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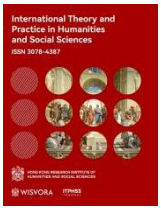

Exploring Interactive Museum Experiences Through Multisensory Perception

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Abstract

Nowadays, an increasing number of museums are focusing on multisensory experiences, incorporating non-visual senses (such as hearing, taste, touch, and smell) into the physical museum space. People engage with museums, receive information, and experience the world through their bodily senses. In this interactive experience, the visitor plays a crucial role, being both the subject of cognition and experience. What kind of museum experiences are generated within the bounds of the subject, and what kind of relationship is established with the museum as a result? This paper will discuss the unique experiences endowed to physical museums by multisensory perception, using specific cases as examples.

1. Introduction

During the Second Session of the Fourteenth National People's Congress, President Xi Jinping pointed out, "We must do well in the museum industry. Museum construction should be improved and systematized while enhancing the educational function of museums." Therefore, as a continuously evolving field, museums, which cover all aspects of natural and human culture, place utmost importance on their construction work. In recent years, besides continuing to strengthen the construction of local museums, China has gradually embarked on the path of diversified exhibition, entering another period of rapid development. Channels and methods for obtaining information from museums have become increasingly diverse, and the concept of "digital museums"[1] has emerged amid the museum construction boom. Despite the current challenges, such as the current situation of physical architectural museums still faces various

[1] "Digital museums" refer to museums built on top of digital space. Therefore, digital museums also have the collection, research, and educational functions of physical museums. However, digital museums collect digital collections, which are data information such as text, sound, and images stored in digital form.
Chen Gang. Analysis of the Concept, Characteristics, and Development Model of Digital Museums [J]. Chinese Museum,2007(03):88-93.

problems such as “a thousand museums all look like the same museum”, most “digital museums” are currently based on internet platforms, offering cloud exhibitions. Some public discourse, influenced by misleading information, might lead people to believe that with technological advancement, digital museums and online exhibitions will eventually replace physical museums. However, this is not the case. The unique experience provided by physical museums is irreplaceable.

From a methodological perspective, the rapid development of digital technology, artificial intelligence, and other scientific advancements varies in its impact on society and different industries. While some traditional industries may gradually be replaced or disappear, others will persist. As an example, over a hundred years ago, when photographic technology emerged, many predicted the demise of painting. However, over the course of this century-long development, painting not only evolved alongside photography but even utilized photography as a means to collect visual materials.

Today, digital cloud exhibition spaces and physical museum spaces coexist, representing two entirely different environments and modes of existence. Currently, the relationship between most “digital museums” or online exhibitions and physical museums still revolves around the high-definition display of museum collections or the simulation of museum exhibitions. Physical museum spaces, on the other hand, typically showcase tangible artifacts, providing specific information such as their era, materials, and craftsmanship. Particularly concerning historical artifacts, relying solely on images makes it difficult for people to access the complete historical and artistic information concealed behind the artifacts. From the perspective of exhibition space, although technology enables digital museums to recreate realistic scenes to some extent, their essence remains that of a simulated space. Visitors can only truly experience various aspects by physically immersing themselves in it. The physical museum space is not only three-dimensional but also includes various interactions and relationships among museum exhibits. Additionally, elements outside the physical museum space, such as natural light streaming in through windows, contribute to different relationships and presentations between the space and exhibits throughout the seasons and various times of the day. Undeniably, digital technology can assist in enhancing exhibitions, improving educational quality, and facilitating promotional activities within physical museum spaces. For example, online exhibitions allow people who cannot be physically present to view the exhibits remotely. However, this should not raise doubts about the necessity of visiting physical museums, as the capabilities and unique advantages possessed by physical museums remain irreplaceable. In conclusion, regardless of the presentation method, the new humanistic concept of “people-centered” consistently runs through museum studies. The focus of spatial presentation and care remains on “people”, with museum-related efforts centered around questions such as “what do visitors need” and “how can visitors maximally receive information”.

