Formal Innovation and Content Exploration in Digital Cultural Programming: Under the Digital Culture Boom

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Abstract: *Today's technological boom brings opportunities and challenges to push the boundaries of cultural programs. Along with the application of digital technology, cultural programs are constantly innovating, achieving "digital breakthroughs", showing a new look, and how to realize the digital innovation of cultural programs under the prevalence of the virtual world in the future is also worth exploring. This paper will firstly analyze the transformation of digital technology from trial to application in cultural programs and the breakthroughs brought by it, meanwhile, it will analyze the experimentation and success of digital cultural programs in the current stage, and look forward to the innovation of digital cultural programs in the virtual world in the form of the future based on the development of the current technology. Finally, it will explore what kind of content can be presented in digital cultural programs under the wave of cultural digitization, and the powerful civilizational power of the virtual world behind it.*

Keywords: *Cultural Programs; Digital Technology; Virtual Worlds; Digitization of Culture*

1. Introduction

In the context of the new era, how to give full play to the contemporary value of the long-established culture and realize the inheritance and innovation is still an issue of the times that needs to be pondered. The continuous innovation and development of cultural programs in the context of the booming development of emerging technologies such as AR, for example, provides a solution to this problem of the times. Along with the in-depth use of digital technology, the transformation and innovation of cultural programs have begun to bear fruit. And along with the integration of digital technology, utilizing the powerful force of the virtual world, there is more room for innovation in the form and content of programs.

2. The "digital breakthroughs" of cultural programs - from trial to application

2.1. The incorporation and addition of cross-media narratives

Before entering the platformization of society, the development of interactive technology was not perfect, and the initial cultural programs mostly used multi-screen interaction to realize cross-media communication and increase audience participation. In the 2017 *Chinese Poetry Competition*, viewers can answer questions simultaneously with the contestants in the program while the program is broadcast. The "big screen" linked to the "small screen", and the "screen" linked to the "off-screen", which brought more fun and participation to the audience.

With the development of Platform Society, human has shifted from "digital survival" to "platform survival", and cross-media and cross-platform narratives have become one of the main means for cultural programs to expand their influence. The program *Everlasting Classics* has set up columns on WeChat platform, such as "Learning Classics with Kang Zhen" and "Classical Trivia", which has fully exerted its influence on the social platform. Besides, The program *China in the Classics* has been soliciting content on microblogs and social networking video sites, as well as conducting discussions on topics such as "If Qu Yuan had witnessed today's China's aerospace" in order to have a good interaction with the program's audience. In the process of media integration, cultural programs adjust their contents according to the preferences of audiences on different media and platforms, realizing the

effect of "multi-screen resonance".

The "Participatory Culture" advocated by American communication scholar Henry Jenkins advocates that audiences can fully utilize the power of the word "active" in the term "active audience", and that instead of being passive receivers of culture, audiences become active secondary creators of content. With the development of mobile Internet technology, which provides technical support for cross-screen interaction and cultural participation in TV variety shows, the use of technological mechanisms to guide the synchronized production of TV and social media, create a long-tail effect, and achieve a wider range of visibility will greatly satisfy the cultural consumption habits of users, especially young groups, who are eager to participate in and love interaction, and provide a richer space for traditional culture[1]. From the first attempt to the skilled use of cross-media and multi-media joint interaction, it gives full play to the audience's subjective initiative of the secondary creation of the program content, and make cultural programs get rid of the old mode to achieve convergence with the new era and the new era of the audience, moving towards a new stage of high-frequency interaction with the audience.

2.2. Construction and application of immersive technology

In addition to the development of interactive technology to bring innovation to the program, the rich audio-visual technology means and the use of virtual reality technology, but also for cultural programs to bring the magnificent transformation of digital, bringing a richer audio-visual experience.

