



The Role Transformation and Spatial Innovation of Stage Design

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Abstract: Centering on the reconstruction of the cognitive boundaries between theatre and stage design, this paper sorts out the evolutionary context from theatre-centrism to environmental theatre, and then to cross-disciplinary development empowered by technology. It points out that the essence of such evolution is the return to and expansion of the core nature of theatre — emotional transmission, meaning construction, and interactive generation. The paper analyzes the deconstruction of the physical boundaries of the theatre by environmental theatre, expounds the extension of stage design to virtual and cross-border fields driven by new technologies, and explores its role transformation as a translator of cultural memory in cross-cultural communication and the inheritance of intangible cultural heritage.

Keywords: stage design; cognitive boundaries; technology empowerment; spatial narrative

1. Theoretical Reconstruction and Contemporary Evolution of Stage Design

For a long time, the academic understanding of theatre and stage design has been anchored in theatre-centrism. The formation of this cognitive paradigm stems not only from the theoretical foundation laid in Aristotle's *Poetics* that theatre is an imitation of action and the stage is a space for imitation, but also from the discipline imposed on artistic practice by the proscenium stage architectural form since the Renaissance. Within this framework, stage design was reduced to a spatial ornament serving theatrical narration inside the theatre, and the judgment of the essence of theatre relied entirely on the single criterion of whether a performance took place within a fixed theatrical building. As the theatre theorist Albert Fleischmann pointed out in *A History of Modern Stage Design*, stage design research before the late 19th century consistently took the physical boundaries of theatrical architecture as the core reference. Artists' creativity was confined to optimizing the visual relationships between scenery, lighting and actors within the proscenium, lacking theoretical awareness of the diverse possibilities of theatre and space.[1] This habitual concept of theatre is not innate, but a product of artistic production and social cognition in a specific historical stage.

The rise of 19th-century realistic theatre further reinforced the notion that the theatre is the sole container for theatre. The plays of Ibsen and Chekhov required the construction of the fourth wall through the proscenium stage to achieve a realistic imitation of real life, and the core task of stage design was to build a realistic space consistent with the logical plot. This cognitive limitation essentially equates the form of theatrical presentation with the essence of theatre, ignoring the ontological attribute of theatre as a performance of human behavior. Philip Auslander, a theatre scholar, pointed out incisively in *Performance: A Critical Introduction* that the narrowing of the traditional view of theatre has led artists and society to equate theatre with theatrical performances, which not only obscures the original forms of theatre in primitive rituals and folk celebrations, but also suppresses its possibility of extending to broader social spaces.

In fact, from the open-air performances of the ancient Greek Dionysia to the street processions of medieval mystery plays, the early forms of theatre broke through the limitations of fixed buildings; it was only with the professional development of theatrical architecture that this spatial flexibility was gradually forgotten. It was not until the modernist theatre movement in the early 20th century that theoretical reflection and practical breakthroughs on theatrical boundaries were reopened.

1.1 Breaking the Theatrical Boundaries: From Theoretical Awakening to the Shift in Spatial Practice

In the early 20th century, stage design theorists represented by Adolphe Appia and Edward Gordon Craig took the lead in challenging theatre-centrism. In *Wagner's Stage*, Appia proposed the theory of the theatre of light, arguing that the core of stage design should not be realistic scenery, but the construction of an emotional space that echoes actors' movements through light, lines and structures. This theory already implied the demand to break the proscenium limitations.[2]

Gordon Craig further argued in *On the Art of the Theatre* that the essence of theatre is the unity of action, space and rhythm, and the fixed form of theatrical architecture is precisely an obstacle to this unity; his proposed concept of the neutral stage attempted to replace realistic scenery with deformable structures, creating possibilities for spatial interaction between

actors and the audience. It was the environmental theatre trend in the mid-to-late 20th century that truly achieved a breakthrough in the construction of theatrical boundaries at the theoretical level. Richard Schechner clearly pointed out in *Six Axioms of Environmental Theatre* that the core of theatre is the spatial relationship between actors and the audience, not the physical existence of theatrical architecture; his proposed principles of boundless space — including audience participation and spatial plasticity — completely subverted the spatial logic of traditional theatre.

