Can Collective Memory be Cognized after Heritage Revitalisation? Cases of Shanghai and Hong Kong

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Keywords: Collective Memory, Heritage Revitalisation, Space Syntax, Semantic Analysis.

Abstract

The Heritage revitalisation is a necessary process of urban renewal and development. Collective memory is the core value of heritage revitalisation carrying the history and cultural information, as well as reflecting the local daily lives. Thus, it is essential to preserve the collective memory during the revitalisation. However, various reasons can lead to its preserved consequence, and various people have different cognition for it. To analyse the influential factors of the memory cognition after heritage revitalisation, the study proposed a comprehensive framework comprising subjective analysis and objective exploration, traditional methods and novel techniques. Influential factors include tangible parts and intangible parts. Tangible parts include global integration, local integration and intelligence of spatial characteristics. Intangible parts are dominantly inclusive of activities held at the sites. Through analysis, the study found that the preservation of memory information and activities can influence human behaviors, and these behaviors can generate different cognitions for the memory of heritage revitalisation. The finding explores the interaction of space, people and memory, enhances the heritage revitalisation in a vivid way, and lays the solid foundation for future urban (re)development.

1. Introduction

Urban heritage is one of the important elements of urban texture, carrying the memories of this city, and maintaining the emotions of this city (Bizzarro and Nijkamp, 1998). Revitalisation of urban heritage is one of the effective processes of urban renewal to maintain historic information and achieve its vital (re)development. During this process, a particular kind of emotion, collective memory, could be evoked and formed to present the contexts of this region (Lee and Shanks, 2023, Garcia-Gavilanes et al., 2017). It demonstrated the daily life of the public and presented the local emotions through physical parts (Halbwachs, 1980). Collective memory is an interactive process of people and heritage sites. Thus, the revitalization not only emphasizes the presentation of physical preservations but also public cognitions on the heritage revitalisation.

The definition of memory can be traced from psychology, which means the capability of saving and the extraction of identified information after collecting and processing relevant data (Scutt et al., 2022). It not only includes the individual memory but also collective memory (Halbwachs, 1992). The definition of collective memory was proposed by Halbwachs, demonstrating the construction of identity with temporal and spatial developments (Halbwachs, 1992, Halbwachs, 1980). Current research of collective memory focused on: (1) Deconstruction of collective memory, including past events, memorial rituals, contexts, paths, edges, districts, nodes, and landmarks (Qu and Cheer, 2021, Qu et al., 2022, Lynch, 1960). (2) Reconstruction of collective memory. Through reconnecting objects, space and events at heritage sites with certain clues or storylines, the memory or the daily life at this site can be rebuilt and represented (Hinkson, 2016, Freitas et al., 2023). Digital techniques were also applied, such as VR, AR, and digital constructions. (3) Evaluation of collective memory. Evaluated factors include attachments, identity and nostalgias, and evaluated methods were mainly questionnaires and interviews (Chen, 2022).

However, relevant research covered general field, such as old places and communities, rather than focusing on the heritage sites, and neglect people's cognition. Heritage revitalisation emphasizes the conservation and inheritance of historic information as well as the integration with modern life and vitality, to achieve its sustainable development. Thus, its collective memory cognition is different from old places renewal, while its current research was focused on: (1) physical presentations, including the preservation of landscape, objects, space of heritage, and its integrity with relevant events. Research methods included field investigations, space syntax, GIS and interviews (Li et al., 2016, Wang et al., 2024); (2) Subjective cognitions, including the evaluations, preferences and emotions of a certain revitalised part. Research methods included story maps, eye-tracking techniques, semantic analysis and on-site observations (Palmer and Feyerherm, 2018, Pohsun et al., 2023).

In all, research on the cognition of heritage revitalization were mainly utilized questionnaires, environmental psychological methods, space syntax and GIS, while it lacked the exploration of collective memory. Research on the collective memory lack the cognitive analysis and its combination with tangible elements, such as space, objects, and events, particular for the heritage. Thus, this study aims to fill in this gap and explore the relationship of the cognition of collective memory and heritage revitalisation. It utilized space syntax, semantic analysis and on-site observations, and selected Columbia Circle in Shanghai and Tai Kwun in Hong Kong to discuss the interactions of space, human behaviors, and memory cognition as follows: (1) How do people cognize the collective memory after heritage revitalization? (2) What factors can influence the collective memory cognition? (3) How do people improve collective memory cognition through heritage revitalization?

