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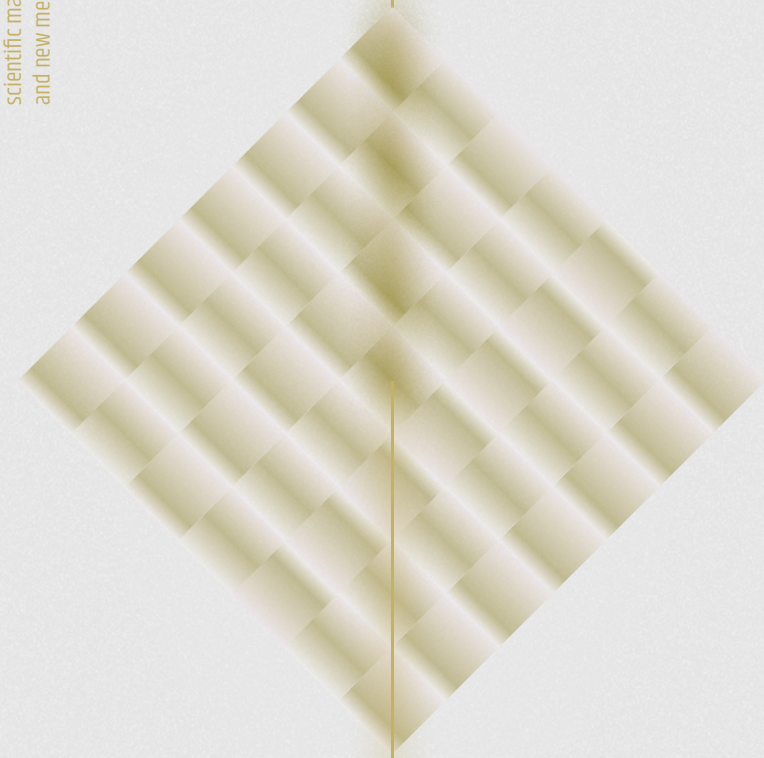
and new media



WIT ACADEMY

#visual culture #education #AI #VR #accessibility

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ON GRAPHIC DESIGN AND NEW MEDIA

Editorial team

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Scientific council

Dear Readers,

The eighth issue presents interdisciplinary research situated at the intersection of graphic design, visual culture, new technologies, and humanistic reflection. The published articles are based on presentations delivered during the first International Phd Forum organized by the C-IDEA Association. The authors address the problem of translating cultural meanings into contemporary design practices, examining both historical heritage and current challenges resulting from digital transformation.

The issue introduces innovative semantic and ontological models that enable the reinterpretation of traditional forms — ranging from analyses of clothing from the Ming dynasty, through philosophical foundations of Chinese narratives operating within global design discourse, to urban cultural scenarios associated with the Asian Games in Hangzhou.

The section devoted to experience design includes analyses of visual and narrative tools used in digital education, as well as studies on the therapeutic potential of virtual reality, considered in relation to its specific configurations of time and space.

Taken as a whole, the issue presents design as a tool of mediation between tradition and technology, locality and globality, aesthetics and user experience, emphasizing its role in shaping contemporary visual culture, education, and social well-being.

We wish you an enjoyable read.

Dsignn Editorial Team

Contents

C-IDEA PhD Forum (1/3)

The first International Phd Forum organized by the C-IDEA Association was successfully held from 22 to 24 October in a hybrid format, with simultaneous sessions hosted at Miami Ad School Berlin, Germany, and Shih Chien University (Kaohsiung Campus) in Taiwan, China. The event was co-organized by the C-IDEA Association, the Australian Research Centre for Virtual and Interactive Environment (IVE), and the Polish academic journal dsignn, attracting active participation from scholars and researchers across the globe.

The forum was co-chaired by **David Blaiklock**, **Li Xu**, and **Chang Fangpang**. An esteemed international review panel, comprising eight experts, provided academic evaluation and guidance. The panel included **Prof. Ning Gu** (Adelaide University), **Prof. Robert Jundo** (Strzeminski Academy of Fine Arts in Łódź, Poland), **Prof. Hyungjoo A. Kim** (Purdue University, USA), **Prof. Andreas Ken Lanig** (Head of Design and Media Department, Nordhessen University of Applied Sciences, Germany), **Prof. Lisa Winstanley** (Nanyang Technological University, Singapore), **Prof. Jiang Jie** (Nanjing University of the Arts, China), **Prof. Anna Rita Emili** (School of Architecture and Design “E. Vittoria”, University of Camerino, Italy), and **Dr. Anna Kłos** (Director, WIT & Retroavangarda Gallery, Poland).

Prof. Ning Gu of the Adelaide University served as the Forum Chair. Distinguished guests, including C-IDEA Association President David Blaiklock and University of South Australia’s Dan Mclean, contributed as commentators, providing valuable feedback on the presentations.

The forum brought together doctoral candidates and early-career researchers from 15 institutions across seven countries, including China, Slovenia, Georgia, and Serbia, who presented their research findings either online or on-site. The presented papers centered around three cutting-edge areas:

- **Technology and Tradition:** Research demonstrated the application of digital tools like AI image generation and cellular automata algorithms to analyze historical elements such as Ming dynasty clothing symbols and street art, establishing methodological frameworks for the visual reconstruction of cultural semantics.

- **Social Innovation:** Studies focused on design empowerment, exploring co-design approaches to foster rural revitalization by strengthening farmer agency and developing ethical UX frameworks tailored for early-career craft practitioners.

- **Cultural Identity:** Explorations in this domain were multifaceted, ranging from constructing urban imagery for the Hangzhou Asian Games to comparative analyses of Eastern and Western narrative paradigms, thereby deepening the philosophical discourse on local design identity within a globalized context.

Since its establishment in 2018, the C-IDEA International Alliance of Art and Design Universities & Educators has grown into a significant international association, now comprising 147 member institutions from over 35 countries, including many of the world’s leading art and design colleges. Operating as a non-profit organization, C-IDEA is dedicated to fostering exchange and collaboration in teaching, research, and practice among international design institutions, actively contributing to the advancement of global design education. ■

Building a Semantic Bridge

The P-A-T-S Model for Reimagining Ming Attire through AI

Abstract

This study focuses on the attire of Ming dynasty scholar-officials, particularly the archetypal zhiduo garment and its associated cultural-semantic features, with the aim of building a "semantic bridge" between traditional semantics and contemporary visual design. Employing visual analysis and semantic mapping methods, and utilizing the AIGC tool Midjourney, the research investigates how traditional clothing can be translated and reconfigured within modern visual contexts.

The paper proposes a structured four-dimensional semantic model — "Person–Attire–Time–Setting" (P–A–T–S) — which serves as the core framework of this bridge, guiding prompt construction for AIGC and ensuring visual coherence and cultural consistency in the generated imagery. Through this model, the study achieves cross-modal translation from historical textual semantics to AI-generated images, systematically exploring pathways for the visual integration and semantic migration of traditional symbols in modern design environments.

Experiments demonstrate that AIGC functions not merely as a generative tool but as a key cultural interpreter, transforming abstract cultural semantics into perceptible visual language. This research contributes an operational methodology for AI-assisted design, while also providing a theoretical framework and practical approach for the semantic reconstruction of traditional Chinese attire within contemporary visual culture. Furthermore, it establishes a humanistic paradigm for the structured reconfiguration of Eastern visual semantics.

Yimeng Shi

peer-reviewed conference materials

This article is based on the presentation delivered at the C-IDEA Design Conference, held on 23–26 October 2025 at Shih Chien University, Kaohsiung Campus, Taiwan, China.

#ming dynasty scholar attire #AI-generated design #cultural expression #visual reconstruction #design innovation

1. Introduction

In today's context of global cultural exchange and diversified design languages, traditional dress is no longer regarded as a static historical relic, but has instead become a dynamic cultural resource open to redesign and recoding. Particularly with the advancement of AI-assisted visual design technologies, designers are now empowered to reactivate historical elements, integrating them into contemporary contexts and enabling them to participate in the construction of new forms of identity expression and lifestyle [1].

However, the fast fashion industry's intensive extraction and consumption of cultural symbols on a global scale often lead to superficial and decontextualized treatment of traditional elements, resulting in fragmented visual collages [2]. At the same time, although China's "Guochao" (national trend) movement has gained widespread popularity among young people, it also faces challenges such as "formal retrospection" and "cultural emptiness" — where design symbols are excessively consumed yet lack semantic depth and cultural embeddedness.

Against this backdrop, avoiding "symbolic piling" and "contextual detachment" has become a critical issue in design revitalization. Previous academic research has suggested that AI is not only a technical tool for generation but also an interface for cultural recoding [3]. It can serve as a "translator" between design language and cultural semantics, helping to explore possible pathways from "symbolic reproduction" to "semantic generation" [4].

As one of the most culturally distinct types of traditional attire, Ming dynasty scholar-official clothing not only embodies the aesthetic ideals and ritual systems of the literati class but also reflects a profound integration between individuals and their environment, as well as between clothing and spatial experience [5]. This paper employs the Midjourney platform to extract visual elements and semantic structures of Ming scholar attire through AI-generated imagery, aiming to achieve formal transformation and cultural regeneration in contemporary fashion design practice [6]. Furthermore, by integrating interdisciplinary research on AI aesthetics and digital heritage [2] [3] [7], it explores the mechanisms of convergence between tradition and modernity in contemporary design.

1.1. The Zhiduo (直裰) Robe as a Semantic Medium

This study focuses on the zhiduo (直裰), a distinctive robe widely adopted by Ming dynasty literati, positioning it not merely as a garment but as a dense cultural, semiotic, and philosophical medium. Its significance extends beyond practical function, embodying a complex negotiation of social identity, ethical ideals, and aesthetic values within the nuanced socio-cultural landscape of late imperial China. Central to this analysis are the intertwined dimensions of Person and Attire: the literati (士人) occupied a unique social position, poised between the formal rigidity of the bureaucratic elite and the pragmatic informality of common life, and their choice of the zhiduo reflected and enacted this ambiguity [8]. Through the robe, the wearer's social identity, intellectual cultivation, and ethical disposition were visually articulated, making the zhiduo a medium for conveying both personal refinement and collective cultural values [8].

The zhiduo's material and formal features — the plain, often undyed or lightly colored fabrics (hemp, cotton, or ramie), straight wide sleeves, vertical front closure, and simple ankle-length cut — were deliberate markers of literati status and ethical stance [9]. Color choices, such as subdued blues or jade-like greens, and the absence of decorative flourishes emphasized restraint and modesty, communicating moral integrity, cultivated taste, and philosophical alignment [10]. The standardized structure and functional design supported daily movement and scholarly activities, while subtly differentiating the wearer from both the ornate courtly elite and the purely utilitarian attire of peasants and artisans. In this way, the zhiduo operated as a "negative decoration," where simplicity itself became a powerful visual rhetoric of intellect, virtue, and social belonging [9].

From a psychological perspective, clothing functions as an extension of self-identity, shaping both the wearer's self-perception and the social perception of others [11]. The zhiduo enabled scholars to enact their persona across diverse contexts — academies, gardens, lecture halls, and informal gatherings — asserting cultural authority, embodying Confucian and Daoist virtues, and negotiating social ambiguity for those awaiting office, retired, or living in reclusion [8]. Scholars' sartorial choices were informed by an acute awa-

reness of social visibility and cultural expectation: donning the zhiduo communicated not only moral and intellectual cultivation but also adherence to collective norms while retaining personal distinctiveness.

1.2. Integration of Person and Attire

Philosophically, the zhiduo can be interpreted as an embodied extension of ethical cultivation. In Confucian thought, external forms — including attire — serve as expressions of inner virtue, a tangible manifestation of "修身齐家治国平天下" (self-cultivation as the basis for social order). From a Daoist perspective, the robe's simplicity, natural fiber, and flowing silhouette align with principles of spontaneity (ziran 自然) and harmony with the Dao, reflecting a life attuned to nature rather than ostentatious display. This dual philosophical grounding — Confucian moral discipline and Daoist naturalism — allowed the zhiduo to function as a bridge between the inner life of the literati and their outward social persona, situating clothing as a medium where ethical, aesthetic, and social identities converge.

Moreover, the zhiduo exemplifies the concept of clothing as a cognitive and social scaffold: it structures interaction, directs attention, and subtly influences behavior and perception. From a social-psychological viewpoint, clothing mediates self-concept and social positioning, reinforcing a sense of belonging to the literati cultural sphere while enabling individual differentiation [11]. The visual language of the robe — its color, cut, and drape — served as a non-verbal discourse, communicating intellect, virtue, and cultivated taste without recourse to words. In this sense, the zhiduo becomes both a psychological tool and a philosophical instrument, mediating between self, society, and moral aspiration.

The fusion of the wearer's social and intellectual identity with the robe's material and aesthetic properties transformed a functional outfit into a complex cultural and philosophical sign. In this light, the zhiduo is not only sartorial evidence but a semantic and philosophical artifact: a woven ideology through which Ming literati values, ethical ideals, and cultivated persona were continuously enacted, rendered visible, and embedded into the fabric of daily life, defining a refined cultural tone that prized subtlety, integrity, intellectual cultivation, and alignment with moral and natural order [9] [10] [11].

1.3. Historical Context and the Visual Rhetoric of Scholar Dress

In the context of the Great Divergence, the late Ming dynasty (mid-16th to early 17th century) experienced profound transformations across economic, social, and cultural spheres, which directly shaped literati clothing practices. The rise of a vibrant commodity economy, urban cultural centers, and the circulation of printed visual and literary materials coincided with the spread of Neo-Confucian and Wang Yangming's xinxue (心学, Learning of the Heart) philosophy. These developments loosened the rigid hierarchies of official ritual dress, creating temporal and spatial flexibility in daily life that allowed scholars to experiment with attire as a medium for cultural and moral expression. In particular, the timing and situational context of scholarly activities—lectures at academies, poetry gatherings in gardens, or moments of private contemplation in reclusive mountain retreats — were critical in shaping the semantic and symbolic significance of the zhiduo.

The zhiduo's adoption across various temporal contexts illustrates how clothing encoded social rhythms and cultural expectations. Scholars wearing the robe at different times of day — morning lectures, afternoon tea gatherings, or evening meditation — communicated distinct ethical and intellectual states. Its standardized cut, subdued colors, and plain fabrics (hemp, cotton, or lightly dyed materials) were not only aesthetically restrained but also responsive to the temporal rhythm of literati life: formal enough for public engagement, yet adaptable for private reflection. In this sense, the robe functioned as a temporal marker, signaling both the scholar's preparedness for civic or social duties and their ongoing cultivation of personal virtue.

Equally important is the spatial or environmental dimension, which situates the zhiduo within dynamic, meaningful landscapes. In visual materials such as A Recluse Beneath the Pines (松下高士图, Fig. 1) and Tea Gathering at Huishan (惠山茶会图, Fig. 2), the robes interact seamlessly with their settings: pine groves, mountain rocks, streams, tea tables, and pavilions. The scholars' gestures, posture, and orientation toward natural elements suggest harmony with the environment, embodying the Neo-Confucian ideal of tian-ren he-yi (天人合一, unity of humanity and nature). Subtle variations in light, compositional framing, and figure placement further enhance the impression of temporal progression — morning mist, dappled afternoon sunlight, or evening shadows — underscoring how setting and time together amplify the expressive and symbolic dimensions of the robe.

The fluidity and social mobility of the Ming literati further contextualize these visual dynamics. The intermingling of scholar and merchant classes (shi-shang xiang hun, 士商相混) disrupted traditional notions of hereditary status and created anxieties around social legitimacy. Even those advancing through the meritocratic imperial examination system experienced uncertainties: success, failure, or partial achievement in examinations could dramatically alter one's social position. In this context, clothing functioned as a flexible instrument for negotiating social identity, allowing literati to assert cultural authority and ethical refinement independently of official rank. The zhiduo, as the most commonly worn everyday robe of the literati, exemplifies this dynamic. Its structured yet understated design enabled scholars to visually communicate intellectual cultivation, moral integrity, and aesthetic sensibility without relying on the elaborate insignia or ceremonial embellishments typical of court attire.

The group-level adoption of the zhiduo illustrates its role as a socially and culturally mediated practice. Visual and textual sources demonstrate that the robe was consistently employed across diverse contexts: delivering lectures in

Fig. 1 A Recluse Beneath the Pines (松下高士图).
Source: Yantai Museum, China.

academies, attending tea gatherings, composing poetry in gardens, or retreating to reclusive mountain settings. This widespread and repeated use points to the collective dimensions of visual rhetoric, wherein clothing becomes a medium for persuasive communication (persuasive communication) at the societal level. Through their choices, scholars reinforced shared standards of decorum, cultivated taste, and moral comportment, transforming individual sartorial decisions into socially intelligible statements of literati identity.

1.3.1. Formal Analysis of Visual Materials: Time and Setting

Fig. 1: A Recluse Beneath the Pines (松下高士图). In this painting, the scholar is depicted standing

Fig. 2 Tea Gathering at Huishan (惠山茶会图).
Source: The Palace Museum, Beijing, China.

in a zhiduo amidst a grove of towering pines and scattered rocks. The temporal context is conveyed through diffuse morning light filtering through the foliage, suggesting early day reflection or study. The scholar's posture — slightly leaning forward, hands clasped within the wide sleeves — communicates attentiveness and contemplative calm. The robe's straight cut and subdued color palette harmonize with the natural environment, reinforcing the Neo-Confucian ideal of tian-ren he-yi (天人合一, unity of humanity and nature). The spatial arrangement, with the figure partially framed by foreground rocks and background pines, creates depth and a rhythm between the human subject and the environment, emphasizing the scholar's integration with natural time cycles and the ethical meditation associated with the morning setting.

Fig. 2: Tea Gathering at Huishan (惠山茶会图). This work depicts multiple scholars, all wearing zhiduo, gathered for a tea session. The temporal cues — soft afternoon light casting gentle shadows — convey leisure and social engagement rather than formal ceremony. Gestures and body orientation establish social relationships: some figures bend slightly toward one another in conversation, while others engage with tea implements, highlighting coordination and shared cultural practices. The environmental setting — a pavilion surrounded by manicured rocks, trees, and distant hills — frames the group and contextualizes their activity within an aesthetically cultivated space. The repeated visual motif of flowing robes, calm facial expressions, and coordinated postures produces a collective harmony, illustrating how the zhiduo mediates both personal and social identity across time and space.

1.3.2. Integration of Time and Setting

Across both paintings, the zhiduo functions not merely as clothing but as a temporal and environmental mediator. Its restrained form and color allow it to integrate seamlessly with changing light, natural surroundings, and the rhythms of scholarly life — from morning meditation to afternoon leisure. The materiality of the robe, combined with gestures, posture, and composition, conveys subtle variations in mood, ethical stance, and social interaction. Through these visual elements, the scholars' attire becomes a dynamic participant in both temporal experience and spatial narrative, reinforcing the broader semantic structure of Person-Attire-Time-Setting.

A comparative examination with the Daoist robe (daopao) further clarifies the nuanced function of the zhiduo. Whereas the daopao conveys spiritual detachment suited to monastic or meditative environments, the zhiduo negotiates both private and social spaces, allowing scholars to signal cultivated virtue and social belonging across

a variety of times and locations. Its adoption in multiple visual and textual contexts demonstrates a sophisticated integration of Person, Attire, Time, and Setting, transforming the robe from functional clothing into a versatile medium for temporal and environmental expression.

Textual sources complement visual analyses, highlighting repeated references to scholars "sitting in a zhiduo at dawn, observing bamboo shadows" [12] or "arranging scrolls in the zhiduo as the evening light waned" [13]. These accounts emphasize that the robe's meaning was inseparable from the temporal and environmental contexts in which it was worn, demonstrating that Ming scholar dress evolved into a dynamic cultural rhetoric, embedding moral cultivation, social identity, and aesthetic taste into daily practice.

In sum, the late Ming zhiduo exemplifies how temporal cycles, spatial settings, social mobility, and collective sartorial practices coalesced to shape literati visual culture. By integrating Time and Setting into the analysis, the robe emerges as a dynamic medium that mediates scholarly identity, ethical stance, and aesthetic expression, producing a culturally intelligible visual language that harmonizes individual action, environmental engagement, and the rhythms of daily life.

2. Purpose

This study aims to explore how traditional dress culture can achieve semantically driven re-expression within contemporary visual systems under the framework of AI-Generated Content (AIGC). Using Ming dynasty scholar-official attire as a central case, the research constructs a four-dimensional semantic model — "Person-Attire-Time-Setting" (人–衣–时–境) — to delineate the internal logic of identity and temperament, structural language, spatio-temporal context, and cultural connotations.

Leveraging the Midjourney image generation platform and semantic prompt construction functions, the study establishes a translation mechanism from historical semantics to visual generation, and employs experimental imagery to explore pathways for the visual representation of cultural meaning in AI-generated visuals.

The research emphasizes that cultural expression in design should extend beyond symbolic replication toward the reconstruction of semantic structures and the refinement of affective and aesthetic expression. In doing so, it provides both theoretical support and a methodological framework for the integration of AIGC into cultural visual systems.

On a methodological level, this study introduces a humanistic paradigm to prompt engineering through the delineation of structured semantic dimensions, enabling a traceable generative logic from "text → semantics → image." This not only offers an experimental model for semantic construction in future human-AI collaboration but also opens new pathways for interdisciplinary research in design methodology.

