

Museum soundscapes and embodied spatial reconstruction in the century artery exhibition

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Abstract. In the museum exhibition system where visual centrism has long dominated, viewing has become the primary means through which visitors acquire knowledge and understand exhibits, while bodily experience, auditory perception, and spatial participation have been neglected to some extent. With the development of experiential exhibition concepts, sound, as a medium characterized by spatial permeability, contextual generation, and the capacity to evoke bodily responses, is becoming an important pathway for the sensory transformation of museums. Based on embodied cognition theory, Maurice Merleau-Ponty's phenomenology of the body, and Marshall McLuhan's media theory, and incorporating R. Murray Schafer's soundscape theory, this paper explores how museum soundscapes can shift from traditional background elements to a mediating mechanism for sensory extension and spatial reconstruction. Taking the "Century Artery: The Ancient Tea Horse Road" exhibition at the Inner Mongolia Museum as a case study, the study employs audience behavioral observation and semi-structured interviews to analyze soundscape experiences from three dimensions: spatial behavior, bodily responses, and cultural cognition. The study finds that soundscapes break through the singular logic of visual display, transforming visitors from passive viewers into active perceivers. Directional sound fields, environmental sounds, and multisensory interaction design jointly construct an auditory space characterized by bodily participation. Sound not only enhances the immersive experience of historical contexts but also facilitates the transformation of museums from static exhibition spaces into dynamic experiential environments. On this basis, the paper further proposes a three-dimensional "sound-body-space" interaction model, arguing that museum soundscapes are not merely supplementary technologies in exhibitions but a form of media practice that reorganizes the relationship between people and cultural heritage. The study may provide a reference for future research on multisensory museum experiences, exhibition design, and spatial art.

Keywords: embodied cognition, museum soundscape, auditory space, sensory extension, spatial reconstruction

1. Introduction

1.1. From visual dominance to multisensory experience: the shift in museum exhibition paradigms

For a long time, modern museum exhibition and cognitive practices have primarily revolved around visual observation. Since the emergence of modern public museums, classification, display, and viewing have constituted important means of knowledge dissemination. Cultural artifacts are organized into an orderly visual system through display cases, lighting, and textual descriptions, while visitors, positioned as viewers, receive historical information through observation. Although this exhibition model has played an important role in promoting knowledge dissemination and cultural preservation, it has also established a viewing system centered on vision. In traditional exhibition spaces, visitors' bodies are often placed in controlled positions: display cases determine viewing distances; exhibition routes determine directions of movement; and textual descriptions determine modes of interpretation. Although visitors' bodies are physically situated within exhibition halls, their perceptual activities are primarily concentrated on visual and rational cognition, while auditory and tactile perception, as well as experiences of bodily movement, are compressed. French phenomenologist Maurice Merleau-Ponty points out that the body is not an objective entity existing outside consciousness, but rather the basis through which human beings establish relationships with the world. Human cognition does not depend entirely on abstract thought but is generated through interactions between the body and its environment [1]. This theory suggests that museum experiences should not focus solely on "what visitors see", but should also consider how visitors move, how they perceive space, and how they develop cultural understanding through their bodies. Therefore, the traditional visual-centered exhibition model needs to shift toward a multisensory and embodied approach.

1.2. The introduction of soundscapes into museums: from auxiliary elements to media mechanisms

With the continuous development of digital technologies and immersive exhibition techniques, sound has gradually moved beyond the functional role of simple background music and become an important medium for shaping museum spaces and constructing exhibition narratives. The most distinctive characteristic of sound in comparison with vision lies in its spatial nature. Vision generally requires the subject to face an object, whereas sound enters the subject in an enveloping manner. Within an auditory environment, people cannot maintain a completely objective distance from their surroundings; instead, they form spatial judgments and emotional responses as sound travels through the environment. Canadian sound researcher R. Murray Schafer proposed the concept of "soundscape", arguing that sound environments contain not only natural sounds but also social, cultural, and psychological meanings. Accordingly, soundscapes in museums do not simply reproduce historical sounds; rather, they reconstruct cultural spaces through sound symbols [2]. Recently, the research team took the "Century Artery: The Ancient Tea Horse Road" exhibition at the Inner Mongolia Museum as an example. The exhibition incorporates elements such as background sounds of the grassland environment, camel bells and sounds associated with transportation along the tea route, and environmental sounds from the old city of Suiyuan. These elements enable visitors to obtain a historical experience that goes beyond visual observation. Sound transforms abstract historical narratives into environmental experiences that can be perceived through the body.