Currently, research on multisensory experiences in physical museums in China is still in the developmental stage, with most studies limited to case analyses. Existing research often overlooks an in-depth exploration of the effects of each sensory stimulus as well as the collection and analysis of relevant data (Jin Yan, 2024). In exploring multisensory experiences, physical museums in China mainly rely on traditional audiovisual methods, and the framework for evaluating multisensory experiences remains underdeveloped (Zhu Run, 2011). There is a lack of sufficient, audience-centered research focused on evaluating multisensory experiences in Chinese physical museums (Tang Xinxing, 2021). To effectively design multisensory experiences, it is crucial to ensure both the quality of the sensory experience and the accuracy of the cultural content, as well as to better understand visitors’ experiences and perceptions. This highlights the necessity of constructing a systematic and comprehensive evaluation framework for multisensory

experiences to guide the development of physical museums in China.

It is worth noting that most of the cases utilized in this research were obtained through field investigations conducted by the author. Additionally, through opportunities for online academic exchanges with American scholars, postgraduate studies, and experiences from traveling and exchanging ideas in Europe, Japan, and South Korea, I have collected a wealth of foreign cases and firsthand materials on sensory applications. Furthermore, through discussions with scholars from various countries, I have gained insights into many advanced practices and diverse perspectives from abroad.

2. Information Presentation of Museum Objects

A section dedicated to the significant literature resources, consulted or employed, that contributed to the study. The "objects" placed for exhibition in a museum are typically decontextualized, providing the museum with an opportunity to interpret these objects (Mao Ruohan, 2021). Effectively conveying the information behind these objects requires thoughtful exhibition planning. For instance, coordinating the placement and distance of exhibits in space, situating objects within specific historical contexts; utilizing interactive devices to create an immersive experience for visitors; and enhancing interpretation by incorporating more visual design beyond traditional labels. Through means such as images, videos, sound, and other techniques, a deeper understanding of the objects is provided, unearthing the stories hidden behind them. This allows visitors to establish connections between their interpretive actions and the items on display. These attributes are unique to the medium of museums. The information concealed behind objects mainly includes two aspects: first, the background of the object, encompassing the historical context and era in which the object was produced and used; second, the intrinsic content of the object, such as how it was manufactured and utilized, and the value it holds. In terms of presenting the background of objects, the key lies in the construction of "context" (Mao Ruohan, 2022). The interpretation of context visualizes the information and phenomena related to the object, restores the original appearance and condition of the object, and places it in its original environment. For example, the Osaka museum of Housing and living in Japan (Figure 1, 2) restores the original appearance of street scenes to reflect Osaka's modern commercial life. Simultaneously, by reenacting the situational context inside shops like general stores and clothing stores, visitors can quickly understand small objects from the modern era and the underlying commercial culture.

Figure 1.2 - Osaka museum of Housing and living in Japan

Source: *from the Internet*

Moreover, in addition to the contextualized presentation of museum exhibits, museums are gradually showcasing the ways people in history spoke, thought, their habits, and living conditions. This allows visitors to explore more deeply the reality of historical time and space, experiencing how people lived in the past. As former director of the Beamish Museum, Peter Louis, once remarked, "Besides collecting buildings, we also collect people's lives" (RENTZHOG S, 2007). Museums not only show exhibits to the visitor but also provide insight into how these museum exhibits were used in their respective eras. They carry cultural significance and emotional resonance, enabling visitors to recreate the lifestyle of that time and evoke a sense of connection. In terms of presenting the intrinsic content of objects, the most crucial aspect involves using a combinational approach to vividly and engagingly present the information behind the items and the related stories. For instance, in the Yokohama History Museum in Japan, the ceramic exhibits (Figure 3, 4) are accompanied by illustrations depicting the manufacturing process. The presence of clams being cooked in a ceramic pot indicates its function as a cooking utensil, revealing the functional and usage information of the item. The wood and pebble stove under the ceramic pot reflects the cooking methods of that time, providing insights into the related information about the exhibit and other remains at the archaeological site(Yan Jianqiang, 2020). In this combination, complex archaeological materials are transformed into a visualized relationship. With the assistance of textual information and other supplementary methods, visitors can gain a more intuitive understanding of the life of the Yokohama people during the Jomon period. This is one of the unique experiences offered by physical museums. Therefore, as objects inherently carry information, their implicit messages need to be effectively communicated by thoroughly understanding various techniques related to cognition and communication in the spatial environment. Utilizing multisensory assistance during the exhibition process is essential to enhance the expressive capability of these objects.

