Research on the application of digitization in physical Museums

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Abstract: In the face of the rise of digital exhibition, the future development of physical museums should be reconsidered. The advantages of breaking the time and space restrictions of viewing, enriching the forms of viewing and saving the exhibition resources of the museum are summarized by induction method, as well as the disadvantages of viewing quality not guaranteed. Using the method of literature reading and the field investigation of mining the present development of museum of entities in the lack of real experience and function of public space of a single question, finally using scheme of analogy method, the digital Display mode , entity museum compared with electronic reading way, the entity bookstore, draw lessons from electronic reading popular period, the entity bookstore transformation experience, Inspiring strategies for the future development of physical museums.

1. Introduction

In the eighth revision issued by the International Council of Museums in 2007, museums are defined as educational and research purposes, and have the functions of collection, conservation, research, dissemination and display. The digital exhibition method discussed in this paper refers to the online exhibition hall (virtual exhibition hall) displayed for tourists on the official website of the museum and the museum display way of viewing cultural relics through wearable devices or touch of electronic screens in the physical museum. Physical museum refers to the traditional museum and the space where people can enter the physical space to view cultural relics through the glass display case and then introduce the exhibits with the corresponding text. By summarizing the status quo of digital exhibition and physical museum, the two can be better combined in the physical museum space, improve the exhibition form of physical museum, and enrich the experience behavior of visitors.

2. Advantages and disadvantages of digital presentation

Through browsing the online exhibition halls of some first-level museums in China, combined with the field survey of some exhibition halls in Inner Mongolia, the advantages and disadvantages of the digital exhibition mode in physical museums are summarized from the perspective of the behavioral psychology of visitors visiting venues.

2.1. Break the time and space limit of the audience

Visitors are not limited by the time and space distance, and can see the virtual display of each exhibition hall on the official website of the museum at any time. The content in the virtual display is clear, and the audience can save time and energy, and read the text information of the exhibits in detail and repeatedly on the website.
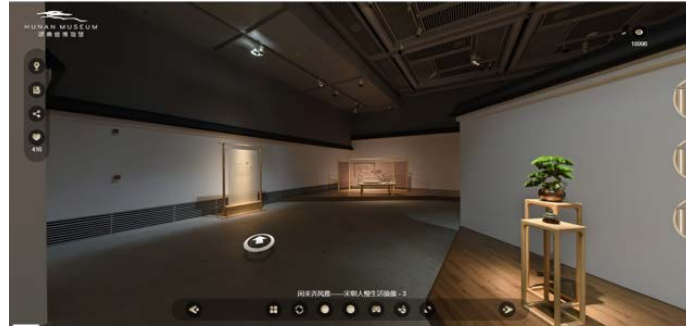
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Figure 1 A screenshot of the online exhibition hall of Hunan Provincial Museum
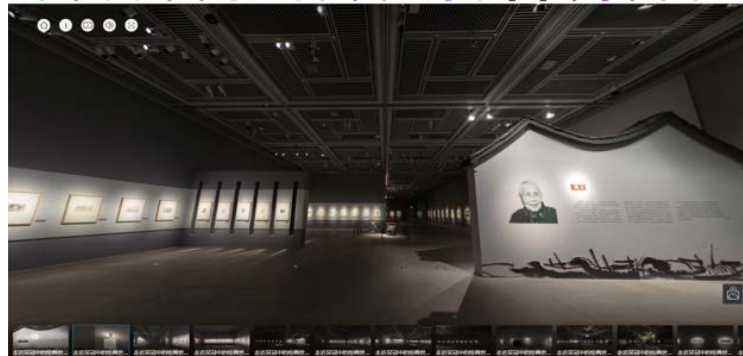

Figure 2 A screenshot of the online exhibition hall of Hunan Provincial Museum

2.1.1. Enrich the behavior of the audience

With human-computer interaction as the core, digital presentation can mobilize the audience's other senses to experience on the basis of watching with their eyes. For example, by touching the screen and browsing the contents, you can see the various angles of the exhibits in an all-round way. Let the audience know the cultural relics quickly by the way of video playing; Use body movements to interact with cultural relics on the screen to "animate" cultural relics and increase the interest of the audience; In traditional museums, cultural relics are protected by display cases, and the audience cannot touch the exhibits. However, with the emergence of digital cultural creation, three-dimensional information of cultural relics can be collected, and 3D printing technology can be used to let the audience touch the replicas of cultural relics, so as to obtain intuitive experience.

