Narrative Characteristics of Virtual Reality Films

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Abstract: With the continuous improvement of virtual reality technology, a variety of experience products with virtual reality technology are gradually emerging. VR experience museum audience can put on glasses equipment to make themselves immersive, VR gamers can also participate in making choices and deciding the development of the plot. Virtual reality technology creates an unparalleled sense of reality and interactivity. Combining this technology with film can break the traditional mode of film production, film viewing and narrative, and bring a new experience. This paper mainly analyzes the definition of virtual reality film, the narrative characteristics of virtual reality film, the current exploration of the development of virtual reality film and some restrictive factors.

Keywords: Virtual reality film, Narrative characteristics, Exploring and restricting factors.

Introduction

Definition of Virtual Reality Film

Since the birth of the film in 1895, no matter the sound picture or the storage carrier, it has experienced countless changes. Andre Bazin proposed the "Image ontology "He believes that the emergence of movie images is a reproduction of reality. This view was basically applicable in the 1970s and 1980s. A films on the screen, the films on the screen are just simple shooting and editing. The rapid development of the digital age in recent years, these technological innovations make the visual and auditory feelings brought by the film to the audience more real and shocking.

Later 3D films further enhanced the visual reality of the two-dimensional screen. In recent years, with the development of VR technology, it has been widely used in many fields, and various VR products have been launched one after another. For a while, [1] VR has become a trend. The concept of VR came into being in the 1960s. In 1965, Ivan Sutherland put forward the concept of virtual reality, which promoted the development of computer graphics and image technology, and inspired the research of new human-computer interaction devices such as helmet display, data glove, etc. In 1973, the term "artificial reality" was proposed to express the concept of virtual reality; in 1980, the development of computer technology accelerated the development of virtual reality technology, and the term "virtual reality" was formally proposed and widely accepted in 1989; in 1990, virtual reality technology entered a period of rapid development.

After entering the 21st century, virtual reality technology has gradually matured and entered many people's lives. This technology began to combine with various industries, so the film industry began to pay attention to this technology, and gradually put into VR film research.
Virtual Reality Film is the Combination of Film and Virtual Reality Art

Virtual reality art is to endow the three-dimensional virtual space art features created by virtual reality technology, so that users can experience it personally. Users can not only observe the things in three-dimensional space, but also feel the beauty of light, shadow and music.

The beauty of light and shadow and the beauty of music correspond to the art of movie sound and painting in the virtual reality movie. Combined with the narrative and transition techniques in the film, and the cooperation of virtual reality technology, the beauty of various senses is transmitted to the audience, so that the audience is always in the movie plot. When the audience is watching VR movies, they will no longer be around the audience, but in the plot and characters of the movie, and their feet are no longer the floor of the cinema, but the scenes depicted in the plot of the movie.

Market Environment Promotes the Development of VR Films

In 2015, China's film box office exceeded 40 billion yuan for the first time, and the film industry has achieved leapfrog development. According to the film Market Research and analysis, the audience of movie is becoming younger and younger, so it has a strong ability to accept new things. In addition to the strong multi sensory interactive experience brought by VR movie, it can stimulate the audience from three levels of spirit, sense and vision.

The large-scale 3D movie "Avatar" directed by James Cameron set off a "3D boom", 3D movies emerge in endlessly. Wearing glasses can make a two-dimensional picture three-dimensional. Just by changing the visual experience, it is welcomed by the audience. VR movie can be regarded as the advanced version of 3D movie. We can use the space and speed of 3D movie development for reference to predict the development of VR movie. VR movies have unique sensory experience and immersion interactive way that 2D and 3D movies can't achieve.

More and more companies and well-known filmmakers are optimistic about this market and begin to conduct in-depth research in this field. Famous director Steven Spielberg believes that with the injection of virtual reality technology, the future film production mode and interaction mode will change, so as to bring a new experience to the audience, bring huge freedom of view to the audience.

But it could be "very dangerous" for the film industry. At the same time, Spielberg is also trying to shoot virtual reality films. He will direct a novel adaptation of "player one", which is a combination of video games, virtual world and scientific fantasy. Gilmore Del Toro also used virtual reality technology to complete a large number of grand scenes when shooting the Pacific Rim.

At the San Diego diffuse show, Pacific Rim also provided a virtual reality version of the short film. As long as the audience wore a display device, they could experience the pleasure of operating a 250 foot high robot. The research and participation of well-known film producers and companies provide guarantee for the quality of VR films.