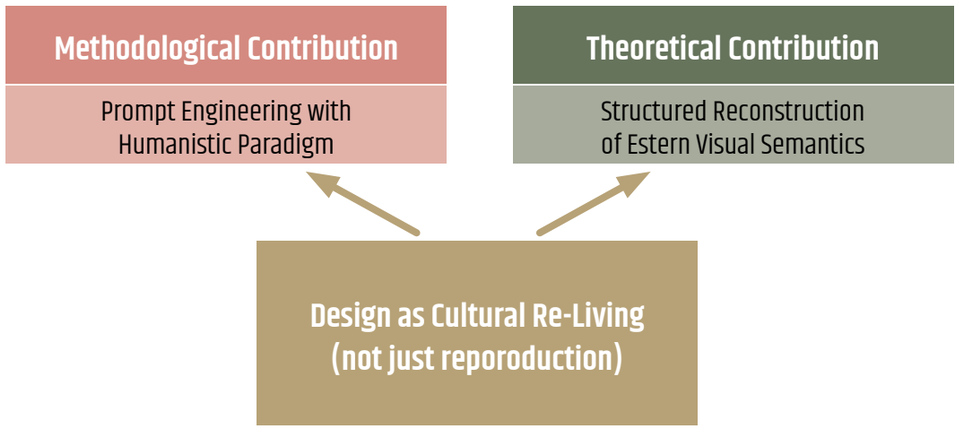

Fig. 3 Methodological and Theoretical Contributions Overview.
Source: Own study.

Theoretically, the research proposes a structured reconceptualization of Eastern visual semantics. Through the digital translation of scholarly attire semantics, it demonstrates how cultural heritage can transition from "reproduction to revitalization" in contemporary expression. This approach not only addresses the challenge of "de-symbolization" in cultural heritage studies but also provides new case studies and methodological inspiration for digital humanities and visual culture research (as summarized in Fig. 3).

3. Method

Building on the detailed visual and semantic analysis of the Ming Dynasty zhiduo scholar attire and the proposed P-A-T-S (Person-Attire-Time-Setting) framework (Section 1), this study translates insights from cultural heritage and AI-driven design into an empirical investigation of audience perception. Cultural heritage designers and researchers not only interpret the historical and semantic meanings of traditional attire but also consider how these meanings can be effectively communicated and transformed through contemporary technological media such as AIGC. This study leverages these interdisciplinary insights to examine how both professional practitioners and general audiences perceive the cultural, aesthetic, and innovative values of AI-generated interpretations of Ming scholar attire. By connecting structured semantic modeling with audience research, the study aims to bridge the gap between expert knowledge and public appreciation, providing guidance for culturally informed and technologically integrated design strategies.

Informed by this perspective, the study specifically aimed to investigate how contemporary audiences perceive and evaluate AI-rendered traditional attire in today's cultural and digital context. As a semantically rich artifact, Ming scholar attire carries layered meanings related to identity, ethics, temporality, and environment — yet it remains unclear whether these meanings are perceptible and resonant when mediated through AI-generated imagery. Specifically, the study sought to examine (1) whether professionals in design and cultural heritage hold perceptions that differ from those of general audiences, and (2) how both groups assess the modern applicability, authenticity, creative potential, and semantic coherence of AI-reconstructed attire.

To operationalize this inquiry, a questionnaire was developed focusing on five dimensions derived from the P-A-T-S semantic framework: understanding of heritage's modern applications, views on authenticity versus adaptation, perception of AI's creative potential, optimism for the future of semantic design, and comprehension of the P-A-T-S framework's logic. By comparing responses from professional and non-professional participants, the study aimed to reveal how AI-mediated cultural heritage can be effectively designed and communicated to modern audiences while preserving semantic depth and engaging public interest.

3.1 Research Design

This study adopted a quantitative cross-sectional survey design to systematically compare professional participants (design, art history, or cultural heritage practitioners) and non-professional participants (general audiences without specialized training). The research was informed by the four-dimensional P-A-T-S semantic model, aiming to connect theoretical analysis of traditional attire with empirical audience perception.

The survey focused on five dimensions of audience perception:

- Understanding of heritage's modern applications
- Views on authenticity versus adaptation
- Perception of AI's creative potential
- Optimism for the future of semantic design
- Comprehension of the P-A-T-S framework's logic

By examining these dimensions, the study explores how professional expertise influences the perception and evaluation of AI-rendered cultural heritage, and how semantic-driven design frameworks can mediate engagement across audience types.

3.2. Participants and Sampling Procedure

A total of 100 participants were recruited, divided into two distinct groups:

- **Professional group (n = 50):** individuals with academic or professional backgrounds in design, art history, or cultural heritage.
- **Non-professional group (n = 50):** general audiences without specialized training in related fields.

Participants were recruited via purposive and snowball sampling to ensure balanced representa-

tion between groups. Informed consent was obtained from all participants prior to data collection.

3.3. Instruments and Measures

A self-developed questionnaire was used to capture participants' perceptions across the five dimensions. All items were rated on a 5-point Likert scale (1="strongly disagree" to 5="strongly agree"). The questionnaire design was informed by the P-A-T-S semantic framework, linking identity, attire, temporal context, and environmental setting to audience perception and evaluation.

To systematically capture perceptual and cognitive responses, participants were exposed to a series of AI-generated images of Ming scholar attire created using Midjourney under the P-A-T-S prompt framework. Example images included scenarios such as:

- A scholar in a zhiduo in a morning bamboo grove (Person–Attire–Time–Setting integration)
- A recluse in a zhiduo by a river in twilight
- Scholars in zhiduo engaged in conversation in a garden setting

These images were generated using standardized parameters (Midjourney v6.1, fixed seed=1024, scenic style) to ensure visual and semantic consistency.

3.4. Data Collection Procedure

Participants completed the questionnaire after viewing the AI-generated image series. The images were presented in a fixed sequence reflecting variations along the P-A-T-S dimensions. This approach ensured that responses were grounded in concrete visual examples and allowed analysis of how semantic-driven image generation influences perception and appreciation. Data were collected both online and in-person, depending on participant availability and preference.

3.5. Data Analysis Plan

Data were analyzed using SPSS 27. Descriptive statistics (means and standard deviations) summarized overall sample characteristics and response patterns. Independent-samples t-tests were conducted to compare professional and non-professional responses across all five dimensions, assessing differences in perception, valuation, and comprehension. One-way ANOVA was further applied to confirm the robustness of group effects. The analysis aimed to identify whether professional knowledge aligns with or diverges from general audience perspectives, and to evaluate the role of semantic modeling in mediating cultural heritage engagement in the age of AIGC.

4. Result

4.1. Bridging the Semantic Gap: How Professionals and Non-Professionals Perceive AI-Driven Cultural Heritage Reconstruction via the P-A-T-S Model

Independent-samples t-tests were conducted to examine the differences between professional and non-professional participants across five perceptual dimensions. The results revealed statistically significant differences in four of the five dimensions measured (*p* < .001), indicating substantially divergent perspectives between the two groups (Tab. 1).

Specifically, professionals demonstrated significantly greater awareness of heritage's modern applications (M = 3.92, SD = 0.72) compared to non-professionals (M = 2.48, SD = 1.13), *t*(98) = 7.591, *p* < .001. Professionals also showed markedly more stringent views on authenticity versus adaptation (M = 4.54, SD = 0.50) than non-professionals (M = 2.34, SD = 1.00), *t*(98) = 13.870, *p* < .001.

Conversely, non-professional participants expressed stronger belief in AI's creative potential (M = 3.56, SD = 0.79) compared to professionals (M = 2.44, SD = 0.58), *t*(98) = -8.117, *p* < .001. Non-professionals also showed greater optimism for the future of semantic design (M = 4.02, SD = 1.19) than professionals (M = 3.02, SD = 1.17), *t*(98) = -4.245, *p* < .001.

Notably, no significant difference was found between groups in their comprehension of the P-A-T-S framework's logic (M = 3.82 vs. 4.12), *t*(98) = -1.543, *p* = .126, suggesting comparable understanding of the methodological approach across expertise levels.

These quantitative findings set the stage for a deeper qualitative interpretation. The consistent and significant divide in four out of five dimensions suggests that professionals and non-professionals may be applying fundamentally different evaluative frameworks when engaging with AIGC-rendered cultural heritage — a divergence that the following discussion will explore in relation to the P-A-T-S model's capacity to mediate between semantic depth and visual accessibility.

Tab. 1 Independent-Samples t-Test Results Comparing Professionals and Non-Professionals Across Five Survey Questions. Source: Own study

Variables	Group	M	SD	t	df	p
Undestanding heritage's modern applications	Professional	3,92	0,72	7,591	98	<0,001
	Non-Proffesional	2,48	1,13			
Views on authenticity versus adaptation	Professional	4,54	0,50	13,870	98	<0,001
	Non-Proffesional	2,34	1,00			
Perception of AI's creative potential	Professional	2,44	0,58	-8,117	98	<0,001
	Non-Proffesional	3,56	0,79			
Optimism for the future of semantic design	Professional	3,02	1,17	-4,245	98	<0,001
	Non-Proffesional	4,02	1,19			
Grasping the P-A-T-S framework's logic	Professional	3,82	0,87	-1,543	98	0,126
	Non-Proffesional	4,12	1,06			

Note. M and SD represent mean and standard deviation, respectively.

5. Discussion: Semantic Values and Contemporary Design Implications

The survey findings reveal a clear divergence between professional and non-professional perceptions of AIGC-assisted cultural design. Professionals emphasized the semantic integrity and historical coherence of AI-generated images, whereas non-professionals responded more strongly to their visual appeal and contemporary creativity. This contrast underscores the dual nature of AIGC as both a semantic and aesthetic mediator — capable of linking historical knowledge with modern visual sensibilities.

These results validate the analytical potential of the P-A-T-S framework: by organizing "Person-Attire-Time-Setting" relationships into a coherent structure, AIGC can communicate different layers of meaning to distinct audiences. For experts, this framework activates hermeneutic and historical dimensions of dress culture; for general viewers, it enhances accessibility through visual engagement. The model therefore bridges academic interpretation and public perception, aligning with the study's broader goal of transforming traditional attire from static heritage into a living semantic system.

5.1. The P-A-T-S Framework in Historical and Contemporary Context

By integrating historical accounts, literary descriptions, and visual evidence from Ming-era paintings, this study demonstrates how the zhiduo embodied a dynamic interplay between the individual and their cultural milieu. The dimensions of Person-Attire-Time-Setting were not arbitrary but emerged through repeated observation and cross-referencing of primary sources. The documented sartorial choices of Wang Yangming provide a compelling illustration of how ethical principles, social

identity, temporal context, and environmental setting collectively shaped the meaning of attire:

> "As a young man, Duke Jingchuan abhorred luxury. When dressed in bright or fashionable clothing, he would blush and avoid going outside, and the garments would soon be soiled. Even in his later years, despite his rank, he never had even a single piece of fine silk made for himself. After being dismissed from office, he wore only a plain blue zhiduo, the same turban and shoes for over a decade. He would travel in a small boat, lowering his head and tucking his legs to sit cross-legged. Passersby, not knowing who he was, would often mock him. Fellow passengers, incensed on his behalf, watched as he remained calmly indifferent."
>
> — Jianwen lu, Vol. 3, compiled by Chen Jiru, Ming dynasty, Wanli edition, p. 17.

This account traces Wang's aesthetic consistency from youth to retirement, demonstrating the zhiduo's deployment as visual language across all P-A-T-S dimensions. From the Persondimension, Wang's clothing choices reflected profound moral deliberation. Despite achieving high office, he consistently rejected luxurious adornment, making his attire a visible manifestation of ethical discipline that embodied the Neo-Confucian ideal of "self-restraint and ritual restoration." The plainness, durability, and unadorned quality of his zhiduo aligned precisely with his philosophical commitment to innate knowledgeand the unity of knowledge and action.

The Attire dimension reveals how the plain blue zhiduo operated within a precise social semiotics — distinct from both ceremonial robes with their explicit insignia and commoners' purely functional garments. This intentional simplicity, rooted in Confucian aesthetics of restraint, transformed the robe into a vehicle of symbolic subtlety. Wang's consistent adherence to this attire over more than a decade constituted not mere habit but a sustained rhetorical performance — a continuous expression of values materialized through fabric.

The Time dimension illuminates how Wang's clothing practice transcended temporal changes in his official status. His maintained attire across the transition from political prominence to rural seclusion suggests a deliberate resistance to external status markers and a profound commitment to inner virtue as the true constant. Thus, clothing served as a medium for temporal continuity of identity, asserting moral consistency amidst changing circumstances.

The Setting dimension captures Wang's strategic use of environment and posture. His depiction in a boat — head lowered, cross-legged, visually indistinguishable from commoners — demonstrates a sophisticated attunement to vernacular context. This spatial practice, combining ordinary dress with modest behavior, effectively dissolved class distinctions through what might be termed a strategy of "non-performance," where social humility itself becomes culturally potent.

These historical cases illustrate how everyday attire in Ming society helped construct an integrated identity-morality-environment nexus. Clothing thus transcended social protocol to become a symbolic field where individual cultivation, historical awareness, and visual expression intersected.

5.2 Semantic Modeling and Prompt Logic in AIGC

To address the challenges of manual interpretation and potential cultural bias in traditional visual-semantic analysis, this study developed a structured four-dimensional prompt system based on the "semantic-driven" P-A-T-S model. This approach leverages AIGC to efficiently generate large volumes of image samples, enabling systematic observation of how traditional meanings couple with contemporary visual forms. By translating cultural semantics into structured prompts, the method reduces reliance on manual modeling and mitigates subjective distortions, while facilitating the extraction of cross-situational semantic patterns — an approach aligned with recent advances in cross-domain design [14].

Using Midjourney, this study implemented the P-A-T-S framework to simulate contemporary reinterpretations of Ming scholar attire. Each dimension was operationalized through targeted keyword combinations:

- **Person:** cultural identity and temperament (e.g., Ming Dynasty scholar, Confucian gentleman)
- **Attire:** garment type and materiality (e.g., zhiduo robe, plain blue cloth)
- **Time:** temporal and emotional context (e.g., early spring morning, after demotion)
- **Setting:** spatial and cultural environment (e.g., bamboo grove, wooden boat)

Dimmension	Semantic Aspect	Sample Prompt Terms
Person	Identity / Disposition	Ming Dynasty scholar, Confucian gentelman, moral refinement, restraint
Attire	Garment / Pattern	Zhiduo robe, plain blue cloth, wide sleeve, no pattern
Time	Temporal Context	Early spring morning, retirement, after demotion
Setting	Spatial Enviroment	Bamboo grove, riverside, wooden boat, lecture hall

Fig. 4 Person–Attire–Time–Setting. Source: Own study.

This semantic prompt logic was further systematized through a Python-based automatic prompt composition function:

```python
def generate_prompt (identity, attire, time, environment):
    return f"{identity}, wearing {attire}, in {time}
    {environment}..."
```

By inputting keywords from different semantic dimensions, this function generates structured prompts that ensure semantic consistency, enabling Midjourney to produce images that reflect both humanistic values and coherent cultural structures (Fig. 4).

By inputting keywords from different semantic dimensions into this function, it produces prompt sequences that adhere to the principle of semantic consistency, enabling Midjourney to generate images that reflect both humanistic values and cultural structures. This semantic-driven prompt construction approach indicates that AIGC tools are not merely generative technologies, but also serve as design interfaces that bridge traditional semantics and contemporary visual expression.

To more clearly demonstrate the practical efficacy of the "human-attire-time-setting" semantic--driven generation model in image construction, the author compiled visual and textual materials from classical Chinese sources depicting Ming dynasty scholar-officials in everyday zhiduo. Centered on four semantic dimensions — Human (identity/temperament), Attire (form/material), Time (temporal context), and Setting (spatial scene) — a structured and combinable system of Midjourney prompt logic was developed.

By writing semantic combination functions in Python, symbolic elements from traditional contexts were converted into image generation instructions for AIGC, resulting in a large collection of culturally coherent visuals, as shown in the figures.

Building on this foundation, the author conducted semantic ranking and structural analysis of the generated images to construct a logically coherent image semantic matrix. This matrix is not only a visual compilation, but also a spatial mapping of semantic logic. Based on two axes — "personal temperament/social identity" and "scene dynamics/temporal context" — the images were classified into four culturally symbolic quadrants. In the figure (Fig. 5), the horizontal axis represents the tension between dynamic and static contexts, while the vertical axis reflects the Confucian-Daoist disposition in body posture, forming a two-dimensional semantic coordinate system. The upper-left quadrant features static portraits in the style of classical painting, emphasizing the material quality of attire and the representation of identity; the lower-right quadrant, by contrast, presents dynamic everyday scenes such as travel, social visits, and boating, highlighting the visual interplay between clothing, setting, and light.

These images not only faithfully recreate the Ming scholar-official archetype — zhiduo robe paired with Scholarly headwear / Headgear of literati [15] — but also validate the theoretical structure of the semantic-driven generation model at a visual-semiotic level. The generative path from "keywords to image" reflects a procedural design logic that bridges cultural text with contemporary expression. This demonstrates that AI-assisted image generation is not merely

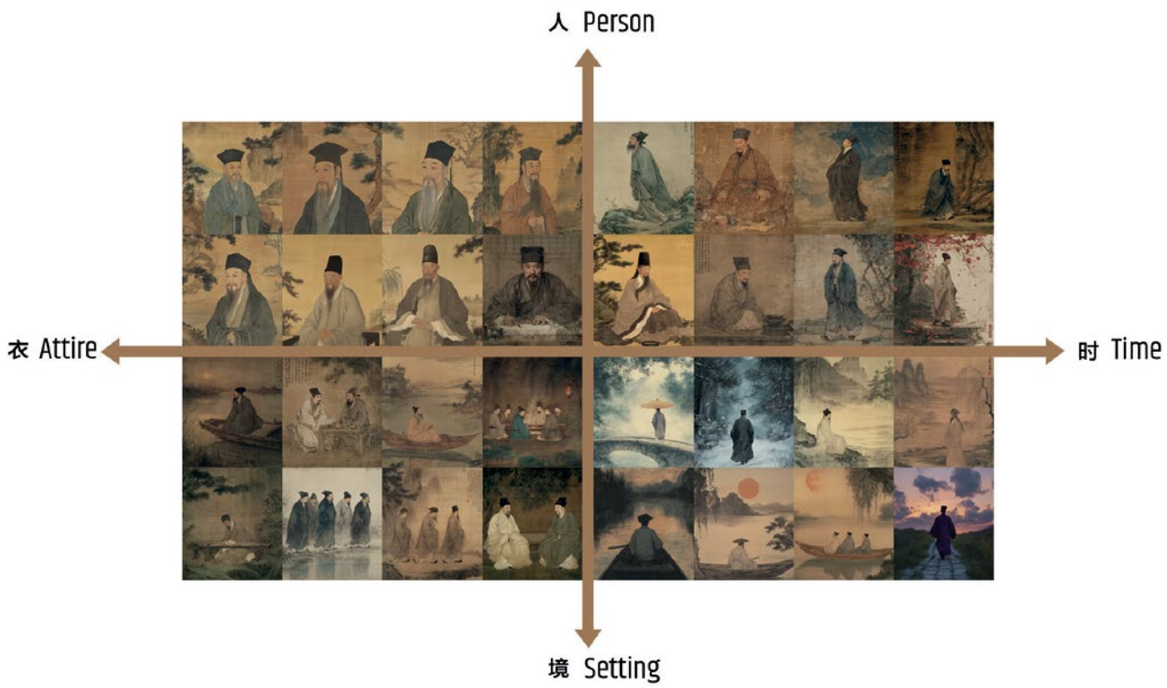

Fig. 5 Findings Derived from Images Generated by the Author Using Midjourney. (Generated via Midjourney v6.1 (seed=1024,v-style scenic), demonstrating semantic coherence across quadrants.)
Source: Own study.

a technical process of form production, but a mechanism for the co-construction of visual language and cultural meaning.

5.3. Bridging Expert and Public Expectations: AIGC as a Semantic Mediator in Cultural Design

In today's rapidly evolving visual design landscape, traditional cultural elements have experienced an unprecedented proliferation across diverse fields including product design, fashion, spatial design, and interaction design. This trend reflects a profound societal desire to reconnect with cultural identity, heritage, and aesthetic lineage in an increasingly globalized and digitally mediated world. However, this very proliferation has brought to light a critical and persistent challenge: the pervasive tendency towards superficial revivalism, decorative "cultural packaging," and aesthetic mimicry that fundamentally fails to engage with the deeper semantic, contextual, and experiential dimensions of tradition. The central question confronting contemporary designers has evolved beyond simply how to reference traditional motifs, to how to internalize cultural principles in ways that resonate meaningfully across different audience expectations — satisfying both professional demands for semantic authenticity and historical accuracy, while simultaneously meeting public preferences for accessible visual engagement and contemporary relevance.

A genuine sense of "cultural depth" in design should arise not merely from the mechanical reuse of patterns, the simplistic mimicry of forms, or the arbitrary collage of symbolic colors, but rather through the careful cultivation of aesthetic temperament, situational coherence, and empathetic alignment with diverse users' lives and values [16].

Culture, understood in this more profound sense, becomes not simply something to be displayed or observed, but something to be authentically worn, meaningfully inhabited, and truly lived — a dynamic and participatory construct that actively engages the senses, cognition, and emotion across different user groups with varying levels of cultural literacy.

