



Convergent Development of Museums and Digital Media: An Innovative Study of Narrative Scenarios

Jialing Xu

Shenyang Jianzhu University

Shenyang, Liaoning, China, 110170

2974373318@qq.com

Abstract. This article describes a research project on digital media technologies in music museums to assist in narrating the content of spatial presentations. The project was conducted by researching with artists, managers, and visitors to the museum: how digital media presentations can be used well in music museums, and whether they can play a positive role in promoting them. Whether the inclusion of innovative digital technologies in music museums can make the art form more appealing to visitors. Whether it can enhance visitors' understanding of the narrative content. The results of the study show that digital media technology has a positive impact on the museum's narrative exhibition.

Keywords: Digital Media, Museum Art, Narrative Scenarios, Interactive Experience

1 INTRODUCTION

Digital media technology focuses on the design and application development of digital media such as text, pictures, audio, and video, etc. It combines abstract numbers, media as physical objects, and computer technology.

Nowadays, digital technology and museums interact and influence each other and bring very important development space for narrative presentation in museums. This article analyzes the application of digital media technology in narrative presentation in music museums and research studies.

The article focuses on activity and innovative artistic expression in promoting the development of digital media and discusses the importance of innovative applications in music museums. There are different expressions used to describe applications within museums, the focus is usually on the structural form, narrative experience and meaningful value of the thematic display.

2 MUSEUM AND DIGITAL MEDIA DESIGN

In the exhibition space of a museum, the assistance of digital media technologies can fill the museum with interesting, technological, and integrated visual and situational experiences. This diversified technological experience enriches the immersive atmosphere in the museum's artifacts, areas and spaces, brings the audience a narrative artistic experience, and enhances the dissemination efficiency of the museum's connotation. For example, we extend the function of the museum to include interactive experiences between the audience and the artifacts, body language in the art space and other activities full of novelty [1].

2.1 Narrative Design in Music Museums

The narrative design of the museum is mainly reflected in the popularity of the audience's understanding of history and culture; the audience's positivity towards the meaning of cultural relics; and the audience's feelings after the experience process. The popularity of understanding history and culture refers to the fact that the audience can receive the information more easily when they understand the culture or history they don't know, and it is convenient for the audience to understand the content of the expression quickly through the simple narrative language. Positivity to the meaning of cultural relics refers to the process of publicizing cultural relics, so that the audience is willing to take the initiative to understand the exhibits and the historical significance thereof; the feeling after the experience process refers to whether the audience is able to reap the results of a satisfactory experience after the overall activity, and have a positive state of mind towards the overall museum culture. No matter which part of the three research is crucial, maintaining a sense of mutual integration for the narrative design of music museums can be more effective in analyzing and solving problems [2].

2.2 The Art of Digital Narrative in Museums

There are many cultural design experiences in narrative space that can give the viewer a good visual experience, but in life, we still need three-dimensional, three-dimensional space, and even further cultural experiences with a sense of atmosphere and realism. Therefore, we also have a set of efficient design methods in building cultural exhibitions with digital narratives.

Utilizing Digital Technology for Narrative In-Space Design:

- Researching the digital technology with which a particular space works and the various ways in which it might be used.
- Make sketches or renderings, i.e., display images on paper or on a computer to better demonstrate the design concept.
- Analyze the situation in conjunction with the actual venue to assess whether their design features meet unique needs at a reasonable cost.

- Evaluate the universality, appearance and function of the display space to determine if the design is practical.
- Showcase display products to communicate narrative design and enhance the realism of the experience space.

From the perspective of the current development of museum art, the future of digital media design and the mature application of virtual experience technology has unlimited development space. From the perspective of experience and promotion of history and culture, the use of digital technology to develop the museum narrative scene is a major development direction of innovative design, and with the help of this technology, the museum culture will gain more far-reaching design inspirations and can also realize a wider range of value significance.

3 RESEARCH METHOD

In this study, article was examined through content analysis digital media applications in music museums and conducted unstructured interviews with users.