Figure 3,4 - the ceramic exhibits in the Yokohama History Museum in Japan
Source: *from the Internet*

3. Senses and Museum Communication

In a broad sense, anything that connects two things or transports something from one place to another can be referred to as a medium (Sherman W R&Craig A B, 2018). Unlike traditional media such as print that primarily rely on people's visual perception to convey information, physical museums utilize a multisensory interaction involving sight, hearing, touch, and more to communicate and experience information. As a medium, a physical museum is an extension of the human body.

The "information" and "phenomena" conveyed through physical museums and museum objects, while extending the human body, have altered people's modes of perception and interaction. So far, physical objects remain the primary medium for conveying information in

museum exhibitions. However, starting from the 1960s, museums began to change traditional exhibition methods, gradually moving away from the conventional display of actual artifacts. Through means such as simulated displays and virtual reality (Sun Jinlong, 2022), museums have, to some extent, expanded the scope of museum objects. This extension goes beyond the physical confines of the museum, encompassing everything in the real world, including sounds, smells, and more - all perceptible elements. This allows exhibits to impact the visitor psychologically and intellectually through their multisensory experiences. Multisensory experiences have surpassed the limitations of museums being confined to physical media in the past. This development is closely linked to advancements in media technology and evolving exhibition concepts. The more diverse utilization of the senses is not only an indicative phenomenon and outcome under the trend of the times but also a crucial factor driving innovation in museum exhibitions and creating a new trend in museum displays.

Research indicates that vision is one of the predominant ways people gather information from the external world, serving as the most direct means for individuals to perceive their surroundings, accounting for over 75% of sensory experiences (Yang Gongxia, 2022). In other words, when entering a particular environment, the first experience is typically visual, followed by other sensory experiences. However, other senses can support and complement visual function, and the combined stimulation of multiple senses often produces a more impactful effect than a single sensory experience. Multisensory experiences are also unique to physical museums compared to other media. Therefore, the classification of the senses in this paper is not meant to isolate each sense but rather to provide a clearer discussion of the senses primarily described.

3.1 Visual Elements and Their Application in Museums

Visual elements in museums often include the flat layout of “points, lines, and surfaces”, the vertical spatial layout, quantity, and color. In the “points, lines, and surfaces”, the “point” often provides a lively, dynamic, and prominent visual experience, while the “line” serves to guide direction and has a sense of continuity. The vertical spatial layout mainly refers to the placement height and hierarchical composition of exhibits, where the hierarchy needs to be analyzed based on the application of different exhibitions, and more layers do not necessarily equate to better outcomes. Quantity refers to the different numbers and densities of exhibits, which can result in variations in the spatial structure of the museum. For example, people are more likely to focus their visual attention on standalone display cases located at the center of the exhibition area, while a larger number of exhibits form clusters and blocks, creating relationships of theme and contrast. Color is the most sensitive aspect of visual experience (Lu Jianguo, 2016). Different colors evoke different psychological feelings in people. For example, red creates a sense of passion and exuberance, while black imparts a feeling of seriousness and stability. Additionally, individuals’ life experiences and educational backgrounds can influence their psychological perception of colors. For example, the Shaanxi History Museum uses different colors to delineate functional zones and highlight the characteristics of different eras. On the other hand, the China Umbrella Museum in Hangzhou uses dark-colored walls and floors in the entrance hall to accentuate the brightly colored red umbrellas suspended in the air, creating an atmosphere reminiscent of misty and rainy Southern China, leaving a lasting impression on visitors.

3.2 Auditory Elements and Their Application in Museums

Hearing is the second-largest sensory experience, accounting for approximately 10% (Ge Jian, 2004), and it plays a crucial role in museums. People have different memories associated with various sounds. And hearing these sounds again can evoke corresponding associations. In museums, sound serves various purposes, including enriching the content of exhibits, directing the audience’s attention, creating a specific spatial atmosphere, and influencing the emotions of

visitors (Tao Jie, 2022). For instance, at the Holocaust Tower in the Jewish Museum Berlin, the use of heavy closing doors and echoes in a confined, narrow space helps create an atmosphere where people feel engulfed by the sounds. Even though there are no exhibits in this space, it generates an extremely oppressive atmosphere for the visitors.

