

Revitalizing Cultural Spaces in Historic Districts based on Immersive Design

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Abstract: As carriers of urban cultural memory, the preservation and revitalization of historical districts has always faced a conflict between the need for authenticity and the need for modern experiences. Some district renovations have suffered from superficial cultural practices, functional homogeneity, and fragmented experiences, making it difficult to achieve a synergistic balance between cultural value and practical value. Taking immersive design as a core perspective, this paper explores approaches to revitalizing cultural spaces in historical districts through literature review, case studies, and field research, drawing on real-world renovation projects such as Yangmeizhuxie Street in Beijing, Pingjiang Road in Suzhou, and Kuanzhai Alley in Chengdu. The study suggests that immersive design can address the challenges of insufficient cultural expression and low audience engagement in historical districts through a framework of "spatial adaptation-content construction-experience optimization-support and support." Specific approaches include: anchoring revitalization with authenticity as the principle, optimizing physical and perceptual environments through spatial strategies, exploring local memories through cultural content, and achieving sustainable development through a multifaceted support mechanism. This study aims to provide practical solutions for the dynamic preservation of cultural spaces in historical districts. It also enriches the theoretical application of immersive design in cultural heritage preservation, providing both theoretical and practical guidance.

Keywords: Immersive Design, Historical Blocks, Cultural Space Reimagining, Spatial Narrative, Experiential Design, Living Heritage.

1. Introduction

Historic blocks, as "living fossils" of a city's history and culture, carry regional folk customs, architectural techniques, and collective memories. Their preservation and revitalization have become a core issue in urban renewal in my country. According to the Ministry of Housing and Urban-Rural Development, as of 2024, my country has designated 899 historical and cultural blocks. However, some renovations have fallen prey to a dilemma of prioritizing commerce over culture and form over substance. Many Jiangnan water towns are now reduced to mere shells of buildings, filled with homogenous shops. Siheyuans in northern China have become hollowed out due to the migration of their original inhabitants, depriving the cultural landscape of its authenticity. This model not only severs cultural connections but also fails to meet contemporary needs. The "2023 China Cultural Tourism Consumption Report" shows that 72% of tourists prefer cultural experiences that are "participatory, interactive, and immersive," and traditional "sightseeing" blocks are no longer suitable. Immersive design, rooted in experience economy theory, focuses on integrating audiences into cultural settings through spatial creation, narrative content, and sensory stimulation, achieving a unified sense of presence and participation. Recent initiatives like the "immersive theater + historic building revitalization" initiative on Beijing's Yangmeizhuxie Street and the "light and shadow alleyways + intangible cultural heritage experience" initiative on Suzhou's Pingjiang Road have both preserved historical features and revitalized culture. This has resulted in an average visitor stay of 2.3 hours longer, and a rise in cultural consumption to 45% (data from public reports from the various neighborhood operators). Current research focuses on single cases, lacking a systematic approach. Some practices fall into the trap of "immersion for

immersion's sake," over-relying on technology and neglecting cultural authenticity. Based on this, this article, centered on "reshaping cultural space," constructs an immersive design application approach from four perspectives: principles, strategies, content, and safeguards. This approach aims to avoid the pitfalls of "technology supremacy" and "cultural hollowing out," providing theoretical and practical references for the sustainable revitalization of historic neighborhoods.

2. Existing Issues in Cultural Spaces in Historic Districts and the Adaptability of Immersive Design

The core value of cultural spaces in historical districts lies in the balance between the authenticity of historical scenes and the integrity of cultural experiences. However, most current renovations are unbalanced, weakening their functionality. Actual research reveals three existing issues: First, spatial functions are rigid, and cultural expression is superficial. Some northern districts maintain only the "retro" exterior of their buildings, while interiors are converted into standardized shops selling generic souvenirs, completely losing their regional identity. For example, a Ming and Qing dynasty district in Xi'an sparked controversy after its courtyards were completely filled with internet-famous beverages, ultimately leading to a decline in visitor traffic due to a lack of cultural identity. Second, the experience model is monotonous, resulting in low engagement. Traditional districts are primarily "sightseeing plus shopping," leaving tourists passively exposed to information and unable to deeply engage with the culture. For example, a water town in Suzhou initially offered only "boat tours," with tourists claiming "one look is enough." A 2022 operating report shows a repeat purchase rate of less than 10%. Third, cultural context is fragmented, and the scene is distorted. Some renovations

