

# Research on the Application of Storytelling in Display Spaces

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**Abstract:** The 21st century is a very perceptual era, the interpretation of happiness and games are highlighted, so interactive space displays are of great significance. In the interactive display space, significant changes are necessitated, driving rapid transformations in display methods. Modern exhibition spaces have shifted from mere listing, explaining, and introducing items to adopting narrative display themes that communicate content and materials in an emotional and vivid manner. This has led to the emergence of a new display method, “displaying the content through stories,” which imbues the experience with fun and interest. The use of narrative techniques in display spaces allows for the simultaneous fulfillment of visitors’ desires to acquire information about the displayed content while offering a more expressive and enjoyable experience. It successfully meets the dual needs of visitors, providing both fun and information at the same time. In addition, it also has the advantage of technology convergence. Through the use of digital media technology, the content of the story can be expanded, allowing visitors to participate in the interactive display, so as to achieve an immersive visiting experience.

**Keywords:** Storytelling; Display space; Resonance

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## 1. Background and purpose of the study

This article attempts to review the changes in display design in recent years from the perspective of using narrative techniques in display spaces. In this, article we focus on case studies and analyzes the future trend of digital storytelling in display designs. Through the analysis, we attempt to predict the evolution and transformation of display design while uncovering the fundamental principles of the storytelling display method based on the characteristics of narrative stories. Exhibition spaces today introduce the theme of the display including its content and materials in a way that is vivid and stimulates emotions. Recently, storylines have become an indispensable means of presentation in various fields such as marketing, IT industry, art, architecture, and content industry. At the same time, this narrative technique can satisfy the visitors’ need to obtain information and provide visitors with a fun experience at the same time. In addition, it also has the advantage of technology convergence. Through the use of digital media technology, the content of the story can be expanded, allowing visitors to participate in the interactive display, so as to achieve an immersive visiting experience. Therefore, in order to understand the

correlation between storytelling and display space, this paper systematizes the characteristics and methods of storytelling display methods based on a field trip to a storytelling display space and case studies of storytelling in display spaces, and provides a basis for storytelling design.

## 2. Research method and scope

Firstly, the concept and properties of storytelling was studied through research of existing literature. Secondly, the changes brought about by the application of storytelling techniques in display designs were analyzed.

Thirdly, through the analysis of display cases utilizing narrative stories, the fundamental characteristics of this method and its effects were understood.

## 3. Concept of storytelling

Telling a story is a portmanteau of “story” and “telling,” meaning “to tell a story or to narrate a story”<sup>[1]</sup>. It refers to the act of creating a certain story or expressing it to others, which can be understood as a kind of “communication.” After all, storytelling is a way of presenting, and information or knowledges can all be considered as stories. The concept of story and multimedia communication or “talking” and interactive “presentation” is a technique that reflects the attributes of stories in the 21st century. Storytelling is a complete structure, including the story itself, the storytelling method, the speakers and listeners, and means of expression other than voice<sup>[2]</sup>.

## 4. Concept of display

The word “exhibition” means display in English, and the word “exposition” in French has the meaning of explanation. Both sentences originated from an exhibition about painting. In addition, “display,” which is derived from the Latin word “displicare” also have meanings such as unfolding, showing, and revealing. However, exhibitions of commodities, works, and products with commercial purposes are different from the non-profit and social service exhibitions carried out by science museums or common museums. There are differences in the concept of presentation for social service purposes. In addition, the word “place” used in the East is usually enumerated without special meaning, while “display” contains a strong and active intention to explain to the outside world<sup>[3]</sup>.