Subsequently, displays designed using digital media in music museums were analyzed. The data was collected through interviews based on the literature review and verified through case studies. The methodology was applied to participating artists, managers and audiences. The questionnaire consisted of the following parts:

Section 1 – Participants' characteristics in terms of gender, age, interests, and tastes; knowledge of preferred music genres and music cultures; focus of attention in the music museum; and desired length of visit.

Section 2 – The artist's direction for integrating digital media into the narrative scenario of the museum: the types of digital media technologies that are of interest to the audience; the design approach that the artist sees as apt for the presentation of the musical content; and the expressive aesthetics of the final display space as a combination of art and technology.

Section 3 – Whether managers accept the digital construction of the museum; whether it can bring good benefits to the museum, whether it attracts more visitors.

Section 4 – From the viewer's point of view: does the digital media provide a good experiential experience and interaction; does the narrative design of the museum facilitate the understanding of the presentation of the art space; and does it feel meaningful in the overall museum visit.

4 RESEARCH RESULT ANALYSIS AND DISCUSSION

This section was divided into four sections. The first part briefly analyzes basic information on the content of the study, the second part analyzes the results of the artist's perspective, and the third part is a summary of the managers the second part analyzes viewer's point of view.

4.1 Basic Information About the Study

This article is based on the narrative design of the Dalian Museum of Music and Culture as a content analysis of the overall display of the content analysis.

Dalian Music Museum has a three-layer display space: the first floor is the Chinese and Western classical musical instrument culture display space; the second floor is the Chinese and Western time flow display space; the third floor is the music culture activity site and open-air viewing platform details can be found in Figure 1 to Figure 2.



Fig. 1. Exhibition area on the first floor of the museum



Fig. 2. Exhibition area on the second floor of the museum

The table1 shows the basic survey information of the research population, and the overall personnel research has credibility and is feasible.

Table 1. Basic information of researchers.

	<i>Quantities</i>	<i>Valid data</i>	<i>Stance</i>
Artists	10	8	Proactively
Managers	15	12	Normal
Viewer	300	278	Proactively

4.2 Artist's Perspective of the Digital Media in Museum

From the results of the survey, we can distinguish between different interaction systems: virtual reality, situational interaction, human sensors, and fun activities. Depending on the type of system used, the application has different aims and objectives, as shown in Table 2. The design of museum spaces can be used for virtual reality-assisted design. This implies interoperability between digital and virtual models, pointing out one of the technical complexities of the usability of interactive environments in this context. Designing in immersive virtual environments is not common in cultural experiences, but it is quite developed in the fields of industrial design, automotive and aviation. In this case, the specific attributes of music museums can bring better play to the presentation of digital technologies, and the two have complementary roles [3].

Table 2. Types of Narrative Presentation in Digital Media Art.

<i>Display</i>	<i>Prevalent topics</i>	<i>Uses</i>	<i>Examples</i>
HMD (Head Mounted Display)	<ul style="list-style-type: none"> >Design >Sens/Cognition >Education >Representation 	<ul style="list-style-type: none"> >Immersive scenario framing and design >Responsive experience >Flexible interactions >Spatial experientiality 	Virtual Reality Fun Activities
CAVE (Audio Visual Experience Automatic Virtual Environment)	<ul style="list-style-type: none"> >System >Design >Representation 	<ul style="list-style-type: none"> >Scale Design >Narrative Space >Visual Scenarios 	Virtual Reality, Situational Interaction, Body Sensors, Fun Activities
Immersive screen	<ul style="list-style-type: none"> >Design >Sens/Cognition >Education >Representation 	<ul style="list-style-type: none"> > Instant interaction and design >Personalized presentation of artifacts > Spatial functionality 	Situational Interaction, Body Sensors, Fun Activities

Based on the above research information, Figure 3 Artist's expected horizons for digital media applications is summarized to further analyze the design elements that need to be focused on in the application of digital media technology in the music museum space. From the data can know the audience's expectations mainly followed by a balanced relationship between the artist and the manager for the user's needs, in which the exhibits display space of digital immersive interaction of all three will be concerned about the content.

