

Interaction Design Strategies for Traditional Handicraft Cultural Spaces Based on Embodied Cognition Theory

Shengzi Miao^{1*}, Zuzhan Chen¹

¹ University of South China, Solux College of Architecture and Design, Hengyang, China

*Correspondence: Shengzi Miao

Received: 24 May 2026; Accepted: 17 June 2026; Published: 2 July 2026

Abstract:

From the perspective of embodied cognition theory, the exhibition design of traditional handicraft cultural spaces must prioritize audiences' bodily participation and multi-sensory interaction to promote the deep internalization and living inheritance of craft skills. However, many current handicraft exhibition spaces still suffer from design flaws such as a singular perceptual dimension, marginalized bodily participation, and fragmented scene narratives, which significantly weaken audiences' cultural experiences and emotional resonance. To address these issues, this paper proposes a series of targeted interaction design strategies, including enriching the sensory experience of exhibition spaces, guiding behavioral paths based on the logic of creation, and enhancing practical participation through de-staged workshop designs, aiming to provide valuable reference and insights for the interactive reconstruction of traditional handicraft cultural spaces and the sustainable inheritance of intangible cultural heritage.

Keywords:

Embodied Cognition, Traditional Handicrafts, Cultural Space, Interaction Design, Living Inheritance

1. Introduction

Embodied cognition theory posits that cognition is the product of a profound interaction among the body, environment, and behavior. This paradigm is increasingly being applied to the domain of cultural space design, aiming to deepen public cultural identity and experiential resonance through the curation of physical environments and multi-sensory interactions. Embodiment theory has profoundly transformed traditional cognitive approaches that over-rely on representational and quantitative methods, emphasizing the effects of more direct perceptual pathways—such as bodily movement and interaction—on information generation, which allows it to demonstrate significant efficacy and functional value in the design of specific themes and content [1]. Within the preservation and exhibition of traditional handicrafts, bodily practice and muscle memory constitute the core elements of skill transmission, rendering the integration of embodied concepts exceptionally congruent. However, current designs of many handicraft cultural spaces remain confined to traditional, static visual displays, lacking adequate consideration for deep sensory stimulation and

the active bodily participation of the audience. This limitation not only severs the intrinsic connection between individuals and handicraft techniques but also impedes the living dissemination of cultural heritage. Consequently, exploring the interaction design strategies of traditional handicraft cultural spaces from the perspective of embodied cognition bears vital practical significance for dismantling conventional exhibition barriers, rejuvenating situational vitality, and advancing the sustainable inheritance of intangible cultural heritage.

2. The Intrinsic Correlation Between Embodied Cognition and Traditional Handicraft Cultural Spaces

Traditional handicrafts are not merely the final products of object creation, but rather a practical process of dynamic interaction among the artisan's body, tools, and materials. The transmission of these skills relies heavily on verbal transmission, personal mentoring, and muscle memory, thereby exhibiting prominent "embodied" characteristics. According to embodied cognition theory, the cognitive process is not merely the internal processing of information within the brain, but a holistic activity involving the individual's cognition, body, and environment, wherein the body plays a subjective role in the cognitive process [2]. Therefore, understanding traditional handicrafts necessitates transcending abstract symbols and returning to physical practices grounded in bodily presence. Consequently, cultural exhibition spaces are no longer static containers for displaying objects, but interactive media that trigger perception and guide behavior. The spatial scale variations, material textures, and circulation organization within a space act directly upon the visitors' senses, providing an authentic physical field for converting tacit skills into explicit experiences. Traditional exhibition models often isolate exhibits within glass vitrines, forcing audiences to rely solely on vision for the unidirectional reception of information. This "disembodied" state, stripped of bodily participation, tends to render cultural experiences superficial and alienated. The introduction of the embodied concept aims precisely to transform the audience from passive onlookers into active participants. By leveraging physical contact, hands-on interaction, and multi-sensory synergy, this approach dismantles singular visual constraints, enabling visitors to forge an emotional resonance with traditional crafts through spatial interaction, and ultimately achieving a profound internalization of culture.

