

# Research and analysis of interaction in virtual reality films in the context of new media

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**Abstract.** With the continuous progress of computer network technology and the burst of new digital media art, virtual reality technology, a revolution in transmitting information, has come into being. As a brand new combination of computer technology and film art, virtual reality films have an interactive experience that no other art genre can achieve. During the movie watching process, the audience can walk into the movie scene, panoramic arbitrary observation of any angle around, and active interaction with people or objects in the scene, creating a personal memory palace, creating a unique storyline, creating a virtual dream space, and re-creating personal life and personal experience in the process of virtual experience. This paper firstly, through understanding the origin and background of virtual reality, analyzing and comparing the development status of virtual reality movies at home and abroad and looking forward to its prospect, so as to arrive at the possible value of virtual reality movies realized under the future digital technology media; secondly, combining the characteristics of virtual reality interactive technology, through analyzing the development process of traditional movie experience, comparing and arriving at the difference between traditional movies and virtual reality movies in Secondly, by analyzing the development process of traditional movie experience with the characteristics of virtual reality interactive technology, we compare and contrast the experience difference between traditional movies and virtual reality movies in four aspects: time and space construction, screen boundary, subjective experience, and interaction mode; secondly, we analyze the experience process from shallow to deep in virtual reality movies, and explore the psychological demand value rooted in the spirit after the intermingling of technology and movie content; finally, we elaborate on the experience value feedback brought to the audience after the practical application of virtual reality technology, and at the same time, we think deeply about this new digital technology medium. Lastly, it is the feedback of the experience value brought by the practical application of virtual reality technology to the audience and the reflection and critique of this new digital technology medium.

## 1 Introduction

Virtual Reality is "Virtual Reality", VR for short, the Chinese translation of the spirit of the realm, phantom real, is a high-tech emerging in recent years, also known as the spirit of the technology<sup>[1]</sup>. The "virtual" in virtual reality is a fantasy space generated by computer data, while "reality" refers to any object or environment that exists in the world in a physical or functional sense, which is theoretically realizable, but may also be difficult or impossible to achieve<sup>[2]</sup>. Therefore, virtual reality is the use of computer simulation to generate a three-dimensional space of the virtual world, the user can use virtual reality equipment to project themselves into this virtual environment, and at the same time provide such as the simulation of visual, auditory, tactile and other senses, and then real-time, unrestricted observation of people, objects, things in the environment and operate, control and other intuitive and natural means of perceptual interaction, to maximize the convenience of the user's operation<sup>[3]</sup>.

## 2 THE SENSORY EXPERIENCE OF VIRTUAL REALITY MOVIES

Thanks to the creation of interactive systems for virtual reality technology, viewers can have an immersive experience in virtual reality movies<sup>[4]</sup>. As an individual, the viewer's experience in a natural state rises to a deeper experience in a state of immersion, reaching an immersive state of mind where he or she is convinced of what is in front of them and the environment they are in, and naturally makes interaction and behavioral feedback with the images. The virtual reality space makes the viewer's visual horizon disappear, so that the viewer overlaps with the transformation of the environment they are in and the point of view of the movie character, thus becoming one with the virtual image and being in the image 么, causing the boundary between the virtual world and the real world to become blurred or even disappear. The main significance of the interactive experience given to the audience by virtual reality films

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is that it changes the identity characteristics of the audience in watching the film. In addition to experiencing a real and unreal world in the images, it also establishes a personal view of life and the world, which is the main reason why every director stays true to the aesthetics and artistry of the film. Interactive experiences change the relationship between people and images, images and media, and media and technology [5]. In today's digital network media era, the emergence of virtual reality films is bound to change the public's attitude toward traditional films, but the artistry of film always revolves around the technicality, and what the images ultimately convey is the spiritual dimension that overrides the surface.

People often talk about going to the movies, but actually entering a movie is the highest level of movie experience, and it is also the goal that movie creators have been pursuing, and virtual reality movies achieve this goal, allowing the audience to truly enter a movie for interactive experience [6]. The famous French filmmaker André Bazin's ontology of the image elaborates that all art is based on human participation, and the audience can only realize the value brought by the film experience in the process of participation. The psychological basis for the invention of film is the reproduction of a complete world, a fantasy world of both sound, light and shadow, color, character and environment. Since the birth of cinematic art, every technical innovation has revolved around how to capture the sensory experience of the audience. It has always been the goal of the creators to improve the audiovisual effect and stimulate the sensory stimulation of the audience. In the period of silent movies, directors used montage shots to mobilize the visual experience; in the period of sound movies, sound added aural stimulation to the images and facilitated the expression of actors' emotions: in the period of color movies, the images highly restored the real world and presented a colorful movie world to the audience; in the period of 3D movies, the overlapping and crossed images restored a three-dimensional movie world to the audience, and the surround type The stereo sound effect adds more audio-visual elements to the movie. The sensory experience of virtual reality movies is to use multiple senses to interact with the images themselves without the influence of real time and space, in order to enhance the realism and immersion of the sensory experience [7]. Usually, the human eyes and ears are the most direct way to discern and locate the real or fake space. Virtual reality technology is to take advantage of this, to create an illusion to the audience, the use of interactivity this characteristic, so that the five senses in a state of interaction, when reached a certain time, the audience's senses will be due to the reality of the immediate and the formation of sensory feedback in the interactive process. This interactive process brings the sense of experience, and the feedback process enhances the sense of immersion, and the two are alternately combined, and the multi-sensory experience of the audience is formed.