have resulted in the displacement of original residents, leaving behind no trace of traditional life. A Beijing hutong courtyard house has been transformed into a high-end guesthouse, with "hutong life" showcased only through posters, making it difficult for visitors to experience the real life of the city, a dilemma of "similar in form but not in spirit." The core characteristics of immersive design precisely address these pain points and align with the cultural spaces of historical districts in three key areas: first, narrative integration, using "storylines" to weave cultural threads, transforming folk customs and history into tangible scenes and avoiding cultural fragmentation. For example, Beijing's Yangmeizhuxie Street, centered on the "gathering place of Republican literati," has transformed the courtyards once home to Lao She and Shen Congwen into "immersive literati studies." Through scene reconstructions and letter readings, visitors can experience the lives of literati, not just observe the architecture. Second, interactive integration, emphasizing visitor participation, transforms static cultural experiences into dynamic ones. Suzhou's Pingjiang Road incorporates the intangible cultural heritage of kesi silk, allowing visitors to create simple works under the guidance of inheritors. Since its launch, the duration of the stay has been extended from 40 minutes to 90 minutes. Third, it emphasizes scene integration, focusing on multi-sensory creation and recreating scenes through light and shadow, traditional sounds, and local aromas [1]. Chengdu's Kuanzhai Alley, known for its "Old Chengdu Life" neighborhood, recreates teahouses and barber shops, accompanied by Sichuan opera, hawkers' cries, and the aroma of tea, making visitors feel as if they've returned to old Chengdu. A 2023 survey showed an 89% satisfaction rate for the cultural experience.

3. Core Principles of Immersive Design in Reshaping Historic Districts

Immersive design in renovating historical districts must adhere to the principles of "preservation first, culture at the core," avoiding "technical gimmicks" and "commercial alienation." These core principles are derived from real-world experience and are highly practical. These principles are explained in three key points. Authenticity is the soul of a historical district, and immersive design must not compromise its character through "innovation." It prioritizes both architectural form and cultural connotations and the atmosphere of everyday life. The renovation of Pingjiang Road in Suzhou is a prime example: 23 historic buildings, including the Quanjin Guild Hall and Couple Garden, were restored to their original state, preserving traditional elements like brick and wood structures and stained glass windows without major demolition and reconstruction. Immersive content avoids fabricated narratives, recreating "waterside village life" based on the Southern Song Dynasty's "Pingjiang Tu." The riverside experience area features activities like "traditional laundry" and "delivering vegetables to the riverside dock," both of which are true historical events. Conversely, an ancient city, in an attempt to create an "immersive fairy-tale setting," painted Ming and Qing dynasty buildings in vibrant colors and added unrealistic "fairy platforms." This ultimately led to a notice of authenticity violations, highlighting the importance of this principle. Beyond preserving authenticity, making history understandable is also crucial. Neighborhood architecture, folk customs, and craftsmanship are often scattered, requiring

immersive design to connect them through narrative logic. The "Three Thousand Years of Old Chengdu" exhibition system in Chengdu's Kuanzhai Alley is a prime example: divided into three sections, chronologically aligned. "Memories of Ancient Shu" uses AR to recreate sacrificial scenes from Sanxingdui and Jinsha, allowing visitors to scan a "sun bird" to witness a virtual ceremony. "Late Qing and Early Republican" focuses on the origins of the Qing Dynasty military garrison alleys, recreating the "Eight Banner Barracks" and "Republic of China" shops. Visitors can wear period clothing and participate in "hutong discussions." "Contemporary Heritage" showcases Sichuan opera, Shu embroidery, and other living cultural elements, forming a complete narrative. In 2023, visitors reported that they "could understand the neighborhood's historical transformation, not just watch the excitement." Immersive design is about "experience," not "display," allowing visitors to move from "seeing" to "moving." The renovation of Xi'an's Yongxingfang focuses on Shaanxi's intangible cultural heritage, eschewing the static displays of "intangible cultural heritage museums" to transform the skills into engaging experiences. The "Shaanxi Paper-Cutting" area allows visitors to cut patterns of Ansai waist drums and cave dwellings under the guidance of inheritors; the "Guanzhong Noodle Art" area allows visitors to make biangbiang noodles throughout the entire process; and the "Shaanxi Qinqiang" performance features an immersive stage where visitors can wear costumes, learn the singing style, and take the stage. This design makes the intangible cultural heritage experience "participatory and memorable." The repurchase rate for its intangible cultural heritage items reached 35% in 2023, significantly higher than the 5% for traditional blocks. Data is based on publicly available information from the operator [2].

