Research on the Communication Effect of Digital Collection in Museum Based on the Analysis of Review Text

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Abstract: Museum digital collections have become a new form of museum communication, stimulating the public's interest in and love for cultural relics, and better promoting the dissemination of culture. This paper takes China's largest digital collection selling platform - whale probe as an example, selects the digital collections that have been on the hot search list of literature and culture and blogs for at least one consecutive month in the platform, grabs the largest sample size that can be grabs with the help of Fiddler and Python to analyze it, and applies text analysis to analyze the information dissemination effect of the digital collections of museums in terms of the depth of communication. The information dissemination effect of digital collections was analyzed in terms of communication depth. It is found that external image identity, internal emotional identity and economic value identity affect the identity of the audience group from the depth of communication.

Keywords: museum digital collections, Communication effect, NFT.

1. Introduction

From non-fungible token (NFT) [1]to digital collections with Chinese characteristics [2] based on China's policy environment, cultural precipitation, consumer demand and technology accumulation, digital collections are developing rapidly in China, and digital collections will have a significant impact on museums.[3]

Museums are important institutions responsible for the dissemination of history and culture, as well as the main distributors of digital collections. At present, there is a lack of research on the dissemination effect of digital collections in museums, so it is necessary to conduct in-depth research in this field.

2. Research status

At present, the academic research on digital collections is mainly divided into four categories: one is the discussion on the cultural value and social function of digital collections, such as "Research on the Development of Digital Collections in Museums from the Perspective of Cultural Value"[4], "Exploration, Thinking and Prospect: Meta-Universe and Museums"[3].

The second category is the discussion of the risks and challenges faced by digital collections, such as "Analysis of Legal Risks and Solutions in NFT Digital Collections Transactions"[5] and "Copyright Protection of NFT Digital Collections from the Perspective of Meta-Universe"[6].

The third category is to explore the development of digital collections by different cultural institutions, such as "Thoughts and Suggestions on the Development of Digital Collections in Public Libraries"[7] and "Research on the Development and Design of Digital Collections in National Museums of China"[8].

The fourth category is the discussion of the current situation and communication strategies of digital collections, such as "Research on the Influence Mechanism of NFT Digital Collections Adoption Willingness-Based on Grounded Theory Method"[9], "Development Orientation, Production Logic and Communication Strategy of Cultural Digital Collections in the Age of Intelligent Communication"[10].

3.   Methodology

This study uses text analysis to analyze the information dissemination effect of digital collections in museums from the depth of dissemination, including the sword of the King of Yue, the bronze statue of the tiger head in Old Summer Palace, the bronze galloping horse and other digital collections on the hot search list of cultural relics for at least one month. This article uses Fiddler and Python to grab the largest sample size that can be grabbed, totaling 13259. After obtaining the samples, the data was first cleaned, and 1067 pieces were left after eliminating the dynamic language and unknown expression packages automatically generated by the official default.

4.   Results

4.1.   External Image: Image Identity in Audiovisual Narrative

The visual form of museum digital collections has been upgraded iteratively for many times, from 1.0 2D browsing pictures to 2.0 3D digital models, and then to 2.5 3D digital models + customized interaction.[3] The spectator identity undergoes a transformation from a passive recipient to an active participant [11], and then develops into a co-creator. At present, museum digital collections mainly create immersive experience for the audience from two aspects of interactive immersion and narrative immersion.

4.1.1. Interactive and immersive

The innovative technology revives the cultural relics cyber, which not only gives the audience a sense of reality to see the fresh cultural relics, but also makes the cultural relics "alive" through advanced technology. Museum digital collections present every detail and texture of cultural relics perfectly through high-definition scanning, 3D printing, virtual reality and other technologies, such as audience comments that "enlarged texture is also clear, out-of-print reproduction of cultural relics". In the comments on the digital collection of "Bronze Galloping Horse", the number of mentions of "running" accounted for a weighted percentage of 0.73%, with relevant comments such as "The horse's running is so vivid and vivid!".

At the same time, the new technology gives users a sense of ownership and play, so that the audience can change from audience to interactor. In traditional museum exhibitions, the audience is a one-way passive recipient, who can only appreciate cultural relics through glass, lacking the sense of interaction. "AR", "3D" and customized interaction give the audience a sense of participation, which makes them change from passive recipients to active participants. In the comments, "AR" and "3D" were mentioned by a weighted percentage of 0.83% and 0.62%, respectively. One user said:

"Who would have thought that I would use digital collections to help my son with his homework today. I think I have opened a new world of digital collections. The pictures in the book are flat and will not move. My sword of King Yue is 3D. "

4.1.2. Narrative immersion

Museum digital collections use scene experience and AR experience technology to combine audio-visual, through scene reproduction and narrative, to give users an immersive experience of "separation"[11], to a certain extent, "rebuild the worship of" here and now "[12]. For example, some collections are based on the creative background of "Nephew Memorial Manuscript" in that year, through interactive scenario-based production, users can feel the works from the perspective of the first person through multi-node interaction in space and participate in the creation of works in the way of "embodied presence".

