Study on digital design of comic strip

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Abstract. At present, we are in an era of rapid information development. The popularization of the Internet and mobile terminals makes information exchange more convenient. WeChat public platform, baidu, weibo, xiaohongshu and other platforms are still thriving. How to make the comic strip keep up with the trend of The Times, come into sight again, and become the popular spiritual and cultural products, is what the author wants to express in this article. Traditional paper comics can no longer meet people's needs for convenience, timeliness and interaction, and today's media era provides a broader platform for the development of comics. In the information age, everyone is creating images, reading images, and recording bits and pieces in the form of images, which has become a part of People's Daily life, and comic books can re-enter everyone's life in this way. It is the inheritance and development of traditional comics that endows them with the characteristics of the digital age, which can make them have the advantages that traditional comics do not have.

Keywords: informatization, image, Comic Digital media, Cultural products

1. Introduction

Under the current social development situation, the popularization and application of mobile phone, Internet and various multimedia image technologies has promoted China to enter the digital media era. This transformation has brought great impact to the traditional Chinese comic book industry. Give the characteristics of the digital age to the traditional comic strip, change the way of reading the traditional comic strip, break its limitations, make it in interesting, interactive, entertainment and other aspects greatly enhanced, popular love and acceptance. This paper makes a brief analysis of how to give digital age characteristics to Chinese traditional comic books and hopes to provide reference for the inheritance and development of Chinese traditional comic books.

2. Overview of traditional comics

2.1. The origin and history of Chinese traditional comic strip

Comic strip is a traditional art form, it is through the continuity of the screen, using the combination of pictures and words to reflect the plot, the theme of the expression. It has the characteristics of visualization, strong story, popular easy to understand, easy to popularize and so on, deeply popular by the masses of workers, peasants and soldiers and young readers.

Comic strip, commonly known as "comic book", a combination of pictures and popular art reading, is the 20th century China’s emergence of a new unique art form. From the basic characteristics of the
comics, its history can be said to be a long time ago, in the Han Dynasty or even before, there have been many pictures to show the story of the comic strip prototype. Dunhuang frescoes are also a form of comic book painting, which presents an inspiring story with a continuous number of pictures. The Twenty-four Filial Piety Chart of China also tells the story of twenty-four filial sons in ancient China by means of graphic narration. In the long history since then, the basic features of comic strips have been constantly enriched and developed from the aspects of subject matter, art form, serial number and publication scale.

In the primitive period of China, neolithic Age, the painted Pottery Pot with Animal Patterns unearthed at the late Yangshao relics in Qinan Tiandi Bay, Gansu Province, was the first painting work in the history of Chinese painting. This work contains a certain plot, which can be said to be the original tense of the development of narrative painting. The development of Chinese traditional comic strip can be divided into the embryonic stage, the development stage, the mature stage, the flourishing stage and the trough stage. In the embryonic period, they are mainly used in the eastern and Western Han Dynasties and the Southern and Northern Dynasties for painting stones, bricks and frescoes. Development period is the song, Yuan, Ming and Qing dynasties appeared serial illustrations and continuous New Year pictures; The mature period is a period of time after the founding of the People's Republic of China, the combination of graphic comics has been relatively perfect; The boom period was from liberation to the end of the 20th century, during which the content of comic strips became richer.

2.2. Foreign comic strip development origin

Foreign comic books, as a popular reading, can be traced back to the beginning of this century, when comic books were still in their infancy, their subjects were mainly children's literature, and most of them were illustrated works. From the 1930s, with the appearance of superman comic strips as a sign, western comic strips have entered a new era represented by thrilling comic strips. Comic strips in this period no longer follow the accepted standards of plot and drama in the past, and no longer regard humor as their main characteristic, but emphasize the thriller of the work, which has a strong emotional appeal to the general reader. The rise of the new comic strip movement represented by France in the 1960s marked the rapid development of western comic strip. It breaks away from the traditional constraint of serving children and expands the broad field of targeting adults. This kind of adult reading comic strip subject matter, with more interest, touch more current affairs, reflect the psychology of readers, deeply loved by all classes of readers, thus set off an unprecedented comic strip fever in the world. Japan published more than one thousand comic strips in 1985, with a distribution of 1.2 billion copies. In 1986, there were more than 1.5 billion copies, and the circulation of comic books accounted for one third of all magazines, books and publications. One is called Teen Leap, a weekly comic strip magazine with four million copies each issue. Eighty percent of Japanese high school students and 50 percent of college students like comic books more than movies and TELEVISION. Comic strips have become an important medium in Japanese society. Therefore, Japan is known as the kingdom of comic books.

