10 years	13
	11-20 years	17
	More than 20 years	33

The survey reveals that older respondents are more sensitive and have deeper connections to memory elements. Similarly, longer-term residents in Jiefang District's old neighborhoods exhibit greater memory depth. Thus, in neighborhood renewal, it's crucial to sustain memory continuity across age groups, enhance intergenerational interaction spaces, accommodate diverse occupational needs, and, given the

residents' high education levels, emphasize cultural elements to create an environment that fosters personal growth.

3.2 Analysis of Memory Pathways

The study found that the pathways of urban memory are categorized into understanding and recording, based on the internal and external mechanisms of memory (Figure 1).

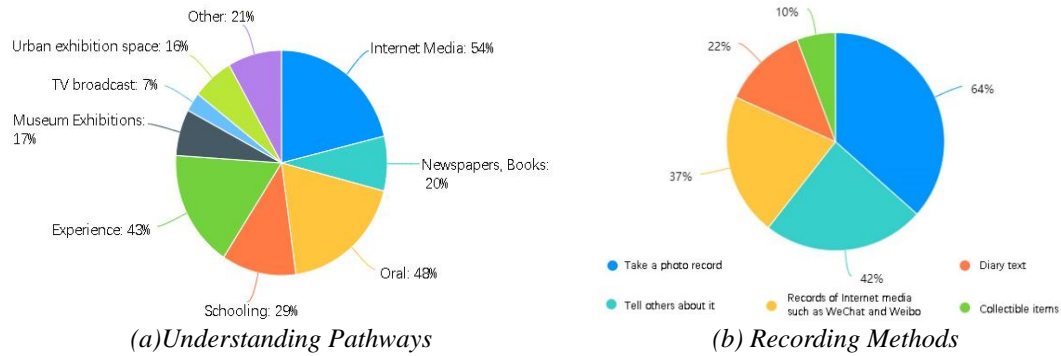


Figure 1 Memory Pathways

In terms of the pathways of understanding, most of citizens learn about the history of the old neighborhoods and places of interest through the Internet media, oral narratives, and their own experiences, while fewer citizens learn about the old neighborhoods through TV broadcasts and museum exhibitions. Therefore, public platforms like WeChat accounts, Weibo, and websites can be created on the Internet to showcase the urban memory of old neighborhoods in Jiefang District, building a big data platform for urban memory to encourage joint construction and sharing by the public and experts. Simultaneously, designing neighborhood spaces with cultural walls, interactive boards, and memory displays would foster intergenerational interaction and strengthen community identity. In terms of the pathway of recording activities, citizens recorded more through Internet media, such as taking photos, telling others, and WeChat, while fewer citizens recorded through diary texts and collecting objects. This shows people's desire and action to record urban life experiences, and they prefer direct and quick ways. In the future, the dissemination and continuation of urban memory will also be in a more concise and convenient form.

3.3 Analysis of Memory Elements

3.3.1 Analysis of Memory Nodes

This study selects seven urban memory influencing factors such as protection quality, historical value, openness, environmental quality, etc. and sets six grades of “very dissatisfied, dissatisfied, general, satisfied, satisfied, very satisfied, very satisfied”, corresponding to the scores of 0, 1, 2, 3, 4, and 5 respectively, so that those who fill in the questionnaire score the memory nodes according to their own understanding and experience. Score the memory nodes according to their own understanding and experience; set the proportion of weights of memory influencing factors (Table 2), calculate the average score $M(i)$ of each influencing factor (i) through the weighted average, and calculate the memory measurement value of each city memory node through the formula (1) (Table 3).

