Technology Empowerment: Video games - Another Platform for Cultural Communication

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ABSTRACT
The development of video games is inseparable from the reliance of information technology. In recent years, with the development and wide application of 5G technology and virtual reality technology, the game industry has shown a spurt of development and the number of game users has been increasing, and while the video games have penetrated into people's daily entertainment life, it has become a topic worth discussing to think about how to increase the cultural and social value of video games. This paper discusses the advantages and values of traditional culture dissemination in video games from the perspective of technology empowerment by referring to previous relevant studies and analyzing the current situation of existing video games and looking at the influence of technology on the development of video games.

Keywords: *Video games, Technology, Cultural Communication, Traditional Culture*

1. INTRODUCTION

Video games are interactive games that run on electronic media platforms. Electronic video games develop together with their physical devices and can be divided into arcade video games, handheld video games, TV video games, computer video games. Mobile video games rely on their carriers. Therefore, the development of the video game industry can be studied through the development of physical devices.

In the Internet era using video games gradually becomes an important area for the construction of cultural soft power, and video games going abroad to spread culture also becomes an important way for regional cultural export. As a cultural product itself, video games have cultural bearing function and their social value should be shown through cultural connotation, however, the investment of existing video games in capital and technology far exceeds their proper cultural connotation. Nowadays, the maturity and popularity of virtual reality technology make the video games make a great leap in interactive operation, 3D scene visual performance and virtual world establishment, which attract more players and provide a convenient platform for cultural dissemination.

The development process of video games is accompanied by the development of equipment. In the 1960s, the first game "space War!" ran on the PDP-1 minicomputer in 1962. In the 1972, "Galaxy Game" was born in the development of the arcade industry. By 1980s, microcomputers had promoted the innovation of video games in technology and genre. During the millennium, the development of the handheld industry, the improvement of Intel processor computing power and the reduction of costs greatly promoted the popularity of games and the development of the industry. Since the 21st century, the rapid development of computer hardware, the development and popularization of mobile phones, 3D technology and 5G technology have promoted the development and maturity of online games and mobile games.

2. FOREIGN RESEARCH STATUS

The application and development of game industry and related technology in foreign countries are relatively early, and the corresponding research results are relatively mature. Scholars have studied the interaction with video games at multidisciplinary levels, from educational, technological, psychosocial and behavioral levels. In terms of game technology devices, Michael Brown, Aidan Kehoe, Jurek Kirakowski and Ian Pitt have proposed how to use technology to create better user experience in HCI technology and game controller design; Oliver Wolter Nielsen, Miriam Krebs, Michael Holton Hovgaard, and others have explored the relationship between players, game controllers, and game worlds from the perspective of immersive experiences by

studying game cases and reconceptualizing the interactions between the three.

In terms of game education, there are Dellamarsto Bagus, Kevin Setiawan, Panji Arisaputra and others who have explored the ethical and moral education of children by replacing parents and teachers with serious video games.

3. CURRENT STATUS OF DOMESTIC RESEARCH

Domestic related research started late, and the research perspectives are fragmented, and the overall performance is not very mature.

At the level of game technology, Li Ye analyzed and compared the interactive operation interface and different game systems on wearable devices and came up with the general principles of interaction design for augmented reality video games. Qian Wenjun explored the development trend of VR video games in the 5G time.

In the cultural communication heritage of video games, Bao Wei, in his article "Research on traditional cultural communication of cell phone online video games", summarizes the experience based on the existing problems of game cultural communication by combining the theory of mass media cultural communication and analyzing two relevant game cases to come up with an optimization plan. Liu Chengyue and Zhang Hongshu put forward the importance of integrating traditional culture into independent innovation in the construction of China's cultural soft power

From the perspective of social value, Huang Shi clarifies the relationship between game characters and the establishment of users' psychological cognition in "Game character design from the perspective of users' psychology". Wang Bo discusses the ethics of players and virtual game design itself in Ethics about Video Game Design.

To sum up, there are more previous research on technology, game and culture independently, but there are relatively few research on the interrelationship among them. Therefore, this paper tries to stand in the perspective of technology negative energy and combine the previous research results to explore more deeply the influence of technology on game and culture communication, and try to propose new research directions and provide new ideas for game designers.

4. THE EXPERIENCE OF THE GAME WITH VIRTUAL REALITY TECHNOLOGY

For the game industry, every technological advancement brings huge market opportunities and challenges. Today, in the context of a society flooded with 5G and virtual reality concepts, video games are also constantly adapting to the new environment, boldly making new changes, whether it is in internal technology and external experience, and striving to innovate the gaming experience to drive the industry forward.

