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A Preliminary Study on Design Strategies for the Visual Revitalization of Shaanxi's Industrial Heritage from the Perspective of Cultural Communication: A Case Study of Xi'an Dahua 1935

Wanying Chen

Xi'an Technological University, Xi'an, Shaanxi, China

Abstract: Shaanxi possesses abundant industrial heritage resources; however, efforts to communicate their cultural significance often face challenges such as weak visual identity, superficial narrative experiences, and limited digital reach. Adopting a cultural communication perspective, this paper positions visual design as a bridge between the translation of industrial heritage values and audience engagement. It outlines three complementary analytical dimensions—visual symbols, narrative scenarios, and digital media—and conducts a descriptive case study of the "Dahua 1935" project in Xi'an. The study finds that the contemporary translation of visual symbols can enhance recognizability, the creation of immersive narrative scenarios can deepen the visitor experience, and the use of digital media can broaden outreach. However, these elements do not form a simple linear loop; their effectiveness is influenced by factors such as commercial operations, spatial constraints, audience diversity, and content quality. As an exploratory study, this paper aims to provide design insights and hypotheses for future empirical research regarding the visual revitalization of industrial heritage in Shaanxi.

Keywords: Cultural Dissemination; Industrial Heritage; Visual Design; Digital Media; Xi'an Dahua 1935; Exploratory Research

1. Introduction

1.1 Research Background and Problem Statement

Industrial heritage encompasses the factory buildings, equipment, archives, and workers' memories left behind by modern industry; a key challenge in current preservation and utilization efforts is how to make these elements visible and understandable to a wider audience. In 2026, seven government departments—including the Ministry of Culture and Tourism—jointly issued the Notice on Promoting Industrial Culture, Preserving Industrial Heritage, and Developing Industrial Tourism (Ban Chan Ye Fa [2026] No. 17), encouraging the revitalization of industrial sites through creative design, the introduction of new business formats, and landscape renovation. Shaanxi possesses abundant industrial heritage resources; sites such as the Dahua Textile Factory and the Shenxin Cotton Mill have been included in the national industrial heritage registry, yet there remain deficiencies in cultural communication. Taking Dahua 1935 as an example, although the spatial renovation is largely complete, issues persist regarding unclear visual symbols, a static narrative style, and limited communication channels. Consequently, this paper addresses the following core question: against the backdrop of largely completed spatial renovation, how can visual design contribute to the cultural communication of industrial heritage, and in what ways can it enhance site recognition, visitor experience, and the reach of dissemination? This paper conducts a preliminary exploration focusing on industrial heritage in Shaanxi, with a specific case study of Dahua 1935 in Xi'an.

1.2 Research Objectives and Significance

Adopting the perspective of cultural communication and taking visual design as the entry point, this study attempts to outline a "communication-oriented" design analysis framework for industrial heritage in Shaanxi.

Specifically, the paper aims to identify design issues associated with the cultural communication of Shaanxi's industrial heritage, exploring the subject through three dimensions—visual symbols, narrative scenarios, and digital media—while using Xi'an Dahua 1935 as a case study for preliminary observation. Theoretically, the paper examines the mediating role of visual design within the context of cultural communication; it tentatively defines "new-quality design" as design exploration aimed at enhancing communication efficiency in the digital era. However, as this concept does not yet constitute a fully mature theory, the core discussion focuses on the three specific design dimensions mentioned above. In practical terms, the study seeks to offer design insights that can inform the integration of culture and tourism regarding Shaanxi's industrial heritage. The research methodology encompasses literature review, case analysis, and fieldwork. Rather than proposing a universal framework, this paper adopts "communication efficacy" as its analytical lens to examine the three dimensions—addressing issues of recognizability, experiential quality, and dissemination power—and discusses their potential effects and limitations.

2. Conceptual Clarification and Theoretical Basis

2.1 Definition of Core Concepts

Industrial heritage refers to industrial cultural remnants possessing historical, technological, social, or scientific value [1]; in this paper, the term specifically denotes the tangible remains within Shaanxi Province that bear witness to the evolution of modern and contemporary industry, as well as their associated intangible cultural significance. Cultural dissemination entails the transmission of and interaction regarding cultural elements among different groups; in the context of industrial heritage, it emphasizes the sharing of meaning between the heritage's value and its audience, with the effectiveness of dissemination determining whether the heritage transitions from merely being "preserved" to being "understood." For the purposes of this paper, "new-quality design" is tentatively defined as design exploration aimed at enhancing the efficiency of cultural dissemination within a digital and intelligent context. It should be noted that this concept does not yet constitute a fully mature theory; rather, it is employed here primarily at an operational level, focusing on three specific design dimensions: visual symbols, narrative scenarios, and digital media.

