

Study on Participatory Design of Community Museums under the Perspective of Spatial Narrative

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Abstract: This study explores the methods and strategies of participatory design in museums from the perspective of spatial narrative. By analyzing the theory of spatial narrative and combining the characteristics of museums and the needs of the audience, it puts forward the construction process of participatory design intervening in the spatial narrative of community museums. The application effect of participatory design in museums is analyzed with actual cases, and the future development trend of participatory design in museums is also prospected.

Keywords: Spatial Narratives; Community Museums; Participatory Design.

1. Introduction

As an important place for cultural inheritance and knowledge dissemination, the design of museums has a crucial impact on the audience's visiting experience and educational effect. With the development of society and the changing needs of the audience, the traditional museum design mode has been difficult to meet the expectations of modern audiences. Participatory design, as an emerging design concept, emphasizes audience participation and interaction, bringing new ideas and methods to museum design. Spatial narrative provides the theoretical basis and methodological guidance for participatory design, and through the construction of storytelling and infectious space, it guides the audience to participate in it and create a unique visiting experience together.

2. Theoretical Foundations of Museum Spatial Narrative and Participatory Design

2.1. Narrative Analysis of Museum Space

2.1.1. Spatial Narratives of Museums

The spatial narrative of museums is a way to construct narrative experience through display design, spatial layout and object display, the core of which is to convey specific information and emotional experience through the interaction of space and material culture. The key to spatial narrative is to clarify the structure and content of the narrative. Annette L. Wieviorka suggests that narrative elements include the timeline, spatial structure and symbolic meaning carried by objects. Through the interlocking arrangement of time and space, museums can present a linear or non-linear narrative logic, thus guiding the audience to understand historical events, cultural practices and so on. [1]At the same time, exhibits and audiences are also important elements in the spatial narrative of museums, exhibits do not exist in isolation, but constitute an overall narrative network through the association of layout and theme. The behavior and interaction of the audience in the museum also constitute an important part of the spatial narrative.

The audience is not only a receiver of information, but also a participant in the construction of meaning in museum narratives. John Falk and Lynn Dierking's "Interactive

Experience Model" emphasizes that the audience's social background, cultural knowledge and emotional investment determine the final interpretation of the narrative. [2]The success of spatial narratives lies in how they are designed to engage the audience in active exploration, allowing them to enter the narrative scene at their own pace through interactive exhibits, segmented narratives, and other forms. In addition, researchers such as Nicholas Sammons have explored the role of narrative space in enhancing the educational function of museums, pointing out that spatial narrative not only conveys knowledge, but also stimulates active participation and critical thinking of the audience.

2.1.2. Elements of Spatial Narrative in Museums

The core of spatial narrative in museums lies in the use of space, exhibits and technological means to construct a multi-dimensional narrative experience. The study of narrative elements focuses on how to transform history, culture and meaning into attractive narrative forms through design elements. Meanwhile, museum spatial narrative, as an interdisciplinary form of expression, contains multi-dimensional narrative elements. In the article "Research on Narrative Design of Museum Space", Wan Yiyi (2014) divides the intrinsic elements of narrative of museum space design into narrative three elements, narrative theme, and narrative content. Its narrative three elements are further subdivided into three elements: designer, space, and user. [3]In addition, Hu Linxiu (2022) mentioned in the article "The Basic Elements of Narrative Design of Museum Space" that the four elements of narrative of museum space include exhibits, designers, space and viewers. These four together determine the overall direction of the narrative design of museum space.[4]The exhibits are the core objects of the narrative, the designer tells the story behind the exhibits through spatial layout and display methods, and the viewer is the receiver and participant of the narrative.

According to the discussion of the above scholars on the narrative elements of the museum space, the author believes that the designer of the museum space design is the narrator of the space, which plays the role of conveying information in the space design; the experiencer of the space is the viewer who visits the space; therefore, the narrative elements constituting the design of the museum space are the narrator, the exhibit, the space, and the viewer.