1.3. Research questions and innovations

This paper addresses the following three questions: How can soundscapes break through traditional visual centrism and thereby expand the perceptual dimensions available to visitors? How can soundscapes alter the spatial structure of museums through bodily participation? How can multisensory soundscapes promote visitors' cultural identification and emotional experiences?

The innovations of this paper are mainly reflected in three aspects. At the theoretical level, it integrates McLuhan's media theory, Merleau-Ponty's phenomenology of the body, and Schafer's soundscape theory to construct an analytical framework of "media-body-space". At the methodological level, it combines behavioral observation with interviews, shifting soundscape research from design analysis toward the study of visitor experience. At the case-study level, it takes the "Century Artery: The Ancient Tea Horse Road" exhibition at the Inner Mongolia Museum as its research subject and explores how sound participates in the reproduction of historical and cultural spaces.

2. Theoretical framework: media extension, bodily perception, and soundscape space

2.1. McLuhan's media theory: sound as an extension of the senses

In *Understanding Media*, Marshall McLuhan proposed the idea that "the medium is the extension of man", pointing out that media constitute the extension of human bodily senses and cognitive capacities into the external world. Writing extends the capacity for visual reading, photography extends visual memory, and sound media extend human auditory perception and spatial experience [3]. In traditional museum exhibitions, textual descriptions and visual displays constitute the primary media system. This media structure reinforces the act of viewing, enabling visitors to obtain information about cultural artifacts through vision. However, sound media operate according to a different logic of communication. Sound does not require a fixed viewing position, nor does it require the subject to maintain a certain distance. It enters the body through spatial propagation, making the subject part of the sound environment. Therefore, once soundscapes enter museums, they are no longer merely supplements to information but become a transformation of the perceptual structure. They can encourage visitors to shift from viewing exhibits to immersing themselves in the environment.

2.2. Merleau-Ponty's phenomenology of the body: the body as the experiencing subject

Merleau-Ponty argues that the body is not a passive instrument for receiving external stimuli but the means through which human beings establish connections with the world [1]. This perspective is of great significance for understanding museum soundscapes. The following illustrates the different pathways between traditional exhibition practices and exhibitions informed by the concept of embodiment (Figure 1).

Therefore, when visitors hear camel bells, the sound of the wind, or sounds associated with transportation environments, these sounds do not directly provide complete historical knowledge. Instead, through a subtle and implicit influence, they activate visitors' own experiences, prompting them to form perceptions of temporal and spatial distance, spatial imagination, and artistic associations. In this way, soundscapes create a cognitive process involving bodily participation. Visitors do not simply hear history; rather, through bodily perception, they re-enter history and experience museum art.

