

Design Strategies for Cultural and Creative Products of Haihe River Bridge Culture

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Abstract: As the mother river of Tianjin, the Haihe River hosts bridges along its course that serve not only as vital carriers of urban transportation but also as cultural symbols embodying Tianjin's regional culture, historical heritage, and engineering craftsmanship. Taking Haihe River bridge culture as the core research subject, this paper combines visual communication design theory with the logic of cultural and creative product development. Through a systematic examination of the cultural connotations, typological characteristics, and value dimensions of the Haihe bridges, it analyzes current problems in product design, including homogenization, superficial cultural expression, and insufficient audience adaptation. Consequently, from four dimensions, cultural symbol extraction, design language transformation, functional scenario integration, and communication model innovation, this study constructs design strategies for Haihe River bridge cultural and creative products that possess cultural significance, innovation, and practicality. This research aims to provide theoretical support and practical reference for the design of cultural and creative products related to Tianjin's regional culture, promote the living inheritance and innovative dissemination of Haihe River bridge culture, and facilitate the construction and development of Tianjin's urban cultural IP.

Keywords: Haihe River bridges; Regional culture; Cultural and creative products; Design strategies

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1. Introduction

Tianjin has long been known as the “lower reaches of the nine rivers” and a “vital strategic passage where rivers meet the sea.” The Haihe River traverses the city, nurturing its unique bridge culture. From the Jingang Bridge, initially constructed in 1903, to the Yongle Bridge and Chifeng Bridge completed in the 21st century, dozens of bridges along the Haihe River are strung together like pearls, witnessing the historical transformation of Tianjin from a water transport wharf to a modern metropolis. In terms of architectural structure, these bridges encompass various types, including beam bridges, arch bridges, cable-stayed bridges, and suspension bridges. At a cultural level, they integrate Chinese and Western architectural styles, folk traditions, and the spirit of the times, serving as highly distinctive visual symbols of Tianjin's regional culture.

In their study on the cultural and creative products of Wuhan's bridges, Song *et al.* point out that bridge-themed cultural and creative products should delve into cultural connotations, integrate engaging appeal with practical utility, and forge a distinctive urban brand. This perspective provides crucial insights for the cultural and creative design of the Haihe River bridges ^[1].

With the flourishing development of the cultural and creative industry, cultural and creative products have become an important vehicle for the dissemination of regional culture. Zhong *et al.* employed the Analytic Hierarchy Process (AHP) to quantify consumer needs, thereby providing a scientific design approach for bridge-themed cultural and creative products ^[2]. In her study on Liuzhou's bridge-themed cultural and creative products, Zhang proposes integrating the extraction of regional elements, morphological transformation, and scenario-based design to develop products that possess both cultural significance and practical utility^[3]. Chen *et al.* propose that Haihe-themed cultural and creative products should deeply explore cultural resources, highlight regional characteristics, and balance practicality with aesthetics, which provides a practical reference for bridge cultural and creative design ^[4]. By combining cultural elements with modern design and practical functions, these products achieve a dual transformation of cultural and economic value. However, current cultural and creative products related to Tianjin's Haihe River bridges largely remain at the level of simple pattern printing and model replication. Several problems exist, such as superficial exploration of cultural connotations, monotonous design forms, and a disconnect from consumer needs, failing to fully leverage the unique charm of bridge culture. As a research direction in the field of visual communication design, the design of regional cultural and creative products requires not only solid design skills but also a profound interpretation of the connotations of cultural symbols to construct scientific and reasonable design strategies. Therefore, taking Haihe River bridge culture as the research object, this paper explores the design paths and methodologies for cultural and creative products. This serves as both a response to the inheritance of regional culture and an in-depth study on the application of visual communication design in the field of cultural creativity.

2. Current status and problems of cultural and creative product design for Haihe River bridges

2.1. Analysis of current status

Currently, cultural and creative products related to Haihe River bridges on the market primarily fall into the following categories:

- (1) The first category consists of model products, such as replica models of iconic bridges like the Jiefang Bridge and the Tianjin Eye, which are primarily made of metal or plastic and targeted at the tourism market;
- (2) The second category comprises daily necessities, such as T-shirts, mugs, keychains, and postcards printed with bridge patterns, where the design approach typically involves the direct printing of bridge photographs or simple line sketches;
- (3) The third category includes cultural souvenirs and collectibles, such as bridge-themed stamps, commemorative coins, and calligraphy and painting works, which are primarily intended for collection purposes.

In terms of sales channels, these cultural and creative products are primarily concentrated in tourist attractions, museums, and bookstores along the Haihe River, while online sales channels remain relatively weak. Regarding consumer groups, the primary consumers are non-local tourists, whereas local residents

demonstrate a relatively low willingness to purchase, resulting in a narrow audience coverage for the products. In terms of design entities, the majority of products are mass-produced by tourism souvenir manufacturers, lacking the participation of professional design teams, which leads to uneven design quality.

2.2. Major existing problems

Insufficient excavation of cultural connotations and serious homogenization. The majority of current Haihe River bridge cultural and creative products remain at the level of simple replication of the bridges' appearance, failing to deeply excavate the historical stories, cultural symbolism, and folk elements behind them. From the perspective of Jingu cultural genes, Zhou reveals that Haihe cultural and tourism products generally suffer from the superficial extraction of cultural elements and the inadequate expression of regional characteristics. Furthermore, she notes that bridge-themed cultural and creative products exhibit similar deficiencies^[5]. Monotonous design language and lack of innovation. In terms of design form, Haihe River bridge cultural and creative products mostly adopt traditional pattern printing and model replication methods, lacking the application of modern design language. Traditional communication modes and insufficient brand influence. The dissemination of Haihe River bridge cultural and creative products mainly relies on offline sales at tourist attractions; the construction of online communication channels is imperfect, and there is a lack of effective brand promotion strategies.