On the one hand, rich stage design and audio-visual technology have brought culture and audiences closer together, creating cultural programs that are more enjoyable to watch. The theater performance in *China in the Classics* cuts the entire stage scene, including the tunnel as a link, into four performance areas to show the past and present lives of the canonical books and their protagonists, and allows the audience to follow the "contemporary readers" across the ancient and modern worlds, and to talk to the ancients. This stage design, in the words of the artistic director of the stage, is "not only to realize the new creative concept of dialogue across time and space, but also to bring the audience an immersive viewing experience". Obviously, the rapid development of stage photography technology and audio-visual equipment, more and more rich rendering, mixing, editing means, for cultural programs to bring more diversified levels of experience, but also continue to stimulate the innovation of the program form.

On the other hand, the development and application of virtual reality technology has replaced the old way of presentation, allowing cultural programs to enter a unique "experience feast" era. The classical dance program *Palace Banquet in Tang Dynasty* which made its debut at the 2021 Henan TV Spring Festival Gala, utilizes Modern digital technology such as 3D and AR to combine the virtual scene with the real stage, allowing the dancers to perform among the series of national treasures in the Henan Museum, and the background is integrated into the ancient paintings, such as *Court Ladies Adorning Their Hair with Flowers* and *A Thousand Li of Rivers and Mountains*, which will give the audience an unprecedented visual experience. Furthermore, *Chinese Archaeology Assembly* allows the audience to be present at the archaeological site through VR extension presentation and other technical means, the audience can unravel the veil of mysterious historical and cultural heritages, explore the secrets buried in the land for thousands of years, and feel the culture behind the cultural relics that extends over the long river of history.

For the cultural program itself, the real meaning of "participation and interaction" is not only in the form of interaction, but also on the level of the heart[2]. Therefore, the in-depth use of audio-visual technology and virtual reality technology, which brings more three-dimensional sensory experience, realizes the breakthrough of cultural programs from "far-sightedness" to "near-playing", and makes it possible to realize deeper spiritual interaction.

3. Formal Experiments in Digital Cultural Programming - From Online to Presence

3.1. Acceleration of formal innovation by the industrialization of digital content

At present, several virtual world platforms have gradually emerged in China, including XiRang launched by Baidu and TMELAND launched by Tencent. In XiRang users can create their own virtual images, communicate, see exhibitions, etc.; and in the first domestic music meta-universe created by Tencent can organize virtual New Year's Eve music festivals, brand parties and so on. The "digital

doppelganger" created by the user in the virtual world can shuttle in all kinds of scenes, breaking the physical limitations of time and space, and realizing the digital interconnection of all people. The diversity of platforms in the virtual world has, to some extent, brought opportunities for digital innovation in cultural programs, and in the future, when virtual worlds are prevalent, digitized cultural programs can take advantage of the class infrastructure of the digital content industry to achieve more formal breakthroughs.

In addition the gradually accelerating pace of digital content building is also building momentum for program innovation. Along with breakthroughs in core technologies, the speed of digital content building is increasing. The technology used to create Tencent's avatars stems from Tencent's Siren project, a virtual human that Tencent partnered with Epic and other companies in 2017. But as time comes to 2021, when Tencent and Xinhua News Agency collaborated on the development of the first digital astronaut "XiaoZheng", the team completed the entire process of modeling, designing and 10-minute short films in just three months. This means that the efficiency of technological iteration is constantly pushing the cultural industry forward to revolutionize and build up strength for a new round of cultural industry change.