1) Narrator

The concept of narrator originates from literary theory, but has been newly applied in museum narrative design. Narrators are not only storytellers, but also exhibition builders, who place exhibits in a new narrative framework by recontextualizing them in order to achieve a true narration of history. This type of narrative emphasizes the interaction between the narrator and the narrated, i.e., the viewer establishes a connection with the narrator and identifies with the content of the exhibition in the process of receiving information.

The narrator is not only a transmitter of information, but also assumes the functions of emotional connection and knowledge construction, shaping the audience's understanding and feelings, while the concept of narrator also covers multiple subjects. Scholar Simon Knell believes that the significance of museum narratives lies in the "telling" of exhibits into stories that resonate with the audience. The choice of narrator directly affects the credibility and appeal of the story.[5] For example, an archaeologist as a narrator can enhance the academic authority of historical artifacts, while an ordinary person's narration may make the exhibition more relatable. This shows the importance of the plurality of narrative subjects. Zhang Shumiao (2019) et al. also pointed out in the article "Research on Museum Narrative Structure and Experience Design" that if the cognition of the narrator does not match with the narrator's internal concept, the narrator may not have a sense of trust and identification with such a narrative environment. [6] Therefore, the narrator not only needs foreign scholars and experts, but also needs the participation of local community residents, so that the narrative of the museum has more affinity and sense of identity. Therefore, the diversity of narrators is also important, which can reflect the multicultural perspective and avoid the limitation of a single narrative.

2) Displayed item

The sources of exhibits mainly include folk and official channels, and the sources of exhibits can be categorized into various ways, including collection, purchase, acceptance of donations, and archaeological excavation. The sources of museum exhibits, the participation of community residents and the participation of the audience are important factors in constructing the diversified narratives and social functions of modern museums.

Museums are not only preservers of cultural heritage but also reproducers of cultural memory. By donating or providing objects related to their lives, community residents can infuse museum exhibits with vivid social meaning. For example, folklore museums often build local cultural narratives based on objects and oral histories provided by the community. Scholar Ilene Holowitz points out that the participation of community residents can strengthen the museum's function as a "place of local memory" and bring the exhibits closer to the community's culture by digging up local history and displaying cultural diversity. The contribution and participation of community residents in the exhibits can make the museum's narrative construction more identifiable.

As cultural institutions, museums are not only purveyors of knowledge, but also interactive platforms for community culture. Claire Bishop emphasizes that "Participatory Aesthetics" is an important trend in modern museums. By encouraging community residents and visitors to take the initiative to participate in the creation of exhibits, thematic planning and exhibition design, museums can realize the two-way interaction between society and culture, and further

enhance their public nature and social value.[7] Meanwhile, audience participation is an important means to enhance the educational value and public recognition of museums. The interactive design of exhibits as well as audience feedback and suggestions on exhibitions can transform museums from traditional knowledge output to a two-way communication platform. John F. David (John Falk) suggested that audience participation can enhance learning through interaction with exhibits and form deep memories after the visit. He pointed out that interactive design and participatory activities can increase the audience's interest and emotional commitment to the exhibition theme.[8]

Exhibits are the key carriers of narratives, carrying the historical memory and cultural connotations of a particular period and region, and telling the audience the story of the past in the form of intuitive objects. Through collaboration between the source of the exhibits and the participation of the community and the audience, the museum is able to realize the transformation of its function from "display" to "dialogue".

3) Spatial

The space of a museum is not only a physical place where exhibits are displayed and narratives unfold, but can also be seen as a platform for audience interaction and socialization. In contemporary museology, spatial design is recognized as an important factor in enhancing the visitor experience and promoting social connections. Through careful design, museum spaces can go beyond mere display functions and become social places for audiences to share knowledge, exchange ideas and participate in cultural activities.