3. Design strategies for cultural and creative products of Haihe River bridge culture

3.1. Deep excavation and systematic organization of regional cultural symbols

The extraction of cultural symbols serves as the foundation for the design of cultural and creative products, necessitating the deep excavation of the core elements of Haihe River bridge culture, as well as their systematic organization and refinement. Symbol elements should be extracted from the dimension of architectural morphology, encompassing structural forms (e.g., arches, cables, tower columns), morphological features (e.g., curves, straight lines, geometric figures), and color combinations (e.g., red, gray, gold), which are then simplified and abstracted into identifiable visual symbols. Symbol elements should be extracted from the dimension of historical culture, encompassing historical events related to the bridges, anecdotes of famous figures, and the origins of their names, thereby transforming this textual information into visualized design language. Symbol elements should also be extracted from the dimension of folk culture, including folk activities, traditional handicrafts, and specialty foods surrounding the bridges, integrating these elements with bridge symbols.

3.2. Transformation of design language under the fusion and innovation of tradition and modernity

The transformation of design language is a crucial link in converting extracted cultural symbols into design schemes for cultural and creative products; it requires achieving the fusion and innovation of tradition and modernity. In terms of form design, it is necessary to break away from the monotonous forms of traditional model replication and pattern printing by adopting modern design methods such as modular design, interactive design, and biomimetic design. In terms of color design, it is essential to combine the original colors of the bridges with modern aesthetic trends to carry out color reconstruction and innovation. In terms of material selection, emphasis should be placed on the unity of environmental sustainability, practicality, and

texture, selecting appropriate materials based on the product's function and positioning.

3.3. Integration of functional scenarios to meet diversified consumer needs

The design of cultural and creative products should emphasize the integration of function and scenario, developing products that are practical and convenient according to consumers' usage scenarios and needs. Based on the Censydiam model, Cao *et al.* point out that cultural and tourism products should align with users' emotional motivations while balancing practicality and experiential value, which provides a basis for the scenario-based design of bridge-themed cultural and creative products^[6]. Targeting daily usage scenarios, daily necessities that combine aesthetics with utility should be designed. For instance, bridge forms can be integrated with stationery design to develop products such as bridge-shaped pen holders, bookmarks, and rulers, allowing consumers to perceive the charm of bridge culture in their daily lives. Targeting tourism and sightseeing scenarios, tourism cultural and creative products that are portable and possess strong commemorative value should be designed. Targeting educational and learning scenarios, cultural and creative products with educational significance should be designed.

3.4. Innovation of communication modes: Constructing a diversified promotion system

The communication and promotion of cultural and creative products constitute a crucial link in realizing their cultural and economic value, necessitating the construction of diversified communication modes. Online sales channels should be expanded by utilizing e-commerce platforms and social media platforms for product promotion and sales. For instance, official flagship stores can be opened on e-commerce platforms such as Taobao and JD.com to display and sell cultural and creative products; through formats such as short videos and live streaming, consumer attention can be attracted, thereby enhancing product awareness and influence.

Based on research concerning Haihe culture, Ma points out that developing serialized IP images and enhancing practical functions alongside emotional resonance serve as a crucial pathway to elevating the appeal of Haihe's cultural and creative products^[7]. A brand IP system should be constructed to achieve the serialization and large-scale development of products. By designing unified brand logos, packaging, and promotional copy, a recognizable brand image can be formed; serialized cultural and creative products can be developed, categorized by criteria such as the historical period, architectural style, and functional type of the bridges, to form multiple product lines that satisfy the diverse needs of consumers.

Emphasis should be placed on the depth and breadth of cultural communication, integrating cultural and creative products with regional cultural tourism. For example, cultural tourism routes centered on bridges can be designed, with cultural and creative products serving as complementary items to the itinerary, enabling tourists to purchase these products while touring the bridges; collaborating with travel agencies and tourist attractions to conduct promotional activities for cultural and creative products can achieve a win-win situation for both cultural dissemination and the tourism economy.

4. Conclusion

As an important component of Tianjin's regional culture, Haihe River bridge culture possesses unique value and rich connotations, providing abundant materials and inspiration for the design of cultural and creative products. Through a review of the cultural connotations and value dimensions of Haihe River bridge culture, this paper analyzes the problems existing in current product design and constructs design strategies from

four dimensions: cultural symbol extraction, design language transformation, functional scenario integration, and communication mode innovation. The study suggests that the design of regional cultural and creative products requires deep excavation of cultural connotations, combining cultural symbols with modern design and practical functions, while emphasizing audience needs and communication promotion, to achieve the dual transformation of cultural and economic value. Looking to the future, with the continuous development of the cultural and creative industry and the continuous progress of science and technology, the design of Haihe River bridge cultural and creative products will face more opportunities and challenges. In terms of design philosophy, greater emphasis should be placed on the innovative transformation and creative development of culture, combining traditional elements with modern trends and technological means to create cultural and creative products with characteristics of the times. In the dimension of experience, further exploration should be made into the application of immersive design and interactive design in cultural and creative products to enhance the emotional connection and sense of participation between products and consumers. In terms of industrial development, cooperation between industry, academia, and research should be strengthened to integrate design resources, cultural resources, and market resources, building a complete cultural and creative industry ecosystem chain and promoting the development of Haihe River bridge cultural and creative products towards scale, branding, and internationalization.

Disclosure statement

The author declares no conflict of interest.

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