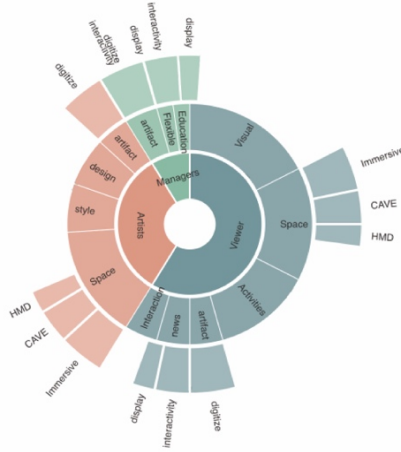


Fig. 3. Artist's Expected Horizons for Digital Media Applications

4.3 Manager’s Attitude of the Digital Media in Museum

In the study, the manager's attitude determines the overall planning and expected outlook of the museum. Therefore, the analysis of managers can advance the comprehensive construction of the characteristics and needs of display design.

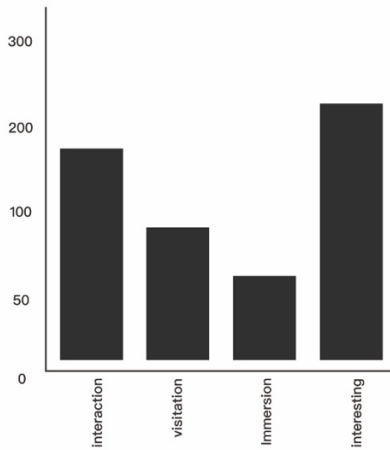


Fig. 4. Manager’s attitudes toward applying results

In the research manager's presentation of digital technology within music museums, the focus was on whether digital technology could be of good benefit to the museums and whether it could attract more visitors to the music content and interested in innovative uses of digital technology. Figure 4 shows that “interesting” is the most prominent attitude in the overall data, followed by “interaction” and “visitation”

attitudes, analyzing digital technology from the managers' point of view. Analyzing the attitudes towards the use of digital media technology from the managers' point of view and the good effects brought by the micro-music museum are the above mentioned. In the next study, it is necessary to consider the vision and attitude of each group of people in a more comprehensive and systematic design [4].

4.4 Viewer's Point of View of the Digital Media in Museum

In the research and analysis of museum design applications in interactive experience, this paper uses methods such as user interviews to assess user needs and optimize innovation points. In the research, we have a certain grasp of the basic information, views and feelings of cultural experience, and expectations and suggestions for future cultural experience. Then the collected research data and questionnaire answers are organized and analyzed for our data support. From these, we selected representative users and conducted qualitative research through in-depth interviews to reveal the deep-seated challenges and needs that users encounter when using music and cultural products such as online exhibitions. We recorded and organized these interview samples and analyzed the interviewees' responses in detail to gain a deeper understanding of their perspectives. Ultimately, the data derived from the overall research is summarized and analyzed to transform user needs into design optimization and innovation points, and further empathize with the users' experiences and views in depth from three different stages: pre-experience, experience, and post-experience, and humanize the design of the specific aspects of the interactive experience and the visual effects of the digital presentation of the museum's music and art space from the perspective of the researched users.

In the process of researching visitors' attitudes towards digital technology in music museums, the focus is on whether digital technology can bring a good tour experience for the audience, and whether they can experience a more interesting and rich music experience through the narrative presentation of digital technology. Through Figure 5, we can understand that the overall data is a relatively average attitude, "interesting", "interaction", "immersion" attention is basically the same, the "visual" experience is not more prominent. From the audience's point of view to carry out the integration of digital media technology and museums, it is necessary to carry out a rigorous user experience, systematic analysis of user behavior, zoom in on the pain points of the audience to conduct detailed research, to realize the good construction of digital technology and music museums.

