

How Does Live Streaming Improve Educational Efficiency in Museum Education?

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ABSTRACT

The museum provides visual education activities for the audience with displays composed of physical objects and other auxiliary forms. The mass media are now much more diverse than ever before, and live streaming has become one of the most popular new media because it is real-time, novel, and interactive. Therefore, it is necessary for the museum to provide education live streams to renovate educational activities. Live streaming makes museum education more real and can provide real-time interactive educational activities and exchanges. It can also accommodate a huge learning group at the same time, breaking the geographical restrictions of museum education. This article takes Liangzhu Archaeological Site Park as an example, sorts out the practical path of live streaming museum education, analyzes its difficulties, and proposes some countermeasures to improve the efficiency of museum education.

Keywords: *Museum; live streaming; Public education; Liangzhu Archaeological Site Park*

1. INTRODUCTION

The Internet becomes a necessity for the material and cultural life of the common people. On the one hand, the internet has changed the way people connect with each other even including how to pay; on the other hand, the internet bridges the gap between people and things or places which have existed because people cannot go freely wherever or whenever they want to. The constraints of communication should be broken, and traditional culture and modern technology should be combined.

As one of the main cultural learning resources, museums play important roles to meet the needs of common people. When people walk into and stand in the museum, observe and experience the exhibits, museum education takes place. [1] The development of communication strategies based on the learning cognitive characteristics of the audience makes museum education more targeted and effective. At present, many domestic museums have adopted a variety of educational communication methods. However, these methods have a small dissemination range and low efficiency, and have not achieved good educational results among the public. With the development of new media technology and the emergence of live streaming, museums have innovated educational forms and narrowed the distance with the public. This has a strong practical significance for the effectiveness of museum education [2].

2. ADVANTAGES OF LIVE STREAMING IN MUSEUM EDUCATION

2.1. Real Scenery Education

Live streaming provides scenes online. Unlike traditional communication methods that use texts, still, pictures, audio and video as the carrier, live streaming uses real-time images to greatly enrich the content of information, making information shared with the audience more vivid, and leading to positive information spreading and so the public can better understand what is going on by experiencing real-time scenes instead of watching or reading scenes. Although many museums currently reproduce exhibits in a form similar to virtual digital museums, what live streaming brings is more real with a host and a group of audience from the real world as part of the exhibition. In the virtual digital museum, what learners see is just the digitally processed exhibits, which still lack realism comparatively. In conclusion, through the live streaming of the museum's on-site exhibitions, learners see the real-time scenes and exhibits in the exhibition hall, which is a real sensory experience of coming to the museum education scene.

2.2. Real-time Interactive Education

Another advantage of live streaming is that the host and the audience can do real-time interactivity. During the museum live streaming process, learners cannot only send live

commenting to raise questions or requests to the live streaming hosts, but also express praise and likeness to the hosts or the education program by liking or giving virtual gifts, and the hosts can also respond to them immediately. This can narrow the learners' psychological distance away from the museum education programs. Besides, learners watching live streaming can also interact with each other during the live streaming process by reading and responding to live commenting from others. In this way, a discussion on a certain exhibit and the historical allusions behind it can be formed through live streaming, which will bring learners an unprecedented sense of participation, further stimulate learners' curiosity about the exhibit and its history, and thus improve the educational effect.

2.3. For a Larger Learner Group

According to the statistics launched in March 2020, the overall scale of netizens in China was 904 million, including 560 million live webcast users, an increase of 163 million users from the end of 2018. During this period of time, museums mainly used their official Weibo and WeChat to do their live streaming. By the promotion, the number of fans of Weibo and WeChat of each museum has increased from tens of thousands to millions. This was the pre-live streaming period in China. During this period, with the increase of fans watching live streaming online at the same time, one single museum education program has a far larger learning group than ever before. With more and more learners, museum education works more effectively benefiting more people.

2.4. Access for Learners Wherever

With the popularization of mobile smart terminals, almost all commercial vendors are using 5G networks. This has made it possible for people to watch live streaming anywhere and anytime. As a result, the transmission and presentation quality of webcasts is further improved. By live streaming, people from different regions can browse the excellent exhibits of various museums through the Internet at home. Especially during the COVID-19 period, all cities are locked down, everyone is at home to quarantine, and museums in various places have to be closed. People were worried about the COVID-19 and anxious about the changed daily life, and so the cultural needs of the public are stronger than what is needed in common life. To meet the needs, on February 23, Taobao's live streaming room opened the first round of "Cloud Spring Tour". Eight well-known museums (academies) including the National Museum of China, Dunhuang Research Institute, Gansu Provincial Museum, and Suzhou Museum entered the room, and the total education series programs attracted 10 million people. It can be seen that the museum live streaming can not only provide cultural services across time and space, but also extend the region

and time border of museum cultural services and the value of education has been maximized.

