

Research on the Design Method of Boat Cruise on Beijing-Hangzhou Grand Canal (Huitong River Section) Based on Regional Culture

1. Introduction

This study examines the qualitative expression of the selection of cruise ship design elements in the field of canal regional culture, focusing on colour and shape. The focus of this study is to analyse the extraction and transformation of regional cultural elements utilised in boat design. In particular, the method of designing the appearance of canal boats is the goal of this study. The purpose of this study is to find methods that can be used for the appearance design of cultural cruise ships. The results of this study can be used in the appearance design of cruise ships to be guided by the summary of the design methods.

2. Research methodology

This study proposes a qualitative approach to the design of the appearance of the canal boat under the regional culture, transforming the literature on regional culture design into a summary of the elements used in the design of the boat a method of design elements will be used according to the extraction of different cultures transformed and reused and change, the final effect of the design of the boat will be different, but based on the regional culture of the boat under the design of the basic framework of the method remains unchanged.

However, one of the potential challenges in transforming and reusing different cultural elements is ensuring that the borrowed elements are respectfully and accurately represented within the design. It is crucial to avoid cultural appropriation and to engage with local communities to ensure the design is authentic and meaningful to the regional culture it represents.

3. Research design

In the process of the Beijing-Hangzhou Grand Canal boat design method under regional culture, these are usually qualitative research concerns. First, collect the cultural phenomenon of the Shandong Canal section through literature research, collect a large amount of literature and information about the Shandong area through

website news, special journal, know net, analyse the unique regional cultural manifestations of Shandong Tongjiang River section, and describe the representative of the regional culture that has commonality.

Understanding the regional culture is crucial in the boat design process as it allows designers to incorporate elements that are unique and representative of the local identity. By analyzing the cultural manifestations of the Shandong Tongjiang River section, designers can create a boat design that not only reflects the traditions and heritage of the region but also resonates with the local community, fostering a sense of pride and connection.

In addition, using the research method of case analysis, searching for relevant cases for the theme, analysing the characteristics of the existing cultural boat design, digging out the design pain points and innovation points, and obtaining the reference basis and inspiration from them to study the design method of the boat with the integration of cultural factors. One method for conducting case analysis on cultural boat designs is to search for relevant examples of existing cultural boat designs from different regions.

4. Background to the study

On 22 June 2014, the 38th World Heritage General Assembly decided to inscribe the Grand Canal of China on the World Heritage List by voting. The selection of this topic stems from the concern for the protection and use of the cultural heritage of the Beijing-Hangzhou Grand Canal, as well as the improvement and development of the navigation environment of the navigation area of the Beijing-Hangzhou Grand Canal in recent years. There are rich natural landscape resources and cultural landscape points along the canal, and the new type of cruise ship can provide tourists with a unique viewpoint on the water, serve as a medium for linking cultural resources, enrich the tourism experience, and is expected to promote the development of inland river excursions and navigation.

At the same time, Shandong Jining Energy Group - Wuhan University of Science and Technology co-operation registered the establishment of Shandong Xinneng Ship Technology Company, as a student of Wuhan University of Science and

Technology, I am involved in it, to promote my new energy ship design practice and innovative research work. The company's product research and development plan for the next three years is divided into two batches, the first batch focuses on new energy transport vessels, and some actual design work has already been completed as the basis of the research, and the second batch is the design of future official vessels and excursion boats, this research is to establish the basis of this plan, and to conduct design research on the second batch of new excursion boats, and with the help of China's Canal Strategy and the advantages of the regional culture, it is expected that it will promote the development of inland waterway excursion and shipping.

5. Data collection methods

At the theoretical level, literature analysis is adopted for the content of the study, and the three concepts of regional culture, Beijing-Hangzhou Grand Canal (Huitong River section) and cruise ship design, literature is identified using CNKI, Google Scholar and school libraries, including academic journals, dissertations, conference papers, research reports and other secondary materials, to systematically sort out the development, hot spots, and problems in the field of research, etc. This method More comprehensive and systematic use of existing knowledge and experience and scientific research results, to provide scientific argumentation basis for the research, with reliability and validity.

At the practical level, using case study for careful research, using cases collected in the process of network survey and literature collection, selecting cases of cruise ship design under the regional culture with universality and representativeness, summarising the process as well as the method of the characteristics of the design of this type of cruise ship, which is based on practical knowledge in the real world environment with realism and innovativeness, and can be used to test existing The design method can be tested, developed and modified to establish a new design method.