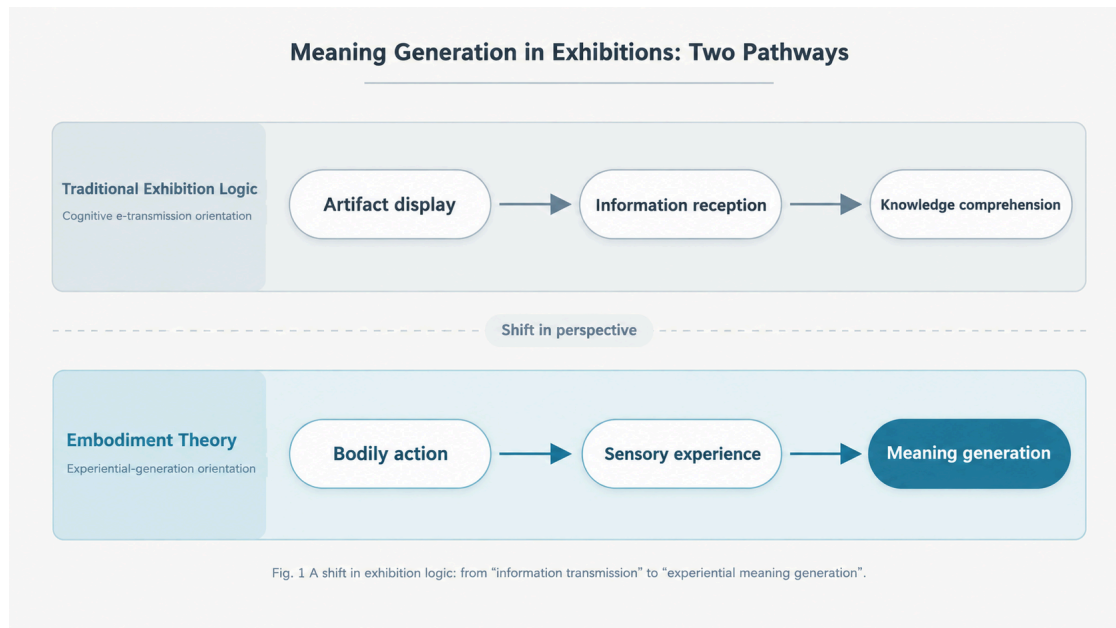


Figure 1. Comparison between embodied theory and traditional exhibition

2.3. Schafer's soundscape theory: sound environment and cultural memory

Schafer argues that a soundscape is a sound system jointly constituted by the natural environment, social activities, and cultural meanings. This theory challenges the traditional understanding of sound as merely a physical phenomenon. Within the museum environment, sound possesses physical attributes, including sound intensity, direction, and modes of spatial propagation; cultural attributes, including regional sounds, historical sounds, and sounds of social life; and psychological attributes, including memory activation, emotional experience, and cultural identification [4]. Therefore, museum soundscapes do not simply simulate the past but reactivate cultural memory within contemporary spaces.

3. Research design and methods

3.1. Research subjects and research setting

This study takes the recent special exhibition "Century Artery: The Ancient Tea Horse Road" at the Inner Mongolia Museum as its research subject. Focusing on the Ancient Tea Horse Road as a cross-regional route of cultural exchange, the exhibition constructs a comprehensive display space concerning northern trade and exchange, the dissemination of regional cultures, and changes in social life through the presentation of cultural artifacts, spatial scenography, digital media, and soundscape design. Compared with traditional historical exhibitions, this exhibition does not limit itself to presenting information about the cultural artifacts themselves. Instead, it attempts to establish connections between visitors and historical contexts through multisensory design. Among these elements, sound, as an important component of spatial narration, participates in the construction of exhibition meaning through environmental sounds, directional sound fields, and interactive sound installations. The exhibition is a special exhibition at the Inner Mongolia Museum. It is divided into four sections: "Origins of the Tea Road", "Connecting the North and South through the Tea Trade", "A Commercial Miracle", and "A Century of Cultural Continuity". It reconstructs the history of the Ancient Tea Horse Road as a commercial route and highlights Inner Mongolia's role along this Eurasian trade

route and channel of cultural exchange. The exhibition was displayed from July 3 to October 8, 2026, in the Digital Exhibition Hall on the second floor of the Inner Mongolia Museum.

This study focuses on the following three soundscape areas:

First, the environmental soundscape area.

This area primarily uses sounds from natural environments and historical contexts to create a regional atmosphere, enabling visitors to develop an overall perception of the social life associated with transportation routes and their historical backgrounds during the exhibition experience.

Second, the directional sound field area.

This area employs spatial sound technology to create localized auditory fields, making sound an important medium for guiding visitors' movements and encouraging active exploration.