Against this complex backdrop, Artificial Intelligence-Generated Content (AIGC) technologies are emerging not merely as tools of stylistic reproduction, but as crucial mediators and enablers of a profound methodological shift in how designers engage with cultural heritage. While professional experts and scholars typically seek historical accuracy, semantic integrity, and cultural authenticity in heritage reinterpretation, general audiences often respond more strongly to visual novelty, emotional resonance, and immediate contextual relevance.

This fundamental divergence in expectations and evaluation criteria has traditionally created a significant challenge for cultural design. However, AIGC strategically addresses this divide by serving as both an analytical and generative platform that enables designers to systematically decode complex cultural semantics while creatively recomposing them into visual forms that speak effectively to contemporary sensibilities across this spectrum of expectations.

Moving substantially beyond basic image generation or superficial surface rendering, AIGC supports rapid iteration, semantic recombination, and context-aware prototyping, allowing designers to explore how traditional principles can be authentically maintained while simultaneously adapting to modern functional requirements and aesthetic expectations. This dual capacity makes AIGC particularly valuable for meaningful cultural revival — it transcends mere replication to enable principled reinterpretation, creating sophisticated design languages that honor traditional meaning while genuinely engaging modern audiences across the professional-public divide.

The Person-Attire-Time-Setting (P-A-T-S) model plays a particularly pivotal role in systematically reconciling these different audience expectations and requirements. For professionals and cultural experts, it provides a structured, rigorous framework for maintaining semantic fidelity and historical accuracy through clearly defined dimensions of analysis. For public audiences and general users, it ensures visual coherence, contextual relevance, and immediate accessibility. This sophisticated model allows designers to systematically address the concerns of both groups: professionals can trace how historical meanings and cultural values are carefully preserved and translated through the four interconnected dimensions, while general users experience culturally grounded yet visually engaging and emotionally resonant outputs. The framework thus functions as an effective translation mechanism — converting expert knowledge and cultural understanding into publicly accessible forms without compromising essential cultural depth or historical authenticity.

From a comprehensive practical perspective, AIGC serves multiple distinct but interconnected functions in bridging this critical gap between expert standards and public accessibility. It acts as an efficient semantic testing ground where abstract cultural concepts, philosophical principles, and social values can be systematically encoded into structured prompt language, generating diverse outputs that carefully balance historical principles with contemporary appeal and relevance. It supports iterative visualization and comparative

analysis, allowing designers to rapidly generate and objectively evaluate multiple variations in form, proportion, color, texture, and contextual presentation, thereby testing how semantic fidelity interacts with functional requirements, ergonomic constraints, and diverse aesthetic expectations across different user groups. Most importantly, it facilitates collaborative reflection and user engagement — generated images and prototypes can be easily shared with diverse audiences including community stakeholders, cultural experts, and end-users to assess cultural intelligibility, emotional resonance, and perceptual authenticity, creating continuous feedback loops that progressively align design outcomes with both expert validation and public acceptance.

The psychological dimension of this approach further reinforces AIGC's mediating role between different user expectations. Clothing and design fundamentally function as extensions of self and identity, significantly shaping how individuals perceive themselves and are perceived by others across different cultural contexts and user groups [11]. AIGC-enhanced semantic design strategically strengthens this psychological relationship by embedding cultural values and identity narratives into material and digital artifacts that help users navigate their personal position within cultural continuums. For professionals and cultural practitioners, this maintains meaningful connection to tradition and historical authenticity; for public users and general audiences, it provides accessible entry points to cultural identity and heritage appreciation.

Philosophically, this integrated approach resonates deeply with classical Eastern traditions where outer form consciously reflects inner virtue, and material expression embodies spiritual values. The zhiduo robe, with its deliberate austerity, organic materials, and structural clarity, powerfully exemplifies this essential unity of ethics and aesthetics. AIGC-enabled semantic translation allows contemporary designers to capture such philosophical coherence without resorting to stylistic imitation or historical pastiche, creating innovative designs that embody traditional values like restraint, balance, and contextual harmony while remaining genuinely relevant to contemporary life and diverse user expectations. This solid philosophical foundation ensures that even highly experimental or technologically mediated designs retain their essential cultural authenticity while appealing to modern sensibilities across the professional-public spectrum.

In terms of cultural sustainability and continuity, this methodology importantly redefines tradition as a dynamic, renewable system rather than a static collection of forms to be preserved. Rather than treating cultural heritage as fixed artifacts or rigid forms to be mechanically reproduced, it enables continuous cultural reconstruction through creative engagement and adaptive reinterpretation. AIGC strategically facilitates this sustainable process through what might be termed digital craftsmanship — a process where cultural semantics are thoughtfully recomposed rather than slavishly copied, allowing for endless variation and innovation while preserving core meanings and values. This approach is particularly important in addressing the different priorities of professionals and public audiences — the former typically seeking to preserve cultural essence and historical accuracy, the latter often desiring contemporary relevance and immediate accessibility.

Ultimately, this integrated approach fosters the development of a new design literacy where designers become sophisticated cultural interpreters and users become active participants in the continuous remaking of living tradition. Through context-aware wearables, temporally responsive spaces, and culturally intelligent interfaces, design evolves into an ongoing conversation between heritage and innovation, tradition and contemporaneity. This represents a significant evolution from industrial-era paradigms that prioritized standardization, mass production, and formal novelty over cultural meaning and personal belonging. In this new framework, truly successful design must satisfy both professional criteria for cultural accuracy and historical authenticity, while simultaneously meeting public expectations for engaging experiences and contemporary relevance — becoming not just visually appealing but culturally meaningful and existentially fitting for diverse audiences with different backgrounds, knowledge levels, and expectations.

This powerful synergy between AIGC and semantic modeling enables a crucial shift from simple cultural revival to active cultural reconstruction. Heritage becomes a living, breathing system continuously adapted to contemporary experience and diverse user needs, with AIGC providing the necessary representational flexibility and technical capability to navigate complex cultural meanings across different audience expectations. Through this comprehensive approach, designers can create artifacts that are functionally sound, aesthetically compelling, culturally authentic, and publicly accessible — fostering a revitalized relationship between tradition and modern life where culture is continuously enacted, embodied, and evolved through use across different segments of society, thereby ensuring its continued relevance and vitality in an increasingly globalized world.

6. Conclusion and Future Research

This study has demonstrated how AI-generated content (AIGC) can empower the visual reactivation and contemporary reinterpretation of traditional Ming-dynasty scholar dress. By functioning as both a generative tool and an experimental interface, AIGC enables designers to explore the complex relationships between historical knowledge, aesthetic principles, and cultural meaning. Instead of relying on superficial replication or decorative imitation, designers can engage with the underlying semantics of traditional attire, reconstructing its cultural logic and translating it into contemporary forms and contexts.

The Person-Attire-Time-Setting model introduced in this research provides a structured methodology for integrating historical dress culture into modern design workflows. By explicitly linking identity, garment form, temporal context, and environmental setting, designers are able to create outputs that are not only visually coherent but culturally and ethically informed. In practical terms, AIGC accelerates this process: it allows rapid iteration of design concepts, experimentation with color, texture, and form, and immediate visualization of how traditional elements interact with contemporary design scenarios.

Beyond efficiency, AIGC offers a methodological advantage for cultural heritage innovation. It facilitates exploration of multiple design pathways that maintain historical fidelity while adapting to modern usability, aesthetics, and social contexts. Designers can test hypothetical combinations of traditional motifs, materials, and silhouettes, observing which configurations effectively convey historical meaning without resorting to mere pastiche. This process helps avoid common pitfalls of cultural appropriation or shallow revivalism, ensuring that heritage-informed designs remain authentic, resonant, and contextually relevant.

The divergent perceptions between professional and general audiences revealed in this study point to an important consideration for future heritage innovation. While professionals tend to prioritize semantic integrity and historical accuracy, non-professionals show stronger receptivity to creative adaptation and visual modernity. This suggests that successful cultural revitalization requires a balanced approach — one that preserves essential cultural semantics while embracing contemporary expressive forms. The P-A-T-S model provides precisely such a framework, enabling designers to maintain core cultural values while exploring innovative visual expressions that resonate with diverse audiences.

Looking to the future, the integration of AIGC into design practice opens several promising directions. First, interactive and immersive design environments — such as VR or AR applications — can leverage AI-generated imagery to allow users to experience traditional garments dynamically, understanding how identity, form, and context interact in real time. Second, AIGC can support cross-disciplinary cultural research, combining historical archives, visual records, and textual sources to generate new insights about historical aesthetics and social practices. Third, AI platforms can serve as collaborative partners, enabling designers to focus on conceptual inno-

vation while using AI to explore variations, test visual coherence, and evaluate user perception efficiently. Fourth, future studies could develop adaptive AIGC systems that automatically adjust output styles based on different audience preferences, creating personalized cultural experiences that bridge the gap between expert standards and public accessibility.

In this way, the future of AIGC-assisted design emphasizes responsible cultural innovation: a careful balance between historical understanding, semantic depth, and creative adaptation. Traditional dress, architecture, and other heritage elements can be reactivated in ways that respect their original meaning, while also addressing contemporary aesthetic and functional requirements. This approach transforms cultural heritage from static artifacts into living, adaptable design resources, allowing designers to generate works that are simultaneously historically informed, socially meaningful, and visually compelling.

In conclusion, AI-generated technologies provide designers with unprecedented tools for reimagining cultural heritage. By combining structured semantic models with AIGC workflows, designers can create innovative, authentic, and contextually sensitive interpretations of traditional forms. The future of cultural design lies in leveraging AI not merely as a production tool, but as a dynamic partner in cultural discovery, experimentation, and responsible innovation, enabling heritage to thrive within contemporary visual and social landscapes while respecting the diverse expectations of both specialized and general audiences. ■

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The Ontological Shift from Chinoiserie to Chinese Narratives:

A Paradigm of Cultural Authenticity in Global Design

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peer-reviewed conference materials

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#chinese narratives
#chinoiserie
#global design
#ontological shift

Abstract

This paper offers a critical examination of the ontological shift from Chinoiserie to Chinese Narratives within global art and design discourse. Moving beyond stylistic comparison, it argues that this transition marks a fundamental evolution in cross-cultural engagement – from Eurocentric appropriation to a dialogue-based, philosophically grounded exchange.

Methodologically, the study employs a tripartite framework: First, it conducts a historical analysis of Chinoiserie, exposing its mechanisms of aesthetic extraction and symbolic detachment through primary source examination and material culture studies. Second, it engages in close reading of key Chinese aesthetic concepts (Shen si, Qi yun sheng dong, Bu si zhi si ...) to establish the philosophical foundations of Chinese Narratives. Third, it utilizes case studies spanning furniture design (Hans Wegner, Alexandre Chary), digital art (Zhang Zhoujie), and architectural collaboration (Piero Lissoni for Shang Xia) to demonstrate how these principles are operationalized in contemporary practice.

The findings reveal Chinese Narratives as neither nostalgic revival nor assertive nationalism, but as a critical methodology – one that integrates indigenous epistemology with global discourse through what is theorized as "bidirectional cultural refraction." This process, theorized as "bidirectional cultural refraction," enriches both Chinese design philosophy itself and the broader field of global design, challenging hegemonic standards and proposing a more inclusive, sustainable paradigm.

Ultimately, this research contributes to post-colonial and transcultural theory by reframing China's role from cultural source to co-author of global design culture. It offers a new analytical model for understanding how non-Western knowledge systems can reshape international creative practices through mutual transformation rather than unilateral adaptation.

In The Meeting of Eastern and Western Art, historian Michael Sullivan rigorously delineates three key terms: Japonaiserie, Japonisme, and Japonerie, mapping the West's evolving reception of Japanese art. Japonerie refers to objects produced in a superficial Japanese style, which Sullivan describes as "frivolous" – a term echoing early critiques of Chinoiserie, where descriptors like "exaggerated" and "impractical" were similarly employed. Though Sullivan does not cite specific examples, Japonerie likely encompassed mass-produced handicrafts or derivative imitations accessible to Western audiences. These objects, primarily valued for their visual exoticism, were perceived as decorative novelties rather than serious artistic engagements, reflecting a preliminary and largely superficial encounter with Japanese aesthetics [1].

The term Japonaiserie parallels Chinoiserie in its spelling form and conceptual framework. While Chinoiserie broadly encompasses Western interpretations of Chinese, Japanese, Indian, and Islamic arts, Japonaiserie specifically denotes Western creative works inspired by a romanticized vision of Japan. Like Chinoiserie, it represents a subjective reimagining rather than an authentic replication, often characterized by the arbitrary incorporation of Oriental motifs – such as folding fans, kimonos adorned with pseudo-Japanese script, or screens depicting cranes and landscapes – as seen in Monet's La Japonaise. These elements functioned as decorative signifiers, akin to the dragon motifs and pagodas prevalent in Chinoiserie, revealing a tentative, albeit influential, experimentation with Eastern forms.

In contrast, Japonisme signifies a deeper, more scholarly engagement with Japanese artistic techniques, marking a shift from ornamental appropriation to substantive integration. This term saw Japanese compositional principles – as seen in flattened perspectives, bold outlines, and asymmetrical designs – permeate Western avant-garde practices. Édouard Manet's Portrait of Émile Zola exemplifies this transition: while a Japanese screen and porcelain vase appear as peripheral decor, the painting's formal structure – its compressed space and muted palette – betrays the subtle internalization of ukiyo-e aesthetics. By the time of Van Gogh's Bedroom at Arles, explicit Oriental objects had vanished entirely, the work's vivid coloration, stark contours, and non-hierarchical composition demonstrate a complete assimilation of Japanese techniques.

This progression – from Japonerie's decorative whimsy to Japonisme's technical synthesis – reflects a broader trajectory in the West's encounter with Eastern art. Over three centuries, what began as a fascination with exotic surfaces evolved into a transformative dialogue, one that ultimately destabilized the conventions of Western classicism and paved the way for modernist innovation.

Notably, the French lexicon has never systematically adopted parallel terms such as Chinerie or Chineisme to delineate phases of Western engagement with Chinese art, nor have scholars subdivided Chinoiserie into categories akin to Sullivan's Japonerie-Japonisme spectrum. Instead, scholarly classifications of Chinoiserie have predominantly followed two frameworks: temporally, it evolved through distinct phases mirroring broader European artistic developments – Baroque Chinoiserie (c. 1660-1730) blended Chinese motifs with dynamic scrollwork in landmarks like Versailles' Trianon de Porcelaine; Rococo Chinoiserie (c. 1730-1770) refined these elements into playful asymmetrical designs exemplified by Boucher's Beauvais tapestries; while Neoclassical Chinoiserie (post-1770) incorporated archaeological rigor as seen in Palazzina Cinese and Palazzo Mirto of Palermo.

Geographically, regional variations emerged through localized interpretations – French iterations displayed courtly sophistication in Sèvres porcelain and Watteau's singerie paintings; British versions manifested as whimsical garden pagodas and Chelsea porcelain's hybrid decorations; German adaptations took form in Meissen's sculptural porcelain and Potsdam's Chinese Tea House; and Italian renditions appeared in Venetian lacquer furniture and Tiepolo's frescoed oriental fantasies – each adaptation reflecting unique national aesthetic priorities whi-

le maintaining the movement's essential cross-cultural dialogue between European artistic traditions and imagined Eastern inspirations. Additionally, some scholars have examined Chinoiserie through specific mediums – textiles, painting, porcelain, furniture, and architecture – though these studies often blur the line between European reinterpretations and authentic Chinese artifacts [2].

A persistent issue in Chinoiserie scholarship is the inclusion of original Chinese artworks – such as Ming porcelain or Qing lacquerware – within its scope. Strictly speaking, these objects should not be classified as Chinoiserie, as they were produced in China rather than being European decorative creations. However, their presence in European collections significantly influenced aristocratic tastes and facilitated the spread of Chinoiserie trends. Over centuries, these objects have become cultural hybrids: neither purely Chinese (due to their European reception and reinterpretation) nor entirely Western (as they retain their original craftsmanship).

This raises an important question: How should these artifacts – integral to Chinoiserie's development yet distinct from it – be defined and studied? Their dual identity challenges conventional categorizations and calls for a more nuanced understanding of transcultural exchange in art history.

The influence of Chinoiserie in Europe spans at least three centuries, however, it has never been regarded as part of the mainstream of Western art. Therefore, the concept of Chinese Narratives is rarely mentioned in research on Chinoiserie. Centuries have passed, Westerners engagement with these objects has evolved: from banter, re-

creation, imitation to creation, absorption and research, then to exhibition, tracing, and collection; At this moment, they realized that Chinoiserie is only a prelude, the breadth and profundity of Chinese culture is sufficient to reignite a Chinese Narratives movement worldwide. The failure to capitalize on this trend in the spread of Chinoiserie, may be attributed to the fact that the time was not ripe.

1. Surface to Essence: The Ontological Evolution of Cultural Representation

1.1. Scholarly Foundations: Western and Chinese Discourse on Chinoiserie

Chinoiserie has long been established as a significant subject of academic inquiry in both Western and Chinese scholarship. The foundational Western studies emerged in 1961 with Hugh Honour's seminal work Chinoiserie: The Vision of Cathay [3], followed by Oliver R. Impey's Chinoiserie: The Influence of Oriental Style on Western Art and Decoration [4]. These pioneering studies framed Chinoiserie primarily as a Western decorative phenomenon. Chinese scholarship entered this discourse notably in 1999 through Hu Guanghua's important paper From the "China Vogue" in the West to the Westernization of Chinese Export Art published in Art Observation [5], complemented by another monograph The Chinese Vogue in Europe During the Eighteenth Century [6] by Xu Minglong. This dual publication marked a significant moment in Chinese scholarship, adopting the term China Vogue as an alternative conceptual framework to Chinoiserie – a terminological choice reflecting both cultural sensitivity and methodological distinctiveness.

The early 21st century witnessed a maturation of Chinese scholarship on the subject, exemplified by Yuan Xuanping's groundbreaking work Chinoiserie Design in Europe from the 17th to 18th Centuries [7]. This study introduced an important Eastern perspective to the field, systematically analyzing Western scholarship while advancing a nation-based classificatory approach. Professor Yuan's work stimulated vigorous academic debate regarding fundamental questions of cultural transmission, including issues of artistic "influence," cross-cultural "misreading," and Orientalist representation.

France's pivotal role as the originator of Chinoiserie remains academically contested. The 18th-century French conception of "China" through Chinoiserie has been critically examined as constituting political symbolism and cultural metaphor rather than authentic representation. This epistemological gap between Western artistic interpretation and Chinese cultural reality reveals the inherent limitations of Chinoiserie as a mode of cross-cultural understanding.

1.2. Beyond Form: The Philosophical Underpinnings of Chinese Aesthetics

In contrast to Chinoiserie's decorative appropriations, contemporary Chinese Narratives in art present a fundamentally different paradigm. Moving beyond superficial stylistic elements like the "island style" or "climbing style," these narratives emphasize profound engagement with traditional Chinese aesthetics. The concept of "Bu si zhi si" (不似之似, unsimilar similarity) encapsulates this approach, privileging essential spiritual resonance over formal imitation. This philosophical framework demands deep understanding of traditional Chinese artistic principles – from scattered perspective composition to ink-wash techniques, from classical materiality to chromatic symbolism – all converging to create an authentic Chinese sensibility.

The pursuit of "Shen si" (神似, spiritual resonance) is far from a modern invention; it is the cornerstone of classical Chinese aesthetic theory. Its origins can be traced to Gu Kaizhi's (顾恺之, c. 344-406) principle of "Yi xing xie shen" (以形写神, conveying spirit through form), which prioritized the capture of a subject's inner vitality over mere physical likeness. This concept was later crystallized in the first of Xie He's (谢赫, active c. 500-535) "Six Principles of painting" (绘画六法) as "Qi yun sheng dong" (气韵生动), which means the rhythmic vitality and spiritual resonance that breathes life into a work of art. In the context of design, this translates to an ontology where objects are not inanimate tools but vessels of cultural memory and philosophical concept. For instance, the minimalist form of a Ming chair is not an end in itself for austerity's sake; it is the physical manifestation of a Confucian ethic of moderation, structural integrity, and respect for materiality. Similarly, the fluid, organic lines in a contemporary ceramic piece might strive to emulate not the appearance of water, but its Daoist essence, its yielding adaptability and perpetual flow. Therefore, Chinese Narratives in design translate intangible philosophical values into tangible form, achieving a resonance that is felt and culturally understood, beyond mere visual consumption [8].

This philosophical pursuit finds further articulation in the Tang Dynasty critic Zhang Yanyuan's (张彦远, c.815-907) concept of "Yi pin" (逸品, Works of extraordinary and unrestrained artistic quality), which placed spontaneous expression and spiritual resonance above technical skill. The cumulative development of these ideas – from Gu Kaizhi's spirit conveyance to Xie He's resonance, to Zhang Yanyuan's transcendence – formed a coherent aesthetic system that prioritizes the artist's inner cultivation and empathetic engagement with the subject. This system stands in stark contrast to the tradition in Western aesthetics, which has historically emphasized mimesis (imitation of ideal forms) and rational composition. The divergence is ontological: where Western classicism sought to represent an idealized nature, Chinese classical art sought to channel and express the "Qi" (气, vital force) of nature itself. This fundamental difference in artistic purpose explains why Chinoiserie, operating within a Western mimetic framework, could only ever achieve superficial decoration, while Chinese Narratives, rooted in this native ontology, aim to manifest a worldview.

1.3. Ontological Distinction: Appropriation Versus Authentic Continuity

The distinction between Chinoiserie and Chinese Narratives ultimately resides in their respective relationships to cultural authenticity. Where Chinoiserie represents external stylistic appropriation, Chinese Narratives emerge from endogenous cultural continuity.