Consequently, cultural exhibition spaces are no longer static containers for displaying objects, but interactive media that trigger perception and guide behavior. The spatial scale variations, material textures, and circulation organization within a space act directly upon the visitors' senses, providing an authentic physical field for converting tacit skills into explicit experiences. Traditional exhibition models often isolate exhibits within glass vitrines, forcing audiences to rely solely on vision for the unidirectional reception of information. This "disembodied" state, stripped of bodily participation, tends to render cultural experiences superficial and alienated. The introduction of the embodied concept aims precisely to transform the audience from passive onlookers into active participants. By leveraging physical contact, hands-on interaction, and multi-sensory synergy, this approach dismantles singular visual constraints, enabling visitors to forge an emotional resonance with traditional crafts through spatial interaction, and ultimately achieving a profound internalization of culture.

3. Interactive Experience Deficiencies in Contemporary Traditional Handicraft Cultural Spaces

(1) Singularization of Perceptual Dimensions. At present, the design concepts of most traditional handicraft exhibition spaces have not entirely broken free from conventional museum display paradigms, exhibiting a distinct “visual priority” orientation. Interior spaces are commonly dominated by extensive text-and-graphic display boards, multimedia screens, and static artifacts enclosed within vitrines, thereby constructing an information-reception environment heavily reliant on visual communication. However, the allure of traditional handicrafts lies precisely in the richness of their material attributes; this singular visualization directly leads to a systematic absence of multi-dimensional sensory dimensions, including touch, olfaction, and audition.

The cognitive process of handicrafts should inherently be three-dimensional. For instance, the warm tactile quality and raw aroma of natural materials, the resounding echoes of forging and carving tools, or the distinctive coarse fibers of woven materials—sensory experiences that fundamentally constitute the core of craft culture—are frequently filtered out entirely by modernized, “sterile” exhibition galleries. When the vivid process of object creation is forcibly reduced to flat visual images and textual symbols, the cultural information acquired by the audience loses its warmth and depth. This singularization of sensory experiences not only diminishes the intrinsic vitality of handicrafts but also impedes visitors from forming profound psychological imprints at the cognitive level.

(2) Marginalization of Bodily Participation. Within existing cultural spaces, out of consideration for artifact preservation and the maintenance of exhibition order, visitors’ bodily behaviors are often implicitly or explicitly disciplined by spatial design. Pre-established “visiting paths” and physical cordons strictly confine the audience’s scope of activity within designated viewing zones, alienating the visiting process into a superficial, unidirectional movement. This defensive spatial layout lacks guidance mechanisms for visitors’ deeper behaviors and fails to provide the physical conditions necessary for the audience to substantively engage in interactive practices.

Due to the pervasive lack of authentic and effective hands-on experiences within these spaces, or the mere provision of superficial, symbolic touch-screen devices, visitors are unable to mobilize their bodily movements to genuinely perceive the process of manual crafting. They cannot experience the weight of specific tools pressed against their palms, feel the physical resistance exerted by natural materials during processing, or comprehend the distinct rhythm developed by craftsmen over long periods of labor. Given that the essence of handicrafts is inherently embedded within the muscle memory and bodily experiences of continuous labor, the passive marginalization of bodily participation within exhibition spaces severely severs the critical pathway for achieving “embodied inheritance,” thereby reducing the cultural experience to a detached spectatorship devoid of visceral reality.

(3) Fragmentation of Situational Narratives. Traditional handicrafts are by no means a simple accumulation of isolated objects; they encompass a rigorous and highly coherent sequence of technological processes. From the collection and primary processing of raw materials to final exquisite crafting, this series of transformative stages inherently constitutes a cultural narrative rich in logical framework. However, the layout logic of many contemporary interior spaces still follows mechanical

taxonomic standards, separating spaces based on the static attributes of exhibits, such as establishing isolated “raw material zones,” “tool zones,” and “finished product display zones.” Conversely, in scientific environmental experience evaluation, the objective of spatial sequence organization lies in the rational application of gradations and abrupt transitions to achieve dynamic spatial expression, where gradations occur within the units of sequential scenes, and abrupt transitions manifest during scene conversions [3].