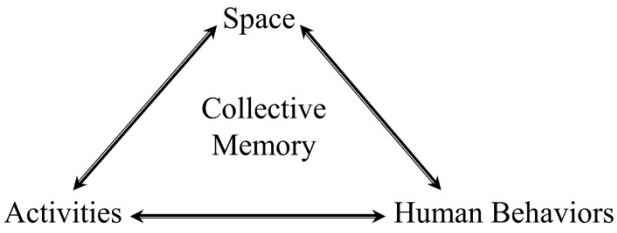

Figure 1. Cognition of the collective memory of urban revitalistaion.

2. Methodology

2.1 Study Area

The study selected Columbia Circle and Tai Kwun as cases, because they were built at the same time, and have begun to revitalize since 2015. After revitalisation, they are open to the public. They have similar space and revitalized patterns, but different revitalised measures. Thus, they have different revitalised results.

Columbia Circle is located at the center of Changning District in Shanghai and covers an area of 48000 m^2 in a metropolis. Columbia Circle was built in 1924 by Asia Realty Co. and has undergone three phases: the beginning phase (the 1930s), the industrial phase (the 1950s), and the renewal phase (after 2016)(Chen and Lu, 2023). After 2016, it was revitalized from a recreational place and a working place to a multifunctional place, including daily lives, work and recreation, (Fig.2 and 3).

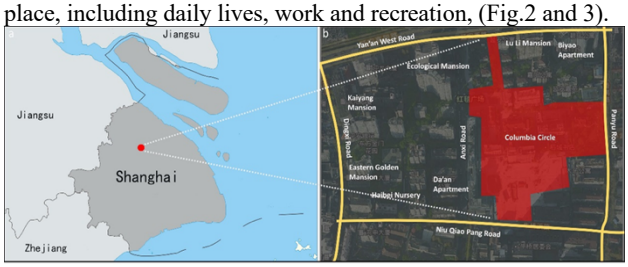

Figure 2. Location of Columbia Circle (Source: a. https://www.tianditu.gov.cn/; b. Omap).

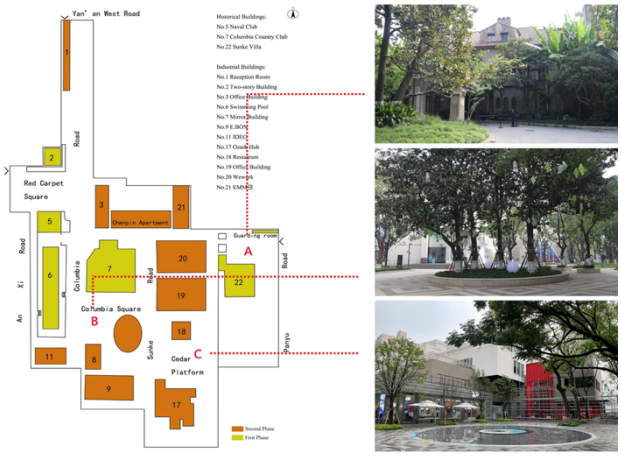

Figure 3. Layout of Columbia Circle.

Tai Kwun is located in the Central of Hong Kong and is regarded as the living record of the local legal and penal system. It was built in 1864 as a complex including the police station, the police dormitory, the central magistracy and a jail. It was expanded in 1893 and was taken during the Second World War by the Japanese army. After the 1950s, it was repaired and continued to be used by the locals. In 2008, it was listed in the Partnership Scheme to revitalize and open to the public in 2018. After revitalization, it was utilized as a multifunctional place, including exhibitions, performances and recreations (Fig.4 and Fig.5).

Figure 4. Location of Tai Kwun.

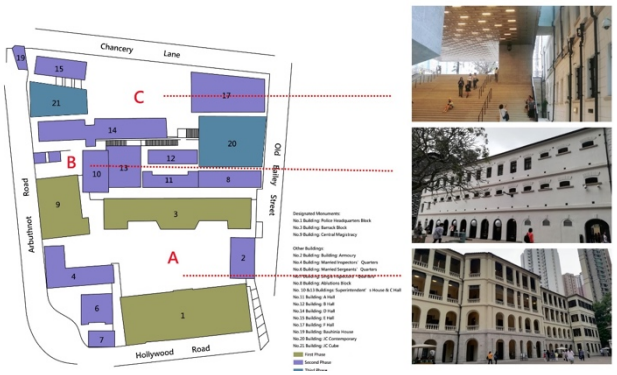

Figure 5. Layout of Tai Kwun.