1.3.1. Chinoiserie as External Appropriation

Chinoiserie operated primarily through a process of decontextualization and re-signification. Chinese motifs (dragons, pagodas, phoenixes) and artifacts (porcelain, lacquerware) were extracted from their original cultural, philosophical, and functional contexts. They were then imported into a Western epistemological framework and re-signified according to European aesthetic values, social desires, and artistic trends (Baroque dynamism, Rococo whimsy). The Ming vase became a signifier of aristocratic luxury, not of scholarly

refinement; the dragon became a decorative monster, not a symbol of imperial power and celestial benevolence. This process, while creatively stimulating, was ultimately a form of projection – a reflection of Europe's own fantasies about the Orient rather than a genuine engagement with Chinese reality. It represents a unidirectional taking, where the source culture is passive, its depth flattened into a surface of exotic signs ready for consumption.

1.3.2. Chinese Narratives as Endogenous Continuity

In stark contrast, Chinese Narratives emerge from a process of internal excavation and creative transformation. They are not about importing external signs but about activating an internal cultural lineage. This practice is grounded in a deep comprehension of and respect for the native epistemological framework – the philosophical principles (Qi, Yinyang, Dao .....), aesthetic values (Shen si, Qi yun sheng dong), and material philosophies (Yin Cai Shi Yi) that have historically shaped Chinese creativity. The goal is not to copy ancient forms literally but to achieve a spiritual resonance (Shen si) with the tradition, allowing its core principles to inform contemporary expression. Therefore, a piece of contemporary design informed by Chinese Narratives is not a pastiche of symbols but a new node in a continuous cultural chain. It is a dialogue between past and present, conducted within the same cultural sphere. This represents a bidirectional engagement with tradition – one that involves both learning from and contributing to its ongoing evolution.

2. Deconstructing Orientalism: Critical Reception in Western Academia

2.1. Historical Phases and Evolving Meanings of Chinoiserie

2.1.1. Chinoiserie as a Relational Concept

Professor Peng Feng from the School of Arts Peking University pointed out in his paper The art Chinoiserie Blowing from the East, in different historical periods, Chinoiserie has different connotations. In the 18th century, as an exotic style in Europe, it had the significance of constructing modernity. In the early 20th century, as a countercurrent to Western learning, which had critical significance for modernity. Chinoiserie in contemporary art in the 1990s has obvious postmodern and postcolonial characteristics, and in the 21st century – especially since 2015 – it has been reflected in the way that Chinese culture to be global and influence the world actively. It is a true Chinese style that has emerged from the East [9].

Peng Feng's periodization of Chinoiserie's evolving significance offers a profound parallel to Michael Sullivan's taxonomy of Western engagement with Japanese art, yet it also reveals a critical divergence in methodological approach. Sullivan's framework – Japonerie, Japonaiserie, Japonisme – is fundamentally reception-based, Peng Feng's analysis, conversely, constructs a significance-based model from the inside looking out. He is less concerned with the formal mechanics of Western appropriation and more with the shifting function and meaning of "Chinoiserie" within China's own historical consciousness and cultural strategy. For Professor Peng, the term does not describe a static Western style but a dynamic phenomenon whose definition changes relative to China's position in the world.

2.1.2. Early Encounters and European Projections

The cultural influence of Chinese civilization on Europe intensified significantly from the 16th century onward, as Portuguese and Spanish navigators – motivated by lucrative trade opportunities – began transporting Chinese handicrafts to the West. These material objects, ranging from porcelain to lacquerware, not only met commercial expectations but also ignited a widespread aesthetic movement known as the "China vogue" (Chinoiserie). While European audiences were captivated by the exotic allure of these artifacts, their appreciation often remained superficial, treating Chinese craftsmanship as a source of novelty rather than deep cultural engagement. For most, these objects were profitable commodities rather than functional items, though aristocratic collectors began to recognize their refined elegance, gradually elevating them from curiosities to coveted luxury goods.

By 1672, the British East India Company had established a commercial foothold in Taiwan, enabling direct and regular trade with China through ports such as Xiamen, Zhoushan, and Guangzhou. This access led to an unprecedented influx of Chinese export goods into Europe, where they became status symbols in royal palaces and aristocratic estates. Alongside these material exchanges, exaggerated travelogues and missionary reports further fueled European fascination with the "mysterious East," ensuring that the China vogue was not a fleeting trend but a sustained cultural phenomenon [10].

Throughout the 17th to 19th centuries, European courts became stages for a unique aesthetic synthesis, where Baroque opulence, Rococo whimsy, and Ming-Qing elegance converged. Chinese porcelain, now gilded and displayed en masse, dominated interior spaces with dramatic effect. Traditional functional objects like folding screens were repurposed as decorative centerpieces, while architectural elements borrowed from Chinese design defied conventional Western norms. The result was Chinoiserie – a dreamlike, often paradoxical style that blended reverence for Chinese artistry with European fantasy.

This hybrid aesthetic, though commercially and artistically significant, ultimately reflected European projections rather than an authentic engagement with Chinese culture. The tension between admiration and misinterpretation remains central to scholarly debates on Chinoiserie, raising critical questions about cross-cultural representation and artistic appropriation in the early modern world.

2.2. Missed Opportunities and Methodological Limitations

At that time, the Qing Empire was experiencing the "Kang qian sheng shi" (康乾盛世, the Flourishing Age of the Kangxi, Yongzheng and Qianlong Reigns), and the art of the Qing Dynasty relied on the support of nobles and literati, with a considerable cultural heritage; The official handicrafts pursued the aesthetic taste of richness and luxury, and the "Guang cai" porcelain (广彩瓷) that was not appreciated by the Chinese swept across Europe. However, the Qing Dynasty gradually lost interest in the outside world and even implemented sea bans, isolated it both physically and spiritually from engagement with other ethnic groups. Europe was opening its arms to embrace the world at this time, "In the season of 1736 there were trading at Canton 12 ships, of which 5 were English, 2 Dutch, 1 Danish and 1 Swedish; in 1753 there were 27, of which 10 were English, 6 Dutch, 5 French, 3 Swedish, 2 Danish and 1 Prussian [11]". This lineup has brought Europe not only material prosperity, but also artistic advancement. Athanasius Kircher's China Monumentis, Johannes Nieuhof's Legatio Batavica ad magnum Tartariae Chamum Sungteium, Modernum Sinae imperatorem [12] and Jean-Baptiste Du Halde's Description Géographique, Historique, Chronologique, Politique, Et Physique De L'Empire De La Chine Et De La Tartarie Chinoise [13] are cultural foundation; Jean Louis Berain's Costume design: Chinese gong player, Watteau Jean Antoine's Idole de la KI MAO SAO and François Boucher's La Tenture chinoise are fundamentals of art; William Chambers's Designs of Chinese buildings, furniture, dresses, machines, and utensils [14], Thomas Chippenda-

le's The Gentleman and Cabinet-Maker's Director [15] and Henri Cordier's La Chine en Franceau XVIIIe siècle [16] pushed Chinoiserie to the pinnacle of art and design. Unfortunately, at the end of the 19th century, Chinoiserie gradually came to an end, which even did not leave the barely a ripple in future art history textbooks. This decline was influenced by Japonaiserie and its rapid transformation to Japonisme, as well as the Qing Dynasty's descent into scientific stagnation, arrogance, and seclusion. Even if China, where Chinoiserie takes root, was forced to open and the invaders were passively impresses by its art works, Chinoiserie still failed to be integrated significantly into the mainstream design style.

The failure of Chinoiserie to enter the Western canon cannot be attributed solely to shifting tastes or the rise of Japonisme. Its marginalization was fundamentally a result of its inherent methodological limitations. Unlike the Greco-Roman tradition, which provided a systematic framework of orders, proportions, and narratives that could be taught and replicated, Chinoiserie offered no such coherent system. It was a repertoire of disjointed signs – pagodas, dragons, mandarins – devoid of their original syntactic relationships and cultural codes. When the 19th-century European academies systematized art history and design education, they institutionalized a genealogy that traced its roots to Athens and Rome, not to Beijing or Canton. As a fragmented style built on misreadings, Chinoiserie lacked the epistemological foundation to challenge the emerging Eurocentric canon. It was relegated to the status of a decorative interlude, a fascinating but ultimately peripheral curiosity in the grand narrative of Western art [17].

2.3. The Rise of Endogenous Cultural Agency

2.3.1. When the National Failed to Become Global

A century later, China embraced the slogan "National is the world", sparking a resurgence of folk traditions repackaged as "Chinese style" for commercial appeal. Yet, despite domestic enthusiasm, this movement failed to gain international traction. Critics dismissed it as vulgar, exposing the limitations of nationalist cultural branding – proving that "National may remain merely national" unless it engages in meaningful dialogue with global audiences. Unlike Chinoiserie, which flourished by adapting Chinese motifs to Western tastes, this "Chinese style" remained insular, trapped in nostalgic revivalism rather than evolving into a universally resonant aesthetic [18].

The transition towards a more authentic and internationally resonant expression is exemplified in the photographic work of Chen Man (陈漫). Emerging in the early 2000s, Chen moved decisively beyond the clichéd "Red + Gold" visual language that characterized much of the commercial "Chinese Style." Instead, she pioneered a sophisticated visual vocabulary that hybridizes hyper-real digital techniques with subtle yet powerful references to Chinese artistic heritage. In her seminal series, she restaged a classical Song Dynasty painting's composition using a contemporary model, or infused a futuristic portrait with the chromatic sensibility of Tang Dynasty murals. Her work does not shout "Chineseness" through superficial symbols; it whispers it through a deeply internalized aesthetic consciousness. Chen Man's global success in fashion photography demonstrates that Chinese Narratives can achieve widespread appeal not by catering to foreign preconceptions, but by confidently asserting a modern identity that is intrinsically and intelligibly Chinese. She serves as a pivotal figure in the visual arts, proving that the journey from insular national style to compelling Chinese Narratives is not only necessary but viable.

2.3.2. The Pathway of Endogenous Expression

The contrast between these phenomena reveals a crucial lesson: cultural influence requires more than superficial ornamentation. The China vogue succeeded because it catered to European mercantile and artistic interests, while Chinoiserie thrived by reinterpreting Chineseness through a Western lens. Today, China's cultural strategy has shifted from national style to intangible cultural heritage (ICH), a framework better suited for global engagement. Unlike decorative pastiche, ICH emphasizes living traditions – craftsmanship, rituals, and philosophies – that convey authenticity rather than exoticism.

This evolution mirrors a broader intellectual journey in Chinese academia: from studying China vogue and Chinoiserie as historical curiosities to formulating Chinese Narratives and Neo-Chinese Style. The former represents a paradigm shift – moving beyond borrowed aesthetics to embed Chinese artistic principles into contemporary design. It demands holistic integration, where form follows cultural logic, and function embodies Confucian or Daoist values. Unlike Chinoiserie, which operates at the decorative periphery, Chinese Narratives seek to offer global design a philosophy of balance and harmony.

Yet, this ambition extends beyond art. Chinese Narratives require a transdisciplinary stage – encompassing literature, philosophy, and socio-political discourse – to fully articulate China's cultural worldview. It is not enough to display tradition; one must interpret it for foreign audiences, resolving the cognitive dissonance that once reduced Chinese art to pagodas and dragons. The challenge lies in balancing cultural specificity with universal accessibility – a task where Chinoiserie failed, but Chinese Narratives may yet succeed.

3. Philosophy as Practice: Traditional Aesthetics in Modern Design

3.1. Material Culture Perspective: Signifiers vs. Signified

3.1.1. The Divorce of Signifier and Signified

To fully apprehend the distinction between Chinoiserie and Chinese Narratives, one must adopt a material culture studies perspective. The artifacts are not passive reflections of culture but active agents in its constitution and transmission, they embody beliefs, social structures, and epistemological frameworks. Chinoiserie, in this light, primarily engaged with Chinese objects as signifiers of exotic difference, often divorced from their original cultural signified. A Ming vase in a European cabinet was valued for its form and surface decoration, its role in scholarly rituals or its symbolism (e.g., the association of porcelain with purity and integrity) largely ignored. Conversely, Chinese Narratives are fundamentally concerned with the signified – the deep cultural and philosophical logic embedded within and enacted through materiality. The transformation of clay into resonant celadon, the cultivation of lacquer trees and the patient application of hundreds of layers, the complex loom technologies required for intricate silks, these processes are themselves cultural practices. They embody a worldview centered on human-nature harmony, skill refinement through time, and the pursuit of aesthetic sublimity within material limits. Therefore, the contemporary revival and global presentation of these traditions are not nostalgic recreations but a reactivation of this embedded cultural wisdom for modern contexts.

3.1.2. The Western Gaze and the Making of Chinoiserie

During the Tang Dynasty (618-907 CE), Japan emerged as a devoted adherent to Chinese Narratives, systematically absorbing and adapting Chinese cultural, artistic, and administrative models to lay the foundation for what would become Yamato civilization. This transmission enabled later Japanese artistic innovations – such as Maki-e lacquerware and Imari yaki ceramics – to circulate globally under the banner of Japanese art, despite their Sinicized origins.

By contrast, Europe's engagement with Chinese aesthetics during the Ming (1368-1644) and Qing (1644-1912) dynasties manifested as Chinoiserie. This can be understood as a process of "aesthetic extraction"; European artists and designers admired and borrowed surface elements of Chinese artistry – its visual motifs, exotic forms, and decorative techniques – while remaining largely detached from their underlying cultural and philosophical contexts. This Eurocentric dynamic, wherein China was often valued more as a screen for Western projection than as a civilization to be understood on its own terms, is exemplified by the evolving perspectives of a sophisticated thinker like Johann Wolfgang von Goethe.

Goethe's engagement with Chinese culture, though intense, never fully moved beyond this paradigm. His early romantic idealization, fueled by reading novels like Hao Qiu Zhuan (好逑传, The Pleasing History), saw China as a model of moral enlightenment and patriarchal order—an idealized counterpoint to European turmoil. Later, his fascination turned toward more metaphorical abstraction; he famously used Chinese porcelain and poetry as vehicles to theorize about universal concepts of "world literature" (Weltliteratur) and aesthetic appreciation. In both phases, however, 'China' primarily served as a mirror for Goethe's own philosophical inquiries. His appreciation, however genuine, rarely progressed beyond a self-referential projection, reflecting European desires and intellectual trends rather than engaging with the authentic complexities of Chinese thought [19].

3.2. Technical Transmission and Philosophical Embodiment

Authentic Chinese Narratives demand tripartite engagement: comprehension of Chinese creati-

ve philosophy, mastery of functional artistry and internalization of aesthetic principles. China's 5,000-year continuum of material innovation reveals this epistemology in action: From Banpo Neolithic pointed-bottom vessels to Song dynasty kiln breakthroughs – Ru's "Tian qing se (天青色, sky-blue glaze)" , Guan's imperial precision, Ge's "Binglie Wen (冰裂纹, ice crack crystallization)", Jun's "Yaobian (窑变, transformative oxides)" – each innovation encoded material science (clay ratios and pyrometry) that eluded European replication until the 18th century. Hemudu culture's 7,000-year-old lacquer traces evidence an unbroken lineage from urushi tree cultivation to "Diaoqi (雕漆, carved lacquer)" and "Qiangjin (戗金, gold – inlay)" techniques, merging natural materiality with sublime ornamentation.

Since the Roman Empire's obsession with Seres silk, Chinese weaving technologies such as "Ling Luo Chou Duan" (绫罗绸缎, figured silks and satins) have become global luxury benchmarks, later catalyzing trans-Eurasian exchanges via the Belt and Road Initiative. These traditions exemplify applied cultural wisdom – where form follows cosmic principles rather than mere decoration. Unlike Chinoiserie's surface borrowings, true Chinese Narratives require technical transmission, philosophical embodiment and cultural reciprocity. Today, reconstructing these narratives challenges Western art history's marginalization of Chinese material knowledge while offering models for post-exotic cultural discourse.

3.3. Architectural and Design Manifestations: From Wegner to Zhang Zhoujie

The architectural manifestations of Chinoiserie in Europe – exemplified by William Chambers' ten-story Chinese Pagoda at Kew Gardens, the various European-style structures labeled as "Chinese" (pavilions, houses, towers, halls, and cottages), the pseudo-Chinese calligraphy adorning the Palace of Palermo, and the repurposed lacquered screens mounted as wall decorations – undeniably demonstrate European designers' strategic employment of "the Other" to create visually harmonious palace and garden ensembles while maintaining stylistic coherence. However, these representations conspicuously lack authentic traditional Chinese architectural structures, with their spatial organization, interior decor, and furniture arrangements fundamentally disregarding both functional principles and the philosophical underpinnings of Chinese design aesthetics.

The Western interpretation of Chinese design elements reached a notable milestone in 1943 when Hans Wegner began his influential "Chinese Chair" series. This moment, when various modernist styles were emerging in the West, should have marked the ideal opportunity for China to confidently assert its Chinese Narratives on the global design stage. The Ming-style seating that inspired Wegner embodied multiple virtues: its minimalist form aligned perfectly with prevailing modernist functionalism; its elegant proportions transcended the cold austerity of modernism through imaginative decorative details; and its aesthetic philosophy of "learning from nature's externals while discovering internal truth" achieved a remarkable synthesis of utility and beauty. Yet despite these inherent strengths, the opportunity to establish Chinese Narratives as a distinct design paradigm was missed, allowing Scandinavian modernism to instead achieve worldwide prominence while China's rich design heritage remained largely confined to historical reference rather than contemporary practice [20].

4. Transcultural Synthesis: Global-Local Dynamics in Contemporary Practice

4.1. From Interpreting Form to Algorithm Programme

Wegner's pioneering work demonstrated the potential of Ming aesthetics to inform Western modernism. This dialogue was further deepened decades later by designers like the French artisan Alexandre Chary. Unlike Wegner's encounter with Chinese design through museum collections, Chary immersed himself in the living context of Chinese culture for an extended period. His Dynamic furniture series exemplifies this evolved approach. While Wegner masterfully interpreted the external form and structural principles of the Ming chair, Chary engages with its underlying design philosophy. He draws inspiration from the essence of elements such as the intricate joinery of Ming furniture and the geometric poetry of Suzhou Garden lattices, reinterpreting them through a contemporary lens aimed at facilitating modern social interaction. His process emphasizes a profound respect for materiality (Yin cai shi yi – 因材施艺, adapting artistry to the material), utilizing ebony, coconut palm, and reed grass to highlight their innate qualities. The trajectory from Wegner to Chary marks a significant evolution: from appreciating and adapting a timeless form to seeking a dialogue with the cultural and philosophical context that gave rise to it. This shift mirrors the broader ontological movement from external inspiration towards a more internalized, methodologically grounded engagement.

A seminal example of this endogenous philosophical engagement is the work of contemporary digital designer Zhang Zhoujie (张周捷). His "Digital Furniture" series stands as a profound embodiment of Chinese Narratives, moving beyond form to methodology. Zhang's process begins not with sketching or historical reference, but with setting algorithmic parameters inspired by the Daoist concept of "Ziran" (自然, spontaneity/naturalness). Within set parameters, digital forms evolve and self-organize, generating unique computational objects that are then materialized through precision manufacturing. This approach mirrors the traditional Chinese craftsman's reverence for the innate properties of material (e.g., following the grain of wood or the flow of glaze), but transposes it into the digital realm. The resulting objects, with their organic, unpredictable yet structurally logical forms, resonate with the same pursuit of "Tian Cheng" (天成, heaven-made) perfection found in Junyao's kiln transformations or scholar's rocks. Zhang does not design a chair that looks Chinese; he engineers a process that is philosophically aligned with Chinese creative principles, thereby achieving a true "Shen si" of tradition for the digital age [21].

4.2. the New Dialectics of Cultural Exchange

In recent years, the influence of Chinese Narratives in global design has evolved from symbolic appropriation to systematic methodological integration. The Humboldt Forum (Berlin, 2020), in collaboration with Chinese research institutions such as the Kucha Academy and under the guidance of scholars like Dr. Zhao Li, utilized digital interactive technologies to reconstruct and recontextualize the Kizil Grotto murals. This project emphasizes international academic cooperation rather than unilateral representation. Through detailed photographic documentation and research conducted jointly with Chinese experts, the murals were digitally restored and presented in a manner that highlights shared cultural heritage and scholarly exchange. The approach engages visitors in participatory experiences focused on historical narration and cultural continuity, reflecting a respectful and collaborative effort to interpret and preserve these artworks within a global context.

The Ming Dynasty Chinese chairs represent both a tribute to ancestral craftsmanship and an enduring legacy for future generations, serving as inspiration for contemporary Neo-Chinese style while simultaneously stimulating foreign fascination with Chinese design narratives. Similarly, Hans Wegner's "Chinese Chair" series functions as a modern homage to traditional forms while offering critical reflections for contemporary design practice – capable of inspiring cultural confidence among Chinese designers while simultaneously catalyzing a global Chinese Narratives Movement. This dialectic of cultural identification hinges fundamentally on the epistemic authority of the interpreting subject, with mainstream integration being contingent upon dominant cultural paradigms and standards [22].