Third, the multisensory interaction area.

This area combines visual imagery, spatial environments, and tactile interactive installations. Through the coordinated effects of multiple senses, it enhances visitors' immersive experiences.

3.2. Research methods

This study adopts a combination of qualitative research and quantitative observation methods, specifically including audience behavioral observation, semi-structured interviews, and semantic differential scale analysis. Through the mutual corroboration of multiple research methods, the study examines the effects of soundscapes on visitors' bodily behaviors and cultural experiences.

3.2.1. Audience behavioral observation

The study employs a non-participant observation method to record the behavior of visitors entering the exhibition hall under natural conditions. During the observation process, no active intervention was made in visitors' activities, in order to ensure, as far as possible, that the data obtained reflected their actual exhibition experiences. The primary observation indicators include the following:

3.2.1.1. Duration of stay

Duration of stay is a key indicator for assessing the attractiveness of soundscapes. It is calculated as follows:

Average duration of stay = Total duration of stay of all visitors in a given area ÷ Number of valid observations

By comparing differences in visitors' duration of stay between ordinary exhibition areas and soundscape areas, the study determines whether sound alters the degree of visitors' spatial participation.

3.2.1.2. Bodily response behaviors

Table 1. Audience bodily behavior coding framework

Code	Behavioral Manifestation	Theoretical Significance
B1	Ceasing movement	Auditory attention capture
B2	Searching for the sound source	Spatial exploration
B3	Body orientation	Auditory localization
B4	Approaching the sound source	Active participation
B5	Communicating with companions	Meaning sharing
B6	Repeated experience	Experiential reinforcement

To analyze the influence of sound on bodily behaviors, this study establishes a behavioral coding system and analyzes the relationship between sound stimuli and embodied responses by statistically examining the

frequency of behaviors occurring in different areas (see Table 1).

3.2.1.3. Spatial movement trajectories

In traditional exhibitions, visitors' movements generally follow a linear path, namely: entrance → display case → textual description → exit. Soundscape spaces, by contrast, are more likely to generate nonlinear movement trajectories that differ from traditional patterns of movement. Accordingly, the study focuses on observing whether visitors deviate from the established route, whether they create stopping points, and whether they engage in repeated experiences. These behaviors can reflect the role of soundscapes in reconstructing spatial structures.

3.3. In-depth interviews and semantic differential analysis

To further understand visitors' subjective experiences, this study employs semi-structured interviews. The interviewees include groups with different ages and visiting backgrounds, including local residents, visitors from other regions, and students participating in educational field-study programs.

The interview framework is summarized in the experience-evaluation dimensions (see Table 2).

Table 2. Dimensions of experience evaluation

Experiential Dimension	Evaluative Poles
Immersive experience	Mundane – Immersive
Spatial relation	Detached – Present
Behavioral state	Stillness – Participation
Affective experience	Indifference – Resonance
Historical perception	Abstract – Concrete

3.3.1. Design of the semantic differential scale

This study employs a seven-point semantic differential scale to measure and evaluate visitors' exhibition experiences (see Table 3).

Table 3. Experience evaluation dimensions

Experiential Dimension	Evaluative Poles
Immersive experience	Mundane – Immersive
Spatial relation	Detached – Present
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Historical perception	Abstract – Concrete

4. Case analysis: how soundscapes achieve sensory extension and spatial reconstruction

4.1. Analysis of audience behavioral observation results

To examine the influence of soundscapes on visitors' spatial behaviors, this study employed on-site non-participant observation to record visitor behaviors in the "Century Artery: The Ancient Tea Horse Road" exhibition hall at the Inner Mongolia Museum. The observation was conducted over five consecutive open

days, yielding 120 valid visitor observations in total, including 57 males, accounting for 47.5%, and 63 females, accounting for 52.5%.

The age structure is shown in Table 4.

Table 4. Age structure of observed visitors

Age Group	Number of Visitors	Proportion
18–30	42	35%
31–45	46	38.3%
46 and above	32	26.7%

Note: The observation focused on behavioral differences between ordinary exhibition areas and areas with soundscape intervention.