Narrative Characteristics of Virtual Reality Films

Short Video and FAST Rhythm

Like traditional movies, attractive stories, ups and downs, and a sense of rhythm are all needed for a good VR movie. However, VR film is different from the traditional film, which leads to different narrative methods. Base on a survey, because of the virtual reality technology, a large number of operations are needed in lens assembly, so it is necessary to ensure that the lens assembly has a good fluency. It is also very important to switch the perspective in VR films. It is a change of narrative mode to watch the plot to be narrated from different perspectives.
However, in the process of watching VR movies, special devices need to be worn. These heavy devices are also a burden to the audience for a long time, so the time of current VR movies is very short. This requires that in a short period of time, we need to set a complete plot, set distinctive characters and clarify the relationship between the characters, and at the same time, we need attractive conflicts [2].

Take famous VR animation films that won Emmy Awards as an example: "Inception" is the first VR animation work launched by baobab studio in 2016 and has won the best interactive award of the 44th Emmy Award. It's less than five minutes long and has three CG characters: rabbit, eagle and alien. The story begins in outer space. A spaceship carrying two extraterrestrials flies to the earth and lands over the ice lake. Two unique aliens attacked eagles and bunnies, and they were defeated by clever bunnies and fled back to outer space. The plot of this short film is relatively complete, simple but rich and interesting. Because the film also needs to include the time for the audience to look around and be familiar with the environment, it needs to successfully design the multiple roles between the little rabbit and the eagle, the little rabbit and the alien in a shorter time.

Due to the limited time, the narrative rhythm should be relatively bright. So we can see that the general characteristics of virtual reality narrative are relatively fast rhythm and short but connotative plot, and some details will be mentioned below, including the narrative characteristics of time, space and perspective.

The Change of Narrative Angle: the Audience Becomes "Director"

VR movies have unique interactivity, which can interact with the audience. At this time, the audience will have more choices. In some VR movies, there will be two clues to narrate: one is to follow the director’s thinking, watch the plot linearly, and the other is to explore the plot independently, which is the best embodiment of the feature of "interactivity" [3]. Susan Langer once thought that movies are like "Dreams". In terms of their relationship with image, action, event, plot and other factors, we can say that the position of the camera is the same as that of the dreamer, but the great difference between movies and dreams is that the dreamer can participate in the events of dreams, but the camera can't, so from this perspective Film is an objective dream.

But VR films directly put the audience in the position of "dreamer", trying to pursue the complete reality of the senses. The author thinks that "dreamer" is not as good as "dreamer" as participating in a dream from the perspective of a bystander Incarnate as a "dreamer" for self selection and creation. The audience can choose a certain option independently, which can trigger different plots.

To some extent, the audience becomes a "director" and decides the direction of the next plot. This diversified narrative method also brings a sense of expectation and mystery to the audience who will make the choice. In the traditional movie narration, there are many outstanding suspense techniques. However, some viewers only have the feeling of expectation for this form. Virtual reality film can meet the audience's expectations, and the audience has the right to dominate the plot in this situation and can have close interaction with each character. Interactivity determines the diversification of narration and gives the audience a double feeling of interaction and feedback.

Extremely Broad Narrative Space

VR film has a very broad narrative space. Now the traditional film has giant screen film and ball screen film, which can achieve a large narrative space. The ball screen film can even achieve a 360 degree narrative space. However, no matter how vast the space is, it is only a two-dimensional screen.
VR film breaks the concept of traditional film narrative space, only need to wear the corresponding equipment; you can enter a 3D 360 degree panoramic virtual space created by VR technology.

But the virtual reality film breaks the boundary of the screen, the audience's eyes are the camera, and the surrounding vision is the image, without the concept of the screen, the meaning of the traditional film picture is dispelled, and the composition is impossible.

The choice of viewing angle and stand is decided by the audience themselves, and the process of viewing is passive. By changing to active exploration, the director's power is weakened. This virtual space breaks through the limitation of the traditional film screen. The point of view for the audience to enter the virtual space is the coordinate origin of this space. The audience can arbitrarily switch a viewpoint in 360 degree scene to watch.

This boundless narrative space greatly enriches the perspective and details of narrative. Because there is no visual limit, it has an unparalleled sense of reality on the scene. The development and application of VR technology have also broken the boundary between virtual and reality. It can basically achieve "absolute reality" to maximize sensory stimulation and shorten the distance between dream and reality.

**Narrative Time and Space are Relatively Stable**

VR film brings the audience into a surreal three-dimensional virtual world where there is no boundary to freely choose and switch perspectives. However, frequent and excessive switching of scenes and perspectives may bring dizziness to the audience, which is also a limitation and unavoidable place for VR film. Therefore, VR film shooting and production will use a lot of long lens techniques, and the switching between lens and lens will be reduced as much as possible. Fixed narrative space and some scenes can be seen in the same shot, and the use of scheduling actors has become the main skill. Because of the long shot and the narrative space which is not suitable for frequent switching, the montage technology which is used flexibly in traditional films is limited in VR films.