4.3. Resonance over Imitation

A profound exemplar of this transcultural synthesis in practice is the longstanding collaboration between Italian architect Piero Lissoni and the Chinese luxury brand "Shang Xia (上下, up and down)". Unlike a designer imposing an external aesthetic, Lissoni's role was to architecturally fra-

me and articulate the brand's core philosophy of "contemporary China." For Shang Xia's flagship stores in Paris and other global capitals, Lissoni did not resort to Chinoiserie clichés. Instead, he engaged in a dialogue with the brand's essence. His design vocabulary employs a muted, sophisticated palette of materials: darkened bronze, smoked oak, pale travertine, and raw concrete, that does not imitate but rather resonates with the material sensibility of Chinese tradition. The spatial layouts are clean and modern, yet they orchestrate a sense of rhythm, emptiness, and reveal that subtly echoes the experiential flow of a Chinese garden or scholar's studio. The Meixi Lake Art Museum (Changsha, 2025), designed by Zaha Hadid Architects, transcends conventional exhibition paradigms through its fluid architecture, creating dialogic spaces where Hunan's regional culture converses with global artistic languages. The Gift installation at Milan Design Week 2025 synthesized Sino-Western botanical elements with Eastern philosophy, materializing the cosmological concept of "Home-Heaven-Earth" through kinetic spatial narrative.

This collaboration demonstrates that Chinese Narratives can be powerfully advanced through international partnerships when the foreign designer moves beyond styling to engage with cultural and philosophical underpinnings, resulting in a hybrid aesthetic that is both globally intelligible and authentically rooted.

4.4. Future Trajectories: Towards a Chinese Design Epistemology

These cases collectively demonstrate that Chinese Narratives are transitioning from visual motifs to a distinctive design epistemology – one that emphasizes the organic integration of cultural logic with contemporary practice. Three critical trajectories emerge for future development:

4.4.1. Deep Integration of Cross-Cultural Narratives

Traditional Chinese spatial concepts will increasingly inform global design standards, fostering a shift from modernist homogeneity to culturally symbiotic pluralism.

4.4.2. From Chinese Narratives to Chinese Methodology

Future manifestations will transcend ornamental Chinoiserie, instead offering philosophical frameworks like Ming furniture's ergonomic prioritization to inform domains ranging from smart manufacturing to sustainable design.

4.4.3. Digital-Intelligent Cultural Translation

Emerging technologies – including AI, blockchain, and extended reality – will accelerate the globalization of Chinese Narratives through computational analysis of traditional design systems, digital twin reconstructions of ancient architectural techniques, and immersive VR/AR experiences of Chinese aesthetic spatial logic.

In an era increasingly valuing cultural diversity and sustainability, Chinese Narratives are transforming from "objects of interpretation" to "active methodological exports." They offer the global design community not merely unique aesthetic resources, but more significantly, an innovative paradigm that synthesizes historical wisdom with future technologies – propelling design toward greater inclusivity and conceptual depth.

5. Pedagogy as Pathway: Integrating Chinese Narratives into Global Design Education

5.1. The Current Educational Landscape and Its Limitations

For the paradigm of Chinese Narratives to transcend symbolic appropriation and achieve genuine global methodological influence, its principles must be integrated into the foundational pedagogy of design education worldwide. This represents the most critical frontier for its evolution from a cultural subject of study into a living design language. Currently, the curricula of leading global design institutions, from the Bauhaus legacy to contemporary programs at schools like the Rhode Island School of Design or the Royal College of Art, remain profoundly rooted in the Western modernist canon, with its emphasis on functionalism, abstraction, and problem-solving rationalism. Within this framework, Chinese elements are often presented as thematic inspiration or cultural footnotes, rather than as fundamental, alternative methodologies for form-giving and spatial thinking [23].

5.2. Strategies for Integration: Case-Based, Studio-Based, and Theoretical Approaches

The integration of Chinese Narratives necessitates a move beyond the token inclusion of "Chinese style" projects. It requires a scholarly dissection and pedagogical repackaging of its core principles into teachable modules. This could manifest in several ways: Firstly, through case-based learning, where the ergonomic prioritization and structural honesty of Ming furniture are studied not as exotic artifacts but as parallel yet distinct design solutions to the functionalist tenets of Modernism. Secondly, through studio-based exploration, where students are challenged to design not with dragons or phoenixes, but through concepts like "Liu bai" (留白, intentional emptiness) or "Qi yun" (气韵, rhythmic vitality), translating abstract philosophical ideas into solutions for contemporary urban living or product design. Finally, through theoretical dialogue, where Chinese creation concepts such as "Zao wu jing shen" (造物精神, the spirit of creation) and "Zhi qi shang xiang" (制器尚象, crafting vessels venerating the celestial ideal) are brought into conversation with Western discourses on object-oriented ontology and speculative design, enriching the critical and theoretical toolkit available to future designers.

This educational integration is the necessary bridge between cultural appreciation and cultural agency. It would enable Chinese Narratives to shift from being a "heritage" looked upon from the outside to a "methodology" applied from within, ultimately allowing it to participate in shaping the very grammar of global design in the future.

5.3. Historical Precedent and Future Imperative

From the 17th to 18th centuries, European intellectual circles demonstrated profound engagement with Chinese cultural traditions. Enlightenment luminaries including Voltaire and Leibniz expressed particular admiration for Confucian philosophy, while Jesuit missionaries systematically translated seminal texts such as the Four Books and Five Classics prior to the ascendancy of Chinoiserie as an aesthetic movement. This early transmission of Chinese thought established critical epistemological foundations that would later inform European interpretations of Chinese material culture during the Chinoiserie period, when fascination extended to ceremonial practices like the tea ritual [24].

The subsequent development of Western art historical paradigms – from France's Rococo to American Abstract Expressionism – established dominant aesthetic canons. However, contemporary design discourse increasingly recognizes the limitations of such Eurocentric models in addressing today's interconnected cultural landscape.

Chinese civilization has never aspired to cultural hegemony; rather, it offers what might be termed a dialogic paradigm of creative exchange. The concept of "Gong shang" (共赏, shared appreciation) embedded in Chinese aesthetic philosophy presents an alternative framework for sustainable cultural development – one that emphasizes mutual enrichment over unilateral appropriation. This philosophical stance, rooted in a distinctly Chinese aesthetic principle, finds its powerful contemporary expression in the renowned concept put forward by the esteemed sociologist Fei Xiaotong: "Ge mei qi mei, Mei mei yu gong" (各美其美, 美美与共). This is not merely a sociological observation but a positive aesthetic proposition – a call for all cultures to appreciate their own beauty, and then share it with others to achieve collective beauty. It provides a practical framework for moving beyond mere tolerance towards genuine mutual appreciation and creative synergy, embodying the Chinese aesthetic ideal of harmony in diversity.

In the context of global design, this characteristically Chinese approach advocates for a collaborative model that starkly contrasts with the historical dynamics of Chinoiserie. It encourages designers from all backgrounds to first delve deeply into their own cultural traditions, achieving the Shen si that defines authentic expression. Then, they are empowered to engage in a dialogue of equals, bringing these distinct, refined aesthetic languages into conversation to create something new and shared. This process, evident in projects like Chen Man's photography works or Piero Lissoni's work with Shang Xia, does not dilute cultural specificity. Instead, it creates a richer, more inclusive global design ecosystem where difference is valued as a vital source of innovation. This represents the operationalization of a characteristically Chinese worldview, offering a sustainable path for global cultural development.

5.4. Co-Authorship of Global Design Education

The journey from Chinoiserie to Chinese Narratives, therefore, is not merely a shift in stylistic authenticity but a fundamental evolution in cross-cultural engagement. It proposes a model of "bidirectional cultural refraction. In this process, engagement with global discourse and needs clarifies and intensifies the essential principles of Chinese design philosophy, revealing their uni-

versal applicability. Simultaneously, the prevailing global design paradigms, upon encountering this refracted philosophy, are themselves enriched and subtly altered---for instance, the modernist creed of "Form follows function" might be infused with a deeper layer of humanistic and ecological consideration under the influence of the concept that "Vessels carry the Way" (**器以载道**, Qi yi zai dao). This is not a process of homogenization or simple synthesis, but rather a mutual enhancement through which both perspectives gain sharper focus and greater depth by engaging with the other. Consequently, Chinese Narratives should be understood not as a closed cultural canon for export, but as an open, dynamic methodological contribution that participates in the co-evolution of global design philosophy, offering tools for creating a more resonant, inclusive, and sustainable material world.

Having contributed to global design culture for millennia yet remaining underrepresented in its modern theorization, Chinese Narratives now face a critical juncture. Three centuries of anticipation have cultivated both the cultural confidence and methodological sophistication necessary for meaningful participation in shaping design's future directions. This engagement is not merely desirable but imperative: the global design community requires Chinese perspectives to address complex transnational challenges, while Chinese design thinking benefits from rigorous external critique – functioning as one facet of the "bidirectional cultural refraction" process – to sharpen its contemporary relevance [25].

Contemporary China has decisively transcended the quest for external validation to invigorate its creative industries. The potent resurgence of "Red Culture" exemplifies this shift, representing not a return to ideological isolation but the maturation of a distinct indigenous cultural force that asserts its place in the global present. Simultaneously, the nation has moved beyond its twentieth-century role as a ‚transparent' contributor to international art – often valued for providing raw aesthetic material for Western curation – to become a sophisticated co-author in transnational cultural discourse. This evolution is marked by a robust adaptive capacity: the skill to engage global platforms on its own terms while retaining critical cultural specificity.

Looking forward, China's cultural appeal will increasingly be defined by its ability to integrate profound historical continuity with visionary future-building. Rural revitalization initiatives and the dynamic preservation of intangible cultural heritage are not mere nostalgic projects; they are becoming integral components of a new cultural ecosystem that links land, memory, and innovation. These efforts, coupled with the country's leading role in digital and ecological transitions, position China to offer not just objects of aesthetic appreciation, but holistic frameworks for living [26].

In summary, this study has traced the ontological shift from Chinoiserie to Chinese Narratives as a movement from aesthetic extraction to bidirectional cultural refraction. It establishes Chinese Narratives not as a static heritage, but as a living methodology capable of co-authoring global design's future — grounded in philosophical depth, material intelligence, and ethical exchange. We now inhabit an era of profound transcultural fluidity, where individuals and institutions exercise unprecedented agency in curating cultural references beyond traditional geographical and historical confines. Within this context, Chinese Narratives operate across multiple discursive planes: they facilitate a vital internal dialogue between tradition and contemporaneity, while also enabling a sophisticated bidirectional exchange with the global community. They are expressed not only through design but resonate across the visual arts, literature, performance, and digital media, forming a comprehensive and evolving framework for cultural articulation.

As such, the journey from Chinoiserie to Chinese Narratives is more than a historical corrective; it is an invitation to reimagine the very terms of global cultural engagement. China no longer merely contributes to the global culture – it helps constitute its canon. The emergence of this agency marks the closing of one historical cycle and the beginning of another: an age of co-creation defined not by hegemony or imitation, but by the difficult and necessary work of mutual illumination. ■

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Visual, Interactive Narrative in Education:

An Evaluation Instrument for Electronic Learning Resources

This article is based on the presentation delivered at the C-IDEA Design Conference, held on 23–26 October 2025 at Shih Chien University, Kaohsiung Campus, Taiwan, China.

peer-reviewed conference materials

Abstract

This study addresses the critical need for a comprehensive framework to evaluate electronic educational resources for primary school children. It critiques the current superficial assessment of such tools, which often ignores crucial aspects of design, interactivity, and user experience, particularly within the Georgian educational context. The research aims to rectify this by developing a holistic, hybrid evaluation instrument grounded in an interdisciplinary synthesis of game studies, media arts, and educational psychology. Drawing on classical (Huizinga) and contemporary (Juul) game theory, the work establishes a robust theoretical foundation for digital play.

The primary contribution is a practical, four-pillar evaluation instrument designed for multifaceted analysis. The pillars are:

1. Pedagogical Value, ensuring resources are grounded in learning theories like constructivism and support social interaction.
2. Design and Visual Narrative, evaluating the resource's effectiveness as a piece of media art and visual communication.
3. Interaction and Gamification, analyzing the quality of "Meaningful Play" and effective motivational design based on Flow and Self-Determination theories.
4. Usability and User Experience (UX), focusing on intuitive interfaces, emotional engagement, and technical accessibility.

The model's validity is demonstrated through an analysis of nationally distributed Georgian educational resources. Ultimately, this research provides a robust, theoretically-informed tool for educators, designers, and policymakers. It aims to elevate the quality of digital learning by ensuring resources are not only pedagogically sound but also well-designed, intrinsically motivating, and a joy to use.

**#Educational Technology (EdTech)
#interactive narrative #assessment instrument
#digital pedagogy #primary education
#georgian education #evaluation framework
#User Experience (UX) #instructional design
#learning analytics #game-based learning
#serious games #gamification
#media arts #ludology**

1. The Nature of Play and Games

1.1. Historical and Philosophical Foundations of Play

Humans have been playing games since time immemorial, indicating the universal and fundamental nature of play. Archaeological evidence supports this, such as ancient Egyptian game boards and pieces for the game Senet dating back to 3500 BC [1]. In his seminal work Homo Ludens (1938), Johan Huizinga emphasized the role of play in the development of culture, noting that play is not merely entertainment but an integral part of human civilization. Historical records from ancient Greece also describe various games involving both physical and mental activities. For example, instances from Plato's dialogues (c. 380 BC) show that play, as a cultural phenomenon, has accompanied humanity since ancient times.

1.2. The Distinction Between "Play" and "Game"

In the Georgian language, the word "თამაში" (tamashi) has a dual meaning, referring to both the specific activity (the game) and the process of engaging in that activity (playing). This linguistic nuance is not unique to Georgian. While some languages use similar or identical words, others, like English, make a clear distinction:

- **Game:** A structured activity with rules and objectives.
- **Play:** The process or act of engaging in the game.

This distinction is reflected in various languages:

- **French:** on joue à un jeu – we play a game.
- **German:** man spielt ein Spiel – you play a game.
- **English:** they play a game – they play a game.

1.3. Theoretical Frameworks of Game Definition

The term "game" has numerous definitions, varying across different fields [2]. Game historian David Parlett distinguishes between formal and informal games:

- **Informal Games:** Described as the process of play without pre-agreed rules. Elements of informal play can be observed in the interactions of animals or young children, who use playful elements as a means of communication [3].
- **Formal Games:** Possess a specific structure based on rules and have a defined goal [3]. These games are often based on a form of opposition, where players compete to achieve a certain objective [3].

Philosopher Bernard Suits introduced the term "lusory attitude" to describe the mindset of players. It refers to the voluntary acceptance of artificially created rules and limitations within a game. This voluntary acceptance of inefficient means is what separates a game from a task, where efficiency is paramount [2] [4]. According to Suits, to play a game is "to engage in an activity directed towards bringing about a specific state of affairs, using only means permitted by rules, where the rules prohibit more efficient in favour of less efficient means, and where the rules are accepted just because they make possible such activity" [2]. For instance, using a ladder is forbidden in high jump, and a runner cannot cut across the middle of the track [5].

The lusory attitude involves:

- **Voluntary Participation:** Players engage willingly.
- **Acceptance of Rules:** Players agree to abide by the game's rules, even if they seem illogical outside the game context.
- **Striving for Goals:** Players aim to achieve the game's objectives, which may have no real-world value.
- **Creation of a "Magic Circle":** The lusory attitude helps create a "magic circle" around the game, a self-contained space where the game's rules and goals are meaningful.

Building on Huizinga's ideas, Roger Caillois described a game as a fictional, non-productive activity bound by rules and limits of time and space [6]. The rules of a game guide players toward actions that are meaningful within the game but may appear nonsensical from the outside [5].

1.4. Play as an Aesthetic and Emotional Experience

At its core, play is an autonomous activity. The classic definition by Huizinga states that play is a voluntary activity where the goal is the activity itself [7]. Frank Lantz expands on this, arguing that when we act within a game, we do

so for the sake of the process, turning the game into an aesthetic form [8]. For Lantz, the true aesthetic experience is primary, and any practical outcome is a secondary benefit. He warns that attempts to "tame" games by explaining them through pragmatic frameworks risk weakening their primary source of power — their "unruly wildness" [8].

The pursuit of pleasure is a primary driver of play. Players engage in the process to experience the unique pleasure a game can offer [2]. This pleasure is complex, encompassing Huizinga's "tension and joy" as well as Sutton-Smith's "excitement, power, and initiative" [9] [10]. However, this pleasure is not limited to positive emotions. Caillois identifies "ilinx" or "vertigo" games, which aim for a temporary, controlled disruption of perception, inducing a pleasurable sense of fear, excitement, and shock [11]. Video games, with their technological nature, are adept at generating this wide emotional palette, using "rational thought and instrumental technique to create beauty, pleasure, and meaning" [8].

2. From Games to Video Games

2.1. The "Magic Circle" and the "Half-Real" Nature of Video Games

The "magic circle" is a fundamental metaphor for the conceptual space of a game, separating it from the real world. The psychological mechanism for entering this space is the "lusory attitude" [2]. This concept becomes particularly relevant when analyzing video games. Jesper Juul terms this phenomenon "half-real". According to Juul, video games are simultaneously real and fictional: they are based on real rules with which the player interacts, and the outcomes (win/loss) are real. However, the world governed by these rules, such as a dragon that must be defeated, is fictional [5]. Thus, the "half-real" nature of a video game can be seen as a modern, technological manifestation of the "magic circle".

2.2. The Social Contract of Play

When players engage in a game together, they form a "social contract," collectively agreeing to abide by the rules that govern their actions [2]. This contract is a collective expression of the lusory attitude, creating a shared, intersubjective "magic circle". The strength of this contract is most evident when it is broken. Based on their relationship with the rules, players can be categorized as follows:

- **The Standard Player:** Accepts the lusory attitude and follows the rules to win [2].
- **The Dedicated Player:** Seeks expert knowledge of the game, analyzing rules to maximize their chances of winning [2].
- **The Cheat:** Covertly breaks the rules to achieve the game's recognized goal (winning). The cheat rejects the rules but not the game itself or its magic circle [2].
- **The Spoilsport:** As termed by Huizinga, this player completely rejects the social contract and the lusory attitude. Their goal is not to win but to destroy the game for everyone, thus placing themselves outside the magic circle [9].

2.3. Jesper Juul's "Classic Game Model"

Jesper Juul proposes a "classic game model" consisting of six elements:

1. **Rules:** Games are rule-based.
2. **Variable, Quantifiable Outcome:** The outcome is variable and measurable (e.g., through a point system), and it depends on player decisions and chance.
3. **Valorization of Outcome:** Different potential outcomes have different values (positive or negative).
4. **Player Effort:** The player invests effort to influence the outcome.
5. **Player Attachment to Outcome:** The player is emotionally invested in the result, feeling happy with a positive outcome and sad with a negative one.
6. **Negotiable Consequences:** The game's outcome may have no real-life consequences.

Juul argues that video games have changed this classic definition, as their rules are determined by software and require specific hardware [12]. In this view, "hardware" can be a computer, physical objects, or even the human brain [12].

2.4. Defining the Video Game

The term "video game," which emerged in the 1970s, comes from the Latin videre ("to see"), highlighting its visual nature on a screen. The term "computer game" arose later with the spread of personal computers. While "video game" is a broader term that includes computer games, the two are often used interchangeably, as their core essence is interactive entertainment via audio-visual devices.

According to Juul, video games differ from traditional games in two key ways [12]:

1. **Automation of Rules:** The computer manages the rules, allowing for much more complex systems than a human could remember. This frees the player from the responsibility of enforcing rules, which are often learned through the process of play [12].
2. **Detail of the Fictional World:** Video games often feature elaborate fictional worlds that capture player interest.

This distinction has led some researchers, like Boluk and LeMieux, to argue that the video game industry has misled the public by equating video games with traditional games, reducing them to mere consumer products [8].

3. A Brief History of Video Games

The history of video games is not a single evolutionary line but a convergence of different technological trajectories. It began in the 1950s with early computer development:

- **Early Experiments:** One of the first creations was Tennis for Two (1958) by William Higinbotham, a simple tennis simulation on an oscilloscope screen. In 1952, Sandy Douglas created OXO, a version of tic-tac-toe, as part of his PhD at Cambridge on the EDSAC computer. While earlier, OXO was often excluded from the "first video game" title because it lacked real-time moving graphics. In 1962, MIT students created Spacewar!, the first widely distributed video game, which became popular in research labs. These early games were all founded on the principle of competition.
- **Arcades and Home Consoles:** While a commercial arcade version of Spacewar! was unsuccessful, Atari's Pong (1972) was an immediate commercial hit in public venues like bars. These coin-operated machines were known as "arcade games". In the same year, the first commercial home console, the Magnavox Odyssey, was released, allowing people to play games on their televisions. Its game library consisted mainly of sports and shooter simulations, but also included new genres like gambling simulations.
- **Personal Computers and the Internet:** The 1980s saw the rise of personal computers, and by the 1990s, advances in hardware and the availability of the internet spurred the growth of the industry, leading to network and mobile games.
- **An Alternative Line of Development:** Alongside graphical games, a different trajectory emerged with text-based games. In 1978, Roy Trubshaw and Richard Bartle created Multi-User Dungeon (MUD), a game where players controlled characters and interacted via text commands. MUDs gave rise to a new genre of shared virtual worlds, some of which were role-playing games, while others allowed players to create new objects and spaces, actively participating in the world's formation. This development was heavily influenced by the tabletop RPG Dungeons and Dragons and the fantasy works of J.R.R. Tolkien.