4.1. Game engine development, presenting a visual feast

For the development of game products, the world's major Internet manufacturers and studios are constantly exploring. In addition to the iteration of the hardware function of the device, the content performance level of the product is also being updated. One of the most noteworthy points in these two years is the trend of 2D towards 3D. 3D technology can be considered pivotal in the future development of game production.

With 5G, the popularity of hardware with AR/VR function and the development of cloud gaming, players' demand for immersive experience, high quality, 3D real-time rendering is growing, and human-computer interaction in 3D scenes becomes the future development trend. The perfection of game visual effects is the fine rendering of game elements, which is of inescapable importance for players to experience the culture of virtual game world.

The improvement of the visual experience of the game can not only drive the development of the industry, but also welcome more players. Crytek has used the game engine cryengine to produce the "The land " to set the benchmark for game quality. Another two and ctyengine and known as the industry's three mainstream commercial engine Unreal, unity is also expanding its market share. Unity-engined "Genshin Impact" attract a group of players simply by relying on a wonderful visual experience. Unreal has played an important role in the effectiveness of PC video games such as the infiltration game "Splinter Cell" and the MMORPG (massively multiplayer online role-playing game) "Lineage II".

4.2. Wearable devices that create a multi-sensory experience

The flexibility and interactivity of the video game is what makes it different from other entertainment products. Among the five human senses of sight, sound, touch, smell and taste, video games can mobilize one of them, and the pivot of this link is the interaction between the player and the game. Interaction is an important part of the connection between video games and players, and the user interface of video games is the key medium of communication between players and video games, which contains the inner function logic and outer performance, and aims to help players reach the use.With the progress of sensor technology, algorithm and hardware and software architecture, perceptual interaction based on visual and motion capture will be one of the main

directions of game interaction in the future, and AR/VR has also been brought to the forefront under this trend, plus the intervention of intelligent game interaction devices, rich and realistic game physical sensation seems to be the current the necessary requirements of the game.

Video games such as "Half-Life: Alex" and Fallout 4 VR have taken a bold stab at emerging technologies. VR games in the context of network technology allow players to wander through make-believe, reality. The more detailed game quality and more realistic confrontation created for players in the future will also allow for a qualitative leap in game experience and game format. Although the current game VR has not yet reached the expected mature effect, but from the perspective of cultural dissemination, immersive game scenes is the close contact with the culture it contains, is undoubtedly an excellent platform for cultural propaganda and heritage.

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4.3. 5G Internet era, the game across the platform restrictions

The development of 5G Internet technology has undoubtedly played a role in boosting the development of the audiovisual industry. Compared with 4G, 5G network has the characteristics of low latency, high broadband and fast speed, and for the video game industry, cloud gaming is the product of this era background. Cloud gaming is a kind of cloud-based game, with cloud servers, cell phones and other convenient devices can become the game entrance, users can skip the tedious process of local customer download to easily join the game. For example, Microsoft's cloud gaming plan "project xCloud" and Google's cloud gaming platform "Stadia", allowing the game software data and computing store in the cloud, people just need to access the server through the network, then they can play High-configuration video games with lower configuration (such as cell phones), and do not need to purchase their own expensive hardware. In addition to liberating players from the constraints of hardware, there are multiple application scenarios and interaction methods that can be explored. For video game industry,

the increased speed of network distribution means an increase in the number of game users and an expansion of the market, which in turn creates opportunities for the spread of culture.

5. THE IMPACT OF VIDEO GAMES TO SPREAD CULTURE

Smooth Internet speed, popular gaming platform and wide choice of game genres have led to the proliferation of gaming users, and thus the gaming industry has entered a rapid development stage. video games, once a niche hobby, have become a daily entertainment product at people's fingertips and an important part of people's spiritual life, which increasingly influences people's life behavior and even their way of thinking. Therefore, the influence of video games and the culture they contain on human beings, enterprises and the whole society is huge. However, we have to admit that the current video games are mainly driven by commercial interests, abusing technology, focusing on the pursuit of visual appearance but seriously lacking the support of core culture, and the assembly-line production method is difficult to produce classic works. Therefore, it is imperative to improve the cultural connotation of video games, and the value brought by the integration of culture to video games can be analyzed mainly from the perspective of culture, business and technology.

5.1. Cultural Value

The cultural value of cultural products is generally reflected in the inheritance of traditional culture and the shaping of the existing cultural environment.