## 2.1 Listen to the sound and identify the location

With the emergence of sound films, people realized that sound is what is necessary to constitute the realism of the picture and to convey the atmosphere of the image and the mood of the characters. With the continuous development of audio technology, mono, dual-channel, multi-channel, surround sound, human head music or 3D audio technology have all played an important role in the use of sound effects for films [8]. The human ear is very sensitive to the source of sound signals and can analyze and determine the direction of the source of the sound it hears. When the visual gives an orientation cue, the auditory goes to confirm whether the cue is real or not; it allows the audience to determine the space they are in and make perceptual judgments about the surrounding objects and environment. In normal life, we hear different sounds in both ears, so stereo sound is divided into left and right channels [9]. Now the stereo surround sound in the cinema, is to retain the original signal source direction, the use of cinema surround space to expand the original sound source from the line to the entire three-dimensional plane, producing spatial diffusion and sea sound, giving the audience a realistic sense of presence. The three-dimensional stereo sound effects in virtual reality movies, lock the direction of the source of sound, restore the spatial orientation of the high school and low three audio, that is, the head as the center to include all the angles of the sound, and then based on the special acoustic effect of the human ear, the formation of sound effects law, so as to simulate the sound similar to the real environment.

## 2.2 Visual Guidance

Virtual reality movies are about immersing the audience in a 360-degree visual experience to see this unreal image space. In virtual spaces it is often easy to get lost, the viewer may not know what point to look at next, and there is a key to influence the visual focus in the experience [10]. At this point, a point of interest is needed to guide the audience and to control the visual direction of the audience. According to Gutenberg's physiological law, people's visual habits tend to move from top to bottom and from left to right, and the first point of view is the upper left corner of the picture, which is the location of the visual center. The upper right corner and the lower left corner are the visual falling blind points that people can easily ignore, but eventually the final line of sight of eye movement will fall on the lower right corner of the picture. According to this law, a perfect visual guidance path can be designed, according to which viewers can effectively choose their personal visual landing point, and can better access image information in order to interact with objects or characters in the environment, helping viewers to effectively choose the main line of the story to interact, preventing viewers from blindly choosing useless scene paths. In today's virtual reality films, the audience is often guided in several ways [11].

### **3 VIRTUAL REALITY MOVIES CREATE A DIFFERENT STATE OF EXPERIENCE**

#### **3.1 Explanation of the state of nature**

In virtual reality movie viewing, the natural state is divided into two kinds: one is the natural state between human and senses, which refers to a function of mutual coordination between human body and senses; the other is the natural state between human and image, which means that human is in the image and becomes one with it. To achieve the natural state of the viewing experience, two conditions must be met: first, the audience itself is in the same spatial environment as the image; second, the combination of the body's instinctive response and psychological response to the story plot during the experience. At this time, the psychological response is based on the change of physical behavior response and stimulates deep experience cognition, which not only exists in the brain, but also is closely related to physical behavior, facial expressions and mental activities.

#### **3.2 Enter a state of relaxation in virtual reality movies**

To "relax" means to change the attention or control of something from tight to loose, lax. The relaxation state in the virtual reality movie actually means that the viewer's mind is completely detached from the body itself during the movie watching process, and has delivered his or her body to the brain's imagination, the mind is outside the body, allowing himself or herself to make an unconscious virtual trip from the real environment to the virtual movie.

#### **3.3 The state of immersion in virtual reality movies**

When the viewer watches a virtual reality movie, the body can act as an interface, forming an inherent pattern through virtual reality devices, virtual reality images and the body. The virtual reality device, as a concretized technical extension, connects to the story content of the virtual image, transports the image information into the device, then connects to the body through the device, shares information with it and receives behavioral feedback made by the body, and finally transmits the feedback information to the image, forming a communication interaction between the body and the image in order to enhance the body's degree of awareness in the virtual environment. Such an immersion mode leads the viewer to discover his or her presence in the virtual image, and this presence acts on the viewer's perceptual-behavioral system. When the viewer tries to break through the illusion, the intense realism of the experience draws you back into the image again and allows the viewer to actively participate in it all. For the real world, this kind of virtual environment with super simulation and similarity will make the audience believe that they are in such a world, a familiar and comfortable environment, a virtual space with

personal identity and subjective consciousness as the precursor. What is the real world, it is possible that it is just an illusionary space of personal consciousness after a series of changes over millions of years of generation, evolution, recovery, reproduction and survival, or it is just a shared communication body of all information and emotions. When the audience's pre-consciousness is thinking about everything, it means that it is already in a state of complete immersion in the virtual reality movie.