3. Characteristics analysis of comic strip

3.1. Digital comics
What is a digital comic strip? Digital comics is the digital media technology combined with traditional comic books, make traditional comic books to find a new development direction, and use the digital media technology upgrading of form and content, from digital comic strip product formation, through the way such as APP, the official web site, digital TV to spread or is the use of projection technology to show the charm of comic books. Digital media technology can not only provide a more advanced display platform for traditional Chinese comics, but also improve the use of more advanced ways of creation, and create more interaction with readers, so that readers' position in reading will change from passive to active.
At present, digital media art has been developing rapidly. In every field of modern art, its shadow can be seen gradually penetrating into it. Today, media art is simply art created using the latest high-tech tools such as video and computer networks as a creative medium. Among them, THE application of CG in modern film industry and other aspects can be quickly accepted and recognized by us. Modern film is perfect, unusual, and with its absolutely amazing visual and auditory dual effects, let people have a new audio-visual experience, give everyone a subversive different feeling.

3.2. Give comic strip interactive characteristics

As an important technical basis of digital media art, digital media interactive technology brings new vitality to artistic creation and also provides us with a new thinking concept. Digital interactive technology is combined with digital information processing technology, computer technology and digital communication technology and network technology, the intersection of technology, it is by means of modern computing and communications, integrated processing the information such as text, graphics, images, sound, make the abstract information awareness, management and a kind of interactive technology. The application of digital media interactive technology makes digital media art present bright interactivity. The interactive function of digital media has greatly changed the one-way communication characteristics of traditional mass media. The two sides directly understand, communicate and communicate with each other on the platform of digital art communication and exchange. Its interactive function determines the position of the audience. It is no longer passive in receiving information, but interacts with the communicator to change its identity and thus change its autonomy, so that it has more rights and even participates in the production of digital art. Digital image works from multiple transfer after the initial state can show another kind of style, the network literature is through multiple between the author and the reader interaction and creation, opinions and Suggestions of different readers may change the creator's creation intention and the way of thinking through propagation for the audience and the audience for the audience and the interaction between the two, to provide the content of the response to the masses, understand their needs. Objectively, interaction lengthens the time and cycle of communication, but it is not true. Two-way information flow speeds up the transmission speed and enhances the transmission effect, making the transmission more meaningful. As long as it grasps the basic needs of the audience, the media can directly and effectively provide services, reduce the transmission of double faults, and thus accelerate the flow of information in the interaction. Compared with Chinese comics based on traditional paper media, digital media technology can better meet the diverse psychological needs of the audience, which is the advantage of interactive communication of digital media. Along with the development of the era of digital interactive communication, public demand for information has changed, the publisher also need to pay more attention to the choice of information and publishing, the publisher of information, information sources, including the spread of the channel, noise and so on are showed the characteristics of diversity, these are all digital media interactive transmission elements, overall evaluation, we can understand for the diversification of permutation and combination. With the help of advanced science and technology, virtual sense of reality can be created. What is the combination of virtual and reality? In the interactive communication of digital media, virtual plots have immersive feeling and interactive characteristics, which is the combination of virtual and reality. Compared with Chinese comics, the interactive communication of digital media can make people experience the real immersive feeling. Traditional forms are more of a means of providing sensory forms. Transmission characteristics of the traditional media just passively accept blindly, and digital media interactive communication is not the case, it is interactive, waiters and recipients based on vision, hearing, and touch, from the earliest single language to now many languages, from LAN to the Internet, these advances have gradually realized the global interaction. For example, it is the best example of a platform where we can choose the languages of different countries and download them to different kinds of applications developed in different parts of the world according to our own needs, so as to achieve truly global interaction.
3.3. Create comics that are more open and shareable

Another characteristic of digital media is openness and sharing. How to understand it? We know can be based on the digital age is the Internet to spread, through the Internet we can realize the sharing of information, we may want to download information content at any time, also can share to friends through this platform, traditional Chinese comic books, books, we are through the way of buying and borrowing to read, so is hard to avoid in the process of library cause damage or loss of books. By digitizing Chinese comic books and making them have some characteristics of digitization, we can solve some drawbacks existing in the traditional way of reading. We can share information on the Internet without worrying about the loss of information. Meanwhile, it can be permanently preserved, which is also conducive to the protection of this art form. Open features of digital media, make the path of art more fair, not limited by money and all kinds of art critic, artists don't need to show venue and propaganda cost, as long as works of art into a digital image, and then uploaded to the cyberspace can realize the unlimited spread of works of art. It forms a communication system in which the content and form of works of art can be better disseminated and can give the public greater democratic rights. Such a change broke through the top-down unified control means to form the real freedom of the dissemination of painting art.

