Analysis on the application of media technology in museum exhibition

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Abstract. Multimedia technology is now widely used in museum display and exhibition, which promotes the museum's knowledge and interest. This paper introduces the application of multimedia technology in display and exhibition, and points out that in display and exhibition, we should also take a rational attitude towards the application of multimedia technology, and the selection of multimedia technology should be based on different exhibition types and exhibition themes.

1. Introduction
In a computer system, a man-machine interactive information exchange and communication medium composed of two or more media. Multimedia technology, on the other hand, uses computers to process text, graphics, images, sound, animation, video and other information, and to establish logical relationships and human-computer interaction. The most common multimedia forms in museum display and exhibition are touch screen, display screen, projection system, virtual reality, cinema system, augmented reality, digital central control system and digital guide. Compared with the traditional way of museum exhibition, the way of exhibition based on multimedia technology is more vivid and interesting. In the process of museum exhibition, the application of multimedia technology can display the information content of cultural relics more intuitively, which can not only enhance the expression of cultural relics, but also improve the participation and interaction of the audience in the exhibition process.

2. Application of multimedia technology in museum exhibition

2.1 Large screen projection
Large screen projection is a combination of multiple projection systems to form a multi pass large screen projection coefficient, which is mainly used in display and exhibition. It has the advantages of large size, large field of vision, multi display content, high resolution and so on, which can make viewers feel the shock of projection effect. There will be overlaps in the splicing pictures of multiple projection systems. Technicians can use edge fusion technology and adjust color differences to ensure that there is no overlap and color difference in the overall picture display. Because of the influence of space and environment, the ancient painting and calligraphy can not be displayed for a long time in the museum, and generally only display the part of painting and calligraphy, so that the audience can't enjoy the whole picture of painting and calligraphy. The digital media technology can display the painting and calligraphy completely, and make the effect of painting and calligraphy more vivid by enlarging and reducing.
2.2. Holographic projection technology
It is mainly to restore the three-dimensional image of the collection, that is, using laser as the lighting source, to obtain the holographic image by directly reflecting the photosensitive film and the photographic object, and to remove the digital interference at the same time. To enhance the sense of appreciation and beauty of the collection, and to fully play an educational role. In addition, holographic projection technology can also combine sound effects, that is, through the way of making the collection speak and other sound effects, to introduce the meaning behind the collection, so as to ensure that viewers can get more experience and perception.

2.3. Multi touch technology
Multi touch technology mainly refers to the computer allows users to control the computer and implement simple operations in the way of finger contact. The multi touch device is mainly composed of three parts: Shadow screen device, touchable display device and touch panel. It mainly uses the way of software identification to feedback the touch and point behaviors implemented by users. Multi touch technology is implemented on the basis of optical theory. Each multi touch technology will be connected with sensors, projectors, infrared light sources and other display devices. In general, the staff will install various information receiving tubes and information transmitting tubes around the screen, which can show a corresponding relationship in the performance of the touch screen. It is also common to use multi touch technology in museum display and exhibition. Museums can display cultural relics in digital form.

At present, the application of multi-point touch technology in museums is quite common, that is, viewers can touch through fingers or touch pens, so that the screen presents what viewers need to enjoy. The display and exhibition of the museum can use desktop, display, wall, etc. as multi-point touch screen, use optical sensors, infrared light source, etc. to capture the action of the viewer, and then process it by computer. In addition, the viewer can also use ipad equipment to obtain the detailed information of the work and visit the roadmap of the work.

2.4 Augmented reality technology
In the process of museum display and exhibition, augmented reality technology mainly takes computer technology as the core to generate a multi sensory integrated virtual environment. When viewing cultural relics, the audience only need to use the corresponding equipment to interact with the virtual content, so that the virtual object and the real environment can be integrated. The main case of augmented reality technology is face recognition, which mainly uses a webcam to capture the facial expressions of participants. At the same time, the captured expressions are matched with the products in the collection, and then displayed by the display screen. Users can share the displayed works, so as to improve the interest of Museum exhibition.

2.5 Multimedia sandbox
Multimedia sandbox is a new physical model representation which uses projection equipment and physical planning model to make dynamic plane animation and project it to the physical sandbox through precise alignment. Through the integration of sound, light, electricity, image and computer program control technology with entity model, multimedia can fully reflect the characteristics of display content and achieve a vivid and varied dynamic vision.