This spatial division, lacking an inherent evolutionary logic, completely disregards the continuity of the creation process, failing to organically connect the complete technical lineage with its underlying cultural context. When a coherent narrative of creation is rigidly fractured into mutually unrelated physical blocks, a rupture inevitably appears in the situational narrative. As visitors navigate through these fragmented spatial nodes, it becomes exceedingly difficult for them to independently reconstruct a systematic comprehension of the handicraft's entirety. This rupture in spatial narrative directly induces the fragmentation of the audience's emotional experience, rendering it difficult to foster a continuous and immersive cultural resonance throughout the visiting process.

4. Interaction Design Strategies for Traditional Handicraft Spaces Based on Embodied Cognition

4.1. Enriching the Sensory Experience of Exhibition Spaces

In practical spatial design, the key to breaking the singular “visual exhibition-viewing” mode lies in providing visitors with multi-dimensional physical sensory stimulation. While vision often keeps people in a posture of objective detachment, the intervention of touch, audition, and olfaction can rapidly bridge the psychological distance between individuals and the cultural venue. Within an exhibition space, the meticulous design of multi-sensory stimulation can stimulate the audience's sensory synergy. The coordinated operation of vision, audition, olfaction, and touch establishes a close bodily connection between the real and virtual worlds, resonates with the emotional themes of the exhibition, and prompts the crystallization of the audience's deep aesthetic pursuits and prior cognitions into an individual identity with the displayed cultural themes and spirit [4].

In terms of material selection and spatial substrate construction, designs should minimize facing materials with distinct modern industrialized characteristics, such as polished stone, stainless steel, or artificial boards. Conversely, a substantial amount of indigenous, raw materials directly related to the specific handicraft should be extracted. For example, in wall claddings or display platforms, raw wood with natural defects, unpolished green bricks (see Figure 1), rammed earth, or coarse hemp should be utilized directly. The rough texture and warm quality inherent in these natural materials can physically and spontaneously induce visitors to stretch out their hands to touch. When fingertips come into direct contact with these foundational materials of object creation, the audience's cognition of the craft gains an authentic physical anchor. Furthermore, the regulation of the environmental microclimate serves as an important vehicle for enriching sensory experiences. Designers can utilize concealed speakers to play low-decibel, looping field white noise of handicraft labor at specific exhibition nodes, such as the muffled thuds of wooden mallets, the sloshing of liquids in a water tank, or the friction of bamboo weaving. Simultaneously, integrated with the indoor ventilation system, native plant aromas belonging to the craft, such as raw

wood fragrance or plant ash, can be appropriately introduced. Through the implicit backing of audition and olfaction, the space ceases to be a cold architectural shell and transforms into a live cultural scene where the audience's bodies unconsciously immerse themselves.



Figure 1. Exhibition Hall of the Jingdezhen Imperial Kiln Museum.

4.2. Guiding Behavioral Paths Throughout the Visiting Process

The planning of spatial circulation paths is not merely a solution for traffic dispersion, but an effective vehicle for transforming the abstract logic of handicraft creation into concrete visiting behaviors. Effective circulation design can guide behavior, enhance the understanding of exhibition content, reinforce the expression of the exhibition theme, and maximize the display value of the exhibition space [5]. Designers should abandon the rigid compartmentalization of space into separate “text-and-graphic zones” and “artifact zones,” and instead adopt the sequential order of the crafting process as the underlying logic for circulation planning. The visiting line should be structured as a unidirectional or closed-loop sequence of “raw material cognition—primary processing—exquisite carving—finished product display.” With every step forward in the space, the information encountered by the visitor's vision and body corresponds precisely to a single transformation in the formation of the handcrafted object. This spatiotemporally synchronized circulation guidance helps the audience unconsciously clear up the origin and development of the craft.