Table 2 Weight Ratio of Memory Influencing Factors

Influencing Factor (i)	Protection Quality	Historical Value	Openness	Environmental Quality	Spatial Pattern	Convenience	Publicity
Weight (f)	2	2	1.5	1.5	1	1	1

$$M(n) = \sum M(i) \times [F(i) \div 10] \tag{1}$$

$M(n)$ ——Measurement Value of Urban Memory Nodes

$M(i)$ ——Mean Value of Urban Memory Influencing Factors

$F(i)$ ——The Weight Value of Urban Memory Influencing Factors

Table 3 Urban Memory Measures

Urban Memory Node (n)	Protection Quality	Historical Value	Openness	Environmental Quality	Spatial Pattern	Convenience	Publicity	City Memory Measure M(n)
Rose Park	3.13	3.23	3.4	3.26	3.37	3.38	3.18	3.26
The Former Site of PeKing Syndicate Limited	3.06	3.21	3.22	3.13	3.17	3.17	3.07	3.15
Shengli Street	3.05	3.15	3.3	3.08	3.12	3.2	3.05	3.13
Xinhua Street	3.11	3.15	3.34	3.1	3.15	3.27	3.15	3.18
Martyrs' Cemetery	3.25	3.27	3.36	3.35	3.22	3.23	3.13	3.27
Heping Street Market	3.07	3.13	3.34	3.04	3.06	3.29	3.17	3.15
Jiaozuo Tourist Bus Station	3.09	3.31	3.34	3.1	3.1	3.27	3.17	3.20
Dayangshu Culinary Commercial Street	3.16	3.18	3.39	3.1	3.19	3.33	3.21	3.21
Xuesheng Road	3.06	3.17	3.29	3.11	3.2	3.24	3.03	3.15
Dasha South Street	3.03	3.12	3.27	3.07	3.04	3.26	3.03	3.11

The study found that the memory measurements of the urban memory nodes of the citizens in the old neighborhoods all reached 3 or more, indicating that the overall level of citizens' memory of the neighborhoods is good and that measures need to be taken to protect the continuity of the citizens' memory of the neighborhoods in the future renewal of the neighborhoods. Martyrs' Cemetery, Rose Park, Dayangshu Culinary Commercial Street, and other urban memory nodes have higher memory measurements, and their values of protection quality, historical value, openness, and other relevant factors are also higher, which indicates that urban memory measurements are positively correlated with the protection quality, historical value, openness and other seven relevant factors of the neighborhood memory nodes and that the future renewal of neighborhoods should be carried out with respect to the protection quality, openness, environmental quality and other aspects of the urban memory nodes. In the future, the quality of protection, openness, and environmental quality of urban memory nodes should be improved in the neighborhood renewal.

3.3.2 Analysis of Memory Carriers

In this study, formula (2) (3) calculates that the value of the memory cognition degree of material carrier elements is 0.36, and the value of the memory cognition degree of non-material carrier elements is 0.46, which indicates that citizens remember non-material elements more deeply in the old neighborhoods of Jiefang District (Table 4). Urban memory is better inherited and remembered in the old neighborhoods through the non-material memory elements, which indicates that the old neighborhoods in Jiefang District have a long history and a deep cultural heritage. People remember more distinctive material elements such as important buildings, building facades, public facilities, etc., and people remember more persistent intangible elements such as historical evolution, non-heritage skills, cultural practices, and historical events.

$$UMC_{\text{Material carrier}} = \frac{\sum_{y=1}^{15} \frac{U_n}{N}}{15} \quad (2)$$

$$UMC_{\text{Intangible carrier}} = \frac{\sum_{y=16}^{23} \frac{U_n}{N}}{8} \quad (3)$$

$UMC_{\text{Material carrier}}$ ——memory cognitive level value of material elements

$UMC_{\text{Intangible carrier}}$ ——the value of the cognitive level of memorization of non-material elements

U_n ——the number of people who know the memory elements of the nth secondary variable

N—total number of samples 100

Table 4 Perceived level of urban memory carrier elements

Material carrier element variables	Cognitive degree value	Material carrier element variables	Cognitive degree value	Intangible carrier element variables	Cognitive degree value
1. Historical Buildings	0.76	9. Street Scale	0.26	16. Historical Evolution	0.64
2. Architectural Styles	0.54	10. Neighborhood Environment	0.38	17. Intangible Cultural Heritage Skills	0.47
3. Types of Building	0.37	11. Public Facilities	0.47	18. Names of Streets and Alleys	0.44
4. Neighborhood Colors	0.36	12. Signs Indicate	0.28	19. Business Formats and Time-Honored Brands	0.44
5. Neighborhood Roads	0.30	13. Landmark	0.33	20. Cultural Customs	0.51
6. Commercial Type	0.33	14. Landscaping Greening	0.37	21. Festival Ceremonies	0.31
7. Street Pattern	0.28	15. Landscape Water System	0.17	22. Daily Life	0.36
8. Neighborhood Elevation	0.27			23. Historical Events	0.48