Schechner's theory was not a fantasy, but a summary of the avant-garde practices of the time: in 1968, his directed *Dionysus in 69* was staged in an abandoned warehouse in New York, where actors and the audience moved freely in an irregular space, breaking the fixed mode of the audience sitting and actors performing. Behind this practice was the theoretical confirmation of the autonomy of theatrical space — stage design was no longer an appendage of theatrical architecture, but an art that creates an independent space according to theatrical conception. At the same time, Victor Turner's social drama theory provided interdisciplinary support for the breakthrough of theatrical boundaries. Turner proposed in *The Ritual Process* that celebrations, rituals, and even social conflicts in human society are essentially dramatic performance processes, with a dramatic structure of breach — crisis — redress — reintegration. This theory expanded theatre from the artistic field to the social field, proving that dramatic elements inherently exist in non-theatrical social spaces.

1.2 Technological Media Innovation: The Core Driving Force for Restructuring Theatrical Forms

Entering the 21st century, the groundbreaking development of technology has become a key variable driving the transformation of theatrical forms. Marshall McLuhan's theory of "the medium is the message" proposed in *Understanding Media* provides a core perspective for understanding this transformation — technology, as a new medium, not only changes the way theatre is presented, but also reshapes the essential attributes of theatre. Traditional theatre relies on liveness and physicality as its core characteristics, while the intervention of digital media enables theatre to break through the limitations of temporal and spatial synchronization, realizing new forms such as cross-temporal and spatial performances and the integration of virtual and real.

The restructuring of theatrical forms by digital technology is first reflected in the virtualization of space. Christiane Szykiewicz, a theatre scholar, pointed out in *Digital Theatre: Transformations in Media and Perception* that the application of VR (Virtual Reality) and AR (Augmented Reality) technologies has shifted stage design from spatial construction to virtual space generation. For example, *The Encounter* launched by the Royal National Theatre in London in 2018 constructed an immersive auditory space through 3D sound technology, allowing the audience to feel the flow and change of space even when sitting in fixed seats; the VR theatre *Lost Horizon* in 2021 enabled the audience to enter virtual scenes through VR devices and interact with virtual actors. This virtual stage design completely breaks away from the physical limitations of theatrical architecture, because space is no longer a physical construction, but the generation and perception of digital signals.

Secondly, the development of interactive technology has promoted the deepening of theatrical participation. Audience participation in traditional theatre is mostly symbolic (such as applause and cheers), while digital interactive technology makes the audience co-constructors of theatrical narration. Henry Jenkins' theory of participatory culture proposed in *Convergence Culture: Where Old and New Media Collide* accurately describes this trend: in interactive theatre, the audience's choices (such as clicking the screen, moving devices, and voice commands) will directly affect the plot direction, and stage design needs to build a dynamic space that can respond to the audience's behaviors.

Link Neumann, a theatre scholar, pointed out in *The Advent of the Pan-Theatre Era* that technology not only changes the way theatre is presented, but also expands the audience group and application scenarios of theatre. The light show of the Twenty-Four Solar Terms performance at the opening ceremony of the Beijing Winter Olympics in large-scale celebrations is essentially a dramatic spatial narration, and stage design is transformed into the overall scheduling of venues, lighting and images; situational interactive dramas in web live streaming interact with the audience through real-time bullet screens, converting theatrical feedback into instant digital feedback; even the on-site presentation of e-sports competitions integrates dramatic conflict design, rhythm control and spatial narration. Although these forms are not recognized by the traditional view of theatre, they conform to the essence of dramatic performance behaviors and are a reasonable extension of theatrical forms empowered by technology.