2.2 Data Collection

2.2.1 Space Syntax

This study selected the VGA model of space syntax to analyse the spatial configuration of Columbia Circle and Tai Kwun, and utilized DepthmapX software (a spatial analysis software originally developed by Alasdair Turner at the Space Syntax group at UCL) to conduct the analysis. According to the scale and areas of the case, the study set grid properties as 10. To avoid the border effects, the study set the surrounding entrances and adjacent traffic roads of the case as boundaries. The scope of Columbia Circle was limited to the south of West Yan'an Road, east of Anxi Road, west of Panyu Road, and south of Niuqiao Bypass Road, while the scope of Tai Kwun was limited to the south of Hollywood Road, east of Old Bailey Street, west of Arbuthnot Road, north of Chancery Lane (Fig 2 and 4).

Global Integration, Local Integration, and Intelligence are applied indicators in this analysis. The formulas of Global Integration (GI) are as follows (Ostwald, 2011):

$$GI=\frac{1}{RRA_i}=\frac{D_n}{RA_i}=\frac{D_n(n-2)}{2(MD_i-1)} \quad (1)$$

$$MD_i=\frac{\sum_{i=1}^{n} d_{ij}}{n-1} \quad (2)$$

$$D_n=\frac{2\left\{n\left[\log_2\left(n+\frac{2}{3}\right)-1\right]+1\right\}}{(n-1)(n-2)} \quad (3)$$

D_n is the standardized parameter, and n is the number of connected nods. The “depth” is the basic measure traced from the justified graph, indicating the intervening number of lines or

spaces between two spaces (Hillier, 1996). $\sum_{i=1}^{n} d_{ij}$ means the total depth (TD), the shortest path of the sum of the number from a particular nod i to every other node j in a certain space. MD_i means the mean depth, demonstrating the denotation of the average depth value of all nodes within a radius. For global integration, high values are warm colors indicating higher syntactic visibility, and low values are cold colors, indicating lower syntactic visibility (Ostwald, 2011).

Local integration (LI) means integration values at the radius 3. Its high value tends to be warm colors and demonstrates the higher visibility in this certain space.

The formula of Connectivity (C) is (Klarqvist, 1993):

$$C_i = \sum_j d_{ij} \quad (4)$$

Intelligibility is the ratio of connectivity and global integration, demonstrating an understanding between the local spatial structure and the integral system and spatial identifiability (Hillier and Hanson, 1984). The coordinates of the intelligibility consist of the scattered plots, trend line, and fitting degree (R2). Scattered plots demonstrate the discordance between the partial space and the entire space. The trend line is the minimum distance from all points to the line. R2 means the connection between the abscissa and the coordinate of scattered plots (Ostwald, 2011):

$$ID = R_2\left(\frac{C_i}{GI_i}\right) \quad (5)$$

2.2.2 Activities and On-site Observations

Data on activities were dominantly from the Internet (https://mp.weixin.qq.com/mp/profile_ext?action=home&__biz=MzUzNTg5MTkwNg==&scene=124#wechat_redirect; https://www.taikwun.hk/zh/), and investigations. Online data can be traced from 2018.

On-site observation utilized Gate counts to observe pedestrians and count the number of users who crossed the selected gates at the selected sites. Figures 4 and 5 depict the current spatial distributions of Columbia Circle and Tai Kwun. Yellow parts indicate buildings in the first phase; orange and purple parts mean the buildings in the second phase; blue parts mean the newly built buildings. Considering the spatial characteristics and the preservation of their memory in different phases, three gates were selected separately to collect data and do the analysis.

Observations were selected on weekdays and weekends from January to May. They covered various times in a day: morning (7:00 a.m. to 12:00 a.m.), afternoon (12:00 p.m. to 5:00 p.m.), and evening (5:00 p.m. to 10:30 p.m.) at every gate. Every observation lasted for one minute, and all gates were observed twice in a time in case of unreliability. The results are the average of every observation.

2.2.3 Semantic Analysis

Semantic analysis refers to the process of understanding the meaning or emotions of text. Its definition can be traced from the linguistic field and was applied to the field of natural language processing (NLP). The study searched relevant comments online (https://www.dianping.com/) and utilized a sentiment lexicon-based method to analyse their emotions toward the sites.

