

Research on Museum Accessibility for the Visually Impaired

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Abstract: As a public cultural institution, the task of museum accessibility is particularly important. Visual is the main source of information reception when visually impaired groups visit museums, and they have certain difficulties in finding, viewing and organizing visual information, which affects the formation of representations of collections in the brain. The survey results show that the infrastructure accessibility of museums is not perfect, information accessibility needs to be strengthened, and more importantly, psychological accessibility should be achieved.

1. Introduction

The Law of the People's Republic of China on the Protection of Persons with Disabilities states in the General Provisions that a person with disabilities is a person who has a loss or abnormality of some tissues or functions in the psychological, physical or human structure, and who is totally or partially incapable of performing some activities in a normal manner. Persons with disabilities include persons with visual disability, hearing disability, speech disability, physical disability, intellectual disability, mental disability, multiple disabilities and other disabilities. The State takes measures to ensure that persons with disabilities manage the affairs of the State, economic and cultural affairs, and social affairs through various means and forms in accordance with the provisions of the law. Thus, the right to cultural life has become an indispensable right for people with disabilities[1].

The so-called barrier-free environment refers to the various facilities and services established and provided to guarantee the safe passage, convenient use and smooth communication of the above disadvantaged groups such as persons with disabilities and the elderly, pregnant women and children, which include transportation accessibility, architectural accessibility, information accessibility and cultural accessibility. Accessibility is one of the important signs of humanitarianism and good social ethics, and is a sign of social civilization progress. For example, the United States was the first country to propose the construction of barrier-free facilities, around the end of the 1950s, and later the influence extended to European countries. In recent years, Japan, Malaysia, the Philippines, South Korea, the construction of barrier-free facilities have also had rapid development. The construction of barrier-free facilities in China started late. In 1989, the Ministry of Construction and other departments promulgated the

"Design Code for Urban Roads and Buildings Convenient for Disabled Persons (for Trial Implementation)", and on November 22, 2004, the Ministry of Construction and other departments announced the "National Model City (District) Standards for the Construction of Barrier-Free Facilities", and many cities also promulgated relevant regulations. Accordingly, the museum community is also paying more and more attention to the construction of accessibility. Museums are social institutions of public interest serving the public, and it is the mission of every museum to care for all members of society, including, of course, the disadvantaged people who need extra care. The construction of barrier-free facilities reflects the museum's understanding, respect, care and help for the socially disadvantaged, providing opportunities and conditions for them to participate in social and cultural life on an equal footing, and reflecting the museum's people-oriented civilization concept. Therefore, as a public cultural institution, the task of museum accessibility is particularly important: as a public activity place, it requires architectural accessibility; as a cultural communication institution, it requires information and communication accessibility; as a public cultural institution, it requires cultural accessibility; as a civilization promotion and education institution, it requires psychological accessibility. Museums are designed to convey the temperature of culture and history to whoever comes, so accessibility requires care for these specific groups of people. Disadvantaged groups are all part of society.

2. Accessibility for the visually impaired

Visual impairment, also known as visual deficits, refers to the difficulty in doing the work, learning and other activities that the average person is capable of doing due to visual impairment and reduced visual field for various

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reasons. Since vision is the main source of information received when visiting museums, visitors with visual impairments have great difficulty in perceiving museum collections and obtaining information about them. They have difficulty in finding, viewing, and organizing visual information, which affects the formation of representations of the collection in the brain. To compensate for the lack of visual information, visually impaired people often need to compensate with information acquired by other senses such as hearing, touch, and smell[2].

However, an increasing number of museums are also providing audio tours for the visually impaired to meet their needs in listening to exhibitions. However, the provision of audio tours for the visually impaired is equally controversial. Kojiro Hirose, a professor at the Department of Ethnic Culture Studies at the National Museum of Ethnology in Japan, believes that audio tours, while convenient for museums, are not the most ideal way for the visually impaired. Because hearing is based on the sequential appearance of sounds in time to capture events as they occur, visually impaired people lack control over the appearance of sounds, and their ears must be alert at all times, without being able to selectively notice or ignore them. When several sounds appear at the same time, they are often mixed together, making it difficult for the visually impaired to distinguish the source of each sound. People with visual impairments are highly dependent on hearing in their daily lives and need to be able to hear everything. Using audio tours with headphones prevents them from receiving other messages and interacting with their surroundings.