6. Analyse the data

The cases Duckling, Edward and the Singapore River Cruise were selected for analysis:

1. Duckling, Hong Kong, China

Figure 1 Duckling



Source:(<https://www.dukling.com.hk/zh-cn/home/>)

Design Ideas:

The Duck Ling is the only antique Chinese sailing vessel still sailing in Hong Kong and is the oldest surviving Chinese sailing vessel in Hong Kong. As the hull of the ship is shaped like a duck, the owner named the ship Duck Spirit, meaning duck with spirit, focusing on the heritage of Hong Kong's fishermen culture and introducing travellers to the unique stories of Hong Kong.

Regional cultural elements:

Duckling, as an antique Chinese sailing ship, adopts the shape of traditional Chinese sailing ships, which is the imitation and inheritance of regional culture. The big red sails are the colour representation of Chinese culture, and the use of wooden materials inherits the use of Chinese ships in materials.

Design Methods:

1. Choosing the appropriate local ship culture, the traditional Chinese ship exterior styling is an inheritance and in-depth study of the traditional ship culture under the region, conserving this only remaining antique sailing ship and preserving the cultural heritage of Hong

	Kong. 2. Use modern design means to create an exclusive brand logo for the Duckling and on-board excursion experience projects in line with the regional culture, such as the Duckling's provision of quaint Hong Kong-style refreshments, as well as explaining the creation of an exclusive brand image.
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2. Edwardian, London, United Kingdom

Figure 2 Edwardian



Source: (<https://www.thamesluxurycharter.co.uk/fleet/edwardian/>)

Design Ideas:

EDWARDIAN ships are the epitome of British style, with an exterior design that blends classic and modern elements, retaining traditional British ship exterior features while adding modern design elements, making the overall appearance both historic and stylish.

Domain cultural elements:

Appearance modelling by the influence of the historical British naval vessels, with classic lines and design style, the hull is usually streamlined design, smooth shape, beautiful lines, highlighting the ship's dynamism and modernity, but also improve the ship's navigational performance, the hull of the appearance of the choice of colours to use the usual conservative large area of

	dark blue, red, white, and at the same time, this is the main colour of the British flag, to a certain extent, reflecting the British cultural heritage. This is also the main colours of the British flag, which to a certain extent reflects the inheritance of British culture. The appearance of the material is mainly made of steel and timber, reflecting the combination of early British wooden ships and modern industrial development. At the same time, the bow shape is streamlined with a pointed tip inheriting the traditional shape of British ships to reduce water resistance and improve sailing efficiency and stability.
	Design Methods: 1. According to the setting of the cruise route area, the 20th-century ships with classic British style are selected. 2. Extensive refurbishment in line with modern needs has added new skylights, a copper-topped bar, TV screens and more to further enhance the guest experience. 3. Ship appearance hull set ship name, brand font and hull modelling, while using engraved logo focus on brand building.

3. Singapore River Cruise

Figure 3 Singapore River Cruise



Source:(https://www.tripadvisor.co.uk/Attraction_Review-g294265-d6692280-Reviews-Singapore_River_Cruise-Singapore.html)

Design Ideas:

The Singapore River Cruise, the water-based arm of The Singapore River Experience, aims to allow visitors to explore both the traditional and modern aspects of Singapore.

Regional cultural elements:

Early in the Singapore River, there was this wooden boat also known as an amidships (tongkang, ocean-going barge), prevalent in the 19th and 20th centuries, along the Rochor River (Rochor River), the Kallang River (Kallang River) and the Singapore River transport of goods. Singapore is located in Southeast Asia, as a seaside city with a developed fishing industry, mainly small wooden boats, the appearance of its ship modelling is similar to most Asian countries's boats, and the appearance of the Singapore River cruise ship painted, by the influence of the ancient ship modelling, the use of fish-eye modelling as the bow of the painting, the fish-eye, also known as the "dragon's eye", can guide fishermen, clear vision of the sea and the sea. The fish eye, also known as the "dragon's