3.3 Haptic Elements and Their Application in Museums

Haptic elements in museums often include foot contact, hand contact, and body contact. When people enter a museum, the first tactile experience involves their feet, with the ground covering providing the most direct tactile sensation. Different floorings can evoke various psychological feelings. For instance, soft and comfortable carpets create a sense of vitality, comfort, and warmth, while granite or marble may give a perception of hardness, stability, and safety. Hand contact is a manifestation of people's curiosity and a direct way for them to touch touchable exhibits. The initial introduction of touch for hands in museums was to meet the needs of visually impaired individuals. However, more and more museums have discovered that touch can enhance the acquisition and acceptance of exhibit information, attract attention, and enrich people's memory points. Body contact, compared to foot and hand contact, involves a larger contact area. In museums, it is common to observe people leaning against relatively soft chairs to watch digital informational videos, while they typically avoid sitting on a large piece of hard ground.

3.4 Olfactory Elements and Their Application in Museums

Humans are highly sensitive to the perception of smells. Being in a comfortable fragrance can slow down blood circulation and relieve heart strain, enhancing olfactory sensitivity and the level of cognitive activity (Li Yukun, 2020). There are two main methods of utilizing olfaction in museums: one is using the exhibit's own scent, and the other is by releasing specific smells to enrich the presentation of exhibits, create a particular atmosphere, enhance the expressiveness of the exhibits, and deepen the visitor's understanding and perception. For example, in the Zhejiang Intangible Cultural Museum, visitors can pull open a traditional Chinese medicine cabinet to smell the scents of different medicinal herbs, thereby stimulating interest in traditional Chinese medicine and China's excellent traditional culture.

4. Multisensory Experiences in Museums

As mentioned above, physical museums are not only places that present objects to visitors but also spaces where visitors can experience, recognize, and understand through both "objects" and "phenomena".

4.1 Multisensory Experience of Objects

In museums, we often see signs that say "Please Do Not Touch", which have become a conventional norm. Traditionally, objects in museums tend to offer visual experiences to visitors. There are many reasons for this phenomenon, such as the potential risk of damage from non-professional touching to many valuable artifacts, which are considered too valuable. Candlin argues that the "no touching" rule in museums is not only about the practical consideration for the preservation of exhibits but also because true aesthetic appreciation is thought to transcend the tactile (CANDLIN F, 2004).

The predominance of visual information transmission can no longer satisfy people's diverse needs. The incorporation of auditory, gustatory, olfactory, and tactile sensory elements mobilizes human sensory functions, thereby conveying a diversity of information. The meaning of an object depends on a complex network of media, and sensory experiences can often convey attributes of museum objects, such as their texture or taste. At the same time, sensory experiences have a

personalized characteristic. Many studies have shown that multisensory museum experiences can significantly increase visitors' interest in learning. For instance, Brewsyer and others have found that curating for visitors with sensory impairments by increasing multisensory interactive experiences, especially touch, can enhance the learning pleasure of all visitors (BREWSYER S A, 2005). In terms of tactility, visitors can develop a significant interest through feeling the surface, texture, weight, and the unseen internal structure of an object, which in turn stimulates social interaction, discussion, and the creation of personal connections. The "reality" brought by multisensory experiences can strongly stimulate visitors (CIOLFI L&BANNON L, 2002).

From the above, it is clear that for exhibits containing historical information, multisensory interaction particularly focuses on the interactive experience in terms of appearance, material, and unique smells. For instance, the Multisensory Met project at the Metropolitan Museum of America emphasizes the multiple sensory experiences of exhibits. The "Power Figure" (Figure 5), a statue exhibited in the art museums of Africa, Oceania, and the Americas, is one such example. The curator created a replica of this artifact using mud, as it was used in Congolese rituals, paying special attention to its tactile and olfactory experiences. A layer of oil was applied to the replica's head to emit a unique scent. Additionally, a wire was installed inside the replica, which produces a buzzing sound when people touch the statue, offering an excellent mode of expression and interaction with visitors.