Figure 3 Human-computer interaction scene of Inner Mongolia Natural History Museum

2.1.2. Save museum exhibition resources

Scholars at home and abroad combine deductive museology with the background of the new technology era, and propose virtual restoration and new operating equipment to further improve the "interaction" between visitors and exhibition objects. [1] Take the restoration of The Old Summer

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Palace as an example. Through virtual display, the audience can see the panoramic view of the Old Summer Palace from a macro perspective, as well as the details of the shape and structure above the building roof. In the virtual world, viewers can watch the changes of the Old Summer Palace from day to day and from year to year in a short time. Compared with the actual scene restoration, virtual restoration saves resources and has a higher degree of restoration of display effect, and the viewer has a stronger sense of experience.

Figure 4 The Old Summer Palace after VR virtual restoration

Figure 5 The Old Summer Palace after VR virtual restoration

Figure 6 The Old Summer Palace after VR virtual restoration

Figure 7 The Old Summer Palace after VR virtual restoration

Virtual curation realizes the function of virtual exhibition arrangement on the network with the data support of digital resources of cultural relics, online virtual exhibition hall created according to the physical exhibition hall, background decoration and other material library. For the exhibition staff of the museum, the virtual curation system can carry out the preview demonstration of the exhibition, reduce the repetitive labor of the physical exhibition arrangement, and the generated virtual exhibition can be displayed digitally. Virtual curators can open part of their rights, and the public can use the open database to arrange virtual exhibitions and realize co-construction and sharing.[2]

2.2. The disadvantages of digitalization

Viewing quality is not guaranteed. The online exhibition hall makes use of the advantages of the

Internet to realize the walking experience of the audience on the web page. However, in the smooth walking process, due to the excessive speed, there will be pixel distortion [3] and slow buffering. For the elderly audience, it is easy to make the audience feel dizzy, and the viewing experience will be reduced. The viewing Angle is limited. In the online exhibition hall, visitors can only browse according to the established route and viewing Angle, and the viewing Angle and walking path are single. Digital presentations have a narrow audience. For professionals engaged in cultural relic archaeology and museum research, digital exhibition cannot meet their needs. They need to see the real objects in physical museums to do research better.

3. The development status of physical museums

To conduct fieldwork on the physical museum, focus on the photos, stay and discussion of the audience in the museum, and to excavate the inner needs of the audience and the differences between the internal work energy of the stadium, and provide realistic conditions for the development strategy of the physical museum's future.

3.1. Lack of functional areas for audience interaction experience

The visitor interaction area refers to an area where visitors can role-play, touch, experience and make replicas of cultural relics, which is different from the traditional static object scene construction in museums. At present, museums mainly display static exhibits and text boards, with a small amount of video and interactive electronic screens, while dynamic content is more attractive to tourists, who are more willing to stop and watch. There is also a scene display part in the physical museum, but the scene is surrounded by a fence, on which is written the words of static jump. Visitors can look at the dummy in the scene through the fence, simulating the life scene at that time. With the paintings on the wall, it gives people a sense of three-dimensional space atmosphere. Tourists often take photos in front of such scenes, while children like to climb the guardrail to enter the space and touch the models inside.
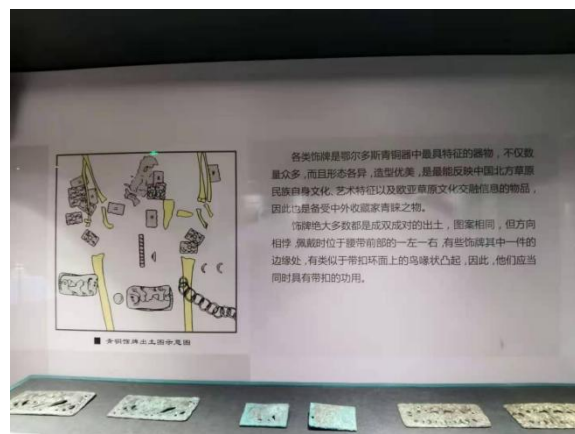