There are four aspects to display design: the object that is introduced, the space where the object is displayed, the subject that the object is conveyed to – the visitor, the time corresponding to the cycle and period of the display<sup>[4]</sup>. A summary of the features shown is as follows:

- (i) The content that is conveyed by the object is the most important factor in determining the direction of the display design, taking into account the shape, color, and material characteristics of the display object. It includes not only real objects such as product, consumer goods, cultural properties, and valuables, and tangible objects such as models, but also invisible objects such as images and information. Especially for the display objects in virtual spaces, which are in are in a network environment, all objects are digitized and turned into immaterial objects for display.
- (ii) Space refers to the place or environment where the object is displayed, which includes the floor, the walls, and the ceiling. The space serves as a communicative environment connecting the object and its audience. In situations where physical space cannot accommodate the object or its meaning, a virtual space might be created for display. Furthermore, advancements in information and communication

technology have led to the expansion of virtual exhibition spaces and increased visitor engagement.

- (iii) The visitors, who are the targeted information receiver, can be subdivided according to age group, gender, and living standards. Display planning, including content, methodology, and spatial layout, is significantly influenced by the target audience. This applies to both physical and virtual spaces. In virtual environments, users act as visitors, engaging with exhibits as they navigate for relevant information <sup>[2]</sup>.
- (iii) Time in display refers to the object’s temporal context, including the period of display, the durability of the object, production process, seasonal relevance, contemporary relevance, color scheme, and motion arrangement. Time sensitivity determines whether a display is permanent or temporary, and these categories can also be blended to suit the display’s characteristics <sup>[3]</sup>.

## 5. Relationship between space and storytelling

### 5.1. Ways to display items

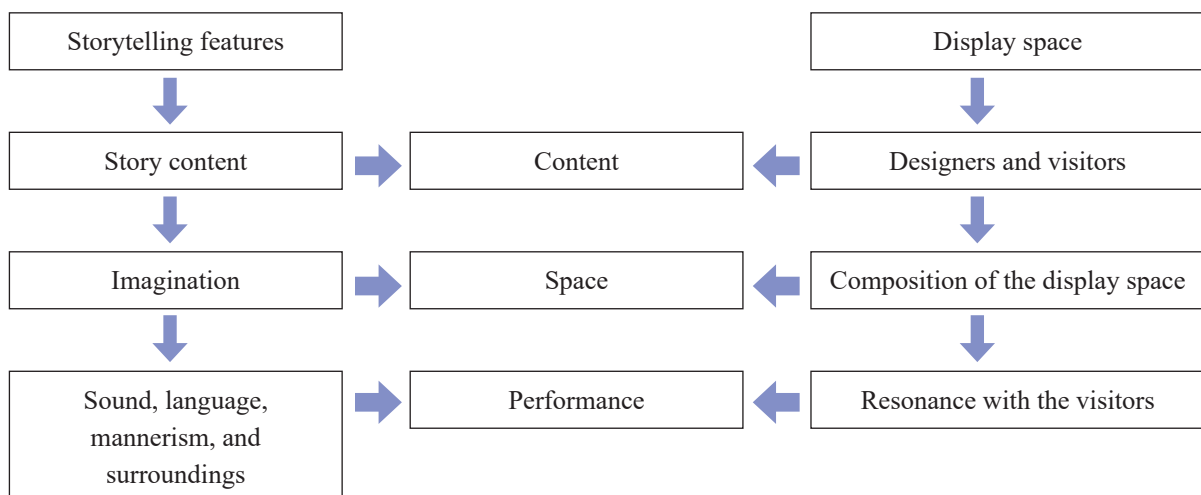
In traditional exhibition spaces, artworks are typically displayed in a straightforward manner. It is essential to analyze both the methods of creating exhibition spaces and presenting artworks. Performance is used in space displays to communicate content, inviting visitors to engage with artworks. Recent exhibitions have evolved to focus on interactive experiences for mutual communication <sup>[5]</sup>. To enable adaptable responses and facilitate interaction, display spaces should adopt decentralized approaches that foster two-way engagement <sup>[6]</sup>.

### 5.2. Display space and storytelling

The contemporary display approach extends beyond mere observation, emphasizing a storytelling method that deeply connects with the artwork’s content. This immersive approach can offer viewers a novel understanding or interpretation of the narrative concept. Storytelling in display spaces involves designers emotionally engaging with the content, conveying it to visitors through narrative. This requires interaction, imagination, and listening, creating a narrative framework to convey the theme and information. The structure comprises a core story with surrounding events, facilitating feelings, learning, perception, joy, memory, and comprehension among visitors <sup>[7]</sup>.

