

# Designing Pathways for the Revitalization of Industrial Heritage

Jianqiang Yin<sup>1\*</sup>

<sup>1</sup> Faculty of Humanities and Arts, Macau University of Science and Technology, Macau, China

## Email Address

935167947@qq.com (Jianqiang Yin)

\*Correspondence: 935167947@qq.com

**Received:** 24 December 2021; **Accepted:** 27 February 2022; **Published:** 3 April 2022

## Abstract:

The main content of this paper is to reflect on and explore the ways and means of industrial heritage conservation. With urban development, the problem of conservation of industrial heritage buildings has intensified, and there is a rich variety of approaches to conservation and renewal at home and abroad. Is there homogenization and heterogeneity in the conservation of industrial heritage? From a discursive perspective, this study first analyses the literature and research trends on industrial heritage conservation using VOSviewer visual mapping to clarify the current hotspots and scope of industrial heritage conservation research. On this basis, a case study strategy is adopted to review how the government and experts and scholars have renewed the conservation of shipyards, and to reflect on and discuss the issue. Through the study, it is found that finding the “ontology” of heritage conservation is the key issue, and attempts to explore the ontological characteristics of heritage from four aspects: origin (source), flow (passing), identity (identity), and expansion (expansion), and to re-examine the value of industrial heritage, to expand the paths and methods of industrial heritage conservation.

## Keywords:

Industrial Heritage, Revitalization Paths, Liji Bowl Shipyard, Value, Ontological Research

## 1. Introduction

With the adjustment of urban industrial structure, the continuous development of social economy, and the unpredictability of the natural environment, the urban landscape is undergoing rapid changes. At the same time, industrial heritage has followed the pace of urban construction in the development of history and possesses a special nature. How it is protected and utilized, which is an important part of urban construction, and how it should be protected, has been controversial. [1] As a carrier of history, industrial heritage carries cultural, technological, social, and economic values and the mark of an era. How, therefore, should industrial heritage be protected? By what standards? What are the values to be preserved? What are the ways of conservation? It is worth discussing and examining. With the above questions in mind, this study takes the Macau Lai Chi Bowl Shipyard as the object of study from a



for industrial heritage in the process of social development in the literature on the theme of industrial heritage, and the increased focus of experts and scholars on the study of the relationship between urban cultural development and heritage. Through the data statistics of the scientific knowledge mapping, it is roughly possible to classify the studies involving industrial heritage into four categories: studies on the conservation and renewal strategies of industrial heritage, studies on industrial heritage and tourism development, studies on the evaluation of the value system of industrial heritage, and studies on industrial heritage and creative industries. Therefore, research focusing on industrial heritage should first focus on the issue of urban regeneration and thus the adaptation of industrial heritage to urban development. [2] (as shown in Figure 1)

### **3. Reflection and Discussion Based on the Perspective of Urban Renewal**

#### ***3.1. The Need for Urban Development***

With the development of cities, more and more old factories and buildings are facing the choice of “demolition or retention”, and the conservation of these industrial heritage buildings, which have a certain heritage value, has become an important issue in urban regeneration. [3] The cultural diversity of the city and the richness of its world heritage have led to the development of Macau as one of the famous tourist cities. In recent years, the Macau government has continued to undertake the building and development of the city, and the conservation and use of the Lai Chi Bowl shipyard continues to be discussed.

#### ***3.2. Initiatives of the Macau Government***

In December 2012, the Macau government launched the conservation of the Lai Chi Bowl Shipyard and conducted a planning study on the shipyard, pointing out that the Lai Chi Bowl Shipyard is a carrier of Macau's collective memory and that the conservation of the shipyard and the shipbuilding industry should be strengthened. In January 2017, the Macau Civil Engineering Laboratory and the University of Macau were invited to conduct two safety assessments and quality tests on the Lai Chi Bowl Shipyard and to compile and launch the test reports. In December 2018, the draft administrative regulation “Assessment of the Lai Chi Bowl Shipyard Area as a Site and Setting of its Buffer Zone” was officially launched. [4] The Macau government's study and planning scheme for the Lai Chi Bowl shipyard makes a hierarchical evaluation of the different shipyards and plans the corresponding functional attributes. The scheme is mainly based on tourism and culture, creating a commercial complex of amusement, dining, entertainment and exhibition for residents and visitors.