The switching of shots gradually turns into the switching of scenes and scenes, although the long shot can only describe the same scene. Time and space events, linear narrative, but can highlight the reality of VR film this feature, can let the audience objectively and truly enjoy what they see.

The vast and stable narrative space makes it more difficult to shoot VR films. Traditional films only need to tell a good story and pay attention to the painting and composition to get a satisfactory picture. However, in VR, because the narrative space will not change for a certain time, and the audience can see a very broad perspective, the panoramic picture of a certain narrative time and space is required especially high, there is no concept of composition.

The development of the plot depends on the performance and scheduling of the actors. The actors often need to complete all the performances in one go with high quality, which increases a lot of difficulties for the rendering and production of the scene and the performance of the actors.

Because there is no dead angle in 360 degrees, when shooting in a narrative space, you can't leave anything but the actors and objects being shot, the position of the camera setting, lighting and other scene layout are very difficult.

The multiple switching of lens and narrative time and space will not only increase the difficulty of shooting and scene arrangement, but also bring dizziness to the audience. Therefore, the use of long lens and relatively stable narrative time and space are also the characteristics of VR film narrative.
Exploration and Constraints on the Development of Virtual Reality Films

In recent years, some famous companies and filmmakers have made active attempts to VR films, which have achieved considerable results in the early stage of development. However, there are always new constraints in the process of exploration.

The following is mainly to analyze some of the achievements of exploration and some factors that need to be overcome in the development. At the 2012 Sundance Film Festival, a virtual reality documentary called "La hunger" was born.

The audience wore the equipment to experience the suffering of the people who were suffering from hunger, and let the audience experience the global problems brought by hunger. Only when they are in the real situation, can they really experience the idea that the film needs to convey. The documentary itself has authenticity, and the virtual reality documentary undoubtedly goes further in creating a sense of reality. In addition to the emotional resonance of the audience, it can also make the audience immerse themselves in the scene and interact with the scene.

For example, in the 2017 movie Treehugger Wawona, the audience needs to bring a special vest and a large foam model to make the audience feel the feeling of hugging and touching the huge redwood tree. This film makes the audience not only feel like touching a tree, but also feel that they are one with the tree, experience the process of growth and death as a tree, and experience the impact of environmental change. Throughout the last century, the way of virtual reality film exploration has been in progress [4].

In 1970, virtual reality technology began to be applied to film. Star Wars series films are the first application of virtual reality technology in films; Jurassic Park in 1993 marks the rapid development of the application of virtual reality technology in films. Mars rescue in 2015 and Requiem 2 in 2016 have launched virtual reality version short films, which are properly applied to the promotion of space and terror themes. It is worth mentioning that since 2014, with the upsurge of virtual reality, many commercial blockbusters have launched the virtual reality experience version or trailer, which has become an important way to combine virtual reality and film.

It can be seen from the above film examples that a complete virtual reality film cannot be made at the current stage, and there are many constraints. At this stage, virtual reality is more used for the trailer in the early stage of the film, to catch the audience's appetite and play a proper role in publicity.

The following is mainly to analyze some problems in the development stage of virtual reality films. Even though VR film has the unparalleled sense of reality and interactivity of traditional films, there are many external factors such as its own technical factors and market, which become the difficulties of VR film development.

The Difficulty and Cost of Early Shooting and Post Production are too Large

The production cost of virtual reality film per second starts from 10000 yuan. The high cost makes many enthusiastic people who are interested in developing VR film flinch. In the early stage, multiple panoramic VR cameras are needed to shoot simultaneously. Because the content in the picture can't show the camera or props, it's also troublesome to adjust the position of the machine.

From the perspective of sound, because the audience is in a 360 degree panoramic space, the sound needs to cover the entire image space, similar to surround sound, which undoubtedly increases many difficulties for the collection of early sound and the production of late sound. Later editing
methods are also particularly complex, requiring special operations and editing software specifically for VR movies. Editing is only one of the difficulties in the later stage, and there is also a huge difficulty in the huge amount of rendering after the end of editing, because it is a sphere space, for example, the traditional movie is 2K resolution, so the calculation amount of the sphere viewing space will increase exponentially, and the huge workload is the biggest difficulty in the later stage production.

Because the VR movie boom is just rising in the past two years, technology and equipment are in the research and development stage, generally speaking, this technology is still in the early stage of development, so both early and later equipment are very expensive. In the early stage, the need for fine scenery and special algorithm of post production on multiple VR panoramic cameras and a large amount of rendering volume represent the need for the best quality equipment, and the cost of production also soars.

At the same time, the audience needs to wear necessary viewing equipment to watch VR films. In order to reflect the authenticity and interactivity of VR films, high-quality and high-precision equipment is needed to ensure a good viewing experience of the audience. For the audience, a good device means that the price of watching a VR film will also increase.