2.2 Theoretical Connection: Design as a Medium for Cultural Communication

The cultural value of industrial heritage requires design to facilitate its effective transmission to the audience. Design performs three functions: transforming abstract industrial history into perceptible visual symbols, organizing fragmented heritage information into intelligible narrative scenarios, and expanding static spatial experiences into interactive digital engagements. Accordingly, this paper adopts a three-stage analytical framework—"cultural core—design translation—audience perception"—and examines the subject through the dimensions of visual symbols, narrative scenarios, and digital media. These dimensions correspond respectively to the capacities for recognition, experience, and dissemination; while analytically distinct, they do not constitute a rigid, closed causal loop. Their actual impact is also influenced by factors such as operations, spatial characteristics, and audience diversity, and cannot be attributed solely to design itself.

3. Current Status and Issues Regarding the Cultural Communication of Shaanxi's Industrial Heritage

3.1 Resource Types and Cultural Characteristics of Shaanxi's Industrial Heritage

Shaanxi possesses abundant industrial heritage resources, serving as a vital window for understanding the development of modern industry in China. To date, eleven projects across the province have been designated as National Industrial Heritage sites, and the first batch of twenty-two provincial-level industrial heritage sites was announced in 2024. In terms of classification, these sites generally fall into three categories: first, "national industry" sites—exemplified by the Chang'an Dahua Textile Mill, established by Shi Fengxiang in 1935 as one of the earliest large-scale modern textile enterprises in Northwest China (and selected as part of the seventh batch of

National Industrial Heritage sites); second, sites associated with the wartime relocation of industries—exemplified by the Baoji Shenxin Cotton Mill, which moved westward from Wuhan in 1938 and utilized excavated cave workshops to support wartime material production; and third, sites linked to the "First Five-Year Plan" and the "Third Front Construction" initiative, spanning sectors such as aerospace, electronics, and military industry. Culturally, these heritage sites collectively document the collective memory of striving for national strength through industry, the patriotic spirit during the War of Resistance, and the arduous process of pioneering development; they embody a profound sense of history and an entrepreneurial spirit. Far more than mere factory buildings and machinery, they encapsulate the lives of workers, the transmission of technical skills, and local industrial memories, thereby providing a substantive foundation for subsequent cultural communication and design-based interpretation.

3.2 Analysis of Communication Challenges in Cultural Practice

Despite their abundant resources, Shaanxi's industrial heritage sites face several common challenges regarding cultural communication. First, visual symbols lack clarity; many sites merely preserve red-brick walls or display old machinery without a unified, distinctive visual identity or signage system, making it difficult to leave a lasting impression on the audience. Second, narrative experiences are weak; exhibitions rely primarily on static displays, lacking interactivity and immersion, which hinders the formation of deep cultural identification among visitors [2]. Furthermore, stories regarding the "craftsman spirit" and technological innovation lack systematic presentation, and mechanisms for preserving "living memories"—such as oral histories from veteran workers and the transmission of technical skills—remain underdeveloped. Third, communication channels are limited, relying heavily on in-person visits with minimal application of technologies like digital reconstruction or immersive experiences; the development of online content—such as interactive maps, short videos, and virtual showrooms—lags behind, and a comprehensive cross-media communication matrix has yet to be established. Some projects also suffer from a "peak at opening" syndrome, where initial popularity is difficult to sustain, and the intrinsic value of industrial culture is easily diluted by commercial activities. These intertwined issues result in a situation where Shaanxi's industrial heritage sites possess resources but lack narratives, and offer physical space but lack interactivity—a reality that serves as the starting point for this study's approach through the lens of visual design.