2.6 Interactive display
Interactive display multimedia includes multimedia interactive projection system, wall interactive display system, fun game system, multi touch system, image and video comment browsing system and knowledge question answering system. The characteristic of interactive display technology is to bring the audience from passive visiting exhibition to active participation in exhibition through multimedia technology, so as to realize the core of museum display design - "people-oriented" concept.
2.6.1 Multimedia interactive projection system. Multimedia interactive projection system uses advanced computer vision technology and projection display technology to create a magic and dynamic interactive experience. The system can produce a variety of special effect images on hands or feet, so that the audience can be in it and participate in the interaction with full interest.

2.6.2 Wall interactive display system. The wall interactive display system is a kind of special art creation process, which is also called art design through projector projecting content on the back of the wall and through image recognition display form design. It is a scientific, artistic and practical work, widely involving environmental science, architecture, advertising, materials science, psychology, acoustics, optics and other fields. The interactive display department unification has developed into a comprehensive discipline.

3. The correct application of multimedia technology in museum exhibition

We know that modern museum exhibition is not an exhibition in the traditional sense, but a three-dimensional and all-round exhibition. We should display the theme from different levels and angles, and use various display means and methods. Multimedia technology has developed to a higher level, and has been recognized and fully used by the society. The application of multimedia technology to exhibition can play a role of deepening and improving. In addition, according to the exhibition subject, multimedia technology can display some contents that are not easy to display through static state, and some empty and boring words to the audience in a variety of multimedia programs.

3.1 The orientation of multimedia in the exhibition should be around the theme of the exhibition and the cultural relics.

It can't be replaced by multimedia display. No matter what form it takes, it is to better match the cultural relics to display the theme. In the same way, multimedia technology can not be divided into auxiliary means, and it should play its greatest role according to the different space and environment. A successful multimedia exhibition should put forward appropriate design ideas from content selection, script formation, technology application to form design and environmental considerations, and should thoroughly analyze and master the basic environmental factors, and reasonably set up the visiting environment.

3.2 In the choice and application of multimedia technology and means, we should adhere to a cautious attitude.

We know that although multimedia technology makes the exhibition hall more modern, interesting and viewable, it also has a common problem - high failure rate. Now, after many museum halls have been open to the public for a while, there are some problems with multimedia. The major problems are that the equipment cannot be started, the interactive games cannot be interactive, the video cannot be played, and the minor problems are that the light bulb of the projector is not on. These problems seriously affect the normal opening of the exhibition. Therefore, we must do a good job of overall planning before setting up the exhibition, understand the need for supporting multimedia in a timely manner and select the technical means and hardware equipment suitable for the exhibition. Museum multimedia technology is not the more advanced the better, hardware is not the more expensive the better, we should try to use safe, reliable, mature technology products.

3.3 In order to better apply multimedia, we should do the following work.

First, before bidding for exhibition project, the brand and model of multimedia hardware required for exhibition shall be specified in the bidding document, and the design and construction unit shall select from the specified brand when bidding; second, the supervision company shall play an active role in the construction process of exhibition hall, and the site management party as the construction party shall control the software and hardware as well as installation quality; third, attention shall be paid to After the completion acceptance and the opening of the exhibition hall, the warranty period of multimedia
related parts shall be extended as much as possible. Multimedia hardware facilities can be provided with several more sets when there is sufficient funds. In the maintenance contract, it shall be noted that once the multimedia in the exhibition hall breaks down, the construction unit must arrive within 24 hours and repair it as soon as possible to ensure that the multimedia equipment.

4. Conclusion
The ultimate purpose of Museum exhibition is to open to the public, so we should not only consider the factors of objects (exhibits), but also the factors of people (audience) when we do exhibition. How to combine the two is a great challenge for Museum designers. In the practice of display design, we not only need to display the collection, scenes, sculptures, paintings, etc. statically, but also need to use a variety of multimedia means to display them in an all-round way, so as to make the exhibition more interesting and attractive. The use of multimedia should be treated rationally in combination with the requirements of exhibition, and appropriate technical means should be selected according to different exhibition types and themes.

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