4.1.1. Analysis of duration of stay

The average duration of stay of visitors in the two areas is shown in Table 5.

Table 5. Comparison of visitors' duration of stay in different exhibition areas

Area	Average Duration of Stay (s)	Standard Deviation
Traditional Cultural Artifact Display Area	42.6	15.8
Soundscape Experience Area	86.4	27.3

The data show that the average duration of stay in the soundscape area was approximately twice that in the ordinary exhibition area. An independent-samples t-test was further conducted, and the results showed a significant difference in visitors' duration of stay between the two types of areas ($t = 9.37$, $p < 0.001$), indicating that the sound environment had a significant effect on extending visitors' spatial stay. This result further demonstrates that sound is not merely an auxiliary means of creating an atmosphere. Rather, it can influence visitors' perception of space and behavioral choices, gradually shifting their mode of visiting from "viewing and leaving" in traditional exhibitions toward "perceiving and exploring" in soundscape environments.

4.1.2. Analysis of bodily behavior coding

Based on the on-site observations, visitors' bodily behaviors were coded as shown in Table 6.

Table 6. Frequency of bodily behaviors in the soundscape area

Behavior Type	Number of Visitors	Proportion
Stopping to View	87	72.5%
Searching for the Sound Source	64	53.3%
Turning the Body toward the Sound Source	79	65.8%
Actively Approaching the Experience Area	58	48.3%
Discussing with Companions	71	59.2%
Repeated Experience	39	32.5%

Among these behaviors, "searching for the sound source" and "turning the body toward the sound source" occurred at relatively high frequencies, indicating that sound first acts upon visitors' bodily perception and spatial orientation. Visitors' decisions to stop were not entirely attributable to their understanding of the

informational content but were more often triggered by sound stimuli that prompted exploratory behaviors. This process reflects the characteristic of embodied cognition in which bodily perception and action precede explicit cognitive judgment. In other words: Sound stimulus → Bodily response → Spatial exploration → Meaning-making [5].

4.2. Spatial trajectory analysis: from linear viewing to spatial wandering

Observation revealed that visitors' movements in traditional exhibition areas primarily exhibited a typical linear pattern, approximately following the route: entrance → display case → information panel → next exhibition area. In soundscape areas, however, visitors demonstrated obvious non-linear movement, primarily manifested as: actively deviating from the originally planned route → searching for the sound source → returning for repeated experiences.

The study classified visitors' trajectories into three types (see Table 7).

Table 7. Patterns of visitors' spatial behaviors

Type	Characteristics	Proportion
Rapid Browsing	Moving along the designated route	28.3%
Exploratory Experience	Searching for the sound source and stopping	56.7%
Deep Participation	Repeatedly experiencing and communicating	15%

Among these, the exploratory experience type accounted for the highest proportion, indicating that soundscapes alter the spatial logic of "route control" in traditional exhibitions.

4.3. Analysis of in-depth interview results

This study selected 30 visitors for semi-structured interviews, including 14 males and 16 females, ranging in age from 18 to 60. The interview transcripts were processed through three stages: open coding, axial coding, and selective coding, resulting in three core categories:

Table 8. Interview theme codes and frequencies

First-order Code	Second-order Code	Frequency
Auditory attention	Sound enhances authenticity	24
Auditory attention	Sound facilitates spatial imagination	22
Bodily engagement	Sound transforms viewing practices	21
Bodily engagement	Sound promotes interaction	17
Affective arousal	Sound elicits emotional connections	19

4.3.1. Analysis of visitors' interview transcripts

4.3.1.1. Sound enhances the sense of historical authenticity

Respondent A:

"When I visited historical exhibitions like this in the past, I only looked at the text and pictures. I knew what had happened, but I didn't really feel it. After hearing the sounds of horse hooves, wind, and the trade route, it felt as if that environment suddenly appeared".