Figure 8 Static display area of Ordos Museum

Figure 9 Static display area of Ordos Museum

Figure 10 Inner Mongolia Museum static scene display area

3.2. The public area has a single function

The public area of the museum is mainly for rest. There are long benches with rest function between the entrance and exit of each exhibition hall. The selection of benches in shape and material is not consistent with the overall shape and atmosphere of the space. There are no other service facilities around the rest area for people to use. The museum provides a place for children's entertainment. In the transitional area of the two exhibition halls, a small cabinet is used to enclose the area. Children throw balls in this area and hit the figures projected on the wall. The entertainment items in the game area of the museum are not designed in accordance with the theme of the exhibition, but simply set up a place with a thin meaning. The cultural and creative products sales area of the museum is neatly placed with products, and tourists can only watch through the packaging or glass window, lacking a real experience at close distance.

Figure 11 Children's activity area of Inner Mongolia Natural History Museum

4. Analogical case of physical museum transformation

Through the reading of electronic reading, the transformation of the bookstore and the three parts of the museum, and summarizes the similarity of the functional responsibilities and the inner elements of the physical museum in part, and the development of the Internet age, the trend of the two is also similar, so the transformation of the entity bookstore is the strategy of the future development of the physical museum.

4.1. The functional similarity between physical museums and physical bookstores

In the face of the development of e-reading, the transformation of physical bookstores and the future development direction of physical museums share the common goal of promoting urban culture. For example, High competitive yan city cultural construction experience entity bookstore, shard of yuanhe NingChuanLin the function reconstruction of the urban space entity bookstore and

value return ", depending on the lam and others "after the outbreak time of wuhan urban cultural consumption space deconstruction - entity bookstore, for example, Chen bo people such as the urban cultural space visitors adsorption mechanism of the entity bookstore - based on the exploration of grounded theory Analysis ", chang hsuean "scenario fusion, community activation," experimental field "- city spread horizon, the entity bookstore as the research on the value of knowledge production space and the Jiang Ling in the Shanghai entity bookstore cultural space and the symbiotic development of city culture scholars articles will be entity bookstore as a cultural space of the city, has the role of spreading culture. [4-9] This overlaps with the responsibilities of museums, so the development of museums can learn from the transformation of physical museums. This also requires the museum to excavate the local characteristic culture in the transformation process, activate the local culture in the space, arouse the collective memory of the local people, arouse the resonance of the audience, attract foreign tourists to experience the local culture, and enhance the cultural appeal.

4.2. Physical museum and physical bookstore in the composition of the similarities

Jiang Wenqin mentioned in the Way and Enlightenment of British Waterstone Bookstore against the trend that bookstore, as a "cultural field", has three important elements: people, books and atmosphere, which are harmonious and unified to create a warm and comfortable atmosphere. [10] The museum can also be regarded as a local history with time sequence as the main line and the introduction of local historical development as the main content.

Physical bookstores and physical museums have similar personnel composition. The job of a bookstore guide is the same as that of a museum docent, who explains what is displayed in the space to those who enter it. With the development of the Internet, the way of explanation in physical bookstores has changed to the way of self-selection such as scanning codes, while the way of explanation in physical museums is explained by self-help voice interpreters on behalf of the interpreters.

The books in the physical bookstore are just like the exhibits in the physical museum. In the transformation process of the bookstore, it is proposed that the books in the bookstore should not be stored away, but should be filled with books that people can pick up and read directly at any time. Museum exhibits can also become accessible to visitors, providing replicas of cultural relics for them to play with through digital recreations and increase their interest in visiting.

Entity bookstore in the process of transformation, bookstore atmosphere should not be cold to have a temperature. Accomplish the change of afore-mentioned person and article, the space also broke away from cold space atmosphere basically. In terms of atmosphere, physical museums can create a sense of atmosphere and scene of history, allowing visitors to play roles and experience the atmosphere of a certain historical stage.

5. Future trends of physical museums

By summarizing the status quo of digital exhibition and physical museum, the relationship between the two is found. In the future, the development of physical museums should be based on meeting the needs of the audience and then using digital exhibition methods to meet the museum's functions and responsibilities of collection, protection, research, dissemination and display.