### 5.3. Relevance of display and storytelling

The correlation between display and storytelling is analyzed through the aspects of content, space and performance, as shown in **Figure 1** <sup>[8]</sup>.



- (i) Storytelling at the content level  
Apply story features to organize display content; thus classify different display content according to certain story content <sup>[2]</sup>.
- (ii) Storytelling at the spatial level  
In the spatial arrangement of space-time design, integrating the storyline into exhibit design aids in effectively segmenting display content. This facilitates visitor interaction with the scenes, evoking resonance <sup>[9]</sup>.
- (iii) Storytelling at the performance level  
The story of the displayed content can be told using different methods, so that the public can have a fuller experience <sup>[8]</sup>.

## **6. Telling the story by digital technology**

### **6.1. Concept and development process of digital story**

Stories are one of the most primitive forms of self-expression. For the longest time, human beings have been telling stories through different media like novels, dramas, movies, news, etc. Stories exist beyond time, place, and society. Nowadays, storytelling has become more digital.

Digital storytelling is storytelling through digital technology as a media environment or means of expression. In other words, a person's story can be shared through various media, namely digital images, texts, voices, sound, music, videos, and animations. Thus, digital storytelling has the ability to transform a story into a multimedia work that captures the audience's attention and provides an emotional experience. Methods of digital storytelling include computer games, animation, film, etc. Narrative content is distinguished from traditional storytelling such as novels by interactive, networked, and complex digital media characteristics. The purpose of digital storytelling is to imbue stories with value and make them more relevantly exploitable through multimedia technologies <sup>[1]</sup>.

The digital museum exhibition design method employs digital media, characterized by the following: (i) Interactivity – diverse media-user and media-media interactions. (ii) Network – influenced by the global wired and wireless network <sup>[10]</sup>. (iii) Composition – combining text, sound, video, and other elements for narratives. Digital stories unfold in real-time or nearly so.

### **6.2. Digital story and display design**

#### **6.2.1. The trend of exhibition design**

Displays serve to establish a new communication system between the audience and the displayed objects. Exhibition is a communication method that conveys information, thinking, and emotions associated with material evidence in human history and the surrounding environment to the public mainly through three-dimensional visual media <sup>[11]</sup>. Display design primarily aims to create a suitable environment for preserving exhibits. However, its ultimate purpose is to provide a visual connection between exhibits and visitors. This means ensuring that visitors can comfortably and authentically engage with exhibits, enhancing their experience of the aesthetic value. The process of achieving this ideal arrangement is what we refer to as display design <sup>[12]</sup>.

Display design involves a combination of communication methods within a single act of display. The key is to maintain the essence of the materials while effectively conveying the exhibition's message through display elements. This requires understanding the interaction between visitors and exhibits and exploring spatial techniques that guide visitors. Each display method has its own characteristics, and the expected display effect can only be achieved when there are complementary systems. The appearance of a display varies based on the

exhibition hall's nature and the exhibits themselves. This variation results from employing specific display techniques tailored to the exhibit type and characteristics, utilizing their respective performance methods. Through individualized planning and interpretation of suitable display techniques for different exhibits, the optimal display effect can be achieved <sup>[1]</sup>.

Displays have evolved into a “sensory experience” instead of just being a tool for visual communication through including experiments and operations. This creates an active display that engages all five senses of the visitors, making their experience more captivating and facilitating information conveyance. In particular, visitors of different ages can enjoy and experience an exhibition using high-tech, high-touch, high-media cutting-edge technology and media facilities such as images. In addition, robots controlled by computers, stereoscopic images, Omnimax with large screens, multi-image systems, and Fanta-View (Magic-Vision) that mix and match image performance and modeling performance have become important elements of today's exhibition facilities, but its applied deduction, compounding, and other techniques are being presented at different levels <sup>[13]</sup>.