Coding: Sound → Environmental Imagination → Sense of Historical Authenticity

4.3.1.2. *Sound changes the way visitors view exhibitions*

Respondent B:

"I was originally going to walk straight past, but when I heard the sound, I immediately stopped to look around. That's when I realized there was also this area next to me".

Coding: Sound Stimulus → Bodily Stopping → Spatial Discovery

4.3.1.3. *Sound activates personal memories*

Respondent C:

"The sound of the wind reminded me of when I had been to the desert before. So I wasn't just looking at the cultural artifacts; I was also recalling my own experiences".

Coding: Sound Symbol → Personal Experience → Emotional Connection

4.4. Analysis of the semantic differential scale

The study employed a seven-point semantic differential scale to evaluate visitors' soundscape experiences.

The results are shown in Table 9.

Table 9. Statistics of visitors' experience evaluations

Evaluation Dimension	Mean	Standard Deviation
Plain – Immersive	6.12	0.84
Detached – Present	5.87	0.91
Static – Participatory	5.74	1.02
Abstract – Concrete	5.93	0.88
Indifferent – Resonant	6.05	0.79

The results show that visitors generally gave relatively high evaluations of the embodied soundscape experience. Among the evaluation dimensions, "Plain – Immersive" and "Indifferent – Resonant" received the highest scores, indicating that sound has a significant effect on emotional experience and cultural resonance.

4.5. Discussion of empirical findings: how sound completes spatial reconstruction

By integrating the results of behavioral observations and interviews, it can be found that the soundscape environment produces effects at three levels. First, at the perceptual level, sound expands the range of visitors' senses. Historical environments that cannot be presented through vision alone can become experientially accessible through sound. Second, at the behavioral level, sound changes patterns of bodily action, transforming visitors from passive movers into active explorers. Third, at the emotional level, sound connects personal experiences with cultural memories. History is no longer merely an object of knowledge but becomes a bodily experience. Consequently, a complete pathway is formed, from sound to perceptual activation, then to bodily action, spatial participation, and ultimately cultural identification.

5. Constructing the "sound–body–space" model

5.1. From sensory stimuli to spatial generation: the mechanism of soundscape effects

Through the theoretical analysis and empirical research presented above, it can be found that museum soundscapes are not a unidirectional form of information transmission, but rather a dynamic experiential process formed through the joint interaction of media, the body, and space. Traditional exhibition models place

greater emphasis on the effective transmission of information while relatively weakening visitors' bodily perception and spatial participation. The introduction of soundscapes, by contrast, enables visitors to participate in meaning-making through auditory perception, bodily action, and spatial exploration. This process (Figure 2) reflects a fundamental proposition of embodied theory: meaning is not entirely predetermined within the exhibits but is generated through continuous interaction between visitors' bodies and the exhibition environment. Therefore, museum soundscapes represent a transformation from exhibition media to experiential media, adding new dimensions to museum art.