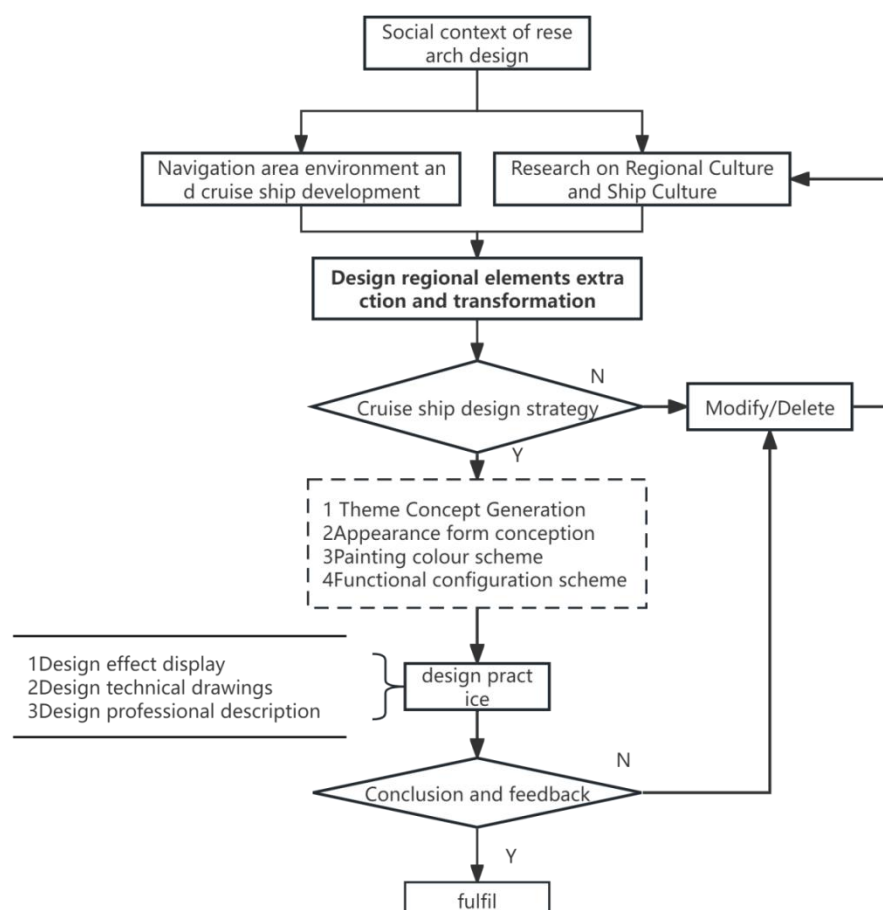
	eye", has a good meaning of guiding the fishermen, detecting the evils and monsters in the sea, and scaring off the sirens, so it has become an element that can be used in modern river cruises. Design Methods: 1. Trace the culture of Singapore's ship trade, study the appearance and characteristics of traditional barges, and select the characteristic cruise culture. 2. Ship culture elements are extracted and transformed into modern cruise ship design elements, focusing on colour matching and modelling design applied to the ship's hull.
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Based on the above case study, it is concluded that the method of designing the Beijing-Hangzhou Grand Canal cruise ship under the regional culture mainly includes the following steps:

Figure 4 identifies the design process of the cruise ship under regional culture, First of all, through the study of the design background, the purpose and scope of the design are clarified; secondly, the environment of the navigation area and the current situation of the development of the cruise ship are analysed to understand the characteristics of the Beijing-Hangzhou Grand Canal and the market demand for the cruise ship; then, the regional culture and the culture of the cruise ship are excavated in depth, including the elements of history, architecture, cultural symbols, etc.; on the basis of which, the design of the new cruise ship is formulated strategy, identifying the general idea and design features, as well as the regionalised design strategy; subsequently, carrying out the design practice, generating the conceptual plan according to the project background and navigation environment, and presenting the

design results. Through these steps, a Beijing-Hangzhou Grand Canal cruise ship that meets the regional cultural characteristics can be effectively designed to enhance the cultural connotation and attractiveness of the cruise ship. Some specific regional culture elements that can be incorporated in the design of the Beijing-Hangzhou Grand Canal cruise ship include traditional Chinese architecture motifs, such as pagoda-inspired structures and ornate dragon motifs. Additionally, the ship's interior can feature traditional Chinese artwork and calligraphy, showcasing the rich cultural heritage of the region. The use of local materials and color schemes inspired by the natural surroundings of the canal can further enhance the cultural connotation and aesthetic appeal of the cruise ship.

Figure 4 Design Flowchart



7. Methodological limitations of the study

Literature analysis as the basis and case study analysis as the research method were chosen because both can provide rich information and empirical cases, which

can help to deeply understand the history, current situation and development trend of regional cultural cruise ship design methods, thus providing sufficient theoretical support and practical experience for the research.

However, there are certain limitations in the research process. To overcome these limitations in the research process, it is important to employ a multi-method approach, combining qualitative and quantitative data collection methods. Additionally, establishing clear research objectives and using rigorous sampling techniques can help mitigate potential biases and ensure the validity and reliability of the findings.

Another strategy to mitigate potential biases in the research process is to engage in reflexivity, where researchers critically reflect on their own biases and assumptions that may impact the study. Furthermore, seeking diverse perspectives and incorporating peer review can provide valuable insights and challenge any potential biases in the research design and analysis.

Overall, literature analysis and case study analysis as research methods are of great value and significance in the study of regional cultural cruise ship design methods.

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