3.2. The "next level" of the immersive interaction model

For Jaron Lanier, the purpose of virtual reality technology is to "share imagination and live in a world where we can express images and sounds to each other." Here, the so-called "mutual expression" stands for the fact that in such a virtual environment, the relationship between people and their environment can be interactive[3]. And this kind of "digital interactive" which make full use of digital technology and breaks the time and space limitations after the birth of virtual world , brings ideas for digital cultural programs to achieve format innovation. On 2022 China's Youth Day, CCTV launched *Striving Youth - China's Youth Day 2022 Special Program* which was broadcast on CCTV channel and Tencent's launch of the music meta-universe TMELAND respectively. Not only did the hosts enter the virtual world as "digital human", but nearly one million users also joined the virtual world as "digital human" to celebrate the festival. During the program, users can cheer and dance, do tasks, and interact in real time, which realizes the transformation from the traditional "online" viewing experience to "presence" participation and interaction. The China's Youth Day special program's cyber experiment, on the one hand, realizes keeping up with the trend of the times and connecting with the popular culture and youth culture. And on the other hand, it plays the leading role of mainstream media, which makes the cultural industry and the cutting-edge technology combine in depth, and takes the first step of the co-creation of the cultural industry and science and technology in the era of the virtual world.

If the use of technology that continuously enhances the sense of immersive experience at the current stage is to build a bridge between cultural programs and audiences, then the more realistic, diverse, and even beyond the user's imagination design, brought about by virtual world technology, has the potential to truly realize the breaking down of the electronic barrier and usher in a brand new form of cultural program experience.

4. Program content based on digital culture - from "1" to "N"

4.1. Cultural content goes from the macro-narrative to the micro-detail

Cultural digitization has been on the rise in recent years, and one of the most familiar to the public is the *Digital Dunhuang*. The first virtual reality roaming project, "Finding Dunhuang", utilizes a variety of cutting-edge gaming technologies to restore Cave 285 with high precision, and netizens can log on to the website to enjoy the murals and participate in the story behind the murals from a 360-degree distance. The external digital Dunhuang exhibition utilizes virtual reality and augmented reality technology to create a 360-degree panoramic image, with the help of VR and AR smart glasses, enabling the audience to view the panoramic view of the caves and related content in a variety of virtual experience ways, both at a fixed point and on the move[4]. The digitally preserved sites are free from geographical, temporal and spatial constraints under the auspices of technology, and tell us about millennia of historical and cultural heritage. Xi'an Datang Everbright City has created the first "Datang Kaiyuan" meta-universe project based on the cultural and historical background of the Tang Dynasty, in which the technology company has worked with two nationally recognized teams of digital ancient architects to create a bustling Chang'an city with millions of inhabitants. In this virtual world, users can tour the streets of Chang'an, shop and experience a unique digital tour.

The gradual development of digital culture allows the details of culture to be recorded and presented, and the public can understand the details of culture at multiple levels from macro and micro, which also lays a solid foundation for the digital cultural programs in the virtual world to show more rich and three-dimensional cultural content in the future. For example, to create a cultural program to show the audience ancient paintings, you can use virtual world technology to restore the world of a pair of ancient paintings, combined with historical and cultural restoration of the details of the dynasty, leading the audience to travel through the past and present to appreciate the historical landscape across the centuries and millennia, and to experience the customs and people of the time and the spirit of thought. In fact, the creative transformation and innovative development of cultural heritage information is indispensable in order to convey the stories behind the culture to the audience and build a good communication bridge between the audience and the excellent traditional culture[5]. Therefore, breaking the traditional macro-narrative and adopting micro-detailed narrative may be one of the ways to realize innovation in program content. With the construction of the virtual world platform and the multimodal interaction that enhances the sense of experience, the audience can not only understand the cultural lineage from the macroscopic representation, but also go straight to the microcosm to see the details of the culture that are not known to the general public.

4.2. Multi-faceted cultural presentations and immersion experiences

Initially, the content of cultural programs was usually monolithic, with traditional program performances being the most common form of presentation, but nowadays, with the constant iteration of technology, multiple paths have been explored for innovation in program content. *China in the Classics* continues to adopt the program mode of *China in the Stories*, including "Drama performance", "Expert Reading" and "Classics Reading Meeting", and at the same time, "Dialogue between the Ancient and the Modern World" is added on this basic framework. Relying on the multi-scene switching and the immersive stage construction, the brand-new and more ornamental content of program has a richer and more diversified form of expression. Then in the upcoming era of the prevalence of virtual worlds, creating digital cultural programs to achieve more layers of expression and a more immersive program viewing experience may be an opportunity to realize the innovation of digital cultural programs.