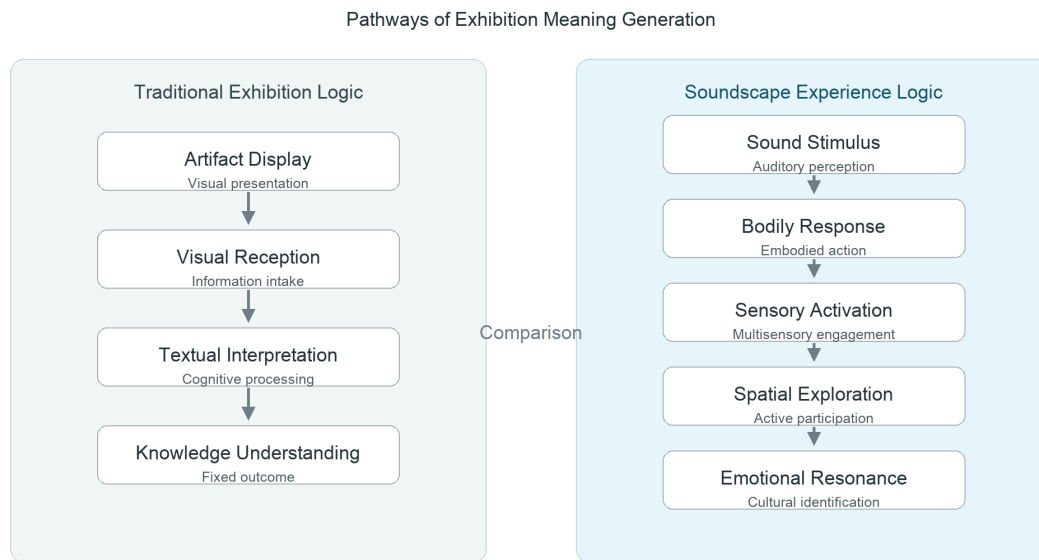


Figure 2. Pathways of exhibition meaning generation

5.2. The three-dimensional "sound–body–space" model

Based on the research findings, this paper proposes a three-dimensional model of embodied museum soundscape experience (see Figure 3).

The model consists of three core dimensions. The sound layer: sensory extension. Sound first functions as a medium that expands the boundaries of human perception. According to McLuhan's theory, media are not neutral tools but instead alter the structure of human perception [6]. In the museum environment, text extends visual understanding, images extend visual memory, and sound extends spatial experience. Sound can present invisible environments, intangible histories, and non-reproducible contexts. Therefore, soundscapes become an important entry point for experiencing history and culture. The body layer: embodied participation. Embodied cognition theory holds that the body is not an accessory outside the cognitive process but an important condition for the formation of cognition. Within a soundscape environment, visitors engage in behaviors such as stopping, turning, searching, moving, and communicating. These behaviors are not merely physiological responses but constitute part of the process of meaning-making. For example, when visitors search for the source of camel-bell sounds, they are, in effect, searching for the location of a historical space. Bodily movement thus becomes a means of understanding history. The spatial layer: cultural generation. Space is not a fixed container. Under the influence of soundscapes, the exhibition hall is transformed from a physical space into an experiential field. The field encompasses not only architecture and exhibits [7], but also sound, the

body, memory, and emotion. Through the reconstruction of sound, the "Century Artery: The Ancient Tea Horse Road" exhibition enables visitors to enter a cultural space characterized by a sense of temporality and regional identity.