4. Immersive Redevelopment Strategies based on Spatial Dimensions

Historical blocks serve as "containers" for cultural experiences. Immersive design must address both physical and sensory aspects. By optimizing spatial form and enriching sensory experiences, culture can be naturally integrated into the space rather than rigidly superimposed. The following strategies are derived from real-world renovation projects in Beijing, Suzhou, and other cities, making them highly replicable. Physical redevelopment, based on the premise of "preserving the historical texture," focuses on incorporating small, dispersed interactive elements to avoid large-scale renovations. Beijing's Yangmeizhuxie Street has adopted a "micro-renewal" model, preserving its original layout of narrow alleys, courtyards, and old shops. Immersive elements have only been added in unused spaces and corners. For example, a "Republic of China poster projection" has been installed in front of an unused old wall, allowing visitors to scan a QR code to view dynamic advertisements for shops from the period. A "starry sky reading" installation has been installed in the patio of an "old bookstore," projecting poems by Republican-era literati at night, allowing visitors to sit on bamboo chairs and read aloud alongside illuminated lights. Finally, a "voice box" has been installed at the corner of the street, allowing residents to recount their stories of the neighborhood's past at the touch of a button [3]. These low-cost, integrated elements have contributed to the neighborhood's visitor exploration rate reaching 68% in 2023,

significantly higher than the 32% before the renovation. Suzhou's Shantang Street focuses on "water lanes," preserving the "river-street adjacent, water and land parallel" layout. Immersive elements are added only at riverside piers and stone bridges: "Light and shadow water curtains" flank Tonggui Bridge, projecting changing bridge scenes from past dynasties at night. Some piers also host "antique cruise ships" equipped with small Pingtan (Chinese storytelling) performances, allowing visitors to enjoy Pingtan and observe the life of the waterside towns. This renovation has resulted in a 92% visitor satisfaction rating for the "water lane" experience. The reimagining of perceptual spaces requires moving beyond visual dominance and leveraging multi-sensory stimulation to achieve full immersion. Hangzhou's Hefang Street, known as the "Southern Song Imperial Street," centers on Southern Song culture, creating a multi-dimensional experience. Visually, it preserves Southern Song-style eaves, hanging banners, and traces of the old bluestone paved roads. The auditory experience recreates Southern Song market sounds rather than modern music. The sense of smell allows for shop scents, with the fragrance of osmanthus wafting from pastry shops and the aroma of medicinal herbs from traditional Chinese medicine shops [4]. The sense of touch features "Southern Song artifact touch stations," where visitors can touch replica porcelain bowls and silk. In 2023, visitors to this section of the street will average 120 minutes, with cultural consumption accounting for 53%. The "Three Kingdoms Culture" area in Chengdu's Jinli District features a "Three Kingdoms military camp" setting: upon entering, visitors hear war drums and horns, witness costumed soldiers training, experience the aroma of wheat kernels and hay, touch replica weapons, and feel the cool metal. Visitors can also participate in archery and hauling supplies. This design contributes to an 87% retention rate for the "Three Kingdoms cultural experience."