3. LIVE STREAMING MODELS IN MUSEUM EDUCATION

Museums are classified according to different standards, and for various purposes, there are a variety of exhibitions with their characteristics. So live streaming should be carried out based on what exhibition they are doing for [3] [4]. This article takes Liangzhu Archaeological Site Park as an example to analyze the way of museum education live streaming practice. Liangzhu Archaeological Site Park is situated in the urban area of Hangzhou, the capital of Zhejiang Province and is one of the large-scale cultural sites, including historical remains, and ancient tombs with outstanding cultural values. These large-scale cultural sites are typical in China, and reflect the country's historical changes, and so they have become the basic parts of the country's historical and cultural heritage. At the same time, after nearly 10 years of archaeological excavations, in March 2016, the media released to the public the news about the Liangzhu King City and its prehistoric large-scale water conservancy system spread over 100 square kilometers. The water conservancy system engineering system at the periphery of Liangzhu King City has an important position and great value in the civilization of China and the world. The Liangzhu cultural relics provide evidence for the origin of Chinese civilization from water conservancy. Water conservancy is closely related to people's livelihood projects, and hence how to use live streaming to improve the educational effectiveness of the large water conservancy site museum is of great significance. The current live streaming models adopted by the Liangzhu Museum mainly include the following ones.

3.1. On-site Live Streaming Education

Physical exhibitions are the main way for museums to carry out cultural education. The purpose of exhibiting cultural relics is to attract visitors to have close contact with history. In the age of information and networking, simply watching can no longer satisfy visitors' demand for contextualization and plotting of information. Therefore, live streaming, which focuses on exhibiting cultural relics and is supplemented by webcasting, can fully pass the information behind the exhibits and make the story of the exhibits more colorful through intuitive scenery shows. For example, the "National Treasures Talk on Cloud" series launched by the Liangzhu Museum organizes museum professionals to show a certain piece of national treasure and present these treasures they introduce. They talk with learners on cloud about the related knowledge of these national treasures, including jade, pottery, water conservancy facilities, sacrificial supplies, etc, in the way as treasure narrators, and the learners come to know the social life in the Liangzhu period 5000 years ago.

3.2. Single Live Streaming Lectures

Academic live-streaming lectures are also common in live streaming. Although it is already in the Internet age, museum education visitors are not among "abused entertainment fans" who are crazy about all museum education programs no matter what the programs are about and how they exhibit. They choose whether to learn and how long to learn with critical thinking in the process of receiving cultural relics' information. They have a strong thirst for knowledge about museum exhibits in deep. In addition to receiving the information displayed on the exhibits, they also urgently need to understand the stories behind the exhibits. However, at the museum exhibition sites, it is difficult for learners to learn more in detail from the basic cultural relics' brief introduction. Treasure knowledge and stories, therefore, through the form of academic live-streaming lectures, such as "a report of Liangzhu", "a lifetime of patriotic sentiments", "the discovery of the report of "Liangzhu", can meet learners' deep learning needs so as to know the patriotic story of Liangzhu cultural discoverer Shi Xingeng.

3.3. Series Themed Live Streaming Programs

Some other themed events of the museum have also been moved on to the live streaming platform. For example, on the first anniversary of the successful application of the ancient city of Liangzhu, the Liangzhu Museum organized "Nature and Cultural Heritage Day" program, and conducted series of live streaming on the theme of "Meeting Liangzhu-Weili Qiankun", which has been presented nationwide. This program showed the world the rich collection of Liangzhu Museum and has been reported by Xinhua News Agency, People's Daily and other media.

4. WHAT MAKES MUSEUM EDUCATION WITH LIVE STREAMING DIFFICULT PRACTICALLY

Although museums all over the world have tried live streaming on various platforms already, live streaming technologies are still developing, and therefore there are still a lot of uncertainties in the exploration of improving the effectiveness of live streaming cultural education. Take Liangzhu Archaeological Site Park as an example, the main problems include the following aspects.