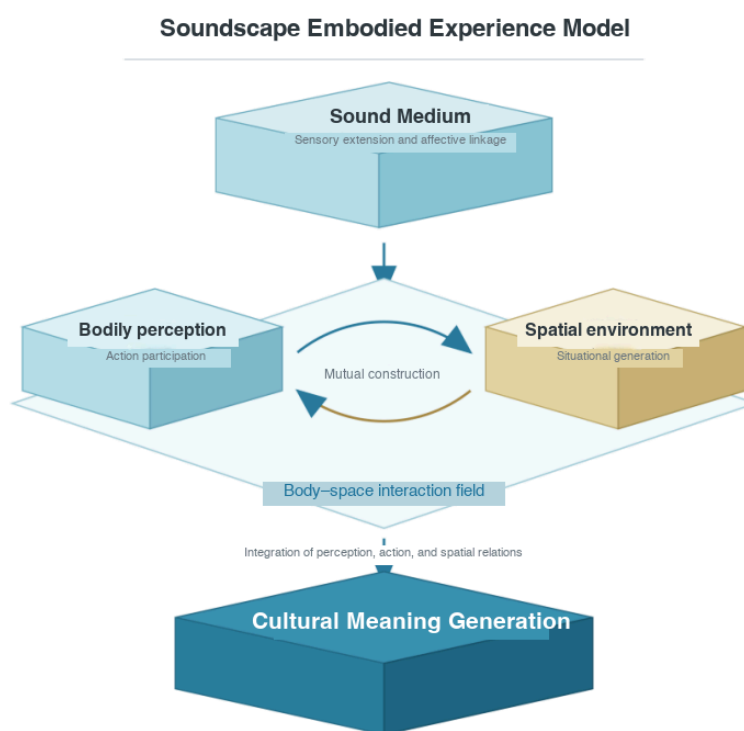


Figure 3. Embodied experience model of museum soundscapes

6. Research innovations and theoretical contributions

6.1. Theoretical innovation: introducing the dimension of sound into embodied museum research

At present, research on museum experiences mainly focuses on visual displays, digital imagery, spatial design, and interactive technologies. This paper takes sound as a core research variable and incorporates it into the theoretical framework of embodied cognition. It emphasizes that sound is not merely an auxiliary means of exhibition but an important medium involved in spatial construction and experience generation, thereby expanding the sensory dimension of museum exhibition research.

6.2. Methodological innovation: establishing a multimethod experience evaluation system

This paper combines three methods: behavioral observation, in-depth interviews, and semantic differential evaluation. Behavioral observation addresses the question, "What did visitors do?" Interviews address the question, "What did visitors experience?" The scale addresses the question, "To what extent was the experience achieved?" Together, these methods establish mutual corroboration between objective behaviors and subjective experiences.

7. Research limitation and future prospect

Although this paper attempts to establish a research framework for museum soundscapes, certain limitations remain. First, the scope of the case study is limited. This paper focuses solely on a single exhibition at the Inner Mongolia Museum. Future research could expand the sample and conduct comparative studies involving historical museums, museums of ethnic cultures, natural history museums, and digital museums. Second, the analysis of technical parameters is insufficient. This paper focuses primarily on visitors' experiences; future research could further incorporate technologies such as spatial acoustics analysis, sound spectrum analysis, and eye-tracking to establish a more precise evaluation system. Third, research on long-term effects is insufficient. The current study focuses mainly on immediate experiences. Future research could further investigate whether soundscapes influence cultural memory, enhance cultural identification, and promote the effectiveness of museum education.

8. Conclusion

In traditional museum exhibition systems, vision has long occupied a dominant position, limiting visitors' bodily experiences. Through an analysis based on embodied cognition and media theory, this paper finds that soundscapes can break through visual centrism and reorganize visitors' experiences through sound environments, spatial technologies, and cultural symbols. Taking the "Century Artery: The Ancient Tea Horse Road" exhibition at the Inner Mongolia Museum as an example, the study demonstrates that soundscapes expand the boundaries of visitors' perception, transforming historical and cultural content from visual information into bodily experience; soundscapes alter visitors' spatial behaviors, shifting viewing from passive reception toward active exploration; and soundscapes facilitate the generation of cultural emotions, transforming museum spaces into fields jointly shaped by the body, memory, and culture. Therefore, the future development of museums should not focus solely on increasing the number of technological devices but should instead emphasize the re-establishment of perceptual relationships between people and space. As a distinctive medium, sound will become an important means of connecting history, the body, and culture.

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Appendix

Appendix A. Sample audience behavioral observation record

Table A1. Sample audience behavioral observation record

No.	Age	Area	Duration of Stay	Search for Sound Source	Body Turning	Interaction
001	25	Soundscape Area	95 seconds	Yes	Yes	Yes
002	42	Ordinary Area	38 seconds	No	No	No
003	31	Soundscape Area	82 seconds	Yes	Yes	Yes

Appendix B. Interview guide

1. Did you notice the sounds during your visit?
2. Which sounds left the deepest impression on you?
3. Did the sounds change the way you viewed the exhibits?
4. When you heard these sounds, did they evoke associations with historical scenes?
5. If there were no sounds, do you think your experience would be different?

Appendix C. Sample NVivo coding system

First-Level Theme:

A. Sound Perception

Second-Level Codes:

A1 Environmental Authenticity

A2 Spatial Imagination

A3 Attention attraction

B. Bodily participation

Second-level codes:

B1 Stopping

B2 Exploration

B3 Interaction

C. Emotional Experience

Second-Level Codes:

C1 Historical Resonance

C2 Regional Identification

C3 Memory Activation