The study selected three aspects to analyse: the keywords of the space and activities that people attended, to explore their preferences; the emotions of these comments to find out their memory cognitions on the sites.

After searching on the webpage, 14189 comments from Columbia Circle and 2012 comments from Tai Kwun were collected. Before the analysis, the removal of duplications and the correction of the database were applied.

3. Result

3.1 Spatial Characteristics and On-site Observations

3.1.1 Columbia Circle

Fig. 6. indicates that at Columbia Circle, the highest global integration is centered at Columbia Road, then at Gate B, demonstrating their optimal accessibility and visibility. The lowest global integration is observed near Gate A and Gate C. The highest local integration is observed at Columbia Road, Gate B and Gate C, indicating their independence. The intelligibility at Gate B and Gate A is superior to the one at Gate C, demonstrating the coordination of their space with the integral spatial development.

Activities at Columbia Circle in the first phase were dominantly recreations, such as playing football, having balls, cultural performances, and story meetings. In the second phase, there were few activities because Columbia Circle became a working and academic place at that time. The only activities were festival performances, and daily after-work recreations such as playing basketball or swimming.

Currently, activities can be divided into three types: production, commercial, and cultural ones, such as working, seminars, concerts, exhibitions, and immersive drama. Most of the commercial activities were held at Gate B and Gate C, production activities were held at Gate C, and cultural activities were held at Gate A and Gate B.

Through the observation, the average pedestrians at Gate A were 12, at Gate B were 50, and at Gate C were 37.

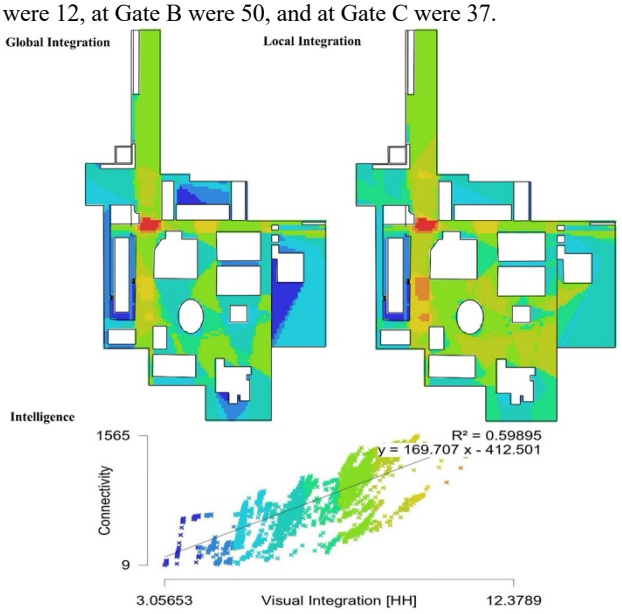

Figure 6. Spatial analysis of Columbia Circle with space syntax.

3.1.2 Tai Kwun

Fig. 7 indicates that at Tai Kwun, the highest global integration is centered at Gate A and Gate B, demonstrating their openness.

The lowest global integration is observed at Gate C. The highest local integration is observed near Gate C, indicating their independence and closure. The intelligibility at Tai Kwun needs to improve, for its R^2 is lower than 0.5, indicating the discordance between the local spaces with its integral planning. At Gate A, the space is relevant and open, and its connection with the surrounding space is weak. The space at Gate B is independent, thus its connectivity is low.

Activities at Tai Kwun in the first and second phases were dominantly working, legal affairs and prison life. Currently, activities can be divided into two types: commercial, and cultural ones, such as concerts, exhibitions, and work workshops. Most commercial activities were held at Gate A and Gate C, while cultural activities were held near Gate B and Gate C.

Through the observation, the average pedestrians at Gate A were 67, at Gate B were 31, and at Gate C were 55.

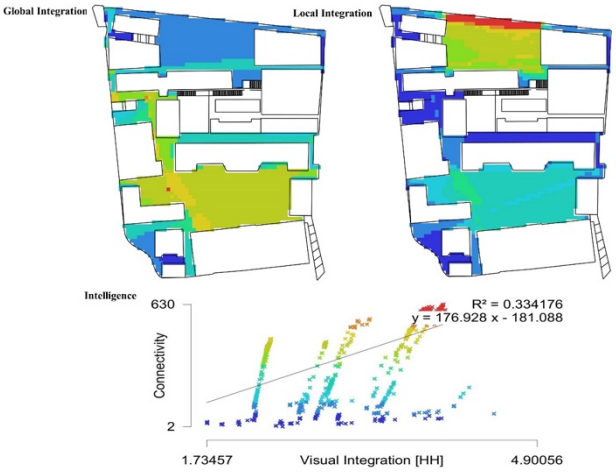

Figure 7. Spatial analysis of Tai Kwun with space syntax.