4.1. Live Streaming Education Faculty Needs to Be More Professional

Live streaming is a new job for museum staff and so they are not richly experienced with it. In addition to introducing what the treasures are and explaining what makes them valuable like what they have been doing with their on-site traditional job, it is also necessary for them to

interact with learners and adjust the rhythm of information transmission in time when the staff is running the live streaming. At the same time, it is also necessary to understand the currently popular online language. The museum staff themselves have not received professional new media training, and they are still improving their language ability to provide learners with more vivid exhibition information and thus enhance the program's popularity on the Internet. They remain in the traditional mode of explanation. It is difficult for a single model of "education" to resonate with the younger generation, leading to the loss of learners.

4.2. Live Streaming Schedules Needs to Meet Learners' Requirements

The time and content arrangement of the museum's live streaming are the most important factors that attract learners to watch and trigger positive feedback link sharing. New media communicators have their unique favor with learners' topic and time arrangement. Taking time arrangement as an example, generally, the favored time is the fragmented one. However, the current live streaming is arranged on the morning of working days, which is inconvenient for most of the working people. When the learners are working, the live streaming hosts are working, when the learners are at break at the noon of working days or in the evening, the live streaming hosts are also at break. At the same time, the duration of the live streaming varies from hours to a few minutes. Sometimes several experts are invited to lecture for hours on a certain topic. Although the lectures are interesting, learners who are interested in such a topic cannot watch all the way time because they do not have much time.

The appropriate live streaming time that most learners can accept is basically within 10-15 minutes. Therefore, live streaming that is too short will be considered too casual and lacking in depth, and live streaming that is too long will lead to the loss of learners.

To improve the efficiency of the museum's live streaming cultural education, and bring learners the museum's positive educator image, the duration of museum education live streaming should meet the needs of the public.

4.3. Live Streaming Technology Needs to Be Improved

Due to the need for the protection of cultural relics, museum exhibition halls are often dimly lit, and explanations are basically carried out indoors, which makes it difficult for live streaming to show the treasures better. Besides, the network signal inside is weak and unevenly distributed. Video and audio screen freezes can be easily caused when live streaming is going on inside [5]. The transmitted images are inevitably either too bright or too dark, the image quality is sometimes vacillating, noisy, and rough, which directly affects learners' mood. At the same

time, there are no technicians to maintain the stability of the network in the live streaming process. What is worse, the live streaming will be disconnected for a period of time because there is no signal inside sometimes, and the transmission effects of the live streaming are sometimes poorer because the supporting technology is still advancing.

5. SOLUTIONS TO MUSEUM EDUCATION LIVE STREAMING PROBLEMS

Only by changing the traditional museum education model and adopting learner favor oriented live streaming education model, can museums improve educational efficiency and enlarge live streaming audience. By carrying out a comprehensive transformation in terms of the rich content of museum education and flexible time arrangement, the learner favored live streaming technology, etc., we can fundamentally change the status quo of the low efficiency of cultural education from learners in the process of museum cultural education development, which has been deeply promoted to enhance the effectiveness of museum cultural education [6].

5.1. Providing High-qualified Content of Live Streaming Education

Knowledge and interest are important for high-quality content of live streaming. Currently, the exhibits of most of the museum live streaming are often good but lack good background stories. [7] The main reason why CCTV's "National Treasure" series can attract great attention across the country is that the scriptwriters fully excavated the information and stories of each national treasure, combined them with related rich cultural relics, and adopted interesting and life-oriented stage dramas. The story of the past and present of the national treasure is interpreted in an easy-to-understand way. Therefore, the museum fully integrates the exclusive resources of the museum, integrates professional information into the common daily life live streaming, applies professional knowledge to convince learners, and popular Internet language for learners to enjoy the live streaming process, and thus attracts visitors' attention so as to turn them to be museum fans. This is a very practical and effective way to produce live streaming content.

5.2. Aiming to a Certain Group of Visitors

Traditional museological experts believe that the education and service of museums should focus on the public in general. Obviously, this kind of omnidirectional and full coverage of learner positioning model is unscientific in live streaming museum education. Because unlike on-site learners who visit museums on purpose and leave museums after finishing enjoying all the exhibitions, learners online are more casual and hopping on and off the line freely and

frequently during the whole museum education live streaming process.

With a high expectation of producing one program for full learner coverage, museum's live streaming turns out to be an unsatisfactory result. Museum education live streaming should aim to meet the needs of a certain group of people instead of for all. According to a survey of how old the live streaming audience is, people aged from 19 to 40 occupy the largest population percentage. [8] The audience of the museum is mainly middle-aged and young people because the museum education programs require well culturally educated audience who can understand what the programs about. Therefore, live streaming needs to calcify learners into different groups with more detailed and concrete learning goals.