In her book *The Participatory Museum*, scholar Nina Simon argues that museum spaces should be viewed as part of the public sphere, providing open, inclusive places for visitors to interact. She argues that by adding interactive areas, opening up spaces for discussion and designing dynamic activities, museums can encourage social interaction between visitors. [9] For example, setting up flexible seating arrangements, interactive booths, or experiential installations with multiple participants can create a more natural environment for communication and make the museum a dual platform for culture and socialization. In addition, Henry Jenkins emphasizes that the social function of museum space is even more important in the digital era. He pointed out that modern audiences not only want to receive information one-way, but also want to discuss, share and co-create in the space.[10] Through the combination of multimedia technology, social networks and public events, museum space has become an important platform for audiences to make connections and exchange ideas.

The design of museum spaces as social platforms also needs to take into account the needs of different groups and create a social environment of equality and diversity. As Caroline Heinrich points out, the design of space for social functions not only enhances the audience experience, but also strengthens the community attributes of museums and brings cultural institutions closer to the public. Therefore, it makes sense to create a diverse museum space to meet the needs of different groups.

4) Visitors

In the museum narrative design, the audience is one of the core elements, and the construction of the narrative must be audience-centered, with the goal of enhancing its sense of participation, experience and learning effect. The audience is not only a passive receiver, but also a co-creator of the narrative, whose background, interest and needs determine

the form and content of the narrative design.

Modern museums are increasingly concerned with active audience participation, transforming audiences from passive viewers to active co-creators of narratives through interactive exhibitions, digital technologies, and social activation methods. In her book *The Participatory Museum*, Nina Simon argues that viewers should be seen as active participants rather than mere spectators. She argues for the enhancement of narratives through interactive design and open-ended display formats that allow the viewer to make a personalized connection with the content of the exhibition. Such participation not only enhances the sense of immersion etc. for the audience, but also enriches the level and breadth of the museum's narrative, making it more relevant to the needs of a diverse socialization. John Falk puts forward the concept of "Identity-related Experience", arguing that museum narrative design should focus on the identity of the audience. He pointed out that the audience's visiting behavior is often based on specific identity needs, and the museum narrative should adjust its design according to these needs. Museums that better serve the needs of the audience will allow the narrative to form a two-way, multi-directional information transfer, forming a dynamic dialog with the audience and triggering their individual thinking and collective discussion. Thus, the audience is not only the beneficiary of the museum narrative, the builder of giants, but their participation gives vibrant life to the museum.

2.1.3. The Concept of Community Museums

The concept of Community Museum originated in the 1960s, and along with the rise of new museology, it has gradually become an important branch of museology. Unlike traditional museums, community museums are community-centered, emphasizing locality, participation and sharing, focusing on protecting and displaying the cultural and natural heritage of the community, and reflecting the common memory and identity of community members.

Scholars have also expressed different opinions on the discussion of community museums. Regarding how community museums are defined, Prof. Han Baode, a Taiwanese museologist in China, believes that "it is a kind of mini-type local history museum, as if it were a local history, vividly and seriously expressing the development process of the region, the people and objects that influenced the development of the region." In this regard, Hugo Davalan of France suggests that "the community museum arises from the bottom and is not imposed from above.[11]At the same time, French scholar Hugues de Varine proposed that community museums should be a tool for community development, emphasizing the leading role of residents in the creation and management of museums, and that this "bottom-up" approach makes it a key path for community cultural revitalization.

Regarding the relationship between community museums and their communities and audiences, British scholar Peter Davis points out in his book *Ecomuseums and Community Museums* that the core of community museums lies in the active participation of the community, and that they are not only a place for the display of culture, but also a driving force for social change. It is not only a place for cultural display, but also a force for social change. Shan Jixiang, once president of the Palace Museum, believes that a community museum refers to a specific cultural community and is a museum without walls. [12]Therefore, we can understand that there is a collaborative, shared and symbiotic relationship between community museums and their communities and

audiences.

Overall, the concept of community museums has evolved from mere cultural preservation to a mode of cultural practice that focuses on community well-being and promotes social participation. Whether from the perspective of cultural heritage, social cohesion or local economic revitalization, community museums play a role that cannot be ignored.