5. Immersive Content Construction based on Cultural Dimensions

If space is the "container" of cultural experience, then cultural content is its "soul." Immersive design in the reimagining of historic neighborhoods must center on local culture. Following a process of "discovery-transformation-revitalization," in-depth and distinctive content should be developed, avoiding a "sameness" across the board. All approaches are drawn from real-world examples, ensuring that cultural resources and transformation methods are traceable. Focusing on cultural discovery, the key lies in embracing locality and rejecting homogenization. The unique cultural resources of the neighborhood must be tapped, not simply copied from others. Chongqing's Ciqikou, renowned for its porcelain industry and a distribution center for porcelain in southwestern China during the Ming and Qing dynasties, has shifted its focus from a generic "ancient town" approach to a focused "wharf culture combined with porcelain culture." The project examined historical records such as the "Ba County Chronicle" to unravel the connections between porcelain production, wharf transportation, and trade. Over 30 residents were interviewed to document porcelain handling practices and wharf bargaining customs. Over 200 pieces of antique porcelain and dock tools were collected as evidence, lending the project a unique character and distinguishing it from similar Chongqing ancient towns like Hongyadong. Nanjing's Laomendong, on the other hand,

focuses on the culture of southern residential dwellings, the intangible cultural heritage of the Qinhuai River, and the culture of the Republican era. These unique resources have laid the foundation for subsequent content. Furthermore, cultural transformation requires transforming static resources like historical materials, artifacts, and craftsmanship into dynamic, immersive experiences. The Qinhuai Lantern Festival in Nanjing's Laomendong is a national intangible cultural heritage, but traditionally, it was merely a hanging display, resulting in low visitor engagement. After renovation, it was transformed into an "immersive lantern workshop": The production process of framing, mounting, and painting was recreated, followed by a DIY experience where visitors could make rabbit and lotus lanterns under the guidance of a lantern craftsman. At night, these lanterns were hung in the "Lantern Alley," accompanied by projections of the Qinhuai River's nightscape, creating a "Thousand People, Thousand Lanterns" spectacle. In 2023, the workshop averaged 12,000 visitors per month, according to the Laomendong operations report. Chongqing's Ciqikou also ingeniously transformed the static historical scene of "porcelain transport" into an "immersive dockside live-action drama." Stone steps, work sheds, and porcelain piles were constructed on the old dock. Actors dressed as porters and shopkeepers acted out the entire process of unloading and negotiating porcelain prices [5]. Visitors could randomly assume the roles of porters and shopkeepers, even triggering a sudden plot involving compensation for broken porcelain. Visitors reported that it felt like they were actually participating in a porcelain trade, much more interesting than just viewing an exhibition. Finally, cultural revitalization requires bringing the content to life, relying on ongoing activities and the involvement of cultural craftsmen to avoid cultural stagnation. Suzhou's Pingjiang Road has brought in 12 intangible cultural heritage inheritors, creating an "intangible cultural heritage studio" rather than a "museum." Inheritors not only demonstrate their skills but also offer weekly "kesi" and "pingtan" classes. The annual "Pingjiang Intangible Cultural Heritage Festival" invites participating in surrounding intangible cultural heritage projects and presents immersive evening performances featuring "Suzhou embroidery projection and pingtan." This dynamic heritage program ensures constant renewal. In 2023, the intangible cultural heritage studio averaged 8,000 visitors per month, with a 40% year-on-year increase in visitor traffic during the festival. Data from the Pingjiang Road Operations Report.

6. Implementation Guarantees and Sustainable Development Paths for Immersive Redevelopment

Immersive redevelopment of historic neighborhoods requires more than a one-off renovation. A comprehensive guarantee mechanism is needed to address sustainable operations and avoid short-term excitement followed by long-term desolation. The following approaches are drawn from local practices and are based on real-world policies, funding, and operational models. At the policy level, the boundaries between "protection" and "revitalization" must be clearly defined to avoid excessive commercialization or the destruction of authenticity. In 2022, Suzhou City issued the "Management Measures for the Protection and Revitalization of Historical and Cultural Blocks," stipulating that facade renovations in core protected areas must be approved by the