The first is to traditional culture. Cultural IP is the core of spreading culture with video games. Usually, the video game world is established based on certain existing classic cultural works, and then the story and characters are rewritten in an innovative way. Its advantage is that the masterpiece canon has a clear and strict story line, and the characters and plot are familiar to the public and easy for players to accept. In addition, during the design process of the game, existing artistic and aesthetic elements are integrated into the existing image, which inherits and at the same time caters to the spiritual needs of the current users and is the dissemination and innovation of traditional culture.

Take the handheld card game "The Undertaker" as an example. This game is based on the Japanese anime work of the same name and is based on the Shinto culture of the Heian period in Japan. The game's plot comes from a dismantling of the original plot, the scenes are created with reference to Japanese architecture, and the characters are good and evil and full of images. For the players, they will integrate with the game characters they controlled and become part of the game environment gradually, and the culture of which gradually penetrates

into the players' cognitive system. Because of its acceptability, it is very popular in Japan and China. Such a game with cultural heritage stands out among similar products, and culture is inherited in innovation.

Moreover, the excellent game products can create a good cultural atmosphere. Nowadays, video games occupy a large part of people's recreational life, especially for young players who are not yet mature, video games have a more important educational guidance significance. Take "Assassin's Creed" as an example, after the destruction of Notre Dame in Paris, countless players remembered this building in the game, which also aroused people's concern about the protection of cultural heritage. On the contrary, in the current video game market, most products are designed to pursue commercial profits, so those video games are only designed to meet the psychological needs of players, while ignoring the possible negative effects.

5.2. Commercial value

Video games as a cultural industry itself has commercial value, and the video games on the market today reflect more the results of technology applications. Excellent visual effect and control gameplay is indeed an effective way to attract players and win profits, but from a long-term perspective, video games with cultural values that can withstand deep digging can occupy a favorable position in the current competitive environment and make long-term profits.For example, Tencent's Glory of Kings, in addition to its exquisite visual design and innovative interactive gameplay, contains classical cultural stories from the Three Kingdoms period of China, and the lines of the game's narrator are also full of a strong sense of famous ethnicity, all of those cultural factors are contribute to its popularity in the market.

From the Vertical view, media forms with a certain level of cultural acceptance are more likely to expand their markets. For example, when film and television were the mainstream platforms of mass media, the hit Korean drama "Dae Jang Geum" introduced people around the world to Korean traditions such as food culture and traditional clothing, and the peripheral products related to the drama were also very popular among consumers, which effectively led to the development of the region's economy. It also opened up channels for Korea's subsequent cultural exports and gave it an edge in the cultural industry market. Therefore, in the era when the medium of video games is prevalent, the integration of cultural elements into game mechanics has great commercial potential. The worldview structure of a game based on a certain culture has a more lasting appeal. Assassin's Creed, for example, has created a new vision of the game that incorporates the history of Western mythology that has attracted countless players and kept them talking about the game's storyline long after they left the game. The game has been a huge

success in both the industry and the business field, and the ensuing spin-off movies and novels are selling well around the world. This shows the huge economic value of the use of cultural content in game design.

5.3. Technical values

Games are a platform for technology to show its cutting-edge achievements. The relevant technology provides video games the ability of visual presentation and optimizes the performance, therefore, the rapid development of the game is also the embodiment of the rapid development of technology.From the technical level, the cultural embodiment of the game is mainly focused on the visual level, such as the design of the ornaments based on the artifacts, the design of the accessories worn by the characters and the design of the architectural scenes with reference to the legacy monuments, the exquisite visual presentation of these cultural elements in the culture are the physical symbols of the value of technology.In 2021, Handmade Planet and Tencent's Great Wall Protection Project Team jointly launched the Great Wall Protection Project, using 3D scanning, real-time rendering, cloud storage and other technologies to restore 1:1 the 1,005-meter Panjiakou Great Wall in the western section of Xifengkou. This initiative is a manifestation of the protection of historical relics and sublimates the value of using technology in game visual design.

The use of game peripheral products to expand technology. Game peripherals are an important means of consolidating the culture of playing games and expanding the influence of game culture. Recently, the wide application of NFT art in game peripheral artifacts has become a hot topic. In simple terms, NFT is a digital asset with uniqueness based on blockchain. It can ensure the uniqueness of digital products, which is the protection of the ownership of game culture products, and also encourages the contribution of technology to the culture and art industry.

6. CONCLUSION

In the era of 5G Internet, the video game industry presents a heyday. In terms of game performance, 3D technology and virtual reality concept wave of all kinds of game effects are getting more and more fine, taking players a brand new experience, but mere show-off of technology is far from enough. Injecting traditional cultural elements into the video games world construction and using cutting-edge technology to integrate cultural elements with the virtual world of the game is the innovation of traditional culture and the embodiment of the social value of the game.

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