### **6.2.2. Interactive display design method for digital story and display design**

Technology has continuously evolved over time, marked by distinct phases. In the 16th century, it was about “seeing” (eyes-on), followed by the “touch” (feels-on) emphasis in the 19th century. The 1960s introduced “interaction” (hands-on), and the 1980s brought about “cognition” (minds-on). In the present, the focus is on engaging emotions and feelings (“hearts-on”). The society will be moving towards an era of cross-time-space networking and scattered microprocessor functions permeating into the human activity space. In the field of display, museum environments that incorporate digital technology are also being designed <sup>[14]</sup>. With the development of digital technology and the expansion of the digital environment, the functions and status of exhibition halls, including museums, will also undergo tremendous changes.

Changes in exhibit design happen due to the impact of ubiquitous technology. Based on the digital story, the interchanging relationship of the exhibition components is as follows:

(i) Digital story made from the object

The digital story of the object not only refers to the part of the object itself that contains this story, but also refers to the interaction between the object and the visitor to create another story [15].

(ii) Route of digital stories

Digital stories are integrated into the exhibition layout, connecting objects and spaces to establish a narrative flow. They play a key role in shaping the arrangement of exhibits and spatial layout, ultimately guiding the visitor's path. When objects hold captivating narratives, visitors naturally follow the designated route, ensuring a sequential experience. The utilization of digital stories for route planning alleviates the necessity of creating physical pathways, easing the workload for exhibition space designers. In an exhibition space, the routes can be categorized as free-viewing, designated-viewing, or a blend of both, determined by the exhibition's content and purpose [1].

(iii) Direction of digital story

The attributes of digital storytelling find application in display techniques. The narrative approach of digital storytelling aligns with the exhibition's content. Interaction, non-linearity, and composite nature manifest as interactivity, connectivity, and multimedia components in form, space, and media choices. These digital storytelling traits are not just superficially added, but instead, emerge organically when integrating narratives into presentation methods <sup>[2]</sup>.

## 7. Case study

### 7.1. Case overview

The correlation between display space and storytelling is divided into three aspects: content, space, and display method. The application and characteristics of storytelling in display spaces are analyzed through case studies.

### 7.2. Case analysis

#### 7.2.1. Teddy Bear Museum (Gyeongju, South Korea)

Teddy bears have been loved by people of all ages since their birth in 1902. Jeju Teddy Bear Museum is the first and largest teddy bear museum in Korea, which displays diverse content. The museum is divided into multiple exhibition areas according to different stories, including History Hall, Art Gallery, Curated Exhibition Area, Field Garden, Outdoor Stage Area, Elvis Presley Arena, Museum Cultural and Creative Store, Orange T-Shirt Areas, etc. Different display spaces areas are set up according to different storylines, so as to attract visitors and resonate with visitors.

(i) History Hall

In the History Hall, visitors will get to can watch the history of teddy bears and human beings across 100 years. Visitors will get to take a “time machine,” look back on 100 years of human history with the teddy bear (Marty) from the future, and admire teddy bears collected from all over the world since 1902.

(ii) Art Gallery

In the Art Gallery, visitors will get to enjoy the world’s most expensive teddy bear Louis Vuitton bear and a 125K bear made of 125 carat gemstones. There is also an original teddy bear who played an active role as Ending Bear in the popular drama “Palace.”

(iii) Curated Exhibition Area

Visitors can find special teddy bear works in the Curated Exhibition Area. These works constitute a variety of exhibitions and experiential exhibitions presented with ideas unique to the Teddy Bear Museum. Depending on the visit schedule, the contents of the exhibition may vary.

(iv) Field Garden

In the Field Garden, visitors can watch the blue sea of Jeju Island with a teddy bear. The Field Garden overlooking the seaside of Jungmun Byeda is composed of a lawn square and a walking path, where you can enjoy the sea breeze and the natural atmosphere.