3.2 Semantic Analysis

3.2.1 Columbia Circle

Fig. 8a indicates that people tended to visit Columbia Country Club, the swimming pool, Naval Club and Sunke Villa, which are preserved historic buildings. The Columbia Country Club is revitalised as a bookstore, and this revitalisation aroused people’s interest. Besides, the decorative styles of the windows and doors of these old buildings, the garden and the fountain of Sunke Villa, and the mosaics and preserved style of the swimming pool were also their focuses during the visit. They are also interested in the memory of this place, particularly for the second phase as an Institute.

Fig. 8b indicates that people considered that most of the activities that they attended were commercial activities, particularly branding activities. Then, they tended to attend some recreational activities and cultural activities, such as punching cards, taking photos, exhibitions, shows, and dramas.

Figure 8. Keywords of the space and activities of Columbia Circle.

Fig.9 indicates the feelings of the people after they visited. Most of them are positive about this revitalisation. 9% of them feel negative about the revitalisation, and nearly 91% are positive about the revitalisation. The highest score of their emotions is above 4, while the lowest one is below -3. For their emotional descriptions, most of them feel to retro fashion style and Netflix, industrial styles and beautiful. Its revitalisation preserved Shanghai's traditional style and daily life. While some considered that these spaces were similar, or over commercial, that made them disappointed.

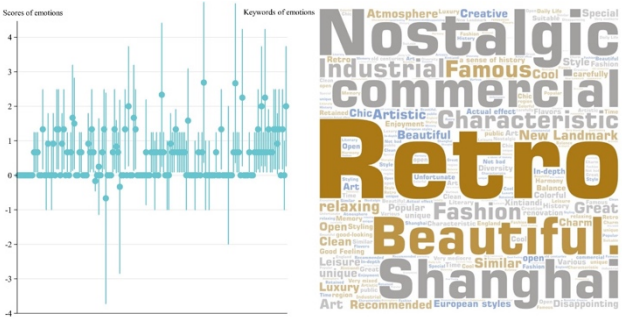

Figure 9. Emotions of people at Columbia Circle.

Fig.10 demonstrates that the swimming pool, Columbia Country Club, Naval Club, Sunke Villa and bookstore have a close relationship with retro style, nostalgic, old Shanghai memory and atmosphere. The decorations of architecture and decorations are closely connected with memory, retro and new landmarks, which they highly recommended. It indicates that most people feel they can cognize the memory through these revitalised parts.

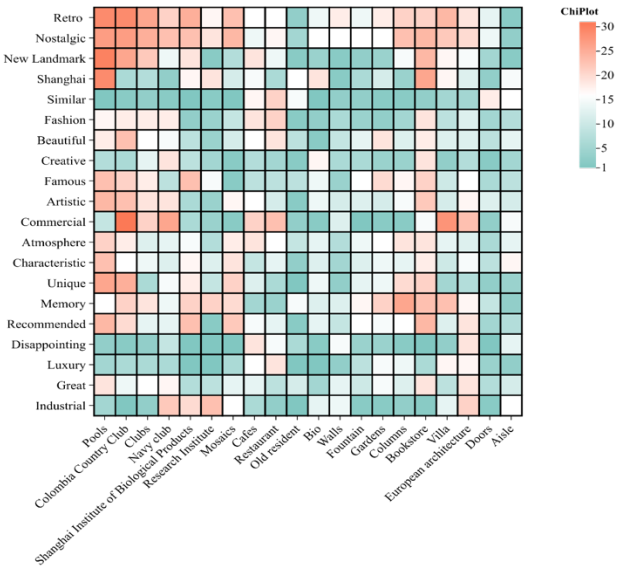

Figure 10. Correlation between the keywords and emotions.

However, these words are also connected with commercial and similar, demonstrating that activities of this place might be commercial, and some of its revitalisation maybe similar with other heritage sites.