4. Narrative, Classification, and Serious Games

4.1. The Role of Narrative: Ludology vs. Narratology

There is an ongoing debate about the role of narrative in video games. Some scholars argue that story is integral, while others see it as secondary to the gameplay itself [5]. Early video game studies were often framed by a debate between two perspectives:

- **Narratology:** Views games as a form of storytelling.

- **Ludology:** Views games as a unique form of human activity, focusing on the study of rules and play (from the Latin ludus, meaning game).

The term "ludology" was popularized by Gonzalo Frasca in his 1999 article "Ludology Meets Narratology" and is often seen as a counterpoint to narrative analysis in game studies [5]. While some games like Tetris (1985) are purely abstract and require no story, others use narrative elements like backstories, cutscenes, and dialogue to provide context and motivate player actions [7] [13]. The emergence of the "Narrative Designer" as a profession underscores the growing importance of storytelling in interactive media.

4.2. Classification of Video Games

There is no single, universally accepted system for classifying video games. Classification is often subjective and depends on the purpose, whether for marketing or academic research. Tobias and Fletcher [14] suggest two common approaches: by platform and by genre:

- **Platforms:** Include Personal Computers (PC), consoles (PlayStation, Xbox), mobile devices, and arcade machines, with VR/AR headsets as a recent addition.
- **Genres:** Include Action, Adventure, Role-Playing (RPG), Strategy, Simulation, Puzzle, and Sports games. Many games are hybrids of multiple genres, complicating classification [14].

4.3. Serious Games

A crucial classification is based on purpose. The term "serious game" refers to games designed for purposes beyond pure entertainment, such as education, training, or social awareness [15]. The term was coined by Clark C. Abt in his 1970 book Serious Games to describe the use of games for employee training. A key feature of serious games is the seamless integration of learning components, using the inherent appeal of games to make the educational process more engaging.

Research has shown their effectiveness. A meta-analysis by Wouters et al. [16] of 38 studies found that serious games significantly improved learning outcomes compared to traditional methods, especially when combined with other instructional materials. A study on the game Mijn naam is Haas, designed to build vocabulary in 4-7-year-olds, showed significantly faster vocabulary growth in classes that used the game [17]. Despite their potential, serious games often face challenges, such as lower budgets and development teams with less game design experience compared to their commercial counterparts [15].

5. Electronic Educational Resources as Games

Interactive learning resources can be considered a subset of video games. If video games are defined as interactive digital systems with rules and goals [2], then educational resources are simply those specifically oriented toward learning goals. They use engaging elements from games — such as challenges, rewards, and interactivity — to enhance the learning process. Classic examples like Oregon Trail (history) and modern platforms like Kahoot! and Duolingo increase student engagement, motivation, and learning outcomes by integrating game mechanics.

6. Research Methodology and Proposed Evaluation Instrument

6.1. Research Questions and Methods

The research is guided by a primary question: What determines the effectiveness of an electronic educational resource, considering pedagogical methods, visual narrative, interactive elements, and user interface?. This is explored through sub-questions focusing on analysis (strengths/weaknesses of Georgian resources), synthesis (creating evaluation criteria), and validation (testing the instrument). The methodology includes:

- **In-depth interviews** with primary school teachers, special education teachers, parents, and students.
- **Observation** of students interacting with educational games.
- **Comparative analysis** of popular video games and educational resources.

The framework is informed by the work of Hirsh-Pasek et al. [18], which identifies five pillars of educational apps: they should be active, engaging, meaningful, socially interactive, and oriented toward a clear learning goal.

6.2. The Conceptual Framework for the Evaluation Instrument

The central outcome of this study is a conceptual framework for evaluating electronic educational resources. This hybrid model is presented as a detailed table and is organized into four main categories, each with specific criteria, guiding questions, and a theoretical basis.

Category 1: Pedagogical Value

- **Learning Goal:** Is the educational objective clear and explicit? Based on Hirsh-Pasek, et al. [18].
- **Active Learning:** Does the resource require cognitive effort and strategic thinking, not just passive observation? Based on Constructivism [19].
- **Engagement:** Is the interface free of distractions? Is the task interesting enough to maintain focus? Based on Cognitive Load Theory [20].
- **Meaningful Learning:** Does the content connect to the child's existing knowledge and real-world experiences? Based on Meaningful Learning Theory [21].
- **Social Interaction:** Does the resource support collaboration or sharing? Based on Social Development Theory [22].

Category 2: Design and Visual Narrative

- **Visual Design Principles:** Does the design use hierarchy, contrast, and balance effectively? Based on Gestalt Psychology [23].
- **Visual Narrative:** Do visuals explain concepts or are they merely decorative? Is there a logical visual sequence? Based on Visual Communication Theories [24].
- **Typography and Readability:** Is the font size and style appropriate for the target age? Is text used sparingly? Based on readability research [25].

Category 3: Interaction and Gamification

- **Quality of Interaction:** Is feedback immediate and clear? Do player actions have a direct and meaningful impact on the outcome? Based on The Media Equation [26].
- **Gamification:** Are rewards (points, badges) tied to learning achievements, or do they become a distraction? Based on Gamification theory [27] [28].
- **Motivation and Challenge:** Does the difficulty adapt to the player's skill level to maintain a balance between frustration and boredom? Based on Flow Theory [29].
- **Type of Motivation:** Does it foster intrinsic motivation (satisfaction from mastery) or rely on extrinsic rewards? Does it support autonomy, competence, and relatedness? Based on Self-Determination Theory [30].
- **Meaningful Play:** Is the relationship between action and outcome clear and immediate? Do player choices have a discernible impact on the system? Based on Rules of Play [2].

Category 4: Usability and User Experience (UX)

- **Usability Heuristics:** Does the interface provide system status visibility, user control, consistency, and error prevention? Is it intuitive? Based on Nielsen's 10 Usability Heuristics [31].
- **User Experience (UX):** What is the overall emotional and perceptual experience of using the resource? Based on User-Centered Design [32].
- **Technical Accessibility:** Does it work across different devices? Does it cater to users with special needs? Based on Web Content Accessibility Guidelines (WCAG).

7. The Georgian Context

In Georgia, many children enter first grade with existing knowledge of foreign languages or math, often acquired independently through digital resources. Since 2010, the government has provided a personal netbook to every first-grader in public schools, pre-loaded with educational resources created by the Ministry of Education. The author of this study has been directly involved in the creation of many of these resources, including:

- **“ვსწავლობთ თამაშით” (Learning Through Play):** A resource for grades I-IV, created in 2019 in collaboration with UNICEF, covering multiple subjects. (Windows 64-bit, Windows 32-bit)

- **“ინტერაქციული ანბანი” (Interactive Alphabet):** An app for learning the Georgian alphabet, created in 2018 by GeoLab. (Android, iOS, Windows)

- **“სიტყვობანა” (Word Builder) and “მარცვლობანა” (Syllable Builder):** Sequels to the alphabet app, created by the Ministry of Education in 2020 and 2021, respectively. (Word Builder: iOS, Windows; Syllable Builder: Android, iOS, Windows)

- **Interactive Books:** A series of 12 interactive books by Georgian children’s authors, funded by Tbilisi City Hall in 2022 as part of the “Tbilisi – World Book Capital” project. (Links to all 12 books are available in the original document).

- **“მხიარული მათემატიკა” (Fun Math):** An app for learning basic math concepts, created by the Ministry of Education in 2022. (Android, iOS, Windows)

- **Educational Chatbots:** Chatbots designed to help students develop safe online communication skills. (Link)

- **Subject-Specific Resource Suites:** Comprehensive web resources for subjects like Computer Technology, Music, and Art, created by the Ministry of Education in 2019. (Link)

These resources serve as the practical basis for analysis and application of the proposed evaluation instrument.

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EXPLORING THE FEASIBILITY OF SPATIOTEMPORAL ATTRIBUTES IN VR EXPERIENCES FOR HEALING APPLICATIONS

peer-reviewed conference materials

This article is based on the presentation delivered at the C-IDEA Design Conference,held on 23–26 October 2025 at Shih Chien University, Kaohsiung Campus, Taiwan, China.


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Abstract

This research aims to systematically review global case studies of Virtual Reality (VR) therapy and explore the feasibility of applying VR technology to psychological intervention. The core of this research lies in analyzing how the spatiotemporal attributes of VR influence individual cognition, emotion, and behavior, which are innovatively categorized into five key characteristics: “Spatial Boundlessness,” “Temporal Plasticity,” “Embodied Presence,” “Scalability,” and Multi-userSynchronicity.” These characteristics collectively form an ideal platform for implementing exposure therapy, enabling the creation of safe and controllable virtual environments that transcend physical limitations. The platform allows for the compression, expansion, or reversal of time; lets users embody avatars within the virtual space; facilitates adjustable perceptual scales; and supports real-time multi-user collaboration.

Through the analysis and synthesis of literature and case studies, it is demonstrated that the therapeutic effects of VR are achieved through the creative integration of these attributes. Furthermore, this study provides crucial theoretical foundations and practical references for designers engaged in creating audiovisual content for VR therapy, helping them identify key design priorities when collaborating with healthcare professionals. While VR technology shows significant potential, this paper also objectively addresses challenges related to cost, accessibility, and potential side effects. It emphasizes the necessity of advancing clinical research to optimize protocols and evaluate long-term efficacy and safety. This research contributes to unlocking the therapeutic potential of VR and promoting its scientifically-grounded application.

#virtual reality
#healing applications
#spatiotemporal properties
#exposure therapy
#cognitive impact

1. Introduction

With the ongoing transformation of information dissemination in the new era, traditional printing processes are evolving through virtual reality (VR) technology, transitioning from physical to virtual forms and from two-dimensional planes to three-dimensional spaces. By creating three-dimensional virtual environments, VR offers users immersive experiences that closely mimic — and in some cases even surpass — real-world sensory experiences [1]. According to a report by Fortune Business Insights, the global VR market reached $16.32 billion in 2024 and is projected to grow from $20.83 billion in 2025 to approximately $123.06 billion by 2032, with a compound annual growth rate (CAGR) of over 28.9%. Within the healthcare sector, VR is rapidly emerging as a significant intervention tool. Mental health conditions such as anxiety disorders, depression, and post-traumatic stress disorder (PTSD) pose major challenges to global public health due to their complexity. Data from the World Health Organization (WHO) indicate that around 320 million people worldwide suffer from depression, while more than 260 million are affected by anxiety disorders. These figures highlight both the prevalence and profound social impact of mental health issues. Traditional psychological treatments—including face-to-face counseling and pharmacotherapy — have demonstrated certain effectiveness. However, they also present limitations such as high costs, uneven distribution of resources, and issues related to patient acceptance and adherence (Fig. 1).

In this context, VR technology has attracted significant attention from healthcare professionals due to its unique advantages. By simulating controlled virtual environments, VR provides patients with a safe and manageable space for therapeutic simulations or specific mental exercises. Research shows that VR-based therapy is particularly effective in treating conditions such as

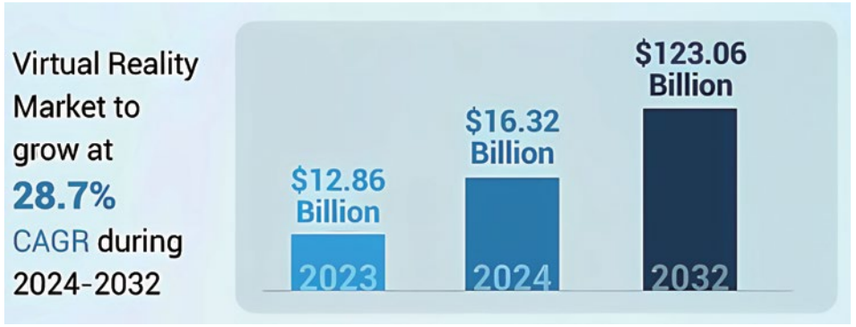


Fig. 1 Statistics and Forecast of VR Market Size ©FORTUNE BUSINESS INSIGHTS.
Source: https://www.fortunebusinessinsights.com/industry-reports/infographics/virtual-reality-market-101378

phobias, anxiety, and PTSD [2]. For instance, one study found that patients with PTSD who underwent VR-assisted exposure therapy showed more significant improvement in symptom reduction compared to those receiving conventional treatments. This approach allows gradual exposure to trauma-related stimuli within a controlled setting, helping patients learn to manage and reduce traumatic responses.

According to a report by Verified Market Research, the global virtual reality healing market is expected to reach approximately $1.8 billion by 2023 and surge to around $13.9 billion by 2032, reflecting a CAGR of 25.1% during the forecast period. A major driver of this growth is the integration of VR technology in healthcare settings to improve patient outcomes and enhance the quality of care (Fig. 2).

Fig. 2 Statistics and Forecast of VR Healing Market Size ©VERIFIED MARKET RESEARCH. Source: https://www.verifiedmarketresearch.com/product/virtual-reality-in-healthcare-market/?utm_source=googleads&utm_campaign=22298128078&utm_term=virtual%20reality%20therapy%20market&gad_source=1&gad_campaignid=222981280786gbraid=0AAAAC5t6V_VIn6ILcQWE9nHe1ChSYi67&gclid=EAIaIQobChMItZq-7IqvjwMVHaJmAh3dvjzUEAAYASAAEgIfRPD_BwE

Department of Geriatrics, Xiangya Hospital, Central South University, Changsha, Hunan, People's Republic of China. Developed a bibliometric study using the advanced retrieval function in the Web of Science (WOS) Core Collection. The search query (TS = ("Mental health") AND TS = ("Virtual reality")) was applied, with a publication timeframe spanning from January 1, 1999, to February 14, 2025. Document types were limited to articles and reviews, yielding 1398 initial publications.The annual publication trends in this field showed a clear growth trajectory for VR and mental health research (Fig. 3). During the initial exploratory phase (pre-2010), publication output remained relatively low, indicating the field's nascent stage of development. However, beginning in 2015, coinciding with rapid technological advancements and increasing maturity of VR applications, publication volumes exhibited slight growth. This upward trend became particularly pronounced from 2020, and output continues to rise, reflecting VR's emergence as a research hotspot in mental health applications [3].

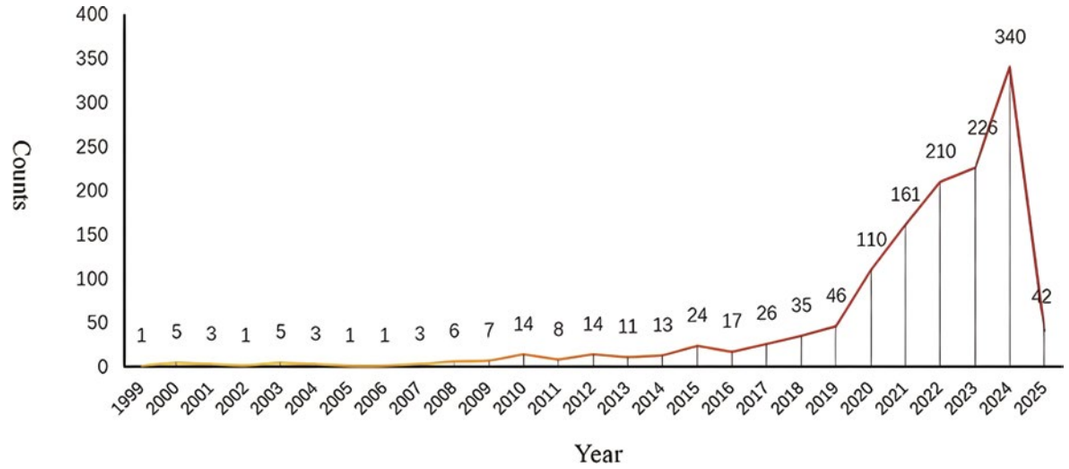


Fig. 3 Analysis of annual publications about the application of VR in mental health care.
Source: https://www.tandfonline.com/doi/full/10.2147/JMDH.S536946#d1e235

2. The Spatiotemporal Properties of VR Technology

The core advantage of virtual reality technology lies in its unique spatiotemporal properties, which grant VR environments unprecedented flexibility and control. Computer technology and virtual technology are two prominent fields in today's societal development, playing vital roles across various industries. Through continuous innovation and advancement in both hardware and software, computer technology enables people to process information and solve problems more efficiently. Meanwhile, virtual technology offers more realistic and immersive experiences by simulating the real world [4]. The synergistic development of these two technologies not only brings great convenience to technical professionals but also creates new opportunities for progress in various sectors.

Using highly advanced computer graphics and sensor technology, VR constructs a manipulable virtual environment where time and space can be controlled, allowing users to tran-

Despite promising early results, the practical application of VR in psychological treatment still faces several challenges. High equipment costs, technical accessibility, and the need for professional guidance remain significant barriers to widespread adoption. Moreover, further scientific research is needed to fully understand the long--term effects and potential side effects of VR-based therapy.

In summary, VR technology demonstrates substantial potential and value in the field of mental healing. It not only offers new perspectives and methods for treatment but also presents fresh challenges and opportunities for researchers and clinicians. Investigating how the spatiotemporal properties of VR can facilitate healing may deepen our understanding of mental health treatment mechanisms and contribute to the development of more personalized and effective therapeutic approaches.

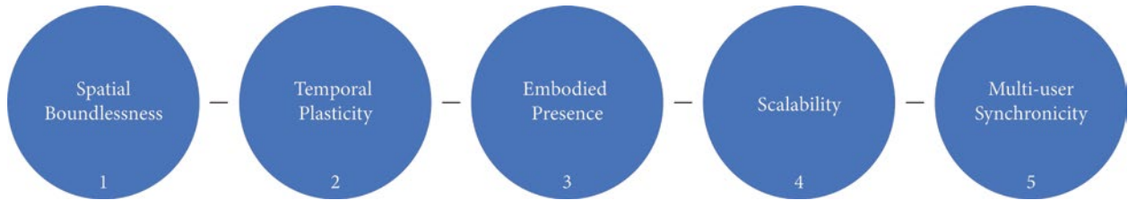


Fig. 4 Five attributes of VR spacetime summarized based on research context. Source: own work.

scend the boundaries between reality and fiction and experience situations beyond physical limitations. In these virtual worlds, time can be accelerated, slowed, paused, or even reversed, while space can be expanded, created, or altered infinitely — breaking geographical, dimensional, and proportional constraints of the physical world. For example, in VR, one might encounter a past or future version of oneself or come face to face with visualized negative emotions.

To facilitate research, we have summarized the spatiotemporal characteristics of VR technology into the following five key properties (Fig. 4).

2.1. Spatial Boundlessness

VR technology breaks the constraints of physical space, allowing users to instantly "teleport" into any digitally constructed or recreated environment, or to see things that do not exist in the physical world. Whether it's the real Martian landscape, a fictional fantasy world, or the interior of a microscopic cell, users can immerse themselves and gain a strong sense of presence, greatly expanding the boundaries of human experience. This reality-transcending capability makes VR a powerful tool for exploring new domains and testing innovative ideas. In medical education, for example, students can use VR to navigate inside the human body and intuitively learn the structure and function of various organs — an experience far beyond what traditional teaching methods can offer [5].

2.2. Temporal Plasticity

VR allows time to be compressed, stretched, paused, or even reversed. Users can observe a glacier melting process — which would normally take decades — accelerated in minutes, pause a bullet-time scene and examine it from 360 degrees, or repeatedly practice an operation at a critical moment. This brings a new dimension of temporal interaction to human activities, enhancing both efficiency and depth of understanding.

2.3. Embodied Presence

In a VR experience, the user does not merely "watch" a virtual space — they "enter" and "exist" in it through an avatar or first-person perspective. The user's physical movements are mapped in real time into the virtual world, enabling interaction with the environment and objects, thereby creating a strong sense of bodily ownership and embodied presence. This is a fundamental difference between VR and traditional 3D displays, creating a truly immersive "I am there" experience. It serves as the foundation for remote collaboration, social interaction, and skills training.

2.4. Scalability

VR can freely alter the perceived scale of the user's body and the environment, leading to changes in field of view and content. Users can become giant-sized to overlook an entire city, or shrink to the size of an ant to examine the texture of a leaf. This arbitrary shift in perspective offers new ways of observing the

Atrybuty czasoprzestrzenne VR	Przypadki terapii i chorób wspomaganych przez VR
Spatial Boundlessness	Pain Phantom Limb (PLP), Anxiety Disorder, Mild Cognitive Impairment, Chronic Kidney Diseases (CKD), Post-Traumatic Stress Disorder (PTSD), Spacific Phobia, Mindfulness and Meditation Training
Temporal Plasticity	Post-Traumatic Stress Disorder After War, Attention Deficit Hyperactivity Disorder (ADHD), Alzheimer's Disease, Dipolar Affective Disorder
Embodied Presence	Autism SPectrum Disorder (ASD), Parkinson's Disease, Depressive Disorder, Schizophrenia and Related Disorders, Substance Use Disorders od Addictive Behaviours, Eating Disorder, Paralytic, Patients with Chronic Pain, Avatar Therapy, Physical Activity and Physical Rehabilitation Therapy
Scalability	Acrophobia, Cognitive-Behavioral Therapy, Exposure Therapy
Multi-User Synchronicity	Social Anxiety Disorder, Depressive Disorder, Bipolar Affective Disorder, Substance Use Disorders od Addictive Behaviours, Social Skills Remediantion Therapy

Fig. 5 Matching Relationships Between VR Attributes and Therapeutic Cases/Diseases. Source: own work.

world. It provides an exceptionally powerful tool for scientific visualization (e.g., observing molecular structures or celestial movements), artistic expression, and education.