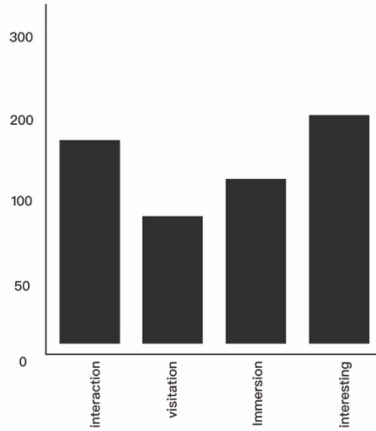


Fig. 5. Manager’s attitudes toward applying results

With the continuous development of digital technology, interactive experience and emotional value have been more and more concerned by people, and digital interactive activities have gradually been popularized and developed in all aspects of people's lives. In colleges and universities in the design of cultural communication and cultural and creative products, it is characterized by the transformation of design practice from traditional one-way output to two-way communication with interactive attributes, and combined with the design concepts and development direction of the new era.

This paper summarizes the flow chart of the overall design ideas in Figure 6 based on the comprehensive research on artists, managers, and audiences as well as the analysis of various functions in digital media technology, which focuses on the analysis and research on the innovation opportunity points and sorts out the direction of the next planning and design in the museum. In the current exhibition process of digital technology-assisted museum presentation, it has been in a positive state of good development, constantly increasing awareness, analyzing the pain points from a comprehensive perspective, and the digital presentation of the museum has gradually formed a complete system, ushering in a more comprehensive upgrading and development [5].

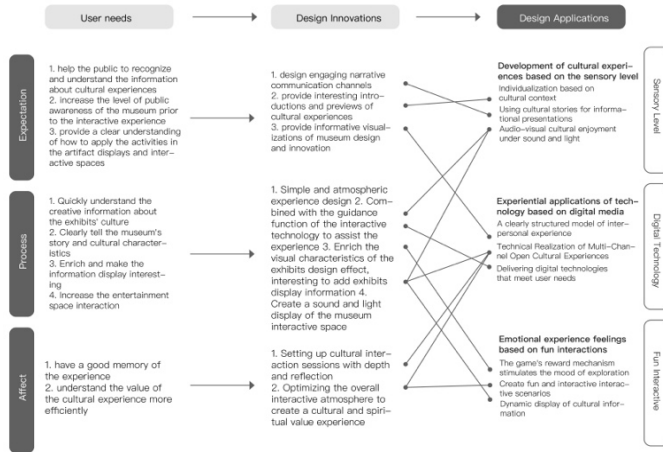


Fig. 6. Manager’s attitudes toward applying results

5 CONCLUSIONS

Based on the survey and research data, this paper affirms that the use of digital media technologies to support artistic presentations in music museums is positive and can be beneficial to museums at the right time, place and context. Through the comprehensive analysis of pre-experience, experience, and post-experience, the digital activities that artists, managers, and audiences are more concerned about are immersive experience, interactive experience, visualization experience, and fun experience. Digitalization is the road to future development, in the museum art construction and digital technology to combine can bring more development space for its development, for the development of digital technology also brings more development paths, the study of digital narrative style and the link between the museum, in order to achieve the digital technology museum and art design of the construction of the systematization of the digital experience to continuously strengthen the development of the development of the application of a complete museum space development .

REFERENCES

1. Hepp, A., Hjarvard, S., & Lundby, K. (2015). Mediatization: theorizing the interplay between media, culture and society. *Media, culture & society*, 37(2), 314-324.
2. Petersen, A. R. (2010). Painting Spaces. *Contemporary Painting in Context*, 1, 123.
3. Bonini Baraldi, S., and P. Ferri. 2019. "From Communism to Market: Business Models and Governance in Heritage Conservation in Poland." *Journal of Management and Governance* 23 (3): 787–812. doi:10.1007/s10997-018-09448-8

4. Li, C., and S. Ghirardi. 2019. "The Role of Collaboration in Innovation at Cultural and Creative Organizations. The Case of the Museum." *Museum Management and Curatorship* 34 (3): 273–289. doi:10.1080/09647775.2018.1520142
5. Wang Zhiou. Using technology and art to create Chinese cultural memory - Wang Zhiou on digital media art [J]. *Design*, 2020, 33(12): 76-81.

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