2. Cross-Disciplinary Infiltration of Dramatic Elements: The Theory and Reality of Pan-Theatricalization

After theatre breaks through theatrical boundaries and expands its forms with the help of technology, its core elements — narrative structure, character shaping, spatial design, and interactive logic — have begun to infiltrate into multiple fields of social culture, forming a phenomenon of pan-theatricalization. This phenomenon is not accidental, but an inevitable ex-

tension of the essential attributes of theatre.

The script design of character conflicts and growth narratives in variety shows such as *Sisters Who Make Waves* is essentially the application of the dramatic theory of character arc; the stage narration of time-travel theme design in concerts such as Jay Chou's *The Invincible World Tour* reflects the shift of stage design from static scenery to dynamic narrative space. This design is no longer limited to setting off the singer's performance, but constructs a complete narrative logic through the linkage of lighting, images and mechanical structures, allowing the audience to obtain a dramatic emotional experience beyond auditory enjoyment. Immersive experience halls such as teamLab Borderless in Shanghai go a step further, combining the spatial concept of environmental theatre with digital technology, allowing the audience to explore independently in a space with no fixed routes, and obtain a participatory dramatic experience through the comprehensive stimulation of vision, hearing and touch. These practices all prove that the spatial design and narrative logic of theatre have become the core means for entertainment products to enhance their appeal.

In the field of social rituals and celebrations, pan-theatricalization is manifested in the strengthening and reconstruction of ritual sense by theatre. Victor Turner's social drama theory points out that the core of rituals is to realize the confirmation of social order and the cohesion of emotions through performance, and the conflict-resolution structure and symbolic expression of theatre (such as costumes, props and spatial layout) can precisely strengthen this function of rituals. With the rise of the metaverse concept, social behaviors in virtual space have gradually shown dramatic characteristics — the avatars created by users in the virtual world are essentially an extension of dramatic character shaping; the scene design of meeting rooms and exhibition halls in virtual social platforms such as Tencent's digital twin platform is the migration of stage design to virtual space. The worldview construction and task design of interactive games such as *Genshin Impact* and *World of Warcraft* fully follow the dramatic narrative logic — through the combination of main plot core conflicts and side quest character growth, players obtain an immersive dramatic experience in the game process.

3. Reconstructing the Cognitive Boundaries between Theatre and Stage Design

From the theoretical imprisonment of theatre-centrism, to the spatial breakthrough of environmental theatre, and then to the morphological generalization and cross-disciplinary infiltration empowered by technology, the evolutionary history of theatre and stage design is essentially a history of constant return to and expansion of the essence of theatre. [3] This return is not a simple retro, but a profound return to the essence of art after breaking the shackles of form.

In this paradigm shift, the rise of environmental theatre has first completed the deconstruction of theatre-centrism. The theoretical cry of "fighting for space" in the 20th century has now been transformed into immersive practices sweeping the country: in 2024, the *Dream of the Red Chamber* themed Theatre Fantasy City in Langfang, Hebei, reconstructed the audience-performer relationship with a labyrinth-like settlement space, where the audience is immersed among the actors and "in the thick of things". The rammed earth city walls and winding paths themselves constitute a part of the narration. The achievements of more than 10,000 performances and over one million tourists a year have confirmed the strong carrying capacity of boundless space for emotional resonance. *Only Henan Theatre Fantasy City* in Henan has pushed this concept to the extreme: 36 square spaces are arranged in a chessboard pattern, and the sunken structure of the pit courtyard and the natural landscape of the wheat field entrance break the cognition that "theatre = black box". Every turn of the audience is a narrative choice, and the architectural space has been upgraded from a "performance container" to a "plot generation mechanism", as the director Wang Chaoge said: "The moment the audience steps into the Fantasy City, the theatre has already begun."