5.3. Asking for Multi-party Cooperation with More Social Institutions

Different from general live streaming, the museum education live streaming is not only the display of a certain scene, a cultural treasure or a picturesque lecture, it is also a platform for the information exchange between the hosts and the audience on some cultural treasures or relics and the promotion of the cultural and creative products or knowledge. In addition to the content experience of live streaming, the hosting ability of the host, including live streaming interactive communication skills and related culture knowledge, and the quality of the picture of the live streaming can all affect the favorability and attention of learners.[9] As a special social education service organization, and with a public welfare nature, the museum has inherent deficiencies in information technology and the live streaming facilities are not highly modernized. On the contrary, the market-oriented commercial organizations have rich live streaming facilities but lack museum education resources. Taking the market-oriented Multi-Channel Network Organization as an example, it has excellent host resources and advanced technical capabilities but lacks welcomed cultural and creative products for consumers to sell during the museum live streaming process. When market-oriented commercial organizations cooperate with museums, the latter can run their live streaming better and actively develop museum cultural and creative products, so that learners can enjoy visual feasts and receive relevant cultural education while buying cultural and creative peripheral products related to the exhibits to further expand the scope of museum cultural education.

5.4. Establishing Live Streaming Guarantee and Evaluation Mechanism

One of the main functions of live streaming is to give learners a sense of presence through real-time interaction. In addition to the treasure stories, quality content aimed for well-educated learners and advanced live streaming

technology, a complete network live streaming guarantee and evaluation system should be established. For example, during live streaming, professional answers should be provided to learners' on-site live commenting and questions, and the hosts should comment on the learner's positive questions directly and positively, which could increase the loyalty of the learners.

At the same time, the data of each live streaming should be monitored and recorded, including the number of learners and how long these learners were learning, and their feedback. Scientific statistics and analysis of the museum education live streaming will continuously improve the quality of live streaming.

6. CONCLUSION

Museums are not the first choice for people to visit. Therefore, the museum education live streaming has to break the time and geographical boundaries of museum education and empower museum to be a better national treasure and act as a kind of storytellers for the treasures and relics. At the same time, during the live streaming, everyone can express their views on the content, format, and method of live streaming. This instant interaction breaks the boundaries between the museum and its visitors, the educators and the educated, the knowledge sharers and receivers, which is a new way for museum publicity, marketing, and education. By insisting on the live streaming with high-quality content, the learners' learning goals are refined, by seeking multi-party cooperation with social commercial organizations to attract more museum lovers, and by improving the live streaming facilities and technologies, the museum education live streaming practice and management guarantee and evaluation mechanism will be established and the museum education will play a greater role in people's daily cultural life in the future.

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REFERENCES

- [1] Shan Jixiang. Social Responsibility and Social Education of Museums[J]. *Southeast Culture*, 2010(06):9-16
- [2] An Laishun. Museums and the Public: One of the Core Issues of 21st Century Museums[J]. *Chinese Museum*. 1997(4):17-27+43
- [3] Yang Dandan. On the Sustainable Development of Museum Educational Activities—Taking the Youth Education Activities of Capital Museum as an Example[J]. *China Museum*. 2010(1):70-73
- [4] Wang Xiujiang, Wang Ying. Research on the Strategy of Realizing the Educational Function of Children's Museum Exhibition Items—Taking the Lao Niu Children's Discovery Hall of China Children's Center as an example[J]. *China Museum*. 2019(3):87-93
- [5] Zhang Jianping, Xia Wenjing. Research on the Mechanism and Strategy of the Combination of Digital Museum and School Education[J]. *China Audio-visual Education*. 2016(1):79-85+108
- [6] Shi Jixiang. Museum audience research is the basic point of museum education research—A new discussion on the definition of museum audience[J]. *Southeast Culture*. 2009(6):95-99
- [7] Zheng Yi, Lu Jiansong. Museums must "re-exhibit" and more importantly "education"[J]. *Southeast Culture*. 2012(5):101-109
- [8] Bai Ying. Analysis of Museum's Application of New Media—Taking Webcast as an Example[J]. *Museum Research*. 2017(1):71-74
- [9] Fang Huichao, Fu Songju. Research on the Value and Trend of the Model of "Museum+Webcast"-Taking the live broadcast of the Guqin concert in Zhejiang Museum as an example[J]. *Sound Screen World*. 2020(2): 99-101