2.5. Multi-user Synchronicity

Multiple users can simultaneously access and share the same virtual space despite being in different physical locations. They can see each other's avatars and communicate, collaborate, and interact in real time, jointly manipulating and altering objects and events in the virtual environment. This creates a shared experience that transcends geographical barriers, forming a core paradigm for the future of social interaction, remote work, collaborative design, and multiplayer gaming — defining a new form of spatiotemporal "co-presence."

The five spatiotemporal attributes mentioned above are intricately interwoven, bringing numerous advantages and innovative potential to VR-based therapeutic interventions. In this study, our team has mapped the correlations between VR attributes and therapeutic cases and medical conditions worldwide (as illustrated in Fig. 5). This serves as a valuable reference for VR creators to identify key priorities when collaborating with healthcare professionals, while also being essential for optimizing VR's therapeutic potential and addressing its associated challenges.

3. Application of VR Audiovisual Content in Healing

3.1. A New Approach to Psychotherapy

As an innovative pathway in psychological treatment, virtual reality technology offers a unique immersive experience that enables individuals to confront and process their psychological issues within a fully controlled environment [6]. The approach of

Fig. 6 University of Southern California Research on VR Therapy for "Post-War Psychological Syndrome".
Source: https://www.voachinese.com/a/vr-treatment-20170717/3947732.html

exposure therapy is particularly suitable for people who have experienced traumatic events, as the spatial boundlessness of VR allows therapy to take place without exposing individuals to the actual traumatic setting — thereby reducing the risk of re-traumatization. The temporal plasticity of VR enables patients to gradually approach and adapt to scenes that may trigger traumatic memories, without the concern of real-world negative consequences.

For example, for veterans suffering from post-traumatic stress disorder (PTSD) due to wartime experiences, VR-based therapy can assist them in gradually processing combat-related psychological trauma within a virtual battlefield environment, thereby alleviating post-traumatic anxiety and fear (Fig. 6).

VR technology has also demonstrated significant therapeutic potential in treating anxiety disorders, social phobias, and various other specific phobias. Through realistic virtual environment simulations, patients can safely confront anxiety-inducing situations — such as public speaking, heights, or specific animals — under completely secure conditions. This gradual exposure helps patients build the capacity to face and overcome their fears step by step.

Compared to traditional exposure therapy, VR treatment offers greater controllability and flexibility, allowing adjustments in exposure intensity and environment based on the patient's specific needs and progress. Furthermore, VR can simulate therapeutic environments that are difficult to recreate in real life, providing patients with unique treatment experiences. For instance, using VR technology, therapists can recreate environments from a patient's childhood, helping them revisit early life experiences and explore the roots of psychological issues. This therapeutic method opens new possibilities for in-depth exploration of individual psychology, potentially unlocking previously inaccessible areas in mental health treatment.

Fig. 7 Social VR game "VR Chat" scenario.
Source: https://citizenside.com/technology/what-is-vr-chat/

3.2 Cognitive Behavioral Therapy Assistant Tool

As an auxiliary tool in cognitive behavioral therapy (CBT), VR technology provides a unique interactive platform for treatment. By simulating various real-life scenarios in virtual environments, patients can practice and improve their cognitive and behavioral patterns without real-world social risks. This is particularly valuable for treating socially related psychological disorders such as social anxiety and agoraphobia [7].

In virtual environments similar to social VR games like "VR Chat" and "Rec Room" (as shown in Fig. 7), patients can repeatedly practice social interactions — such as conversing with virtual characters or participating in virtual gatherings — to gradually build confidence and reduce anxiety in real social situations. This is made possible through the combined effects of VR's spatial boundlessness and embodied presence.

The application of VR in cognitive behavioral therapy extends beyond social skills training. It also helps patients identify and challenge negative thoughts in a controlled environment. Through simulated scenarios, patients learn how to apply new cognitive and behavioral strategies in real life. For example, for individuals with depression, VR can simulate daily situations that may trigger negative thinking. With guidance from therapists, patients can learn to apply positive thought patterns in these contexts.

Furthermore, the multi-user spatio-temporal synchronicity of VR technology offers a more authentic and dynamic therapeutic experience. This helps increase patient engagement and involvement, thereby improving treatment outcomes. At the same time, the controllable nature of VR environments makes the therapeutic process safer and more efficient. Therapists can monitor patients' reactions in real time through virtual avatars and adjust treatment strategies as needed.

Fig. 8 Daniel Freeman's psychology team at the University of Oxford uses VR to treat acrophobia (fear of heights). Source: https://news.pts.org.tw/article/399684

Fig. 9 The psychology team led by Daniel Freeman at the University of Oxford uses VR to treat claustrophobia.
Source:https://www.oushinet.com/static/content/europe/other/2022-04-07/961686348530855936.html

3.3. Emotional Regulation and Psychological Rehabilitation

Emotional regulation and psychological rehabilitation represent a significant application of virtual reality (VR) technology in the healthcare field. By delivering immersive environmental experiences, VR can effectively influence and modulate an individual's emotional state, demonstrating unique advantages in addressing anxiety, depression, and other mood disorders.

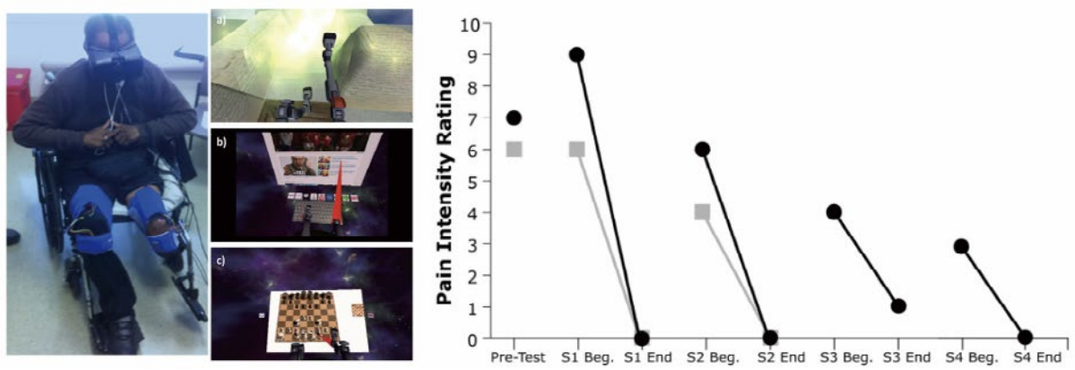
VR environments can simulate a range of settings — from serene natural landscapes to therapeutically designed virtual scenes — offering patients an escape from real-world stress and facilitating mental relaxation and recovery [8]. For instance, through VR, users can experience walking through a forest, strolling on a beach, or meditating in a tranquil space. These immersive nature-based experiences have been shown to significantly reduce symptoms of anxiety and depression, thereby promoting psychological well-being.

In the context of psychological rehabilitation, VR serves not only as a tool for emotional regulation but also as an auxiliary means in psychotherapy. For individuals who have undergone severe trauma or are affected by chronic psychological stress or fear, VR-based therapeutic environments allow them to safely confront and process traumatic memories, supporting gradual recovery. The controllability of VR settings enables therapists to tailor treatment plans according to each patient's specific needs, making the process more personalized and effective.

Within psychotherapy, VR can also recreate past traumatic experiences or stressful situations, helping patients process and overcome psychological barriers in a secure setting (as shown in Fig. 8-9). Similarly, VR can simulate future environments, allowing users to better evaluate potential outcomes when facing decisions. For instance, a study led by Daniel Freeman, Professor of Clinical Psychology at the University of Oxford, in collaboration with Oxford VR, demonstrated that virtual reality technology can simulate typical confined spaces such as elevators and subway cars, providing claustrophobia patients with a controlled exposure environment. This enables them to safely and gradually adapt to and overcome their fears[9]. The virtual reality exposure therapy developed by the team is also applicable to acrophobia. By having patients complete specific tasks step-by-step in a controlled virtual high-altitude environment, their anxiety levels and avoidance behaviors can be significantly reduced.

Moreover, VR technology can integrate music, sound, and visual elements to create multi-sensory therapeutic experiences. Such integrated sensory stimulation plays a crucial role in promoting psychological recovery. These benefits arise from the combined effects of VR's spatial boundlessness, scalability, and embodied presence.

Fig. 10 Alexander Miller et al.'s study on immersive low-cost virtual reality treatment for phantom limb pain. Source: https://pubmed.ncbi.nlm.nih.gov/29515513/



3.4. Application in the Treatment of Specific Diseases

Virtual reality technology has demonstrated unique value in the treatment of specific diseases, particularly in areas such as cognitive impairment, Alzheimer's disease, stroke rehabilitation, and chronic pain management. By simulating therapeutic environments and activities, VR offers innovative methods and perspectives for treating these conditions [10].

For instance, in the treatment of cognitive impairment and Alzheimer's disease, VR can simulate daily living environments and tasks, helping patients practice memory, attention, and other cognitive functions, thereby slowing disease progression. This simulated daily task training plays a significant role in maintaining patients' self-care abilities and improving their quality of life.

Most amputees experience phantom limb sensations, often including intense and persistent phantom limb pain (PLP). Standard treatments fail to relieve PLP in most cases, but VR's embodied presence and spatial boundlessness have shown promising potential. In a study titled "Immersive Low-Cost Virtual Reality Treatment for Phantom Limb Pain" led by Alexander Miller's team, patients viewed a first-person perspective of two fully rendered legs in a head-mounted display while playing a series of custom VR games. The movement of both limbs was controlled using measurements from inertial sensors attached to the intact limb and the residual limb.

Two unilateral transtibial amputees received multiple VR therapy sessions over several weeks. Each participant experienced immediate and significant pain reduction after every VR session, and their preoperative pain levels also decreased substantially over the course of the study. Subject 1 reported a 100% reduction in pain intensity after the first and second sessions, while Subject 2 showed an average reduction of 93.7%. Five out of six recorded post-session pain scores were at the minimum value of 0 (on a 10-point scale), indicating complete absence of pain. Although preliminary, these findings support the view that VR-based interventions may serve as an effective low-cost treatment for PLP in lower-limb amputees [11] (Fig. 10).

In stroke rehabilitation, VR technology provides simulated physiotherapy environments where patients can perform various motor and activity

trainings. These simulated therapeutic activities not only make rehabilitation more engaging but also allow personalized adjustments based on the patient's progress and needs, thereby enhancing recovery outcomes. The interactivity and feedback mechanisms in VR environments enable real-time assessment of patient progress, helping healthcare professionals design and adjust rehabilitation plans more effectively.

For chronic pain management, VR technology helps reduce pain perception by diverting the patient's attention. Through relaxation exercises and meditation in VR environments, patients can learn to control pain and improve emotional states, significantly enhancing their quality of life. Additionally, VR can simulate specific treatment procedures, helping patients understand and prepare for upcoming medical interventions, thereby reducing pain exacerbated by fear and anxiety.

3.5. Challenges and Future Directions in Therapeutic Applications

While virtual reality (VR) technology shows broad prospects in therapeutic applications, its development also faces multiple challenges. The rapid advancement of technology and the growing demand for healthcare require that we seriously consider and address the accompanying issues as VR-based healing approaches are promoted.

A major challenge lies in the high cost and technical complexity involved. Although the price of VR devices has gradually decreased, high-end medical-grade VR systems remain expensive, limiting their widespread adoption across healthcare institutions. Moreover, operating these advanced systems requires specialized technical support and maintenance, posing a significant burden for many medical facilities. Therefore, reducing costs and simplifying technical operations are essential prerequisites for expanding the use of VR in therapeutic settings [12].

On the other hand, although VR technology holds great potential in healing applications, research on its long-term effects and safety is still insufficient. While short-term outcomes of VR-based interventions have been positive, the long-term impacts — especially prolonged use on vision, cognition, and mental health — require further clinical trials and scientific validation. In addition, the applicability and safety of VR therapy need more in-depth research across different populations, such as children, the elderly, and individuals with specific health conditions.

Despite these challenges, the future of VR in therapeutic applications remains highly promising. As technology continues to advance, future VR devices will become more lightweight, user-friendly, and affordable, greatly facilitating their use in healthcare. At the same time, growing research will enhance our understanding of VR's therapeutic effects, helping to improve and optimize treatment protocols for greater personalization and effectiveness.

Furthermore, the integration of VR with other advanced technologies such as artificial intelligence (AI) and machine learning opens new possibilities for innovative healthcare solutions. By incorporating AI algorithms, VR systems can better adapt treatment plans in real time based on patient feedback and progress, enabling more precise and efficient personalized therapies. This technological convergence not only enhances treatment outcomes but also provides healthcare professionals with powerful tools to support clinical decision-making and therapeutic processes.

4. Impact on Cognition, Emotion and Behavior

Virtual reality (VR) technology has become a focus in psychological and cognitive science research due to its ability to influence human cognition, emotion, and behavior. By creating immersive virtual environments, VR can profoundly alter an individual's psychological state and behavioral patterns, making it a valuable tool for both studying and treating cognitive and emotional disorders.

At the cognitive level, VR can reshape perception and cognitive processes through simulated environments and scenarios. By engaging users in targeted tasks within these environments, VR helps improve attention, enhance memory, increase learning efficiency, and support overall cognitive function. For instance, complex problem-solving scenarios simulated in VR can train and improve spatial cognition and reasoning skills [12]. Moreover, VR can replicate diverse cultural and historical settings, offering researchers a unique platform to study cross-cultural cognitive differences.

On the emotional level, VR elicits and regulates emotional states through highly realistic situational simulations. This capability makes it a powerful tool for studying emotional responses and treating mood disorders. Within virtual settings, environmental factors such as context, intensity, and interactive elements can be precisely controlled to evoke specific emotions — such as joy, sadness, fear, or anger — in a safe and controlled manner. This approach is particularly valuable for understanding emotional mechanisms and developing targeted treatments for disorders like anxiety, where VR can simulate high-stress scenarios to help patients learn emotional regulation.

In terms of behavior, VR enables the simulation of real-world scenarios where users can practice and refine interactions and skills. The authenticity of these simulations supports both behavioral research and effective training. By repeatedly practicing specific behaviors — such as social interactions, public speaking, or technical tasks — in a risk-free virtual space, users can build confidence and improve real-world competence. For patients undergoing rehabilitation, such as those recovering from stroke or brain injury, VR offers a safe and effective platform to restore motor and cognitive functions through guided simulation.

While VR shows considerable promise in supporting cognitive, emotional, and behavioral change, its long-term effects and potential risks require further study. Extended exposure to virtual environments may alter perceptions of reality or encourage psychological dependence and escapism. Therefore, continued research is essential to optimize VR's use in education and therapy while identifying and mitigating any adverse outcomes.

5. Advantages and Limitations in Therapeutic Applications

Virtual reality offers notable advantages in therapeutic settings, introducing a novel form of treatment that provides a safe and controllable environment where patients can engage in rehabilitation free from real-world pressures. Through immersive experiences, VR captures patient attention and enhances engagement and motivation. This high level of immersion and interaction has proven especially effective in treating anxiety, PTSD, phobias, and other psychological disorders. Patients can repeatedly confront challenging situations without actual risk, gradually reducing fear and anxiety while building coping skills.

Another significant advantage of VR is its customizability. Healthcare professionals can tailor virtual environments to individual patient needs, enabling truly personalized treatment plans [13]. This individualized approach not only improves therapeutic outcomes but also increases patient satisfaction and comfort. For conditions that are difficult to address using conventional methods, VR offers innovative solutions through simulated environments, expanding treatment options and possibilities.

Despite these advantages, VR therapy also has limitations. A primary concern is its technological dependency. High-quality VR experiences typically require costly equipment and technical support, limiting accessibility in under-resourced settings. Additionally, operating VR systems demands technical expertise, which may pose a barrier for some healthcare providers and patients. Another limitation involves potential side effects such as eye strain, dizziness, and nausea—symptoms related to visual-vestibular mismatch. Extended VR use may place strain on the visual and balance systems, particularly for individuals with pre-existing conditions, making it essential to monitor and manage these effects.

Although VR delivers strong immersion and realism, it remains a simulated experience and may not fully replicate the complexity and dynamism of the real world. This gap may impact the transfer effect — the ability of patients to apply skills and insights gained in VR to daily life. Therefore, VR-based therapy should be integrated with other tre-

atment approaches to ensure sustained and comprehensive outcomes.

Finally, during the implementation of VR-based therapeutic interventions, several challenges require careful consideration by clinical teams: how to protect sensitive biometric data collected through VR systems, how to ensure equitable access to VR technology across different socioeconomic groups, and how to mitigate risks of vulnerable populations developing overreliance on immersive technologies.

6. Conclusion

The exploration of virtual reality in therapeutic applications reveals significant potential as an innovative intervention tool. By offering immersive, safe, and controlled virtual environments, VR enables patients to address psychological and physical issues in new ways. Its unique spatiotemporal attributes and high degree of customizability allow for personalized and targeted treatment, improving both efficacy and patient engagement.

However, the application of VR in healing is not without challenges. Technical costs, accessibility, and potential side effects remain important barriers. Moreover, differences between virtual and real-world contexts may influence the transfer of learning, underscoring the need to carefully integrate VR experiences with real-life applications.

Future research should focus on optimizing VR content design to enhance therapeutic efficiency and effectiveness. This necessitates conducting more nuanced studies targeting specific types of disorders and developing virtual treatment environments that better align with user needs. Concurrently, it is imperative to validate the long-term efficacy and safety of VR-based therapies through rigorous clinical trials, thereby establishing solid empirical foundations for their application. Furthermore, as VR experiences undergo a profound transition from visual dominance to full sensory engagement, future efforts should explore how to leverage multisensory integration to reshape patients' engagement patterns and internal meaning-making mechanisms, ultimately deepening the therapeutic experience.

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‘Living Form’

Scenarios in the Context of the Hangzhou Asian Games

Abstract

This article focuses on the expression of a city’s ‘living form’ of Hangzhou during the Asian Games. Drawing on practical experience participating in the preparations for the Asian Games, and employing methods such as text analysis, case studies, and participatory observation, the author analyzes how the Hangzhou Asian Games leveraged local characteristics to connect the city with individuals, and the local with the global.

The specific paths for the Hangzhou Asian Games’ ‘living form’ urban image are:

1. From text to representation: integrating ‘living form’ symbols into urban space;
2. From viewing to experience: creating a ‘living form’ atmosphere for the event experience;
3. From events to culture: fostering a ‘living form’ identity within urban culture.

Constructing this expression of the ‘living form’ of the Asian Games city not only summarizes the Hangzhou Asian Games experience but also offers new insights into the interaction between future mega sporting events and urban culture.

Bi Lyu

peer-reviewed conference materials

This article is based on the presentation delivered at the C-IDEA Design Conference, held on 23–26 October 2025 at Shih Chien University, Kaohsiung Campus, Taiwan, China.

#Hangzhou Asian Games
#urban imagery
#mega-sport events
#urban culture

The world’s attention was drawn to China through the successful hosting of the 19th Asian The successful hosting of the 19th Hangzhou Asian Games has focused the world’s attention on China. This not only provides an excellent opportunity to promote the image of China and Hangzhou internationally, but also serves as a grand event for the exchange and integration of China’s fine traditional culture with cultures from around the world. Hangzhou’s evolution from a “functional city” to a “cultural city” and then to a “city with distinctive image” is a reality [1]. The Hangzhou Asian Games are an excellent opportunity to understand and experience a city’s local culture. They also mark a crucial moment for Hangzhou to establish itself as an “international” city, comprehensively showcase its urban landscape, and promote its culture on multiple levels.

1. What is the urban “living form”

Drawing on David Harvey’s [2] observations on the era of mass communication, this study notes that contemporary urban imagery, shaped by the compression of time and integration of space, often conforms to generic patterns, resulting in homogenized urban atmospheres and the erosion of local distinctiveness. Since the 1970s, scholarly attention to the relationship between people and place has steadily increased, recognizing the city as a central site of everyday life and a crucial dimension for tracing the origins of urban characteristics. In the context of large-scale international events, Hangzhou’s strategy of “promoting the city through sports” seeks not only to enhance global visibility and prestige but also to ensure that the city remains a warm, livable space, rich in local vitality and everyday charm. Against this backdrop, the present study introduces the concept of “living form” to frame the interplay between urban space and quotidian experience.

The concept of “living form” originates from David Seamon’s notion of the “lifeworld”, a core concept in humanistic geography. It challenges the long-standing neglect of living forms in aesthetics and refers to the “everyday, taken-for--granted patterns and environments,” that is, an “aesthetics centered on life” [3]. The “everyday life” can serve as the foundation for both the historical and contemporary activities of a city, endowing the city with rich meanings [4]. If a city is understood as a space where individuals carry out daily activities, build community identities, and situate their bodies and minds, then the city’s living form focuses on the daily accumulation of local culture, embodying the exchanges and interactions between the material and the spiritual, the urban and the individual, and the local and the global.

In the process of modern sports development in China, due to their characteristics of group interaction, emotional resonance, and cohesive power, sports have naturally aligned with the festive and celebratory atmosphere, quickly integrating into the daily lives of the Chinese public and serving as a timely tool to showcase urban distinctiveness and vitality. From the perspective of the living form, local culture subtly yet profoundly permeates everyday life. This not only concerns the construction of physical space but also relates to the atmosphere and emotional connections that people perceive and experience within that space.

Based on the aesthetic context of the “living form”, this study explores the symbiotic relationship between the Asian Games and urban image, demonstrating how a city, within a specific historical and social context, constructs the everyday spatial settings of local life. This includes presenting the city’s image as a host of the event — imbued with local characteristics and aesthetic concepts — through visual imagery, public art, cultural atmosphere, and other means.