Many museums have attempted to provide multi-sensory experiences for the visually impaired, but these multi-sensory experiences are often used as a last resort when vision is not available, and become special displays for the visually impaired, isolating them from the general public. These well-intentioned efforts may also cause problems for the visually impaired, as they may result in "reverse discrimination" by giving them overly special services.

The Shanghai World Expo Museum launched a "Smart Expo Pavilion" app on May 18, 2019, with a customized "visual aid guide mode" for the visually impaired. The "Smart Expo Pavilion" app is designed for the visually impaired and is easy to use for blind and visually impaired visitors. At the information technology level, the page layout of the initial menu has been optimized, voice prompts for the welcome interface have been designed, voice navigation for restrooms and other services has been added, and the guide can be switched to accessibility with one click, solving the problem of fast and accurate access to information for blind people.

How to make the museum accessible to people with disabilities, whether as visitors or in the role of staff, is a question worthy of in-depth consideration by all staff of cultural and museum venues and public occasions. Shanghai Jiading Museum has tried to let autistic children in the museum as related work, so that children in the museum through the farm effect slowly adapt to

the pressure of the outside world, hoping to give children to establish a window of communication with the world.

In the Nanjing Museum, there is a specially designed fraternity hall for the visually impaired. 1:1 raw material replica of cultural relics, exhibits that can be operated to experience, the first fully automated tour guide car for visually impaired and walking-impaired visitors humanized design and exhibits, so that they can also visit the exhibition with dignity and autonomy. The Nanjing Museum Boai Museum, where the careful design, so that exhibits can hear, can touch, where the humane facilities, for disabled friends "tailor-made". Exhibits can be heard, touched and operated. In the Art Museum of Nanjing Museum, there are three words written in front of the open passage at the entrance: Bo Ai Museum. This is a special exhibition hall for visually impaired visitors.

3. Current Status of Museum Accessibility

In Xiaolin Shen's article "The Application of Accessible Design in Museum Display Design"[3], the author first describes the current situation of accessibility and later in the article, mentions several basic aspects of accessible design that need attention, namely spatial accessibility, information accessibility: audible, touchable, and psychological accessibility. The article gives a better overview of the various accessibility arrangements that need to be paid attention to for people with disabilities in various museums, and gives examples.

In the paper "Dialogue and Publicity: An Exploration of Multi-sensory Narratives in Museums from an Accessibility Perspective" by Wang Feng and Huo Huiyu[4], the two authors describe the origins of "accessibility" in more detail than in the previous paper, and use modern museums in Finland and Denmark, for example, to explore their accessibility processes and describe their settings in detail. The author describes in detail the accessibility of museums in Finland and Denmark. Finally, the author summarizes several accessibility designs: reducing visual authority, enhancing participatory exhibitions, and developing artificial intelligence. The article gives good examples of cutting-edge museum design in the world and proposes a general scheme of accessible design based on the information.

In the article "The Meaning and Strategies of Museum Services for Visually Impaired Groups" by scholars Huang Yang and Sun Daimeng[5], the authors firstly propose some accessibility definitions and standards for visually impaired groups based on some Chinese materials and regulations in a more refined and targeted way. The article delves into the meaning of accessibility and the basic aspects of design for the visually impaired group. However, the point is extremely similar to the one mentioned in Shen Xiaolin's article "The Application of Accessible Design in Museum Display Design", that is, spatial accessibility, information accessibility: audible, touchable, and psychological accessibility. Finally. The article argues that China currently has too little in-depth analysis of a

certain barrier group, such as visual impairment, and also makes suggestions for optimization: the widespread of accessibility, innovation, promoting the participation of visually impaired groups in museums, and strengthening people's respect and equality.