#### ***3.3. Analysis of Literature Studies on the Lai Chi Bowl Shipyard***

After a literature search, it was found that there are few research papers on the conservation and reuse of the Lychee Bowl Shipyard at this stage, and scholar Cai Jiayi took the Lychee Bowl Shipyard as the research object and explained the design ideas and methods for the spatial transformation of the shipyard building. The design of the shipyard building is based on the four aspects of “attracting, bringing, retaining and remembering”. [5] (as shown in Figure 2) Zhu Rong and Yu Yanqiu argue that heritage tourism contributes to the continuation of industrial heritage from the perspective of tourism culture and urban planning in Macao, and make a specific

analysis of the construction, spatial attributes, materials and landscape of the Litchi Bowl Shipyard, concluding that creative industries are suitable for the development of the Litchi Bowl Shipyard, and that functional attributes such as museums, exhibition halls and commercial complexes can be introduced to activate the regeneration of industrial heritage. [6] Zhao Yue attempts to trace the historical lineage and collective memory of the Lychee Bowl shipyard from the perspective of place memory, exploring a micro-renewal model for industrial heritage and reorganizing the composition of space through narrative design based on cultural and creative industries, proposing a graded development approach to optimize the experience and reshape the historical heritage space. [7]



*Figure 2. Conceptual drawing of shipyard renovation Source: Cai Jia Yi.*

### **3.4. Reflection and Discussion**

Through the study of the strategies of the Macao government and the literature on the Lai Chi Bowl Shipyard, this chapter finds that most experts and scholars have certain commonalities and differences in their approaches and methods to the conservation and regeneration of the shipyard, with some scholars being too idealistic and some too ambitious in their views on industrial heritage towards the reuse and conversion model, and without good constructive advice in their practical studies. Therefore, it is inevitable that homogenization and heterogeneity in the process of heritage conservation will occur.

**Homogenization:** Firstly, the MSAR proposal is mainly based on tourism and culture to create a commercial complex with amusement, dining, entertainment, and exhibitions. Secondly, a study of the literature reveals a certain degree of similarity in the views of scholars Cai Jia Yi, Zhu Rong, and Zhao Yue, who all hope to activate the vitality of industrial heritage through various renovation methods, such as the establishment of museums, exhibition halls, leisure and entertainment centers, and other functions. Furthermore, as an international tourist city, one of the aims of the conservation and use of industrial heritage in Macao is to build a relationship between the general public and the heritage through material conditions, to achieve cultural dissemination and public identification with the heritage. So, is it that the conservation and regeneration of the Lai Chi Bowl shipyard should be integrated with the tourism industry? What are the characteristics that distinguish the transformation of industrial heritage from other architectural heritage? It has been proven in practice that heritage tourism can indeed lead to the regeneration of industrial heritage, but how meaningful is regeneration if it is done in the same or similar ways and modes? Will it just become a short-lived net-worthy hitting place worth pondering?

**Heterogeneity:** Heterogeneity means that the result may be good, but the original value and meaning no longer exists. For example, Li Chaoyang, a professor at

Tsinghua University's School of Fine Arts, told us about a case: the 'panda dustbin', (as shown in Figure 3) which can be found everywhere around us, was designed to look like a panda. Even if the design is perfect, the design is wrong in its nature. The panda is a national treasure, and to have it carry rubbish has deviated from the essence of the design. 798 has been a popular destination in Beijing for quite some time, attracting a large amount of traffic by virtue of its commercial culture, art culture and its own industrial heritage culture, and is a typical example of the combination of industrial heritage and tourism culture. Nowadays, 798 is filled with a strong commercial atmosphere, and a series of problems such as low-quality exhibitions, commodities and high rents have surfaced, completely losing the ontology of industrial heritage renovation, not to mention the historical memory of the past, and truly becoming a place to take pictures and send people away. [8] In the conceptual scheme for the Lychee Bowl shipyard, we see that the scholar Cai Jia Yi, using an avant-garde design approach, (as in Figure 2 above) tries to make the shipyard a public leisure space, with a slight deviation from the historical heritage.



*Figure 3. P a litter bin Source: Google.*

In summary, the conservation and use of industrial heritage based on urban regeneration and heritage tourism is still in the process of discovery, and excessive involvement of tourism and commercial culture will inevitably lead to the loss of the 'authenticity' of industrial heritage. [9] How can we ensure a balanced and sustainable state of urban development and heritage conservation? How can the extent of conversion of industrial heritage be determined? How to determine the true value of heritage and maximise its use without violating the principle of "authenticity"? What is the fate of the Lychee Bowl Shipyard? Firstly, while we agree with the viability of previous documentary research, we cannot deny that some views are one-sided. Therefore, it is important to identify what we are looking for and what we are trying to protect, i.e. the 'ontology' of heritage conservation.