During the progression of the circulation, it is also necessary to regulate the audience's psychological rhythm and behavioral feedback through the contraction and expansion of spatial scales. In zones displaying raw material collection or macroscopic backgrounds, high ceilings, spacious corridors, and uniform ambient illumination can be adopted to curate a relaxed and open cognitive environment. Conversely, as the path delves into core, intricate processing stages (such as micro-carving, mortise-and-tenon interlocking, or paper-making), the local height of the space should be deliberately compressed, corridors narrowed, and high-contrast focal illumination employed. This physical “squeezing” of spatial morphology coupled with the gathering of light and shadow will spontaneously guide visitors to slow down their steps and focus their gaze, facilitating a psychological transition from initial relaxation to absolute concentration on the exquisite skills.

4.3. Enhancing Practical Participation in Hands-on Sections

The ultimate objective of embodied cognition is to accomplish the internalization of knowledge and memory through authentic bodily movements. Therefore, the core anchor of traditional handicraft spatial design lies in breaking down the physical barriers imposed by display cases, thereby granting the audience genuine opportunities for “hands-on practice.” The primary step is to restore authentic, non-

performance-oriented workshop scenes (see Figure 2). Within the core area of the space, designers should eliminate handrails and glass partitions as much as possible, and arrange workbenches bearing authentic traces of use, scattered remnants, and various specialized tools. Heritage practitioners should be regularly invited to conduct their daily labor practices here. This de-contextualized and de-staged spatial treatment allows visitors to observe the craftsmen's muscular states and operational habits during force exertion from the closest proximity, thereby generating a potent sense of situational presence psychologically.



Figure 2. Paper-making workshop.

More importantly, spatial planning must reserve a sufficiently spacious physical interaction zone for visitors. Within these areas, authentic crafting apparatuses or safety-modified experience tools should be provided. Visitors should be encouraged to literally roll up their sleeves and hold tools to perform substantive physical operations such as hammering, kneading, and cutting. The force, hand-feel, and material resistance encountered in handicrafts constitute “tacit knowledge” that cannot be precisely transmitted by any text or video. Only when visitors personally feel the weight of tools pressed against their palms and experience the muscular soreness and resistance when overcoming material obstacles can the technical essence of traditional handicrafts be truly converted into the modern audience's muscle memory, ultimately achieving the living continuation of intangible cultural heritage within individual subjects.

5. Conclusions

In conclusion, the development of traditional handicraft cultural spaces must transcend the static exhibition of physical artifacts and squarely address the core value of “bodily presence” in skill transmission. In response to the contemporary dilemmas of single sensory dimensions, marginalized participation, and fragmented narratives within exhibition spaces, embodied cognition theory provides a fundamentally new approach to breaking the impasse. In concrete design practices, we need to dismantle the conventional vision-dominated paradigm by utilizing indigenous, raw materials and regulating microclimates to enrich spatial sensory stimulation. The visiting circulation and spatial scales should be orchestrated based on the authentic logic of handicraft creation to precisely guide the behaviors and emotional rhythms of visitors. Furthermore, the boundaries of exhibition displays must be further minimized to transform the public from passive onlookers into active participants through the addition of de-staged handicraft workshops and hands-on interactive sections. This transformation in spatial interaction design not only enables visitors to internalize abstract cultural symbols into genuine muscle memory through personal touch and physical exertion, but also provides a practical, spatially grounded pathway for the “living inheritance” of intangible cultural heritage in modern society.

Conflicts of Interest

The authors declare 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] Ding, Y.Q. Embodied Perception and Memorial Exhibition Design. *Creativity and Design*, 2024, 05, 70-79.
- [2] Wang, R.X. Research on the Transmission of Handicrafts in Xiangbei Area Under the Theory of Embodied Cognition. *Tian Gong*, 2023, 17, 16-19.
- [3] Xiao, X.Y.; Li, X.X. Physiological Perception Mechanisms of Environmental Sequence in Exhibition Space and Design Strategies. *South Architecture*, 2023, 05, 19-26.
- [4] Wang, Y. Display Design of University History Center Under the Perspective of Embodied Cognition. Jiangxi University of Finance and Economics, 2025.
- [5] Zhang, L.M. Analysis of Influencing Factors in the Design of Art Exhibition Spaces. *Shoes Technology and Design*, 2024, 4(09), 115-117.



© 2026 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/>)