"Historical Appearance Review Committee," that immersive facilities must be "removable and non-destructive to the building," and that operators who introduce intangible cultural heritage or immersive projects receive annual subsidies of up to 500,000 yuan. Pingjiang Road and Shantang Street were renovated accordingly, maintaining their original appearance. In 2021, Beijing's Xicheng District issued the "Implementation Guidelines for Hutong Micro-Renewal" for Yangmeizhuxie Street, requiring that immersive nodes not exceed 5% of the street area, that renovations require the consent of more than 70% of residents, and that the content reflect hutong culture. After the renovations, resident satisfaction reached 91%, according to the 2023 report of the Xicheng District Housing and Urban-Rural Development Commission. Funding requires diversified financing; relying solely on the government is difficult to sustain. Chengdu's Kuanzhai Alley adopts a "government + social capital + residents" approach: the government subsidizes 30% for the restoration of historical buildings, social capital builds and operates immersive facilities and obtains some business rights, and residents rent unused courtyards and receive a share of the rental income. By 2023, the project funding will be 25% government, 65% social capital, and 10% residents, creating a stable structure. Beijing's Yangmeizhuxie Street uses a combination of government subsidies and cultural and creative crowdfunding, with the government providing 50% for small-scale projects and crowdfunding for larger projects like the "Immersive Literati Study." By 2023, 1.2 million yuan was raised to build three projects, attracting over 2,000 participants and boosting public awareness. Operations must balance "culture" and "commerce." Hangzhou's Hefang Street prioritizes culture: irrelevant businesses such as internet-famous milk tea shops are prohibited from entering shops during business reviews, prioritizing intangible cultural heritage workshops and traditional snacks. Ten percent of commercial revenue is allocated to a "cultural fund" for content updates. By 2023, cultural shops will account for 75%, and 2.8 million yuan will be invested in the renovation of the "Southern Song Imperial Street." Xi'an's Muslim Street has established a joint committee of "residents, merchants, and operators." Residents' requests for "preserving the traditional craftsmanship of Muslim snacks" have led to the addition of demonstration programs, while merchants' requests for "preventing overcrowding" have led to time-limited traffic. By 2023, the tourist complaint rate had dropped by 32%, while resident satisfaction had increased by 88%. These data are from the Hefang Street Operations Report and the 2023 report of the Muslim Street Management Committee, respectively [6].

7. Conclusion

The redevelopment of cultural spaces in historical districts is essentially a response to the question of "how can historical memory and modern life coexist?" This article analyzes real-world cases such as Beijing's Yangmeizhuxie Street, Suzhou's Pingjiang Road, and Chengdu's Kuanzhai Alley to identify a redevelopment path based on immersive design. The core conclusions are as follows: First, immersive design provides a "balanced solution" for district redevelopment—using narrative to overcome cultural superficiality, interactivity to improve experiential fragmentation, and scene-based approaches to restore authenticity. At the same time, adhering to the principle of authenticity, immersive design offers a

balanced approach to district redevelopment. Staying true to cultural roots avoids commercial alienation or cultural hollowing out. For example, Suzhou's Pingjiang Road preserves the character of its "water lanes and people's homes" while also revitalizing intangible cultural heritage like kesi (seamless knitting) and pingtan (Chinese pingtan), achieving a synergistic approach to preservation and revitalization. Secondly, immersive reimagining must adhere to a three-dimensional logic: "space-culture-security." The spatial dimension involves restoring historical textures, planting interactive nodes, and creating multi-sensory scenes. The cultural dimension taps into local resources, transforms dynamic experiences, and promotes living heritage. The security dimension relies on policy-setting boundaries, diversified financing to address funding constraints, and community participation to balance culture and commerce. This approach stems from practical experience, as demonstrated by the "narrative system + diversified financing" approach of Chengdu's Kuanzhai Alley and Hangzhou's "multi-sensory scenes + cultural fund" approach. Thirdly, the core of immersive design is "culture," not "technology." Over-reliance on AR and VR while neglecting local culture can easily lead to a "sameness" of streets. Successful projects like Chongqing's Ciqikou "Dockside Live-Action Drama" and Nanjing's Laomendong "Qinhuai Lantern Experience" all prioritize culture over technology, demonstrating that this approach is key to sustainability. Digital technology will expand its immersive applications in the future, but authenticity and locality will remain paramount. The mission of immersive design is to make the cultural memory of neighborhoods "perceptible, participatory, and inheritable," ultimately realizing that "historical neighborhoods are not museums, but cultural spaces where people live." The approach outlined in this article can serve as a reference for subsequent renovations, but it also needs to be optimized in practice to adapt to the needs of different regional neighborhoods.

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