4. Design Strategies for "New-Quality" Transformation Driven by Communication

4.1 Extraction and Rejuvenation of Visual Symbols

Visual symbols constitute the audience's first impression of industrial heritage sites, and their recognizability directly impacts subsequent communication effectiveness. In the design process, one can extract symbols reflecting local characteristics—such as architectural forms, machinery, and historical signage—from the heritage site. These symbols can then undergo visual translation through techniques like flattening, simplification, and deconstruction to create a cohesive visual system applicable to cultural and creative products, posters, wayfinding signage, and digital media [3]. For instance, the Baoji Industrial Heritage Museum adopted the concept of "light and lines," utilizing light rays, yarn, and the horizon as its formal visual language; this approach not only echoes the site's textile industry background but also establishes a highly distinctive visual identity, as shown in Figure 1. Similarly, Shaanxi's industrial heritage sites could distill their own core symbols, transforming a weighty industrial history into a lighter, more communicable visual language that is easier for audiences to remember and share. However, care must be taken during this translation process to ensure the accuracy of historical information and to avoid excessive cartoonification or superficial trend-chasing.



Figure 1. Case Study of Industrial Heritage Sites in Baoji

4.2 Immersive Construction and Translation of Narrative Scenes

Narrative scenes primarily address the issue of "experiential quality," shifting the audience's experience from a superficial, cursory glance to a sense of true immersion. Designers can break away from traditional static displays by utilizing existing spaces—such as workshops, warehouses, and boiler rooms—to create thematic visitor routes that transform historical events, production processes, and personal stories into participatory storylines. Concepts from "script-based murder mystery games" or real-world puzzle-solving activities can also be adopted, allowing visitors to assume specific roles and learn about history while completing tasks [4]. For instance, the "Jinyi Past" immersive tour at Tianjin Jinyi Park invites visitors to collect work badges, locate blueprints, and operate machine tools, thereby transforming the exhibition experience from passive viewing into active doing, as shown in Figure 2. This approach focuses on turning visitors from mere spectators into direct participants, making it easier to foster emotional resonance and the desire to share the experience. However, immersive storytelling places high demands on content planning, site safety, and operational costs; therefore, its feasibility must be assessed based on the specific conditions of the heritage site.



Figure 2. Example of a Narrative Scenario

4.3 Multidimensional Expansion and Integration of Digital Media

Digital media primarily addresses the issue of "reach," enabling industrial heritage sites to transcend the limitations of physical space and achieve broader cultural engagement [5]. Design strategies might include using AR technology to reconstruct vanished historical scenes or developing interactive features—such as mini-program check-ins and the collection of "industrial badges"—to foster engagement. Additionally, creating "hardcore industrial-style" micro-documentaries tailored for short-video platforms can align with the content consumption habits of younger audiences [6]. For instance, the Shougang Blast Furnace No. 1 "SoReal" Sci-Fi Park integrates technologies such as 5G, XR, and digital twins to create a smart tourism experience while preserving the blast furnace's original architectural character, as shown in Figure 3 [7]. Digital media serves not merely as an exhibition tool but also as a communication channel linking physical spaces with online communities, transforming a single visit into sustained interest. However, the effectiveness of these initiatives depends on factors such as platform traffic, operational investment, and content updates; thus, outcomes should not be attributed solely to the design itself. Among the three dimensions, symbols correspond to recognizability, scenes to experiential quality, and digital elements to reach; while analytically distinct, they collectively form the pathways for design intervention.



Figure 3. Digital Media Examples

5. Case Study: Xi'an Dahua 1935

5.1 Case Overview and Communication Challenges

Xi'an Dahua 1935 was formerly the Chang'an Dahua Textile Mill. Established by Shi Fengxiang in 1935, it was one of the earliest and largest modern mechanized cotton textile enterprises in Northwest China. At its peak, the facility supported a community of over 10,000 employees and their families, operating nearly 100,000 spindles and close to 1,000 looms. Redevelopment of the site began in 2011, transforming it into a commercial and cultural hub featuring a museum, small theaters, dining, and retail outlets; the former Dahua Textile Mill site was designated as part of the seventh batch of National Industrial Heritage sites in 2025,as shown in Figure 4 [8]. However, the

completion of physical redevelopment did not automatically translate to a commensurate enhancement in cultural communication. As the park's commercial offerings expanded, the commercial atmosphere intensified while the historical narrative was relatively diminished, making the site's industrial identity prone to dilution. Observations suggest that the project lacks sufficient appeal for the middle-aged and elderly demographics who hold a sentimental attachment to the textile industry, while its reach among younger audiences remains limited. Overall, Dahua 1935 still has room for improvement regarding visual symbols, narrative experiences, and communication channels, providing a solid basis for further analysis [9].