Sleep No More at the McKittrick Hotel in Shanghai allows the audience to roam in a 7,000-square-meter multi-storey space, touching props and tracking actors to piece together the plot. The divination scene in the witch's room and the conflict scene in the bistro make the space a spiritual labyrinth bearing memory and desire, perfectly interpreting the contemporary extension of "scenery on the actor" — the space at this time no longer needs to replicate reality, but becomes a medium for the audience to participate in the narration. Practice has confirmed the first fundamental transformation of the role of stage design: it is no longer an ornament of theatrical narration, but a constructor of spatial meaning. Through the organization and reconstruction of physical space, it allows the audience to complete emotional experience through walking and choice.

3.1 Cross-Boundary Extension and Intelligent Innovation of Stage Design

After environmental theatre broke the physical boundaries, technology empowerment has further realized the generalization of theatrical forms and cross-disciplinary infiltration, and the meaning construction function of stage design has thus extended to virtual and cross-border fields. [4] The drama *A Journey of Taste*, premiered in Beijing in 2025, reconstructed stage expression with 90% AI-generated visual effects. The creative team trained a special model to materialize scenes such as Beijing hutongs and New Zealand maritime storms through text-to-video technology, and further analyzed the emotional

connotation of the play script through machine learning, making the digital images accurately synchronized with the actors' emotional interpretation of the "family affection beef noodles".

The technological transformation of traditional art forms further highlights this "formal innovation under the adherence to essence". The immersive Yue opera *Lin Daiyu Buries the Flowers* launched by the Shanghai Yue Opera House in 2024 constructed a digital twin of the "Grand View Garden" through MR technology. The audience can trigger the interweaving of virtual and real plot clues by wearing devices, and the movement track of the dan actor's water sleeves is converted into dynamic ink wash special effects through sensors, endowing the traditional stylized performance with perceptible aesthetic symbols. Hua Chenyu's Mars Concert in Changsha in 2025 took the "critical point of quantitative change" as the core concept, transforming the dark narration of *Madhouse* into an audio-visual experience of "the integration of human and scene" through AI-generated particle vortex and dynamic ink wash, combined with a multi-dimensional lifting platform and a tracking floor screen. The four-sided stage design and the chorus of ten thousand people eliminate the audience-performer gap, making the concert a theatre for collective emotional resonance. From the opera stage to virtual space, and then to the stadium field, the core of stage design remains unchanged: serving emotional transmission through spatial organization, only its carrier has expanded from physical scenery to digital images, interactive installations and even urban landscapes.

3.2 Contemporary Value and Future Trend of Theatrical Stage and Stage Design

The role transformation of stage design is more profound in cross-cultural communication and the inheritance of intangible cultural heritage. The popular environmental Yue opera *New Dragon Gate Inn* in 2023 transformed the theatre into an antique inn, where the audience sat around square tables, and the actors' sword fights unfolded close at hand. The spatial design of "private rooms" and "boxes" turned the audience into "inn guests", and impromptu interaction made the narration shift from definite to open. The stage design here did not replicate the martial arts scene, but built an emotional bridge between traditional Yue opera and contemporary audiences through symbolic elements such as square tables and bluestone slabs. The 80% young audience group proves that this spatial translation has turned "museum art" into a "living cultural IP". The nearly 98% attendance rate of *See Pingyao Again* in the summer of 2024 confirmed the symbiotic effect of regional culture and spatial design — the combination of the real space of the ancient city streets and the actors' processional performance allows the profoundness of Jin merchant culture to be transmitted through foot measurement, and stage design has become a translator of cultural memory at this time.

In the future, with the iteration of technologies such as AI-generated content and brain-computer interfaces, the forms of theatre and stage design will continue to evolve: there may be dynamic scenes that can respond to the audience's brain waves in real time, or virtual theatres in the metaverse that realize the synchronous participation of global audiences. But as long as human beings need to achieve communication and expression through performance, the core essence of theatre will not change.

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