3.2.2 Tai Kwun

Fig.11a indicates that people were impressed with historical buildings at Twin Kwun, such as the prison, the police station, the court, and memory objects, such as the mango tree, and beds in the cell. People were also interested in revitalise parts of Twin Kwan, such as the museum, screening room, restaurant, stores, and some newly designed parts, such as the stairs and the lobby.

Fig. 11b indicates that the activities that people tended to attend were watching movies and showcases, light shows, and concerts. They also preferred to see exhibitions, judges, and photography.

Figure 11. Keywords of location and activities of Tai Kwun.

Fig.12 indicates the emotions of these people. Most of them are positive about its revitalisation. 14% of them feel negative about the revitalisation, and nearly 86% are positive about the revitalization. The highest score of their emotions is above 11, while the lowest one is below -4. For their emotional descriptions, most of them feel interesting and worthwhile to visit, and through visit, they can feel the history. They can interact with the revitalised space and get educated.

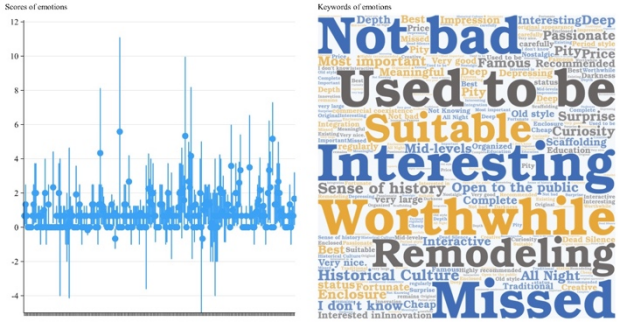

Figure 12. Emotions of people at Tai Kwun.

Fig. 13 demonstrates that the prison, buildings, police station, and playground are connected with the history, culture and old style. People can interact with the space and people through activities, such as screening shows, exhibitions, and light shows.

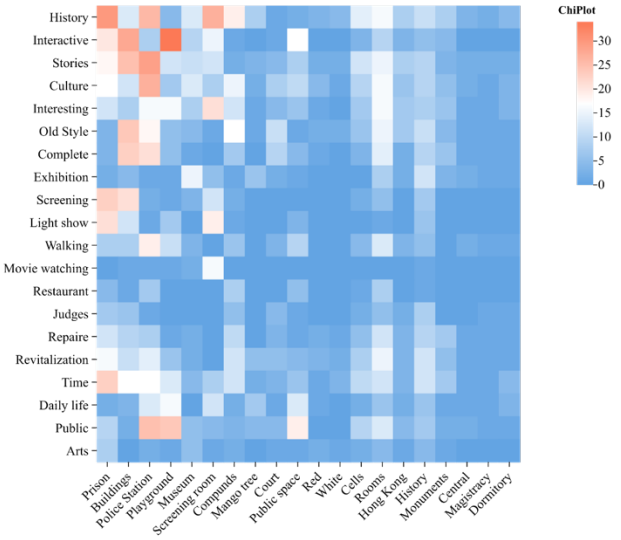

Figure 13. Correlation between the keywords and emotions.

4. Discussion

Columbia Circle and Tai Kwun are multifunctional revitalisations, but have different results. People cognized the collective memory at Columbia Circle better than at Tai Kwun, while Tai Kwun is more attractive than Columbia Circle. Because Tai Kwun held some activities with digital techniques and made immersive scenes. These activities can attract more people and arise their attention. At Columbia Circle, most of the activities were shows, exhibitions, or work. Few digital techniques were utilized, and people hardly interact with the surroundings. Thus, its pedestrian was less than the one at Tai Kwun.

For the spatial characteristics, Columbia Circle is composed of the preserved part and the revitalised part. Gate A is the preserved parts, and the Gate B and C are revitalised parts. 3 historical buildings are gathered at Gate B, while there are only revitalised buildings at Gate C. Gate B and Gate C have optimal visibility and accessibility. People was easy to access it. At Gate B, most of the old decorations were preserved, and their designs were coordinated with its integral planning, such as the ceramic of the swimming pool and the columns of the bookstore. Thus, people can experience the memory through these physical parts.

Although Gate A is relevant independent and quite with inferior accessibility and visibility, some cultural activities, such as exhibitions and seminars, were held there. These activities need a quite space, which Gate C can satisfy. However, most of these activities had nothing to do with the memories of this place. People can only know the memory through the villa and its garden.
Commercial activities and production activities tended to be held at Gate C. The buildings there have preserved their construction or decorations, but added new decorations, such as the mirror wall of No 8. Building and the mosaic wall of No.20 Building. These decorations added the vitality to the place, and attract many young people. However, commercial activities were also held there, and most of people complained that these activities were similar and destroyed the memory of this place.