Figure 4. Dahua 1935 Commercialization Case Study

5.2 Implementation and Impact Analysis of "New Quality" Design Strategies

Dahua 1935 offers design practices across three dimensions that serve as subjects for preliminary observation. Regarding visual symbolism, the complex draws upon elements such as "Dahua female textile workers" and "shuttles," transforming imagery—including blue work uniforms, white aprons, sawtooth-roofed factory buildings, and vintage textile machinery—into visual symbols applied to cultural and creative products and the district's visual identity system; this helps establish a distinct industrial character [10]. In terms of narrative settings, the complex utilizes repurposed factory buildings to create thematic visitor routes: the 4,000-square-meter Xi'an Dahua Museum showcases the mill's history through artifacts, video footage, and models; the "Museum Super Sleuth" immersive experience, launched in 2024, transforms the visit into a participatory narrative; and a cluster of small theaters—converted from sawtooth-roofed factory buildings—hosts productions and stand-up comedy shows, enlivening the space through artistic experiences. Regarding digital media, Dahua 1935 launched the "Dahua Youth: Endless Fun" challenge on Douyin in 2019; by integrating entry points such as splash screens, feed advertisements, and KOL (Key Opinion Leader) collaborations, and leveraging User-Generated Content (UGC) for viral spread, the campaign garnered 30.35 million impressions. The Xi'an Dahua Museum hosts an average of eight special exhibitions annually, utilizing interactive multimedia technology and attracting 126,000 visitors per year. Following these initiatives, the recommended tour duration for the complex has reached two to three hours, and its popularity as a social media "check-in" spot has risen—trends that likely contribute to longer visitor stays and a greater willingness to share experiences online. However, as these metrics are influenced by multiple factors—such as location, operations, and event cycles—they cannot be attributed solely to design strategies; further, detailed audience research is required to fully assess their impact.

5.3 Insights and Reflections

The experience of Dahua 1935 demonstrates that design interventions can indeed enhance the outreach of industrial heritage to some extent, though their limitations must also be acknowledged. While the Douyin challenge generated significant exposure—highlighting the viral potential of digital media—issues such as a lack of nighttime foot traffic and commercial homogenization suggest that excessive commercialization risks diluting the heritage site's authentic cultural character. Design strategies must evolve in tandem with shifting audience aesthetics and operational realities, striking a balance between attracting young people and preserving the site's historical resonance. The value of this case study lies not in offering a replicable template, but in revealing the complex interplay between design, operations, and audience targeting, thereby providing a valuable reference for future research.

6. Conclusion and Outlook

6.1 Research Conclusions

Adopting the perspective of cultural

communication, this study explores the role of visual design in the revitalization of industrial heritage in Shaanxi. The research posits that the preservation of industrial heritage should not be limited to architectural restoration and spatial renovation; rather, attention must also be paid to how cultural content is identified, experienced, and disseminated. Accordingly, this study outlines three complementary design dimensions—"visual symbols," "narrative scenes," and "digital media"—addressing the aspects of recognizability, experiential quality, and reach, respectively. The case study of Xi'an Dahua 1935 preliminarily demonstrates the potential of symbolic translation, scene construction, and digital dissemination; however, their effectiveness is closely tied to commercial operations, content updates, and audience targeting, and cannot be attributed solely to the design itself. Rather than attempting to propose a universal solution, this study aims to offer insights and a reference for future research regarding the visual revitalization of industrial heritage in Shaanxi.

6.2 Research Limitations and Future Directions

This study's case analysis relies primarily on qualitative observation; the lack of quantitative data limits the precision with which design effectiveness can be evaluated. Furthermore, the discussion focuses on industrial heritage within urban centers, so the applicability of these findings to remote areas remains to be tested. Future research could incorporate questionnaires, interviews, or eye-tracking experiments to gain a more concrete understanding of audience reactions to visual symbols and narrative scenarios. Additionally, exploring the potential applications of AIGC in storytelling and personalized communication could provide a stronger empirical basis for design strategies.

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