In the upcoming meta-universe society, the natural man, virtual man, and robot are in symbiosis and coexistence, and the production efficiency and perception ability of human beings will be greatly enhanced. In the post-modern anthropomorphic society, the perception of cultural value will not only be obtained through the visual and perceptual shock, but the mobilization of all the senses will also realize the full transformation of the cultural exhibition to the cultural experience[1]. On the one hand, using virtual worlds to create digital cultural programs can showcase culture through richer cultural narratives. For example, the audience can look at the past and present to see the upheaval of a book to feel the antiquity of the past life of the book, or follow the ancient characters or people in paintings to visit the reproduction of the historical and cultural space, such as Chang'an City in the Han and Tang dynasties, Beijing City in the Ming and Qing dynasties, and so on. The construction of the virtual world has in fact facilitated the expression of multi-level forms, and digital cultural programs can either take an omniscient perspective or an individual perspective of the characters to develop the cultural narrative, or allow the audience to travel in the cultural and historical space to feel the culture and experience the culture. On the other hand, digital cultural programs relying on virtual reality technology can realize "cultural zero distance", create a full-sensory cultural experience and a richer audio-visual feast, so that the audience can feel the charm of culture, explore the cultural content and appreciate the spirit of culture in a more immersive way.

4.3. The power of virtual worlds to spread and pass on civilization

Emphasizing the use of virtual technology to achieve innovation in digital cultural programs is not only driven by technological innovation, economic and cultural factors, but also by the questioning of the era's proposition of cultural dissemination and inheritance under The Society of the Spectacle. In the face of deepening globalization and the vicissitudes of history, cultural heritage is facing the problem of preservation, and it is also a major challenge to realize the practical benefits of cultural dissemination and to bring traditional culture closer to the general public. And the use of virtual reality has become one of the means of solving problems today.

On the one hand, the importance of virtual reality technology for cultural heritage preservation and reproduction of cultural content cannot be overstated, and digital cultural heritage is now recognized by

UNESCO as a technological tool for cultural heritage preservation. Accompanied by the recovery of culture by virtual reality technology, cultural heritage hand in hand with the meta-universe, manifesting the civilization power of the virtual world[5]. And digital cultural programs can not only build program content based on digital culture, but also vice versa to let culture into the public's view, so that it has more influence. Under the escort of technology, the cultural lineage can be continued, and culture also breaks the limitations of time and space to play its value.

On the other hand, the virtual world is one of the strongest sources of motivation for the dissemination of culture. The existence of the virtual world allows users to enter the culture, experience culture at any time and anywhere. And compared to the traditional form, more rich sensory experience of the virtual cultural world, bring the audience a more profound cultural experience, which is conducive to the far-reaching dissemination of culture.

It can be seen that the virtual world itself has a powerful force conducive to the spread of civilization, civilization inheritance should not be underestimated. Television cultural programs themselves shoulder the mission of passing on history and culture, and bear the responsibility of improving the cultural literacy of the whole nation as well as inheriting and spreading cultural traditions[2], therefore the construction of digital cultural programs may be one of the answers to the proposition of the times. Digital cultural programs can rely on this to achieve a new breakthrough in content and form, and inject powerful momentum into the dissemination and inheritance of civilization.

5. Conclusions

Behind the transformation of cultural narratives in every era, there is an ever-changing technological turnover that builds momentum. From the initial trial to the subsequent skilled use, more and more diverse media technology such as AI, VR is applied to cultural programs presenting the unique charm of today's era, culture is also more integrated into the mass media to achieve wide dissemination, set off a boom. In the upcoming era of virtual world, in order to realize the deeper and more eternal development of culture, and to let cultural programs give full play to their value under further digitization, it is necessary to constantly combine technological innovations in program format and content, so as to let culture break the barriers of space and time, and realize digital immortality.

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