#### **4. Exploring the Ontology of Heritage Conservation**

Noted heritage scientist Laura Jane Smith states that "heritage is essentially the production process of culture has a certain value significance." [10] What is the ontological nature of heritage conservation? We can argue that heritage conservation and heritage values are inextricably linked, and that the construction of heritage conservation systems is based on values, which can influence whether heritage stays or goes. The Russian scholar Prutsin argues that heritage buildings have both internal and external values. [11] Does heritage derive its value from the subject's person, the object or the subject's object and the object's person? This chapter takes the Lychee Bowl Shipyard as a case study and explores the ontological characteristics of heritage in four aspects: source, flow, congruence and topography.

##### **4.1. Source: Former Glory - Inherent Value**

Origins. As one of the four traditional industries that have developed in Macao over the centuries, the shipbuilding industry has a long history and is the collective memory and mark of the times of the entire Macao people, as well as forming an important part of the cultural heritage. In the early days of the city, the shipbuilding industry was first started by the arrival of Fujian merchants who brought with them shipbuilding skills, and in 1912, piers and dwellings were built, forming a living area for the coastal generation. This became the largest shipbuilding base in Macao and even in southern China. By tracing the Lychee Bowl shipyard of yesteryear, I believe that the inherent value of the shipyard includes physical capital (the heritage building proper with its shipbuilding tools, the land it occupies, etc.), human capital (shipbuilding technology leading to reproductive activities), natural capital (environmental resources, water, land, air) and cultural capital (shipbuilding and fishing culture).

#### ***4.2. Streams: the Decline of the Present - the Value of the Present***

Passing away. The shipbuilding industry was completely suspended in 2004, and in 2008, when a typhoon struck the shipyard, causing serious damage, (as shown in Figure 4) the Macau SAR government concluded in 2010 that the shipyard was no longer operational, and that the fishermen who used to work mainly as shipbuilders had to switch to other trades, leaving the craft and technology of shipbuilding facing extinction. Nowadays, the unique skills and cultural value of shipbuilding have passed away with the development of society, but every year Macau's Lupin's Birthday is still commemorated, with Macau residents reminiscing with the shipbuilders about their past lives. [12] This cultural continuity is undoubtedly the best preservation of cultural heritage. The essence of heritage values is the selective reproduction of history by people in the present according to their needs. [13] The legacy of the Lychee Bowl shipyard is evident in the tall row house style buildings, the only man who remains in the shipyard to continue making hand-made models, the nearby fishing village, the hand-made coffee, the beautiful bay, and the boat materials that can be found everywhere. (as shown in Figure 5)



***Figure 4. Current status of the Lai Chi Bowl shipyard Source: Google.***



***Figure 5. Interior space of the Lai Chi Bowl shipyard Source: Self-portrait.***

### ***4.3. Sameness: Identity - a Shared Value***

Recognition. The memory of history and the ability to identify with the past give value and meaning to the existence of heritage. [14] The existence of the Lai Chi Bowl Shipyard tells a story of Macau's history and gives residents a sense of identity and belonging. The existence of heritage buildings not only influences the development of a city but also nurtures the city's cultural heritage and public awareness. For example, in the case of the renewal and renovation of the industrial heritage of the old wharf in Huangpu District, Shanghai, the wharf was also a place of production and life for fishermen. With the upgrading and transformation of the industry, the old wharf building has been given new functions such as a fashion showground, an art park, and a comprehensive studio, attracting the most trendy culture to be displayed here, enhancing the taste and value of the whole site and bringing the industrial heritage back to life. The case of the reuse of the Shanghai wharf illustrates how public recognition of heritage transformation, with the values generated by the individuals within the community, is crucial to the continuation of wharf culture. The conservation of the Lai Chi Bowl shipyard requires the participation of the government, residents, and even visitors to maximize the use of heritage.

### ***4.4. Topo: More Possibilities - the Value of Creativity***

Expansion. In a phase of rapid urban development, the renewal and conservation of heritage areas have to be distinguished from the alteration of other architectural forms. Industrial heritage focuses more on the continuation of historical values and the matching of urban functions, the legacy of the architectural body and the creation of spatial forms, and how to deal with the hierarchical relationship between historical values, urban functions, architectural bodies, and spatial forms.[15]For example: "Industrial Heritage + Cultural Tourism", "Industrial Heritage + Museum", "Industrial Heritage + Educational Space", "Industrial Heritage + Creative industrial park", "industrial heritage + art centre", "industrial heritage + amusement park", "industrial heritage + hotel space", "industrial heritage + commercial centre" and many more. "industrial heritage + commercial centre" and many more. The future use of industrial heritage requires continuous exploration, maintaining the "magnetism and creativity" of heritage culture, exploring the balance between inherent value and creating value, and maintaining the intrinsic characteristics of industrial heritage while being better grounded in the present.