Tai Kwun is composed of the preserved parts, revitalised parts and newly-built parts. Preserved parts have optimal visibility and accessibility. Old decorations and buildings were preserved, so that people can easier to acquire memory information. For example, the mango tree at Gate A was preserved. It has been planted since the establishment of the police dormitory. At newly-built parts, some creative designs were added and became a part of this place, which influenced the memory cognitions of the public.

Objective results	Columbia Circle	Tai Kwun
Types of Activities	Production, Commercial and Cultural ones	Commercial and Cultural ones
Locations of Activities	Commercial activities: Gate B, Gate C; Production activities: Gate C; Cultural activities: Gate A, Gate B	Commercial activities: Gate A, Gate C; Cultural activities: Gate B, Gate C.
pedestrians	Gate A:12; Gate B:50; Gate C:37	Gate A:67; Gate B:31; Gate C:55
Global Integration	Gate A:9.795; Gate B: 6.759; Gate C: 4.938	Gate A:3.795; Gate B: 2.999; Gate C: 2.309
Local Integration	Gate A: 10.930; Gate B: 8.949; Gate C: 6.055	Gate A:11.500; Gate B: 3.976; Gate C: 21.786
Intelligence	0.609	0.334

Table 1. Comparison of space and activities

For the activities, Columbia Circle was a recreational place and a research institute. After revitalisation, although its physical parts have been preserved well, only some production activities have been preserved. Few cultural activities were held, particularly about the memory of this site. Most of the activities were commercial activities, which influenced the experience and cognition of the public. Thus, some comments pointed out that these activities seem similar to other heritage sites, and they felt disappointed. Tai Kwun was utilized for public affairs. After revitalisation, most of the activities held there were about its culture or memory, such as guide tours, seminars, workshops, exhibitions, and digital shows. These activities can introduce its history and stories to the public, which can enhance people’s cognition of memory.

Subjective results	Columbia Circle	Tai Kwun
Locations	Historical buildings, decorative styles, the garden and the fountain of Sunke Villa	Historical buildings; Memory objects; Newly designed parts
Activities	Commercial activities and cultural activities	Cultural activities
Emotions	Scores: -3-4; Percentage: 9% negative; 91% positive	Scores: -4-12; Percentage: 14% negative; 86% positive

Table 2. Comparison of cognitive results

According to the analysis above, implications are proposed as follows:

(1) Revitalisations need to preserve the memory of the site, and newly-built parts need to be coordinated with the preserved parts and its integral planning. Memory information can be presented through objects, ornaments, decorations and activities.

(2) Close connections between the memory and activities at heritage sites can enhance memory cognition. The interactive activities can be arranged in the space with optimal visibility and accessibility to attract more people. Activities that need to quiet atmosphere can be arranged in an independent space. Commercial activities would influence public cognition, and its arrangement needs to be considered during the revitalisation.

(3) Technologies can enhance the public experiences, such as digital media presentations and screenings. It could create an immersive scene for the public to cognize memory vividly.

5. Conclusion

This study explored the influential factors of memory cognition after heritage revitalisation with a comprehensive method, including space syntax, semantic analysis, on-site observations and literature research. It discussed the relationships between tangible parts, intangible parts, human behaviors and memory cognition. In addition, the study also added the quantitative method to the qualitative methods to make the analysis more credible and direct.

This comprehensive study emphasized the preservation of memory information during the spatial alterations. This information and the varieties of activities can influence human behaviors which generate different cognitions of memory for the heritage site. Some implications were also proposed afterward, which provided a new perspective for future research. However, this article is at the primary stage. Future work should therefore include detailing the activities at different times and the varieties of people, and the application of AI, to enhance the analysis and revitalisation of heritage.

Acknowledgements

This research was funded by [Fujian Provincial Social Science Fund] grant number [FJ2025C212] and [Fundamental Research Funds for the Central Universities] grant number [20720251004].