2. The Discourse of Hangzhou Asian Games

Mega sporting events such as the Olympic Games and the Asian Games have transcended the boundaries of “pure athletic competition” and have gradually evolved into global media events of cultural exchange. After a thirty-three-year interval, Hangzhou has become the third Chinese city to host the Asian Games. By constructing an urban “living form” that reflects its distinctive modus vivendi, Hangzhou articulates its unique interpretation of this international event. This process extends the narrative from sport to the city itself, ultimately returning to the fundamental spatial practices centered on social actors.

The spatial context of the Asian Games city’s “living form” constitutes the collective human activities that unfold within the intersection of event

and place. It is grounded in the synthesis of both material space and spiritual culture. This context encompasses, on the one hand, the physical and relational dimensions associated with bodily movement and tangible environments — the "Field"; and on the other hand, the intangible dimensions such as the Games' ideology, cultural symbolism, ambient atmosphere, and subjective experience — the "Atmosphere".

At the same time, the spatial context of the Asian Games city's "living form" operates as a differentiated and complex system. It extends across multiple scales: the **macro-level** of collective social spirit and the **micro-level** of individual experience, bodily practice, and spatial perception. The core actors within this framework include delegations and staff members, spectators, and local residents. Through multidimensional participation and interaction, these actors collectively contribute to the diversified construction of the Asian Games' urban spatial context.

2.1. The "Field" dimension

The material space of the Asian Games context is closely intertwined with local life, forming an integral part of residents' emotional attachment and a key component of local cultural memory. The aesthetic material dimension of the Asian Games encompasses event-related spaces and sports venues, as well as iconic architectural sites and the broader urban landscape — constituting the spatial expression of the Asian Games context.

As Italo Calvino noted in Invisible Cities, "The city does not tell its past, but contains it like the lines of a hand, written in the corners of the streets... leaving traces". As the host city of the Asian Games, Hangzhou carries abundant "traces" waiting to be rediscovered. Through the reinforcement of urban landmarks, the articulation of concrete physical scenes, and the interconnection of urban infrastructures such as transportation networks and neighborhood landscapes, the city consolidates its spatial clusters and integrates the gateways of host and co-host cities. Dedicated Asian Games routes link major venues, the Athletes' Village, official hotels, and torch relay sites, thereby realizing the spatial imagery of "one radiant core, four coordinated clusters, multiple shining nodes, and a brilliant city-wide landscape"[1]. This spatial strategy not only constructs the aesthetic identity of the Games but also facilitates urban synergy and regional renewal.

Specifically, at the **macro level of material space**, the spatial composition of the Asian Games revolves around the core event zone — the Olympic Sports Center and the Athletes' Village. Through the integration of Asian Games–themed sculptures, urban furniture, and visual posters, the city establishes a rhythmic spatial identity that embodies the strongest visual language of the Games, presenting a modern scene of the "Chinese window" to the world.

Secondly, corresponding to Hangzhou's major cultural landmarks — such as the Qiantang River, West Lake, the Grand Canal, and the historic city core — four distinct spatial clusters are formed. Complemented by scattered natural landscapes and sports venues around the metropolitan periphery, these clusters evoke the poetic imagery of the Jiangnan region and the contemporary vitality of Zhejiang. Asian Games — themed sculptures are strategically installed near highway gateways, landscaped parks, and landmark architectural complexes, reinforcing the city's aesthetic coherence.

[1] "One Radiant Core, Four Coordinated Clusters, Multiple Shining Points, and a Brilliant Citywide Experience" refers to the overall spatial strategy of the Hangzhou Asian Games urban image landscape — centering on the main urban core, coordinating four sub-district clusters, highlighting multiple visual nodes, and achieving citywide aesthetic integration.

Finally, the **urban transportation system**, functioning as the city's lifeline, interconnects the various components of the Asian Games' material space. Acting as a spatiotemporal chain, it links the event's core zones, the thematic clusters, and the city gateways through interchanges, hubs, and arterial routes. This network resonates with the city's natural features — its rivers, lakes, and streams — allowing the free circulation of people and materials while simultaneously fulfilling the mobility needs of delegations, staff, spectators, and residents. In doing so, it sustains the daily rhythms of urban production and living, and vividly performs the Asian Games atmosphere within the city's material spatial fabric.

At the **micro-level**, the design of the Asian Games and the city's image incorporates a rich array of Hangzhou's iconic symbols, not only enriching the visual identity system of the event but also effectively reinforcing the city's cultural memory points. In particular, during the city's preparations for the Games, the "Crafted Enhancement of Hangzhou" project implemented four thematic scenic lines — *Beautiful Home, Smooth Mobility, Hangzhou Charm in Streets, and Flowers Across Hangzhou*. These lines, encompassing landscape installations, nighttime lighting, and atmospheric decorations, were strategically arranged along key routes and areas in accordance with the city's overall spatial planning. By integrating the event's media representation with urban transportation, civic appearance, and neighborhood landscapes, this initiative promoted the harmonious renewal of the city's material space. In doing so, the aesthetic experience of the sporting event was seamlessly intertwined with the everyday "living form" of Hangzhou, leaving a valuable Asian Games legacy for the city.

2.2. The "Atmosphere" dimension

The Hangzhou Asian Games have driven a reconstruction of the spiritual and cultural dimensions of the city's living form. This spatial-cultural reshaping is realized through the multidimensional dissemination of event symbols, encompassing the sporting spirit of the Games, local cultural practices, and intangible expressions of regional customs. It creates a shared symbolic space for city residents as well as international audiences, thereby constructing an urban spiritual community and fostering a collective imagination of the city's image.

In the process of reshaping the Asian Games context, urban symbols guide the public's perception of the city as a whole, facilitating an understanding of its culture and the formation of collective memory. Emerging from the subtle manifestations of local charm and cultural traits, the symbolic imagery of the Hangzhou Games is deeply rooted in the cosmological philosophy of *Tianren heyi*[2] (天人合一, "harmony between humanity and nature"), reflecting a profound concern for the natural environment and positioning the host city as an articulate subject [5]. For example, the core graphic *Runze*[3] (润泽) integrates the elegance of West Lake, the meandering Grand Canal, and the surging Qiantang River, encapsulating the traditional and modern sentiments of Jiangnan [6]. The

[2] *Tianren heyi* is one of the fundamental concepts in Eastern philosophy and aesthetics. *Tianren heyi* posits that "nature" and "human" are not opposing entities but interconnected and mutually responsive aspects of an organic whole. It embodies an ideal state in which the subject achieves inner resonance and aesthetic unity with nature and life itself, reflecting the pursuit of balance, harmony, and spiritual correspondence between humanity and the universe.

[3] The core graphic of the Hangzhou Asian Games, titled *Runze* (literally meaning "moisture" or "nourishment"), embodies profound cultural symbolism rooted in traditional Chinese aesthetics. The term "Runze" evokes the imagery of water — an enduring metaphor in Eastern philosophy representing wisdom, inclusiveness, and vitality. As a city renowned for its waterways and poetic landscapes, Hangzhou's identity is intrinsically shaped by water.

Games emblem *Chaoyong*[4] (潮涌) evokes the dancing tides of the Qiantang River, symbolizing the enduring aspirations of the new era Asian Games spirit. During the opening ceremony, the tidal waters of the Qiantang River were vividly interpreted as "the rising tide of Asia," embedding collective memories of Hangzhou's distinctive local culture among all participants.

The spiritual and cultural creation of the Asian Games context relies heavily on endowing the city with symbolic significance, representing the host city's cultural imagery during the event and extending the public's imaginative engagement with the urban space within the broader Games context.

3. The Expression Pathways of Hangzhou's Urban Living Form for the Asian Games

Mega international sporting events have a clearly defined temporal span; however, a city's image, as a crucial component of its urban life course, is gradually constructed through ongoing evolution and development. The role of event media extends beyond bringing sports gatherings into urban space — it also leverages local cultural resources, positioning the city as a "cultural container" that emphasizes regional identity [7] and serves as a central node for exchanges between individuals and society, as well as between the local and the global [8].

The expression methodology of Hangzhou's urban "living form" treats the Hangzhou Asian Games as a media embedded within urban space, revealing the city's image through its participation in the event. It is read and disseminated as an embodied textual form, demonstrating how the Games function as a medium for articulating and communicating urban identity (Fig. 1).

In this process, the expression of urban image within the context of the Asian Games, driven by the aesthetic framework of the event, is no longer guided solely by the standards of modernization and globalization [9]. Greater emphasis is placed on showcasing the city's regional cultural characteristics and everyday experiences. Guided by the Games' principles of green, frugal, intelligent, and ecological development, Hangzhou achieved an aesthetic integration of past and present as well as cultural mutuality, making the event not only a stage for athletic competition but also a window through which the city presents its humanistic depth and philosophy of life. From eco-friendly sports venues set amid verdant landscapes, to immersive interactive experiences in historic cultural districts, and to digital cultural dissemination empowered by smart technologies, this continuous series of aesthetic combinations collectively shapes Hangzhou's leisurely, ecological, and livable urban character. Simultaneously, it constructs an urban image exhibition space that both embodies local cultural identity and possesses global communicative power.

3.1. From Text to Representation: "Living" Symbols Integrated into Urban Space

The dissemination of urban image essentially constitutes a process of symbolizing spatial imagery, whereby urban space, as an object of holistic cognition, is continually imbued with meaning and constructed. As W.J.T. Mitchell notes, imagery and language have never been at odds [10]. Particularly in

[4] The emblem of the 19th Asian Games Hangzhou, titled *Chaoyong* (literally meaning "Tides Surging"), draws inspiration from the spectacular tidal bore of the Qiantang River — one of nature's most dynamic phenomena, long celebrated as "the greatest tide in the world." The term *Chao* (tide) symbolizes inclusiveness, vitality, and progress, while *Yong* (surge) conveys momentum, dynamism, and the spirit of striving forward. Together, *Chaoyong* encapsulates the resilient and enterprising character of Hangzhou, a city that continues to innovate and advance amid the tides of modernity.

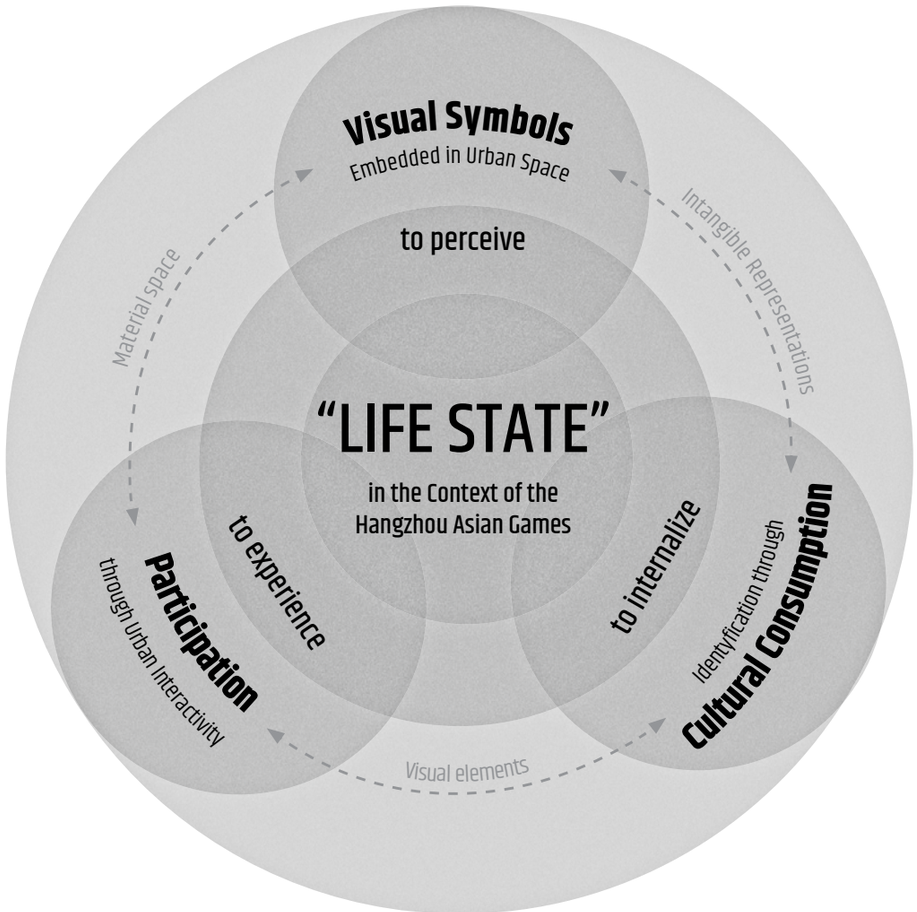

Fig. 1 Expressing Urban Life-State via the Hangzhou Asian Games.
Source: own study.

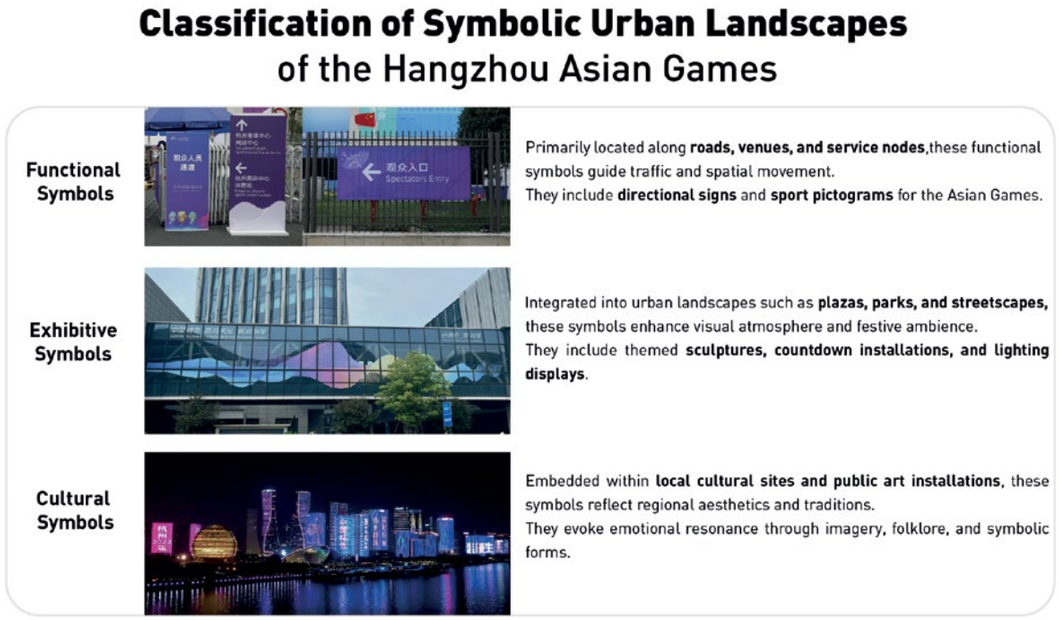

Fig. 2 Classification of Urban Symbolic Landscapes of the Hangzhou Asian Games.
Source: own study.

Fig. 3 The 19th Hangzhou Asian Games digital torchbearer lighting the flame and the display of electronic fireworks (left); digital torchbearer making a heart gesture at the closing ceremony (right). Source: https://www.hangzhou2022.cn/En/.

the context of major sporting events, urban image not only embodies local characteristics but also closely intertwines the atmosphere of the event with the city's identity, endowing the Asian Games host city with distinctive recognizability and generating shared meanings at the level of public perception. Consequently, by employing visual symbols — categorized as functional, display, and cultural symbols — the grand scenes of the Asian Games are represented while simultaneously conveying Hangzhou's urban character and distinctive features. These symbols are integrated into the urban space during the event, forming an indispensable "living" memory of the Hangzhou Asian Games within the public realm (Fig. 2).

Throughout the city, residents and visitors encounter Games-themed murals, "jade Cong" – style lightboxes on elevated bridges, and naked-eye 3D displays integrated into building facades. Meanwhile, themed buses, metro trains, and high-speed rail carriages (Fig. 4 and 5) function as mobile carriers of cultural communication, embedding the Games' presence into daily urban mobility. The strategic integration of such symbols into urban space advances the internationalization of sports events and urban visual design. In this regard, the phenomenon is comparable to the red double-decker bus as an emblem of London; its appearance during the 2008 Beijing Olympic closing ceremony similarly operated as a conspicuous symbol presenting the distinctive identity of the forthcoming host city to a global audience.

3.2. From Spectatorship to Experience: Cultivating a "Living" Event Atmosphere

For cities hosting major sporting events, the role of event media extends beyond merely bringing sports gatherings into urban space; it also lies in the gradual transformation of the city into an emotionally resonant "place," wherein the relationship between people and place is rooted in the natural environment and constructed through living experiences and everyday practices [11]. The core element of the human-place relationship is interaction. Cities hosting sporting events are no exception: profound event experiences contribute to the formation of collective memory of the host city, establish emotional bonds, and foster deeper value identification with the city, thereby revitalizing its image in public perception.

First, the urban interactivity of the Hangzhou Asian Games is manifested in the continuous enhancement of infrastructure, which not only creates a livable environment celebrated as "Most Memorable is Hangzhou" for both domestic and international visitors, but also promotes residents' physical well-being by integrating exercise and fitness into daily life. Embedded sports facilities, such as the Hangzhou Basketball Park beneath the Shide Overpass, illustrate how individual athletic activities activate previously underutilized urban spaces. Second, the Games' digital initiatives are closely intertwined with public participation; through the digital torch relay, the event foregrounds individual engagement within the grand scale of the city-wide Games, extending the dissemination of the Asian Games spirit into various facets of social life. Finally, the concluding torchbearer delivered a unique experience for each participant: the "hybrid digital-physical" ignition ceremony, executed by a "digital torch persona" representing all participants (Fig. 3), departed from the traditional model of a single torchbearer lighting the main cauldron, marking a memorable moment in the history of the Asian Olympic movement.

The integration of Asian Games symbols into the urban landscape not only serves directional and wayfinding functions but also cultivates a distinctive artistic atmosphere during the event. This environment facilitates spectators' rapid immersion in the ceremonial context, enhancing their engagement and evoking both memory and anticipation of the rituals.

3.3. From Sporting Event to Culture: Promoting "Living" Urban Cultural Identity

Urban life serves as a bridge connecting the past, present, and future, functioning as a cultural symbol that traverses time and space [12]. As a city rich in Eastern cultural connotations, Hangzhou leverages international sporting events to

disseminate the refined aesthetics of Eastern living to broader audiences. By hosting events such as the Asian Games and the BWF World Tour Finals, Hangzhou extends the elegance of Eastern lifestyle across wider geographical regions. The transition from sporting events to cultural expression further reinforces public identification with the city's "living" cultural identity.

Although the duration of sporting events is limited, Hangzhou's urban cultural "living" identity extends into diverse Asian Games-themed public spaces, where live broadcasts, knowledge--based interactions, and night markets attract residents and visitors alike. For instance, during the Hangzhou Asian Games, the blooming of osmanthus coincided with the traditional Chinese Mid--Autumn Festival, prompting athletes from around the world to "adapt to local customs." Along the romantic West Lake, they experienced the fragrance of osmanthus, participated in tea-drinking and moon-viewing rituals, and engaged with traditional Eastern lifestyles, savoring the unique blend of natural and cultural charm that defines this "paradise on earth."

To enhance cultural engagement, Hangzhou introduced more than ten "Asian Games Urban Culture Routes," designed to leave lasting impressions of the city's cultural essence. In addition, cultural events such as the Asian Games-themed seal engraving exhibition combined art and sports, vividly showcasing the city's distinctive charm: "Chinese characteristics, Zhejiang flair, and Hangzhou elegance." Meanwhile, licensed merchandise spaces integrated local cultural elements, natural landscapes, historical relics, and traditional craftsmanship into Asian Games souvenirs, extending participants' and spectators' unique experiences in Hangzhou and anchoring their memories and emotions within the city's symbolic framework. Each souvenir embodies the heartfelt affection and attachment of individuals to Hangzhou. This cultural resonance and emotional projection enhance public recognition and identification with Hangzhou's urban culture under the banner of the "New Era, New Asian Games."

4. The Value of Urban "Living" Identity

Although the Asian Games represent a short--term, large-scale opportunity for concentrated display of urban image, as an embedded medium within urban space, the Hangzhou Asian Games exert profound and lasting effects on the construction and reproduction of the city's image. They disseminate distinctive urban imagery while endowing the city with greater inclusivity and cultural vitality. As the geographer Duan Yifu observes, "Plants have roots, while humans have feet and thoughts. With the development of mobility and electronic communication, local experiences are increasingly opening up to the world."

In brief, the expression of the Asian Games city's "living" identity emphasizes linking extraordinary sporting events with everyday urban experiences, creating a personalized "field of memory" for each spectator [13]. This approach surpasses textbook-style, rigid representations, embedding the aesthetics of the Asian Games into the city's "living" environment, renewing spectators' unique local experiences and urban perceptions, and gradually forming a humanized pathway for urban expression. The grand narrative of major sporting events' impact on Hangzhou's urban form extends into opportunities for the public to integrate their own experiences during the Games into the construction of the city's image. This dynamic drives the evolution of urban image dissemination from a detached, macro-level concept toward an intimate, everyday "living" identity.

Constructing a "living" aesthetic pathway for the Asian Games not only summarizes the experiential achievements of the Hangzhou Games but also provides new perspectives for future interactions between large-scale sporting events and urban culture. ■

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