## **5. Conclusions**

Ontologies often contain extensive information about the past, and as time continues to pass, the values, messages, and vehicles of cultural heritage change. However, the ontology of heritage does not change; heritage is both historical and present, and it is the future. Depending on the social and cultural context, cultural heritage can continue to carry and tell its story, forming a new value system. In the future, more and more cities will have to face the question of preserving industrial heritage in the 'post-industrial era': should it be preserved or demolished? How to preserve and reuse it? This is a question that we should all ponder. In this paper, we take the Lai Chi Bowl Shipyard in Macau as an example and collect information on the conservation and reuse measures taken by the Macau government and academics to preserve and reuse the industrial heritage of the shipyard. It is hoped that this will bring some inspiration to the future study of industrial heritage.

## Conflicts of Interest

The author declares that there is no conflict of interest regarding the publication of this article.

## Funding

This research received no specific grant from any funding agency in the public, commercial or not-for-profit sectors.

## References

- [1] Yang, Y.J.; Liu, S.; Zhang Ke. Conservation and renewal of architectural heritage of urban memory. *Art and Design*, 2020, 1(10), 30-35, DOI: CNKI:SUN:YSSE.0.2020-10-009.
- [2] Wang, C.S.; He, Y. A visual analysis of Chinese industrial heritage research literature. *Famous Cities of China*, 2019, 9, 22-30, DOI: 10.19924/j.cnki.1674-4144.2019.09.003.
- [3] Han, L.; Yang, L. Conservation and reuse of industrial heritage in the context of urban renewal. *Urban Construction Theory Research (Electronic Edition)*, 2019, 22, 15, DOI: 10.19569/j.cnki.cn119313/tu.201922008.
- [4] Liu, M.S.. Public participation in urban renewal in Macau. MA thesis, Huaqiao University, Fujian, China, 2020.
- [5] Cai, J.Y. A study on the design of architectural space renovation of Lai Chi Bowl Shipyard, Macau. *Industrial Design*, 2021, 1, 103-104, DOI: CNKI:SUN:GYSH.0.2021-01-057.
- [6] Zhu, R.; Yu, Y.Q. Conservation and reuse of the Lai Chi Bowl Shipyard in Coloane, Macau in the context of cultural tourism. *Industrial Architecture*, 2015, 45(9), 40-43+30. DOI: 10.13204/j.gyz201509009.
- [7] Zhao, Y. A study on the renewal of industrial heritage of Lai Chi Bowl Shipyard in Macau based on the continuity of place memory. *Architecture and Culture*, 2020, 6, 79-180, DOI: CNKI:SUN:JZYW.0.2020-06-060.
- [8] Yang, J.W. Research on the transformation design of China's industrial heritage under the influence of Netflix culture. *Design*, 2021, 34(18), 96-98, DOI: CNKI:SUN:SJTY.0.2021-18-021.
- [9] Zhang, X.N.; Wang, Y. Research on the design of distillation paths for interpreting themes in industrial heritage display. *Art and Design (Theory)*, 2020, 2(12), 59-61, DOI: 10.16824/j.cnki.issn10082832.2020.12.012.
- [10] Laura, J.S.; Zhang, Y. Heritage is all inherently immaterial: Heritage Critical Studies and Museum Studies. *Cultural Heritage*, 2018, 3, 62-71, DOI: CNKI:SUN:WHYA.0.2018-03-009.
- [11] Pluckin, O.N.; Han, L.F. trans. Architecture and the historical environment; Social Science Literature Press: Beijing, China, 2011. ISBN: 9787509708620.
- [12] Wong, K.Y. The Passing on of Intangible Cultural Heritage - The Shipbuilding Industry of Macau's Traditional Industries. Urban Age, Collaborative Planning - Proceedings of the 2013 China Urban Planning Annual Conference (11 - Cultural Heritage Conservation and Urban Renewal). Ed. 2013, 563-570.

- [13] Daniel, H.O.; Dallen, J.T. Contested Religious Heritage: Differing Views of Mormon Heritage. *Tourism Recreation Research*, 2002, 27, 2, DOI: 10.1080/02508281.2002.11081215.
- [14] David, L. *The Past is a Foreign Country-Revisited*; Cambridge University Press: Cambridge, United Kingdom, 2015. ISBN: 9781139024884.
- [15] Castells, M. *The city and the grassroots: A cross-cultural theory of urban social movements*, F First Edition; University of California Press: Berkeley, America, 1984. ISBN: 978-0520047563.



© 2022 by the author(s); licensee International Technology and Science Publications (ITS), this work for open access publication is under the Creative Commons Attribution International License (CC BY 4.0). (<http://creativecommons.org/licenses/by/4.0/>)