2.2. Participatory Design Analysis

2.2.1. Participatory Design Concept

Participatory Design is a user- or stakeholder-centered design methodology that aims to democratize the design process and optimize outcomes through direct user participation. It originally originated in Northern Europe in the 1960s and emerged in the context of the trade union movement and workplace research, emphasizing that design is not only a technical act of experts, but also a process of social interaction.

The core point of participatory design is to break the unilateral dominance of designers in the traditional design model, and fully respect and incorporate the opinions, needs, experiences and creativity of all parties. Scholar Andrew Clement (1994) points out that participatory design is a democratization practice that aims to give users more say in the design process, thus promoting fair and transparent social relations.[13] American scholar Elizabeth B. Sanders suggests that participatory design is a collaborative process involving a wide range of people including designers, users, and stakeholders. It encourages all parties to fully communicate at all stages of design, jointly explore potential needs, and explore innovative solutions together.[14]Overall, participatory design is a human-centered design approach that expands design from a closed expert field to an open collaborative platform, which not only promotes the progress of the design field, but also provides an important path to build a more inclusive and sustainable society.

2.2.2. Participatory Design and Museums

Participatory design, which has received increasing attention in the museum field, realizes the transformation of museums from one-way narratives to multiple interactions by encouraging the participation of communities, audiences and multiple stakeholders in the design of museum exhibitions, events and spaces. The approach fits with the core concept of the New Museology, which emphasizes that museums, as instruments of social change, should become platforms for public collaboration rather than mere authorities on knowledge.

In her book *The Participatory Museum* (2010), scholar Nina Simon argues that museums should transform their audiences from "consumers" to "collaborators" through participatory design. "This approach not only strengthens visitors' engagement with the museum, but also their understanding of the museum. This approach not only enhances the audience's identification with the museum's content, but also enables the museum to better reflect the diversity and cultural needs of the community. Simon particularly emphasizes the role of participatory design in exhibitions, for example by inviting visitors to submit stories, opinions, or artwork to co-shape the content. In addition, Peter Davis argues that the use of participatory design is especially critical in community museums. These museums are often community-centered, and participatory design helps residents to be directly involved in the decision-making process, ensuring that the content of the exhibitions truly

reflects the memories and values of the community. Through participation in curation, activity planning, and even spatial layout design, community members not only become the tellers of culture, but also the creators of culture. Overall, participatory design enhances the social inclusiveness and public participation of museums by giving audiences and community members more voice, providing an innovative path for the sustainable development of museums, while also facing certain challenges.

3. Analysis of the Current Situation of the Use of Participatory Design in Community Museums

The use of participatory design in community museums aims to facilitate the construction and operation of museums through extensive public participation and collaboration, bringing them closer to the actual needs and cultural characteristics of the community. This design approach emphasizes the active participation of community members in curation and activity planning, not only allowing them to become contributors to the content of the exhibitions, but also allowing them to experience the museum as a platform for their own cultural expression and exchange. The use of participatory design in community museums at home and abroad is gradually gaining attention and showing different development trends.

In foreign countries, many community museums have long been actively practicing the concept of participatory design. For example, in some European countries, community residents are deeply involved in the selection of museum exhibits and the determination of exhibition themes. Residents will contribute their own old objects, and at the same time participate in the discussion of how to use these exhibits to tell the community story, so that the content of the exhibition is more in line with the actual community. In terms of spatial layout, resident representatives and professional designers are invited to plan together to ensure that the museum's spatial setup meets the needs of the community for visits and interaction. For example, the Arbejdermuseet in Denmark invites local residents to participate in all aspects of the exhibition renewal project, from the conceptualization of the exhibition theme, the selection of exhibits to the display layout. Residents contributed old objects from their homes related to the history of the working class and shared their family stories. In terms of layout design, they discussed how to more vividly display the historical changes of the community. Through this participatory design, the exhibition is more relevant to the community and the residents have a stronger sense of belonging to the museum.