(iv) Slow Bear (Outdoor Stage Area)

Marty, who visited the past 100 years of human history, bought the world’s largest teddy bear as a gift.

(v) Elvis Presley Arena

Visitors will get to see teddy bear born as “King of Rock.” At the Elvis Presley Arena, visitors can enjoy a teddy bear reenactment of Elvis Presley’s famous hit show every 15 minutes.

(vi) Museum Cultural and Creative Store

In the museum store located in the lobby on the first floor, there are not only a variety of authentic teddy bears, but also T-shirts, bags, stationery that resemble the teddy bears in the museum.

(vii) T-shirt by Orange Tea

Taiwan’s (China) top fruit tea brand “Orange Tea” started in 2003 in Taiwan, China.

#### 7.2.2. Seoul Museum of History

The Seoul Museum of History is divided into five exhibition areas according to the historical timeline of Korea, so that visitors can better understand the history of Korea.



(i) The first exhibition hall

The first exhibition hall exhibits the 500-year-old capital of Seoul in the Joseon Dynasty from 1392 to 1863. Hanyang is the starting point and terminal of the inflow and outflow of civilization and culture, and a place of life and culture. Seoul, formerly known as Hangyang and Hangcheng, is the capital of South Korea.

(ii) The second exhibition hall

Seoul during the Korean Empire was based on tradition and had a dream of the imperial capital from 1863 to 1910. In 1897, North Korea changed its name to the Korean Empire and carried out large-scale urban transformation.

(iii) The third exhibition hall

The shadow of the modernization of Seoul during the Japanese occupation period from 1910 to 1945. Seoul during the Japanese occupation period quickly became a modern city. The colonial city tempted Koreans, but did not integrate them into it.

(iv) The fourth exhibition hall

Seoul was a huge city and it developed rapidly from 1945 to 2002. After liberation in 1945, Seoul became the capital of a sovereign country. The beneficiaries rapidly developed into a huge modern city. At the same time, it also left behind the “big city syndrome” such as allergies, environmental damage, historical heritage damage, and social polarization, which became an issue during the “compressed growth period” in Seoul.

(v) Hall 5 Seoul, Today and Tomorrow and City Model Video Hall

The City Model Video Hall miniaturizes the entire city of Seoul at a scale of 1/1500. The city model video hall is a learning place for students and citizens to vividly understand Seoul’s natural and urban environment. It introduces Seoul’s development history and future prospects to foreigners who come to Seoul, and improves the city image of Seoul. This is also a multi-functional exhibition space for educational seminars such as city lectures based on new thinking. By telling stories, visitors can better understand history, and it is easier for children to have an intuitive understanding when visiting.

### 7.3. Summary

As a result of the comprehensive analysis of the characteristics of storytelling in different cases, it can be concluded that the objects of interest can be displayed in the form of a storyline, and a hybrid viewing route can be created for the visitors. Besides, performances can create resonance between the displays and the visitors.

### 8. Conclusion

This article discusses the application of storytelling in display spaces, which can be divided into three aspects: content, space and performance. the objects of interest can be displayed in the form of a storyline, and a hybrid viewing route can be created for the visitors. Besides, performances can create resonance between the displays and the visitors. On this basis, to clearly convey the content and the theme of the display to the visitor, it is necessary to first determine the theme of the display and the storyline of the show, with a complete plot and script. In addition, it is also necessary to anthropomorphize the displayed materials to stimulate the perceptual thinking of the visitors through touching and operating. Therefore, the story-based museum achieves this through the combination of various displays, performances and stories, and realizes two-way communication and interaction between visitors and the exhibition space. Visitors can better understand the content of the exhibition space through the story-based display method. At the same time, the interactive nature of exhibition

design built upon digital storytelling guides visitors to engage with exhibit information and the digital story's temporal and spatial context. This intensifies the immersive interaction experience, facilitating a seamless blend between exhibits and the exhibition space, enabling visitors to grasp and experience the theme conveyed by the exhibition.

## Disclosure statement

The authors declare no conflict of interest.

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