The Audience is Small and the Market Cannot be Popularized

There are many VR products on the market. However, the quality of VR cameras and VR devices is not uniform, and the experience of the pictures they shoot is poor. The number of VR films with high quality and interesting plots is few, and the audience rarely has access to high-quality VR content. Moreover, it seems that the audience will hardly pay a high price to buy a complete high-quality VR device because of watching VR movies.

At present, it’s hard to popularize in economy. Now you can see all kinds of VR experience halls or VR short film experience activities. However, due to the small audience and low consumer price, the cost recovery of offline experience stores has become a problem.

It is Difficult to Impact the Stable and Mature Traditional Film Market

Traditional films have experienced a hundred years of development. The shooting and post production methods are diverse and mature, and at the same time, they have a stable and sound market system. In terms of cost, traditional films have more obvious advantages than VR films.

And the audience has more power to consume traditional films. VR film is a boom in the past two years. There will be a stage of fanaticism for audiences. After this stage, if VR technology does not develop to a high level, it is difficult to attract audiences. In the process of VR film production in the development stage, there are many factors such as improper transition, unstable splicing and so on. All of these will bring vertigo to the audience and seriously affect the viewing experience.

VR viewing equipment now has a time limit. At present, if you wear the equipment for a long time, your eyes will suffer from the side effects of wearing the equipment for a long time. At the same time, the length of VR movie is limited on the side.

The way of Expression Creation is more like "Drama"

British dramatist Martin eisling once said in drama analysis: "Drama (stage play) is only a form of dramatic expression in the second half of the 20th century, and it is a relatively minor form; and the mechanically recorded plays such as movies, TV plays and radio plays, no matter how different in technology, are basically still drama, and abide by the principles. It is the basic psychological principle of feeling and understanding.
produced by all the expression skills of drama.

From the perspective of creation, VR film is just a strong evidence of this statement. From the perspective of narrative techniques, due to the relative stability and long shot of narrative time and space, many of montage’s techniques are limited. The biggest difference between drama and film is that movie can use montage’s techniques to break through the limitation of narrative time and space, and choose space and time freely.

Drama can only show the story in a single scene in a fixed time. Therefore, the creation concept and techniques of VR film are closer to drama to some extent, and the audience may feel that they are watching a drama, which is quite different from traditional films, so it is difficult for VR film to impact the traditional film market at present.

**Result**

VR film has a strong sense of reality and immersive interaction that cannot be replaced by traditional films, but also has unique narrative characteristics. However, it is still in the early stage of development research, no matter from the perspective of market, audience, cost, or technology, there is still a lot to be improved.

The introduction of virtual reality technology brings film into a new era, which means there will be many problems and new challenges. Due to the complete subversion of the production mode, the experience of traditional films after a hundred years cannot be directly copied into VR films. At present, it seems that the VR films shown on the market are only experimental short films or early publicity of films.

The production of VR long films cannot be realized in terms of current technology, equipment and film shooting techniques. There are also many low-quality VR works in the domestic VR market, even many “fake VR films” in the name of VR films.

In essence, this is a short picture switching, which is not related to the film art at all. Without complete plots, characters, conflicts, interactive interaction is even more impossible. On the other hand, the VR film at this stage is more like the extension of drama, the creation concept and technique are more inclined to drama, the time and space are imprisoned, the narrative time and space have the shadow of the basic principle of drama "three sameness", and the audience seems to be on the stage of super reality and can switch perspectives.

In the aspect of artistry, it is quite different from traditional films. Strictly speaking, VR films should focus on overcoming the difficulties in creative technology at this stage when the technology is relatively mature, the research and development of market operation will be started, and the cost of creation will also reduce the quality of the works.

What attract audiences should not be the products that bring new experience, but the perfect combination of excellent products and film art. There is still a long way to go on the road of VR film exploration. VR film can be said to be a new field of film. It is also necessary to establish a theoretical system belonging to VR film.

The achievements of traditional film cannot be separated from the theoretical research and action of several masters at the beginning of the film establishment, such as the Lumiere brothers, Eisenstein, Bazin, George Merrill and other excellent film directors. The same is true for VR films. A set of professional theoretical system can certainly promote the development of VR films. From the perspective of market, consumers, creative methods and creative ideas, VR films have experienced development and cannot completely replace the traditional films, but they are the leaders of VR films and traditional films.
Each has its own characteristics. VR film may become an independent art category with its unique aesthetic characteristics. At present, the research on VR film is only a small step, but I believe that more and more VR films will come out, which is also a process of summing up experience and discussion. I hope more inspiration and wisdom can be infused to promote the development of this new art category.

**Reference**