The three papers give a good overview of the basic requirements for accessibility, and all give examples. The disadvantage is that the previous studies are largely case based and tend to be vague when giving recommendations, with only directions. The studies are more mixed (uncluttered) without a specific program. Also, most of the articles are based on the needs of people with visual impairment, and other groups such as people with various disabilities like hearing are often not explored and studied in depth. Even when they are mentioned, they are analyzed in case studies rather than explored individually. In general, previous studies have pointed out the direction with examples and information, but lack in-depth exploration of certain aspects.

Our museums are basically equipped with basic barrier-free facilities, and the most friendly barrier-free environment should, on the basis of having barrier-free entrances and exits, barrier-free passages and barrier-free toilets, fully consider the needs of disabled visitors and set up facilities such as side and low service counters, low drinking fountains, barrier-free guide signs, barrier-free parking spaces and barrier-free information equipment, so that disabled visitors can find their own way. The touring way, so as to successfully complete the process of entering, visiting, resting and leaving the museum. In order to achieve barrier-free attitude, it is important to take the suggestions of disabled people into consideration[6]. For example, whether to consider the establishment of blind corridors in the museum, low-level displays, etc. to fully consider the daily behavior patterns of people with disabilities, so that they can facilitate their daily activities in the museum independently. In addition, we need to train the librarians to provide barrier-free service skills and raise their awareness.

In China, especially in the central and western regions, urban planning and design is still mostly limited to the level of human survival needs, so most of the cities in China are "economic cities", which means that in the process of urban construction, factories, enterprises and high-end residential areas are always put in the first place[7]. People-oriented barrier-free design has not really been paid attention to. From the development of urbanization and the construction of barrier-free design time and space, urban construction should focus on the two needs of "people". One is to address the bottom-up needs of urban residents in the process of placing the health needs of "people" in a prominent position. The second need is the development needs of "people".

Accessibility is not only about blindness, ramps, sign language and subtitles, but also about equal opportunities to participate in society. A person, whether he is able-bodied or not, whether he is deaf or blind, should be equal in personality and equal in the right to participate in social life. Accessibility is achieved when he is not psychologically and behaviorally hindered from

participating in society because of his physical impairment, and when he does not feel different from an able-bodied person when he enters society. Therefore, the real accessibility is not only the accessibility of transportation, but also the accessibility of information and psychology, which is more important and requires more effort[8].

In order to better serve special people, the Shanghai Museum has tried to create a special area in the special exhibition hall to create a barrier-free exhibition experience based on the creation of a barrier-free museum building space. For example, during the exhibition "Crouch in the Sea: Treasures of Pacific Art from the Kebranly Museum", five 1:1 replicas of cultural relics that can be touched by hand were placed at the entrance of the exhibition hall, and a Braille introduction was placed in front of the exhibits, allowing blind people to "see" the exhibition by touching them. The museum also opened a special section on the official microblogging site to allow special students to experience the charm of ancient Chinese art without barriers, and recorded sign language videos for the hearing impaired to watch. In addition, various campus exhibitions and handicraft experience courses were opened into special schools in Shanghai, bringing the museum to the children. In contrast, in western provinces such as Xinjiang and Gansu, museums are only equipped with infrastructure such as disabled access, accessible bathrooms and wheelchairs, and do not take into account the sense of participation and experience of disabled visitors[9].

4. Museum Accessibility Survey Analysis

The data showed that there were approximately equal numbers of males and females completing the survey, with ages ranging from 0 to 40 years old and education levels mostly at the college level and above. The number of people with disabilities and those with disabilities in their families is 53%, which exceeds the number of non-disabled people. This shows that the results of the survey were obtained from the perspective of different groups, which reflects the objectivity and representativeness of this questionnaire. In addition, the number of people who often pay attention to the disabled group in the result is low, 68%, which indicates that the disabled group has not received much attention from the society at present.