Figure 5 - statue "Power Figure"

Source: the official website of the Metropolitan Museum of Art

Compared to small artifacts, the sensory interaction effects of large artifacts can bring more astonishing experiences to people. For example, during the national tour of the "Compilation of Classics in the Flourishing Age—the Exhibition of Achievements in Compiling a Comprehensive Collection of Ancient Chinese Paintings", I encountered visitors who were amazed and moved by the detailed carvings and the emotional impact of the 3D-printed grotto temples they were viewing and touching, stating they had never imagined the grottoes could achieve such fine carving levels. The 3D-printed grotto temples allow people to see and even touch the grotto sculptures up close, which were previously inaccessible or only to be admired from a distance, narrowing the gap between visitors and the cultural relics. Similarly, in the Tokyo Fifth Lucky Dragon Museum (Figure 6), the exhibit shows a wooden fishing boat contaminated by radioactive smoke during the 1954 US nuclear tests on Bikini Island. Today, the boat has become a multisensory exhibition where visitors can walk around it, smell the scent of the sea, and feel its scale up close. After more than half a century, the wood of the boat still emits a strong smell of seawater. The museum also has some tactile ship models for visually impaired visitors to explore by touch. This process of visiting, wandering, and experiencing large artifacts thus becomes an active, situational, participatory "place-making" and learning method, allowing visitors and curators to construct the museum.

Figure 6 - Exhibition Hall in Tokyo Fifth Lucky Dragon Museum
Source: SANKEI DIGITAL

Besides historical artifacts, the encounter between visitors and any piece of art also signifies a "bodily" dialogue. Cézanne once said, "The landscape thinks itself in me, and I am its consciousness." When we appreciate a piece of art, we bring our own emotions into the artwork. It is often said by observers of Monet's paintings: It's as if one can breathe and be intoxicated by the fragrance, which is one reason Monet's paintings are often thought to be filled with scent. Undeniably, the reason Impressionist works seem to allow one to smell the fragrance is not only because the painting subjects often contain fragrant elements or themes but also due to their painting style, which emphasizes a fragrant, hazy atmosphere rather than a clear, strongly contrasted visual experience. In 2015, the Denver Art Museum's "In Bloom: Painting Flowers in the Age of Impressionism" exhibition created an olfactory experience based on the murals of Monet's Giverny garden. As visitors wandered through the exhibition, they were enveloped by the aroma of roses and violets. The museum also provided visitors with perfumes matching the exhibition's content, allowing visitors to feel the artist's perception of his colorful, fragrant garden as his masterpiece. Understanding the artist's sentiment viewing his colorful and fragrant garden as his greatest artwork (MURRAY E, 1994).

The application of scent in physical museums can enhance the visitor's experience of the exhibits in the form of an accompanying experience or even stand alone as exhibits themselves, which is something other mediums cannot achieve and can only be experienced in physical museums. For example, the Museum Tinguely in Basel hosted an exhibition on olfactory art. From the images on the museum's official website (Figure 7), aside from the white walls, there were no other visible exhibits. Visitors were seen closely and intently smelling the wall of a piece named "The Fear of Smell—The Smell of Fear". One visitor expressed: "The experience of seeing the exhibition hall empty but simultaneously smelling such a powerful scent is quite magical." (Wang Siyi,2019)

Figure 7 - Exhibition "Belle Halaine - The Scene of Art" press conference venue
Source: from the Internet

Besides olfactory experiences, taste and auditory experiences have also begun to appear in

exhibitions. In 2015, the "Tate Sensorium" exhibition allowed people to eat chocolate and listen to city noise while appreciating Bacon's paintings, hoping that besides visual experiences, visitors could appreciate the works better through taste and sound.

The novelty in the development trend of physical museums now lies not only in integrating visual with olfactory, auditory, and other sensory experiences but also in that non-visual experiences are being arranged on the ground, walls, or in the air within the visually dominated museums. While some might question the value of a piece of art or an exhibit, it is precisely the multisensory experience that slowly turns the museum into an experimental space where senses become channels for aesthetic communication.

Additionally, a new trend in multisensory museum experiences can be seen in an increasing number of museum merchandise related to museum exhibits (Weng Chunmeng, 2022). In fact, in museum shops, one can find a wide variety of manifestations of cultural relics and artworks, such as foods packaged with famous paintings, scaled-down replicas of cultural relics, and even makeup products shaped like the "Snow Scene of Forbidden City" from the Palace Museum. From a commercial development perspective, cultural relics are clearly not just for viewing. They can also be eaten, worn, and used. In fact, as early as the last century, Monet's works were made into a variety of perfumes and fragrance products by manufacturers. In the Denver Art Museum shop, one could purchase fragrant derivatives from Monet's Giverny garden, including room fragrances, essential oils and so on. These "museum commercial products" also side-note that physical museums serve not only the eyes but can offer more diverse sensory experiences.