4.2. Inner Emotion: Dialogue and Communication under Common Emotion

Empathy is the core value of digital collections. "Empathy" is the embodiment of the interaction between the audience themselves, the interaction between the audience and the audience, and the interaction between the audience and the digital collections.[13] The empathy of museum digital collections is transmitted through identification. Identity is about a person's identification of his social and psychological identity, which is usually presented through self-identity, group identity and historical identity.

4.2.1. Self-expression deepens self-identity

In the context of social networks, positive self-presentation makes individuals pay attention to and strengthen their positive qualities, creates a positive self-image for individuals, and strengthens their sense of self-worth and self-esteem [14,15].which may promote the development of self-identity.[16]Museum digital collections, with the thickness and precipitation of history, often trigger collectors' self-exclamation, and the positive self-expression on the platform further deepens their self-identity. Some audiences named their digital collection "Horse to Success", which collected sixteen museum digital collections about horses, such as "Hu people leading horses bronze figurines" and "bronze carriages" and wrote prefaces for the collection to send messages to life.

4.2.2. Self-presentation seeks group identity

Self-presentation was first put forward by Goffman, who compared people's daily life to a performance with drama theory, which is a process in which people adjust their behavior according to different audiences and environmental differences, to impress others. [17,18] Platform provides a space for expression and catharsis. Audiences can show themselves and entertain themselves in the virtual space in the background, and gain group identity through group interaction. There are two main ways of expression:

The first way is to gain recognition by displaying their representative collections. In the process of seeking group identity, many people choose the strategy of positive self-presentation, that is, individuals selectively present positive personal information.[19] For example, an audience said: "When the painted bronze chariot and horse No.1 of the Qin Mausoleum were grabbed, they were happy to take off.". I just want to show off.

The second way is to gain recognition through social links of interest. According to the Birmingham School, shared culture and interests are central to group identity. Virtual communities connect groups through their interests so that they can gain recognition when they express themselves.

For example, expressions such as "welcome to see, praise each other" or "like cultural relics can be exchanged" often appear in comments, emphasizing the group identity brought about by common interests.

4.2.3. Progressive historical identity

Museum digital collections not only provide a channel for the audience to express themselves and interact with each other, but also affect the audience's emotional cognition, and gradually guide their transformation from cognition to emotion and then to behavior. First, the comments deepen the audience's understanding of history and culture. For example, the audience commented: "The first 3D collection obtained by the whale scout, the bronze galloping horse, also known as the horse stepping on the swallow, is a national treasure. The digital collection enables us to better understand Chinese culture and give it value through the digital form." Secondly, the comments strengthen the emotional connection between the audience and the historical relics. For example, some comments said: "It's very pleasing to open and look at when you are free. I really admire the wisdom of the ancients!" "Looking back on the vicissitudes of life, what can I say with endless feelings. At this point, there is no king, only the first sword in the world. Finally, the audience may change from cognitive emotion to concrete action, for example, the audience commented: "In a few weeks, we must go to Gansu to see the real thing, perhaps the horse stepping on the swallow has become the most beautiful landmark of every tourist city."

4.3. Economic Value: Appreciation and Collection in the Expectation of Value

In terms of scarcity, the scarcity of cultural relics themselves, the number and form of digital collections issued by museums will affect their dissemination effect. For example, digital collections such as "Qin Mausoleum Painted Bronze Chariots and Horses No.1" and animal heads are very popular, and some audiences commented: "Happy to take off when you grab them.". The limited number of digital collections issued makes it more difficult to purchase, and the weighted percentage of "robbery" mentioned in the comments is 7.02%. There are two ways to issue collections: one is to issue in the original state of cultural relics, which is usually close to the real cultural relics, and the other is to issue in the second creation, which is more artistic and creative. However, users are more inclined to original cultural relics and less interested in second-creation cultural relics, and the homogenization of digital collections of second creation appears. In terms of practicality, digital collections should meet appreciation expectations and value expectations, and audiences expect to appreciate cultural relics more intuitively through 3D projection technology and pay attention to their appreciation potential and collection value. In terms of security, digital collections need to pay attention to platform security, technical security and creator security. Platform risk, block chain and NFT technology risk, as well as the credibility of creators will affect user trust and purchase desire, so we need to pay attention to brand building and word-of-mouth management to improve the communication effect.

5. Conclusions and recommendations

This study finds that digital collections in museums affect the audience through external image identification, internal emotional identification and economic value identification. In terms of external image, museum digital collections use 3D, AR and customized interaction technologies to provide interactive immersion and narrative immersion experience. In the aspect of inner emotion, the audience deepens self-identity and group identity through self-expression and self-presentation, and gradually deepens the historical identity from cognition to emotion and then to behavior. In terms of economic value, the scarcity, practicality, and security of museum digital collections affect the

audience's appreciation and collection. Overall, museum digital collections have become an important factor in reconstructing and transforming the chain of Chinese spiritual communication from the aspects of cultural empowerment, spiritual communication, emotional maintenance and digital assignment, gradually forming a unique mode of Chinese spiritual communication, and realizing the strategic goal of disseminating Chinese spirit, telling Chinese stories well and shaping Chinese image. However, museum digital collections are facing risks in terms of policy, technology and market, so it is necessary to improve the legal supervision mechanism, strengthen enterprise compliance management and protect and inherit historical culture, to promote the innovative development of Chinese excellent traditional culture and the creation of high-quality digital collections.

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