References

Bizzarro, F., Nijkamp, P. 1998. Cultural heritage and urban revitalization: A meta-analytic approach to urban sustainability. In: Lichfield, N., Barbanente, A., Borri, D., Khakee, A., Prat, A. (eds) *Evaluation in Planning. The GeoJournal Library*, vol 47. Springer: Dordrecht. doi.org/10.1007/978-94-017-1495-2_10

Chen, Y. 2022. Assessment on the collective memory of urban heritage: case of Hengshanfang in Shanghai. 13th International Space Syntax Symposium, SSS 2022. 2022, Bergen, Norway.

Chen, Y., Lu, S. 2023. Different patterns of the revitalization of collective memory in Shanghai and Hong Kong: the cases of Columbia Circle and the Blue House Cluster. *Space and Culture*, 28(2), 195-220. *doi.org/10.1177/12063312231155350*.

Freitas, L., Meerkhan, H., Rocha, F., Pereira, A. J. S. C., Chamine, H. I. 2023. Drastic- fm-urban index: an updated and reliable GIS vulnerability mapping for the assessment of fractured rock media in urban areas. *Environmental Earth Sciences,* 82, 156 (2023). doi.org/10.1007/s12665-023-10819-0.

Garcia-Gavilanes, R., Mollgaard, A., TSVETKOVA, M., Yasseri, T. 2017. The memory remains: Understanding collective memory in the digital age. *Science Advances,* 3. doi.org/10.1126/sciadv.1602368

Halbwachs, M. 1980. *The Collective Memory,* New York, Harper & Row.

Halbwachs, M. 1992. *On Collective Memory,* Chicago, University of Chicago Press.

Hillier, B. 1996. *Space is the machine: a configurational theory of architecture,* Cambridge Cambridge University Press.

Hillier, B. & Hanson, J. 1984. *The social logic of space,* Cambridge Cambridge University Press.

Hinkson, M. 2016. *maging Identity: Media, Memory and Portraiture in the Digital Age.* ANU Press, Canberra.

Klarqvist, B. 1993. A space syntax glossary. *Nordisk Arkitekturforskning,* 2**,** 11-12.

Lee, D. Y. H., Shanks, D. R. 2023. Conscious and unconscious memory and eye movements in context-guided visual search: A computational and experimental reassessment of Ramey, Yonelinas, and Henderson (2019). *Cognition,* 240. doi.org/10.1016/j.cognition.2023.105539

Li, Y., Xiao, L., Ye, Y., Xu, W. & Law, A. 2016. Understanding tourist space at a historic site through space syntax analysis: the case of Gulangyu, China. *Tourism management,* 52**,** 30-43. doi.org/10.1016/j.tourman.2015.06.008

Lynch, K. 1960. *The image of the city.* MIT press, Massachusetts,.

Ostwald, M. J. 2011. The mathematics of spatial configuration: revisiting, revising and critiquing justified plan graph theory. *Nexus Netw J,* 13**,** 445-470. doi.org/10.1007/s00004-011-0075-3

Palmer, M. H., Feyerherm, A. 2018. Visual convincing of intangible cultural relationships using maps: a case study of the Tongariro National Park World Heritage nomination dossier. *Canadian Geographer-geography Canadien,* 62**,** 81-92. doi.org/10.1111/cag.12439

Wang, P., Song, W., Zhou, J., Tan, Y., & Wang, H. 2023. AI-Based Environmental Color System in Achieving Sustainable Urban Development. Systems, 11(3), 135. doi.org/10.3390/systems11030135.

Qu, M., Cheer, J. M. 2021. Community art festivals and sustainable rural revitalisation. *Journal of Sustainable Tourism,* 29**,** 1756-1775. https://doi.org/10.1080/09669582.2020.1856858.

Qu, M., Mccormick, A. D. and Funck, C. 2022. Community resourcefulness and partnerships in rural tourism. *Journal of Sustainable Tourism* 30**,** 2371-2390. doi.org/10.1016/j.sbspro.2014.07.298

Scutt, G., Williams, S., Auyeung, V., Overall, A. 2022. Clinical decision-making and dispensing performance in pharmacy students and its relationship to executive function and implicit memory. *Exploratory Research in Clinical and Social Pharmacy,* 5, 100096. doi.org/10.1016/j.rcsop.2021.100096

Wang, M., Li, Y., Ruan, W., Zhang, S. and Li, R. 2024. Influencing factors and formation process of cultural inheritance-based innovation at heritage tourism destinations. *Tourism Management,* 100**,** 104799. doi.org/10.1016/j.tourman.2023.104799