Domestically, the use of participatory design in community museums has also begun to show results in recent years. In the case of the Hongqiao Airport New Village Community Participatory Museum in Shanghai, for example, the museum has succeeded in integrating community culture into its exhibitions by digging up the history and stories of the civil aviation family area, and has become an important platform for residents to participate in community governance. The Hongqiao Airport Xincun Community Participatory Museum also organizes various activities, such as "Little Designer" and "Stories for Cold Drinks", to guide the residents to participate in community planning, forming a community of community life with shared governance and sharing.[15]In addition, there are also communities where residents are actively involved in

the overall construction process of community museums. The Beitou Hot Spring Museum in Taiwan Province of China is exemplary (Figure 1). Its predecessor was a deserted public bathhouse, and after teachers and students appealed for its preservation, community residents played a huge role. Local residents not only provided historical information and suggestions, but also participated in the restoration work and collected and preserved artifacts of the hot spring system. Residents are equally important in the day-to-day operation, with senior volunteers in charge of interpretation. The community is also involved in the exhibition, with interviews with various people explaining the history of the establishment. It is the active participation of the residents that has enabled the preservation and revitalization of this historically important building, and has contributed to the cultural rejuvenation and sustainable development of the community.

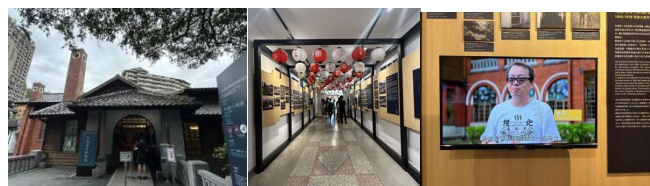


Figure 1. Beitou Hot Spring Museum
(Source of figure 1: author's own photograph)

Overall, the use of participatory design in community museums is gradually deepening, which not only promotes the inheritance and innovation of community culture, but also enhances the residents' sense of participation and belonging. Compared with foreign countries, the overall degree of application of participatory design in China is still to be further improved, and the depth and breadth of residents' participation is still insufficient due to factors such as concepts and resources. In the future, with the application of technology and the further deepening of community participation, participatory design is expected to play a greater role globally, promoting museums to become more inclusive and democratic cultural spaces.

4. Participatory Design Intervention in the Construction of Narrative Space for Community Museums

4.1. Theme Establishment

The establishment of a theme for a community museum is the foundation of the entire curatorial process, which aims to ensure that the displays are closely linked to the history, culture and identity of the community's residents. When establishing a theme, the first step is to conduct in-depth community research, through interviews, questionnaires and focus groups, to understand the issues and stories that residents care about. Next, the curatorial team analyzes the cultural background and historical development of the community, identifying representative elements to ensure that the narrative theme resonates emotionally and has educational and inspirational value.

Collaboration with community members is particularly important in this process, and their involvement helps to select a theme that reflects the identity and values of the community. In actual museum examples, many exhibition themes solicit suggestions from community members, such as the Minnesota 150 exhibition, which seeks to honor and

showcase 150 people, events, and phenomena that have had a significant impact on Minnesota's history. The exhibition was designed and curated through topic crowdsourcing. The organizers invited the public to participate in the nomination and discussion of topics, and used crowdsourcing to gather ideas and suggestions from community members.

Through the active participation of residents in the establishment of the themes of community museums, the museums are able to truly reflect the history, memory and collective identity of the community, making the spatial narrative of the museums vibrant and humane. Community residents also provide a wealth of inspiration and resources for the museum, ensuring that the narrative theme is relevant to local cultural characteristics and reflects collective memory.

4.2. Call for Exhibits and Selection

The selection of exhibits for community museums is also a very important process, and the sources of exhibits for community museums are also divided into different ways, many of which come from community residents, community organizations, government departments or donations, etc., while Shen Yingxue (2023), in the "Application and Exploration of the "Community Participatory Museum" Model --In "Application and Exploration of the "Community Participatory Museum" Model", Yingxue Shen (2023) categorized the exhibits of the community participatory museum in Hongqiao Airport Xincun Community as three types, which are the collection of community environmental specimens, the collection of community residents' belongings, and the creation of works by the audience or the community people. It provides a more comprehensive overview of the ways in which the exhibits of community museums come from.