Digital media virtual objects and human interaction of the intuitive behavior of reflection is interaction. The goal of interaction is to rely on interactive technology to achieve a natural and harmonious way of communication between people and virtual objects, and guide users to better understand and explore the virtual space and time. Interactive technology transforms our understanding of images into a multi-sensory interactive space based on a time frame. In such a virtual space, the variables of time and space can be modified at will, and the audience can change their relationship with the space at will. At the same time, the virtual environment will also interact with people, and the audience can adjust the environment they find to some extent. Interactive art of digital media is an art form based on man-machine interaction. It is an intuitive behavioral reflection of the interaction between people and virtual things. It appears to meet the dual needs of digitization and machine intelligence. It emphasizes the interaction between human and machine, and interactive art also emphasizes the enthusiasm and initiative of the audience. It requires the audience to participate in the work and make the work itself undergo reversible or irreversible changes through such interaction, so as to produce real-time and changeable artistic effects. Art is essentially an activity of exchanging ideas, thoughts and emotions. As an emerging new media art form, immersive interactive art especially refers to the audience's ability to realize instant interaction with intelligent art works by means of sight, hearing, touch, smell and other sensory means so as to achieve whole-heartedly integration, immersion and emotional communication. The audience enters into the digital virtual scene and gets the immersive aesthetic enjoyment of multiple senses.

The continuous development of modern science and technology provides infinite space for the creative design of artists. Interactive artists are becoming more and more interested in studying the five senses, movement and posture skills of humans. Nokia's research provides us with enlightenment: applying technology to users' sensory experience, and inducing users' higher level experience goals through perception and response in the form of movement, posture, touch, gaze, manipulation and activation of targets. [1] In the evolving mobile devices, the input and output experience of vision, hearing and touch has become a regular form of interaction. In the digital virtual reality technology environment, artists are exploring how to effectively create another world based on existing technical resources. Interactive art with the help of virtual reality technology, 3 d reality technology, the multimodal interaction technology or mechanical numerical control device to create user experience immersion environment, it usually is through the form of digital camera, remote control, infrared sensor and other acquisition tool to audience's language, expression, action, or other "body language" capturing and data analysis, and according to the program in the computer processing, by sound, images, music, light, such as digital video, the synthesis of animation and mechanical interaction device to the audience feedback, and ask the audience's full participation and experience, so as to realize real-time "dialogue" with the audience or emotional communication. For example, the
An interactive metal ball in the Power Source hall of the German Pavilion at the Shanghai World Expo is 3 meters in diameter and weighs about 1.5 tons. The wonder is that the huge metal ball wobbles and glows as the audience shouts. According to the report, the base of the metal ball is equipped with a sound control and interactive control device, which can respond to external sound. As long as the base on the top of the metal ball receives a slight vibration, it can bring the 1.5 ton metal ball suspended under it into a swinging state. So, when the audience shouts in unison, a voice-controlled drive inside the ball can sway the direction of the metal ball, and the changing images and colors on the surface of the ball are projected to all corners of the power source hall. This kind of personified intelligent device represented by virtual reality technology provides a broad space for the development of immersive interactive art of digital media.

Immersive interactive art works are mainly displayed in art venues, museums and public spaces, and appear in the form of multi-channel, multi-media intelligent human-computer interaction. This artwork by computer to capture people many kinds of feeling, such as verbal, eye contact, facial expressions, lips move, touch, smell, or taste, etc.) and action (such as voice, handwriting, posture, eye, face, etc.), and instant feedback, while the audience in parallel or not precise way "immersion" in the virtual computer interaction environment, and can contact or virtual human-computer interaction interface implementation and the art of dialogue and communication. Immersive interactive works usually require a "relatively closed interactive art space" or "virtual exhibition hall" to achieve the audience's immersive experience. This "immersive space", similar to a cinema, makes it easier for the audience to focus on the art object and reduces the chance or error of operation. In addition, it is also conducive to the electronic screen, acoustic and optical effects or other effects that simulate the natural environment to feedback to the audience without interference, thus achieving the best user experience effect. The enclosed theater that is common in cinemas or science and technology halls is a hexahedral, spherical, or domed space. The "Magic box", designed by ATB studio in Stuttgart, Germany, for the National Grid Pavilion at the Shanghai World Expo, is a closed hexahedron suspended in the air. Spectators enjoy a 720-degree multimedia audio-visual feast while standing in a 3.22-meter-high glass bridge. The enclosed space is surrounded by magnificent images, including spectacular images of the soles of the feet. As the images are played, the audience sometimes dives into the deep sea and sometimes crosses the Polar Regions with the electric current, achieving the immersive dreamlike effect of "six images, floating experience".

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