4.2 Multisensory Experience of Phenomena

The "phenomena" contained within museum objects reflect the functions, uses, relationships, and contexts of cultural artifacts in certain times and spaces. Therefore, phenomena represent the rich contextual sensory experiences underlying the "decontextualized" museum objects. This also makes it possible for museum phenomena to enter people's lives. For example, visiting the production process of a high-tech factory is, to some extent, a museum phenomenon. From physical museums to daily life, the concept of phenomena, based on human senses, holds significant meaning and potential for expansion.

Built on the foundation of the 1910 East Kong Yick Building, the Wing Luke Asian Museum (Figure 8) in the United States has preserved its original architectural style while also displaying to visitors a century-old trading house. Although the trading house no longer serves its

original function, visitors can still choose from a selection of food imported from China on its shelves, carrying with it the nostalgia and memories of several generations. While restoring the sensory experience of historical phenomena, we can also "museumize" various phenomena from daily life. For instance, at the Frankfurt Stock Exchange, one of Europe's busiest stock exchanges, visitors can observe a day in the real stock exchange from the second floor. The exhibits are no longer objects in display cases but the busy staff working in the exchange, whose bustling activities are vividly presented to the visitors.

Figure 8 - Exhibition Hall in the Wing Luke Asian Museum
Source: the official website of the Wing Luke Asian Museum

As such, visitors' multisensory experiences are also a deconstruction of museum curation. Taking the Frankfurt Stock Exchange as an example, when people enter the exchange as tourists rather than a museum, visitors' multisensory and touring experiences merge. Visitors can freely choose which "exhibits" to see, listen to explanations, receive relevant information, and even touch or taste some of the exhibits. At this point, the museum becomes a leisure space, where visiting feels like touring and resting within the museum itself. It is evident that today's museum visitors are no longer merely spectators, and the objects in museums are not just simple exhibits. Museum objects can stimulate visitors' multisensory experiences and may also satisfy the spiritual needs of the audience, including museum phenomena, products, and people, i.e., "museum objects."

5. Audience Survey of Physical Museums

5.1 Background of the Survey

To support the above viewpoints, the author conducted a field investigation at the Zhejiang Intangible Cultural Museum. The Zhejiang Intangible Cultural Museum is the first large-scale regional comprehensive intangible cultural heritage museum in China. It serves five primary functions: the preservation and protection of intangible cultural heritage, inheritance and dissemination, exhibition and performance, education and research, as well as creative development. With a building area of 35,000m^2, the museum features a range of sections, including a permanent exhibition, dedicated halls for traditional crafts and traditional drama, a hall for traditional performing arts, a digital and documentary center for intangible cultural heritage, as well as spaces for intangible cultural heritage food experiences, inheritance activities, and temporary exhibitions. Additionally, areas such as intangible cultural heritage derivative products and extended classrooms are distributed across various floors. The museum officially opened to the public on August 29, 2023.

The Zhejiang Intangible Cultural Museum was chosen for this investigation for several reasons. The author has previously conducted field visits to the museum, which consists of six distinct functional zones. Its exhibition design follows an overarching approach of "one logical mainline, three cultural spaces, multiple interactive experiences." As a newly opened museum compared to others established years ago, its overall concept places greater emphasis on multisensory and interactive experiences for the audience.

5.2 Interview Survey on Visitors' Experiences

After visitors completed their tours, a random sampling method was employed to interview them about their subjective experiences. A total of 12 visitors were interviewed, with ages ranging from 6 to 65 years old. Among them, 7 were female (58.3%) and 5 were male (41.7%). The respondents came from diverse occupational backgrounds, including students, employees of internet companies, full-time mothers, and retired workers. Notably, 50% of the respondents were under 30 years old, half of whom were minors, indicating a high proportion of family visitors with children. Visitors provided valuable feedback and suggestions regarding the exhibitions. The key findings from the survey are as follows:

a. Most visitors perceive museums as educational institutions. Parents, in particular, expressed a primary interest in using exhibitions to learn about various aspects of intangible cultural heritage (ICH) while hoping their children could acquire new knowledge about ICH through play and interactive experiences. A notable 83.3% of visitors agreed that their museum

visits were purposeful and systematic, aimed at learning rather than simply wandering around, killing time, or taking photos for social media. This demonstrates strong goal-oriented behavior among the audience (Shi Jixiang, 2000). Many visitors' interest in museums stems from their academic studies or professional work. They are eager to enhance their cultural literacy by engaging with temporary exhibitions.