Community museums will explain to residents that they are collecting items and stories for their exhibits in a variety of ways, such as posting a call for entries and publicizing them when they hold community events. For example, the Denver Community Museum's Drift Bottle exhibit is unique. Visitors were invited to fill bottles with memories of someone, somewhere, with any material. Visitors participated by contributing a variety of bottles and filling them with reminiscent objects and images, and many made their bottles available for others to share. Through this call for exhibits, community residents and their exhibits better constructed the museum's spatial narrative, making the narrative construction more culturally identifiable and a sense of belonging, allowing the community museum to connect more closely with the residents, and making the exhibition more distinctive and vibrant.

In addition to exhibits donated by community residents, residents and visitors can also work together to create exhibits and build the narrative of the community museum. For example, in the Peace and Women's Human Rights Museum at the Taiwan Grandma's Home, there are many works created by the grandmothers themselves. In the "Resilience in the Face of Discrimination" section of the glass wall paintings (Figure 2), the staff said, "The staff depicted grandmothers' figures in larger letters and then asked them to paint different colors on the uncomfortable parts of their grandmothers. Then they asked the grandmothers to paint different colors on the uncomfortable parts of their grandmothers. So you can see from the areas that were especially blacked out or painted with different colors that they were feeling particularly uncomfortable there." By inviting the grandmothers to create

something together, the spatial narrative of the museum is constructed together.



Figure 2. Grandma from the Human Rights Museum creates works

(Source of figure 2: author's own photograph)

In addition to physical exhibits made by residents together, community residents can also share their own stories as museum exhibits, building spatial narratives through oral story sharing. For example, in the exhibition "If Tired Hands Could Talk" at the R.C. Lu Asian Museum, the curator invited 15 women workers from the past and their children to co-curate the exhibition "If Tired Hands Could Talk: Stories of Asian Pacific American Garment Workers". Their personal experiences and oral stories served as the "exhibit" for the entirety of the exhibit. Through the co-creation of community members, people living in the community became more aware of their dedication and hard work, and community members gained a stronger sense of belonging and ownership by participating in the exhibit design.

4.3. Spatial Scene Creation

According to Nina Simon, a museum should not be a place for the transmission of knowledge, but rather a space that encourages dialogue, the sharing of ideas and co-creation. Through participatory exhibition design, museums can break down the traditional "visitor-exhibitor" relationship and facilitate interaction between visitors, sharing their experiences and perspectives, thus creating community and cultural dialogues. Therefore, the spatial scenario of community museums aims to create a friendly, open and social environment for visitors, making it an important platform for community members to interact and communicate.

For the community museum space scene creation, it is possible to set up social activities for the audience around the exhibits, either in the form of games or guided tours, so that the audience's participation and interaction can become part of the spatial narrative, thus enriching the narrative of the space. The One Minute Sculpture exhibition at the San Francisco Museum of Modern Art invites viewers to "perform" a one-minute sculpture with specific poses and props according to the instructions on the signage, thus becoming part of the narrative of the space. Visitors of all ages and backgrounds participated enthusiastically, experiencing and communicating with each other in a relaxed and fun atmosphere, generating discussion and sharing, and creating a social space atmosphere.

To create a spatial scene for the audience to display themselves and express their personal views, to transform the

audience from passive recipients to active creators who participate in the narrative, and to re-construct the narrative of the space through the audience's participation. The Walker Art Center Minneapolis "You are the Artist" exhibition invites the audience to create their own works in the creation area, which can be displayed in the exhibition area of the museum. Visitors are invited to create their own works in the creation area, which can then be displayed in the exhibition area. Visitors thus experience creation and leave their own traces in the exhibition, giving the exhibition more participants' perspectives and diversity. Through the active participation of the audience, the narrative of the space is reconstructed and given a deeper meaning.

4.4. Interactive Design and Experience

Museum interactive design is one of the key ways for modern museums to realize participatory design. It aims to enhance the initiative and participation of the audience in the visiting process through various forms of interactive means, making the exhibition experience more vivid, personalized and educational.