Protecting the continuity of urban memory should focus on the organic combination of material and non-material elements [7]. The overall recognition of memory elements in the old neighborhoods of Jiefang District by the memory population is low, indicating that there are still many memory elements in the neighborhoods that have the potential for development and expansion. We should sort out and update the memory nodes and elements with low recognition of memory in the neighborhood, and maintain and upgrade the memory nodes and elements with high recognition of memory in the neighborhood to keep their vitality; in view of the current situation that the recognition of material memory elements in the neighborhood is low and the recognition of non-material memory elements is high, we should pay attention to the translation and expression of the non-material memory elements in the neighborhood material space, and form more comprehensive memory after the protection and updating of the neighborhood's urban memories. We should pay attention to the translation and expression of non-material memory elements in the material space of the neighborhood, so as to form a more comprehensive and dynamic urban memory of the old neighborhoods in Jiefang District after the protection and renewal of memory.

3.4 Memory Emotion Analysis

Citizens' behaviors in the old neighborhoods of Jiefang District are diverse, of which recreation, shopping, and travel are the top three (Figure 2), so the neighborhood memory sentiment survey centers on the neighborhood environment that directly affects the quality of people's activities, and the neighborhood characteristics that dominate the neighborhood's atmosphere and influence the consumption experience. Emotional evaluation also focuses on satisfaction with the neighborhood environment and familiarity with the neighborhood characteristics.

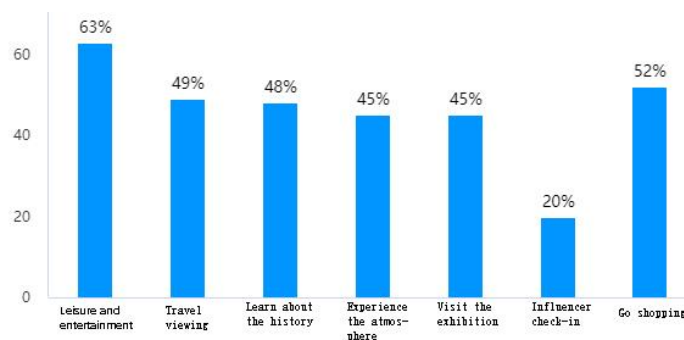


Figure 2 Citizen Behavioral Patterns

3.4.1 Neighborhood Environment Satisfaction Analysis

The questionnaire evaluates five aspects of architectural renewal: spatial environment, marking symbols, greening landscape, and atmosphere creation, and each of the five levels is assigned a score from 1 to 5 (Table 5). The final results of the questionnaire show that the atmosphere creation, marking symbols, and greening landscape of the old neighborhoods in Jiefang District have higher scores, with scores above 3.4, and the other two aspects are lower than 3.4; this indicates that the public agrees with the creation of the atmosphere of the inner place, the design of the marking symbols, and the arrangement

of the green landscape of the old neighborhoods of Jiefang District. Still, the buildings in the neighborhoods need to be renewed. The spatial environment needs to be upgraded to increase the people's satisfaction with the environment of the old neighborhoods in Jiefang District. Satisfaction with the environment of old neighborhoods in Jiefang District.