#### **3.4 The state of lost ego in the real world**

Ego is also called self-awareness, which mainly refers to the individual's perception of his or her own existence. The loss of self means that after experiencing virtual reality movies, the audience will not be able to distinguish the "I" in reality from the "I" in virtual reality movies for a period of time, resulting in a loss of self-cognition for a period of time, but it will be restored soon. The phenomenon of sending is very similar to dreaming. When in a dream state, those images will be like those flashing shots in a movie, forming a story in the brain, and the moment you wake up from the dream, the human brain will go back to the scene in the dream, when the memory is still in the dream, but after a period of time, it will be clear to distinguish reality from the dream. For example, when the audience meets a kitten in the virtual reality movie and also becomes friends with it, when they return to real life and see an identical kitten on the roadside, they will unconsciously treat it as a good friend of the virtual reality movie and get close to it. This phenomenon is called the conversion phenomenon, converting and confusing the real world and the virtual world, a short circuit of self-awareness, and a loss of self-cognitive state.

## **4 THE MULTIPLICITY OF REPRESENTATIONAL INFORMATION AND THE SELECTIVE COINCIDENCE OF IMAGINATIVE THINKING UNDER INTERACTIVE EXPERIENCE**

### **4.1 Factors Affecting the Multiplicity of Representational Information in False-Hot Reality Films**

In virtual reality movies, representations are generated, and the influence of different factors will make the representations different, among which the most important factors are the following three aspects: first is the object itself, different virtual objects will hold different characteristics, and the information signal emitted by the object will be different during the interaction of the audience, and the representations received by the audience will be different. The virtual space created in the virtual reality movie makes the audience experience the almost real sensory world again. In this objective space, the difference of each person receiving the apparent information will lead to a different also-ran experience and feedback in the

subsequent deep experience, and the value of each person's virtual reality experience will be different at the end of the movie watching.

#### **4.2 The Practicability of Imaginative Thinking in Virtual Reality Films**

Imagery" refers to the subconscious thought activity of human, and "image" is the specific performance of the subconscious thought activity, so "imagery" is the active or inadvertent emergence of the picture and its specific content in the human mind. From the level of also science, "imagery" refers to an "image" formed on the basis of the appearance of the inner experience and camp structure. The imagery in virtual reality films is a structure carried by countless images, a synthesis of a collage of representational information combined with the inertia of individual thought. It is linked to a specific perceptual experience and takes over the mode of connection between the information obtained from the sensory experience and the virtual image interaction, which is an advanced information carrier. Thinking is the brain's association of things or environments, a way of thinking. In virtual reality films, imagery stimulates the active consciousness of the mind to interact with imagery, storing the information of sound, light and shadow, things, characters and scenes in the images in the viewer's brain and forming a mental body with the external body, making it an important tool and necessary condition for conducting virtual practice. Viewers tend to interact with virtual reality movies differently according to their own personal experiences and thinking inertia, and the imaginative thinking formed is also a combination of images presented from the viewers' subconscious or reawakened deep memories.

The selective seduction of imaginative thinking under

#### **4.3 The multiple messages of virtual reality films**

The so-called "presence" of virtual reality is the wrapping of the sensory system, through the brain's imaginative thinking to confuse the body perception, so that the audience believes that they are in the geographical environment they see in front of them. There are differences in the strength of each person's vision, hearing, taste, and touch. Similarly, there are differences in the human brain's ability to receive and organize information, the power of thinking and the clarity of projecting objective real-world images, and this series of factors leads to different strengths of imagery seduction for each person. Virtual reality movies themselves break the boundary between the virtual and the real, and people, as a bridge between the two, exchange information between the two worlds, an act that itself prompts confusion in thinking consciousness and enhances the possibility of being seduced. On the one hand, in the real space, the body is a symbolic carrier of the existence of life, which is controlled by natural physical laws. And in the virtual

space, the body is just an incarnation of behavioral activities controlled by the thinking consciousness, when the brain and sensory system is deceived, the body will also be deceived, it is not controlled by the outside world.

## **5 CONCLUSION**

Film has experienced more than a hundred years of development, with the continuous emergence of silent film, sound film, color film, 3D film, and IAMX film, slowly moving from a primary stage of experimentation to a stage of progress and development to maturity. Nowadays, with the continuous development and progress of science and technology, virtual reality technology has made new breakthroughs in different fields. As an art genre combining technology and art, the marketability and commerciality behind film has become the fundamental reason for the marriage between virtual reality technology and film. The development of virtual reality film needs to go through a long exploration process before it can truly mature, not only to change the traditional viewing mode on the technical level, so that the audience can have a comfortable and immersive interactive experience, but also to break through the limitations of video art on the artistic level, to meet the aesthetic needs of the audience in terms of story content, plot narrative and character setting, and moreover to stimulate the audience to think about their own existence, social phenomena and the real world on the psychological and spiritual level. And today, virtual reality movies create a dream world for the audience. This dream world, not just an illusion in the consciousness, but a near-real image space, where the audience is an independent individual in the space, and any behavioral actions will get feedback, just like living in the movie, the emergence of virtual reality movies finally turns the statement of movies as dream mirrors into reality.

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