There are three main forms of interactive museum design, the first is the touch screen and multimedia display, designers can set up a variety of touch screen display, interactive games, virtual reality experience and other forms to better build the spatial narrative of the community museum. For example, in the "Simulated Space Capsule" experience project of Shanghai Nature Museum, the audience can enter the simulated space capsule and experience the life of astronauts in space, including feeling weightlessness, operating various instruments and equipment in the space capsule, etc., so that the audience has a more realistic feeling and understanding of space exploration. The second is Augmented Reality (AR) and Virtual Reality (VR). AR and VR technologies bring the audience into immersive historical scenes or scientific experiments, allowing them to have a unique experience in a simulated environment. For example, the "Rembrandt's Home" virtual experience design of the National Museum of Amsterdam in the Netherlands, the museum utilizes virtual reality (VR) technology to create a virtual experience of "Rembrandt's Home" for the audience. After the audience put on the VR equipment, it was as if they instantly traveled to 17th-century Amsterdam and entered Rembrandt's home. The third is the element of gamification, which incorporates gamification design into the exhibition, such as tasks, problem solving or point systems, to encourage visitors to participate in the exhibition content through challenges and rewards, and to enhance their engagement and interest.

Interactive design, as a core approach to participatory design, not only enriches the form of spatial narratives in museums, but also enhances the audience's motivation and participatory experience. By introducing interactive elements into museums, audiences are able to learn through exploration, share their experiences, and integrate into the cultural narrative in a more active way.

4.5. Assessment and Feedback Mechanisms

The assessment and feedback mechanism for museum visitors is mainly to collect visitors' opinions, feelings and suggestions to understand their satisfaction with the exhibition content, spatial layout and interactive experience. There are four common forms of assessment and feedback mechanisms, namely observation method, questionnaire survey, interview and focus group discussion, and digital

feedback tools, through which museums are able to obtain valuable data, and then optimize and improve exhibitions and spaces, which is of great significance for the reconstruction of spatial narratives.

5. Conclusion and Outlook

5.1. Main Findings of the Study

The use of participatory design in community museums has become an important trend, playing an irreplaceable role in the construction of narrative space. At this stage, participatory design is widely scrutinized in community museums, exhibition design and activities, aiming to give museum narratives more diversified perspectives and cultural connotations through the extensive participation of community members and audiences. This paper starts from exploring the conceptual theories related to museum spatial narrative and participatory design to the relationship between museums and participatory design, analyzes the status quo of participatory design in community museums at home and abroad, and finally summarizes the five process steps of participatory design in constructing the spatial narrative of community museums as a means of supplementing the theoretical practice of community museums in constructing spatial narratives using participatory design to let community museums Participatory design should be developed in the direction of more inclusiveness and sustainability.

5.2. Research Shortcomings and Prospects

Although research on participatory design in community museums has been fruitful, there are still limitations. In the process of narrative construction of community museums, power relations and conflict of interest are the primary challenges. There is often a power mismatch between community members, museum administrators and expert teams. Secondly participatory design emphasizes the active participation of community members, but in practice, community participation is not very high due to inadequate participation mechanisms and lack of understanding or interest of community members. Finally, many community museums face resource and financial difficulties. Participatory design requires adequate financial support for activities such as organizing workshops, technology development and material production, but these investments are often difficult to sustain.

In the face of the above limitations and challenges, the author proposes some countermeasures and solution ideas. Facing the power relationship, a transparent and fair decision-making mechanism can be established to balance the power of all parties, especially to enhance the dominant power of community members. Regarding the issue of community residents' participation, through educational activities and diversified communication methods, the community's awareness and participation in the museum and the design process can be increased. Finally, for the issue of funding resources for community museums, diversified funding sources (e.g., government grants, corporate sponsorships, community crowdfunding) can be introduced and the allocation of resources can be optimized to ensure the sustainability of the design process. By addressing these challenges, the participatory design of community museums will be more likely to achieve the goal of constructing a win-win narrative for all parties, and participatory design will be able to better serve the well-being of the community and

cultural heritage.

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