5.1. Rich scene experience

Museum can also according to the different preferences of different age groups and demand, regional planning exhibition hall, the museum itself has the function of communication, education and display plus will find in the process of research, the purpose of the parents with children to the museum is in order to improve the children learned, for example, let the children know what the thing is time, what the point of, This period and all that stuff. In the research process, it will also be found that the scale of some display cases is not suitable for children of all ages, too high display cases children can only stand on tiptoe to look at the exhibits inside the display cases, too low display cases are not convenient for parents to explain to children, these exhibits can only be

ignored. According to the above requirements, the functions of the museum can be refined. For example, there can be more space for children aged 3 to 6 to play games in the museum. The forms of these games should have a certain connection with the exhibits displayed in the museum, so that children can have a certain understanding of the shape of these cultural relics during playing. On this basis, tell children some historical stories about this period or the scene of the game is the scene of a corresponding historical period, so that children have a certain understanding of things in play; For children aged 6 to 12, some activities about archaeology can be set up, so that children of that age can see the real scene of doing research to stimulate their curiosity and develop their passion for things.

The physical museum experience can also be integrated into the popular concept of "national tide", allowing visitors to experience the clothing, Musical Instruments and literature of each prosperous historical period in the museum. For a period of history as a qualified, visitors will be dressed in national costumes, at that time sitting at that time the style of furniture, hobnob with friends and instruments are used in the cases of the reproduction of cultural relics, surrounded by conform to the historical period of the song and dance performances, tourists can take photos, love music tourists can learn and next to the staff of playing the musical instrument.

Scenario experience, makes the atmosphere of the activation of the museum museum, the museum is not just looks cold exhibits and boring words, let people take pictures and play in the atmosphere of freedom, in this way to let people fall in love with history, and through the network platform to attract more tourists to come to experience, spread the excellent culture.

5.2. Provide value-added cultural services

Museums can imitate the combined business model of "bookstore + coffee". For example, on Children's Day, children can go on stage to talk about the museum in their eyes and their favorite exhibits, and also draw their favorite exhibits. Children's Day can also be a museum staff dressed in bronze-like deer, horse, tiger and other images of clothing with children to play and take photos; Women's Day can tell the story of women in history and allow modern women to experience the clothing, accessories and cosmetics of women at that time. When dividing the functional areas of the museum, space should be reserved for future activities. Various forms of activities can achieve the role of regional cultural dissemination.

5.3. Virtual and entity presentation functions complement

Sanshi in the "Internet +" era of physical bookstore transformation and upgrading of actual combat research "this article mentioned that the competitors of physical bookstores are not online bookstores but Internet consumption habits; Brick-and-mortar bookstores are competing not with e-books but with the digital reading trend. [11] In the face of the psychological state of rapid consumption under the influence of the Internet, physical museums add functional areas for discussion, archaeological learning, movie-watching, thinking and meditation, so that the impetious people can be immersed in the museum space, instead of seeing what they want to see and leaving in a hurry after getting answers. Digital exhibition brings visual impact and psychological sense of curiosity to the audience, but the purpose after watching is to let the audience learn and feel, and so many people's communication and thinking after visiting need to be completed in a large space like the physical museum.

6. Conclusion

The idea of turning over the idea of "museum = display space"
Under this concept, the audience will feel that every museum is different only in its architecture, which is the same inside. There are exhibits in the exhibition cabinet, and next to the exhibits are the boards introducing the exhibits. For those tourists who are purposeful and have accumulated knowledge, they will stay in front of the exhibits for a long time and patiently finish what they want to see. And for people who do not understand the region's history and culture, just drop by to visit the museum in clock in a photo and architecture, prove this score, I have been here just the

exhibition is not enough, the need to experience space to attract his attention, let them to participate in, let it took photos, ultimately achieve the purpose of spreading the region culture, So it can attract some tourists.

The development of museums keeps pace with the needs of The Times

Physical museums can integrate advanced digital exhibition methods from hardware to software according to their level and theme, catch the pulse of The Times, and create experiential service scenes. The interactive experience area should be set up for the target population, so that people are willing to gather in the museum for learning and communication, so as to generate emotional resonance and spread regional culture.

The excavation of the museum's sexual characteristics

On the basis of paying attention to the physical characteristics of the museum building, the design of the interior space should also highlight the characteristics of the region. When visitors are attracted by the architectural appearance, they should also feel the unique cultural attributes of the region when entering the indoor public space and exhibition space. Finally, they should carefully look at the exhibits to refine their understanding of regional culture from the regional characteristics of cultural relics.

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