Table 5 Neighborhood Environmental Satisfaction

Evaluation of the Item \ Satisfaction	Very Dissatisfied	Not Satisfied	Generally	Satisfied	Very Satisfied	Average score
Building renewal	2%	6%	54%	29%	9%	3.37
Space Environment	2%	8%	52%	29%	9%	3.35
Identifiers	1%	9%	46%	32%	12%	3.45
Green Landscaping	3%	7%	49%	28%	13%	3.41
Atmosphere	2%	6%	47%	32%	13%	3.48
Subtotal	2%	7.2%	49.6%	30%	11.2%	3.41

3.4.2 Evaluation of Neighborhood Trait Familiarity

The questionnaire evaluates five aspects of the old neighborhoods in Jiefang District, namely, historical value, cultural connotation, spatial environment, local customs, and neighborhood communication, with each of the five grades being assigned a score from 1 to 5. The final results of the questionnaire show that the historical value has the highest score, indicating that the public has a high degree of recognition of the historical value of the neighborhood. People's familiarity with the characteristics of the old neighborhoods in the Jiefang District is higher than 3.5 points, which indicates that the neighborhood characteristics are outstanding, the people have a sense of local identity and belonging to the neighborhoods, and the characteristics of the neighborhoods have the value of emotional continuity (Table 6). It is necessary to pay attention to the protection of regional space and the expression of regional characteristics in the renewal of the neighborhoods so as to improve people's familiarity with the characteristics of the old neighborhoods in Jiefang District.

Table 6 Neighborhood trait familiarity

Evaluate the Item \ Familiarity	Very Unfamiliar	Unfamiliar	General	Familiar	Very Familiar	Average Score
Historical Value	1%	3%	39%	46%	11%	3.63
Cultural Connotation	1%	5%	43%	40%	11%	3.55
Space Environment	1%	6%	41%	40%	12%	3.56
Customs	1%	4%	44%	37%	14%	3.59
Neighborhood Exchanges	1%	6%	43%	38%	12%	3.54
Subtotal	1%	4.8%	42%	40.2%	12%	3.57

4. Renewal Strategy

4.1 Focus on the Continuity of Urban Memory

Focusing on the protection of the memory continuity of the middle and old age groups, adding public space to strengthen the continuity of urban memory and interactivity^[8]; facing the diversity of occupations of the memory crowd in the neighborhood, designing the neighborhood space according to the characteristics of various occupational activities, meet the needs of the activities of various occupational groups, and provide a diverse and inclusive place for memory continuity and interactivity. Create an urban memory space that can both carry historical memory and satisfy modern people's lifestyles to improve the comfort of life in the neighborhood, increase the space for healthy leisure activities, and make the neighborhood a truly livable place.

4.2 Strengthening Urban Memory Promotion

Create more concise and convenient memory pathways, and increase the opportunities for people to interact and experience in the memory space by displaying urban memory information in the neighborhood space. Build a big data platform of urban memory so that the memory crowd can record and display in a direct and quick way^[9], and encourage the people and experts to build and share urban memory.

4.3 Focus on Urban Memory Translation

Focusing on the translation of memory elements in material space, through the retention and

innovation of neighborhood image symbols, the creation of memory space imagery, the continuation of the logic of memory place construction, and the expression of memory scene mood and emotion^[10], it awakens the resonance of people's memories, and enhances the cultural connotation and emotional value of the neighborhood.

4.4 Protecting the Emotion of Urban Memory

The neighborhood characteristics of the old neighborhoods in the Jiefang District carry rich historical culture, and regional characteristics and have a high emotional continuity value. The old neighborhoods are not only the witnesses of urban development but also the emotional support of the people, so the people have a strong sense of identity and belonging to the neighborhoods. Through in-depth excavation of the historical culture and regional characteristics of the neighborhood, the forms and symbols representing the regional characteristics of the neighborhood are implanted into the neighborhood space, forming a memory place, stimulating the people's emotions towards the neighborhood, and promoting the sustainable development of the neighborhood.

5. Conclusion

This study takes the old neighborhood of Jiaozuo Jiefang District as the research object, analyzes the urban memory from four aspects of memory crowd, memory pathway, memory elements, memory emotion, and summarizes the cognitive elements and laws of urban memory, and puts forward the neighborhood renewal measures, which helps to protect and inherit the urban memory of the old neighborhood of Jiaozuo Jiefang District and provides a new way of thinking for the renewal of the neighborhood.

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