b. Visitors generally agreed that the Zhejiang Intangible Cultural Museum offers rich exhibition content, especially in the "From Mountains to the Sea" basic exhibition hall. The museum places a strong emphasis on multisensory experiences, actively engaging visitors and transforming the traditional "one-way" educational relationship into a "two-way" interactive experience. During the interviews, the author found that although visitors lacked a professional background and could not articulate terms like "multisensory experience," all 12 interviewees mentioned that beyond conventional static exhibits, multimedia interactions, and audio-visual presentations, the museum introduced live performances by cultural heritage practitioners. These included experiences like block printing and traditional opera performances, creating a dynamic, visually engaging, and interactive paradigm for showcasing ICH. A significant 66.7% of visitors felt that hands-on experiences, such as ICH craft-making and opera performances (i.e., multisensory experiences), were more captivating than ordinary text-and-image or static object displays. This was particularly true for younger audiences, who found interactive experiences a more appealing way to engage with the museum. Additionally, 58.3% of visitors highlighted the application of digital technology within the museum. For example, the use of advanced digital imaging allowed intangible skills to be presented tangibly. By clicking on "hand-shaped" icons on electronic screens, visitors could view detailed demonstrations of craft-making processes in real-time, deepening their understanding of ICH techniques through interaction. Furthermore, 33.3% of visitors noted that compared to other museums they had visited in Hangzhou, such as the Zhejiang Museum (Gushan Branch) and Hangzhou Museum, the Zhejiang Intangible Cultural Museum left a stronger impression due to its broader range of sensory interactions and multimedia technology. Most visitors rated their experience at the museum positively, expressed a willingness to recommend it to family and friends, and showed interest in revisiting, often with the intention of bringing others along.

c. Most visitors stated that prior to visiting the Zhejiang Intangible Cultural Museum, they had already learned about some of its exhibitions through online platforms such as WeChat public accounts and Xiaohongshu. However, the information available online was limited to basic exhibition details and images of some exhibits. In contrast, visiting the physical museum allowed them to experience much more, such as hands-on activities like block printing and lacquer fan making. Compared to browsing online, the offline museum experience was richer and left a deeper impression.

Through this field investigation and interviews, it can be concluded that the Zhejiang Intangible Cultural Museum excels in providing multi-sensory experiences, enhancing visitor participation, and integrating traditional and modern elements. These efforts have successfully attracted audiences of different age groups, especially younger visitors, thereby effectively promoting and preserving intangible cultural heritage. Currently, exhibition design in physical museums increasingly emphasizes interactive experiences. By incorporating games, hands-on activities, and other multisensory interactive elements, museums can attract more visitors, enhancing their sense of engagement and overall experience.

6. Conclusion

The authenticity of the physical museum experience stems from our understanding and interpretation of museums through a multisensory experience. Indeed, we use our bodies and senses to see, touch, listen, smell, and feel the world. We are constantly in dialogue with the museum, influencing each other to the point that we cannot separate ourselves from the museum space. In the sensory experience of physical museums, a unique exchange occurs between the visitor and the museum, where the sensory atmosphere provided by the museum space stimulates and enlivens the visitor's cognition and thinking, and in turn, the audience imbues the space with emotion and association. Museums are not experienced as a series of isolated visual images but are experienced in their material, concrete, and spiritual, emotional essence. Physical museums provide a delightful form for our vision and other senses, incorporating many material and spiritual structures, giving our experience a stronger and richer cohesion and meaning.

The practicality of multisensory experience in museum objects, phenomena, exhibition structures, and spaces can be summarized as starting from meaningful themes, using specific sensory "props" to create spaces full of situational awareness, and creating personalized structural sequences related to the senses, thereby creating vivid and effective bodily and sensory experiences. Multisensory experiences also give physical museums a special experience not possessed by other media, which is one of the important reasons why people, despite having many channels and methods for obtaining information and experiences today, still visit museums to see exhibitions.

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