About two-thirds of the participants have not seen or paid attention to the disabled group in the museum as a public cultural place, which shows that the disabled group does not appear in public places very often, and they are not well integrated into society and participate in social life and public cultural life.

The museum's access ramps and parking spaces for the disabled do not have global coverage, and about one-half of those who filled in the form said they had seen people with disabilities having difficulty moving around due to the museum's defective accessibility facilities. Thus, the inadequate facilities add another barrier to this vulnerable group and gradually alienate them from

society. In the question "What information accessibility signs and equipment are available in the museums you visit", 13% of the respondents chose "all", indicating that there is still much room for improving the information accessibility of museums in China.

The last question asked "Do people with disabilities need to participate in social life", and 33% of the respondents thought that people with disabilities do not need to participate in social life. This is a clear indication of the lack of humanistic care and social support for people with disabilities, and the lack of efforts to call on the public to care for people with disabilities. Only when the whole society recognizes and accepts the disabled group from the heart and realizes the psychological accessibility, can we really increase people's well-being and build a barrier-free environment with equality for all.

5. Suggestion

5.1. Provide easy access to the museum grounds for people with disabilities

People coming to the museum and moving around can be a big obstacle. Providing accommodations, on the other hand, can solve this problem. For example, according to the questionnaire data, about half have seen or often see people with disabilities not receiving services due to inadequate facilities, which is about twice as many as those who have not seen them, leaving some respondents who have not noticed. Meanwhile, nearly 50% found the museum slide more satisfactory, while the rest found it average or unsatisfactory. Meanwhile, the largest number of people who had not seen a disabled person in the museum, and about 50% had seen a disabled person who could not be served because of limited mobility and inadequate facilities. Then outside the museum, parking spaces for the disabled are also very scarce, and the most people who have not seen a disabled parking space near the museum. Various equipment such as voice equipment, warning signs, etc., which respondents basically found to be available, basically floated within 40-60%. From the questionnaire, it can be seen that the accessibility rate is only about half, and it is also probable that half of the disabled people will not be served because of this. This proves that many museums have not been able to take the first step to allow people with disabilities to view the exhibition freely. If physical facilities such as parking spaces and barrier-free access were available to people with disabilities, it is believed that they would come to museums more often, and it is clear from the questionnaire that those who choose to visit museums occasionally are most likely to do so because of a lack of accessibility. Based on this, the government or museums could provide a travel service that allows people with disabilities to make reservations for free or at a lower price through the internet, or to apply for devices such as "travel cards" to create an integrated museum access service so that people with disabilities do not have to suffer from travel problems. Similarly, even if people with disabilities want to go on their own, there should be

special parking spaces for people with disabilities, which can be set by the government[10]. Most importantly, the museum's tour route must also be equipped with barrier-free access and other facilities, otherwise even if Fangbei Di arrives at the museum it will not be physically easier to tour. If there are public interest organizations or events, people with disabilities can also be invited to view the museum and similar events can be held regularly to make the trip easier[11].

5.2. Promoting accessibility and advancing awareness of accessibility

According to the questionnaire, more people believe that it is not necessary for people with disabilities to participate in social and public cultural life than those who believe it is necessary, and most of them choose "don't know". Awareness of accessibility is not strong enough, and people sometimes don't even notice it in museums themselves. Nearly 70% of people do not see or notice people with disabilities in museums. Nearly 70% of people with disabilities also choose to pay occasional or no attention to people with disabilities. There were also few such presentations within museums or on the Internet. This study believes that individuals can spontaneously create slogans to promote information such as accessibility for people with disabilities, while government media can also promote accessibility more often, on hotter media such as Shake. At present, you basically can't see too many videos about accessibility on various official numbers.

Museum accessibility is a long term work, which can improve people's humanism and concern for people with disabilities, and improve national quality. However, based on these issues, this paper still holds a positive attitude to explore the advantages and necessity of accessibility, as well as its shortcomings, which can also further promote the subsequent research.

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