

The Research on the Applications and Limitations of VR Technology in News

Wanzhen Li*

Ulink College Shenzhen, China

*Wanli2413@ulinkcollege.com

Abstract. VR technology is a communication medium technology that is relatively closer to reality than the macro metaverse technology. The form of its application will bring a new experience to mankind, not just from a single perspective, but from each of the five human senses. However, the relative limitations of the new medium and its undeveloped nature also affect the communication effect very abruptly. Because of the limited effect of the development of traditional new media journalism, it makes sense to explore the application of VR in the field of journalism. Based on this, this paper first briefly introduces the meaning of VR technology and the form of application, and then focuses on the analysis of VR technology for news media application and development direction. The study ultimately concludes that there are still technical problems with VR technology in news media and that it is only partially applicable to news, providing a reference for the development of immersive journalism.

Keywords: VR technology, Immersion News, Television news area, Application Exploration, Communication Studiesfilm.

1. Introduction

In recent years, virtual reality, a computer interface technology, has been used to minimize the burden on users and improve the efficiency of the system by providing them with a variety of intuitive and natural means of real-time perceptual interaction, such as visual, auditory and tactile sensations [1]. While this technology has become the focus of attention, VR journalism has also attracted a lot of attention in the news industry. With the globalization of information transmission and the multimedia nature of news platforms, news has become a popular, yet cross-border and cross-lingual form of cultural exchange, including not only current social phenomena, but also reflections and exchanges on the ways of thinking and living in the world from a variety of perspectives.

According to Michael Schudson, a professor at Columbia University's School of Journalism: "The study of journalism history should connect the changes in journalism to the historical changes in the societies in which it is embedded, and requires a rethinking of the relationship between technology, media, and society, as well as of technological determinism[2]." Unlike the news of the past, today's news is evolving and adapting to the times in terms of subject matter, distribution methods and channels and technological measures. The most effective way to connect "technology, media, and society" in today's society is to increase the proportion of the two values of news prominence and interest [3]. With the development and advancement of science and technology, Virtual Reality (VR), which is included in the Metaverse era, has brought a different kind of interactive experience to human beings, a new medium that, as the name suggests, allows human beings to briefly "converge" the different realms of reality and virtual reality, which can break people's perception of traditional news. It can break the perception of traditional news. From audio to text, to electronic delivery and now in the age of smart media, the field of communication has gradually evolved in the direction of mediatization, leading to differences in the direction of research and the effects of traditional communication [4].

Virtual reality technology can give an originally plain, singular narrative article a distinctive color and a slightly better sense of presence.

This paper is divided into three main chapters, which examine the forms of application of VR technology in journalism, the interplay between VR technology and the journalism industry, and the limitations of VR technology in journalism applications.

2. Applications of VR Technology in News

2.1. The Philosophy and Features of VR News

News is new factual information that has been reported or disseminated. The concept of immersive journalism was developed by Nonie de la Pena and refers to “forms of news production that enhance the user’s first-person experience of a news story or event or situation[5]”. Immersive journalism is the result of an overlap between the respective developments in virtual reality and information technology applications, a feature that not only changes the shape of journalism but also improves the effectiveness of communication. VR news is an innovative medium that brings users into a new 360-degree space, allowing them to hear, touch and see the news from the perspective of the “protagonist”. The user’s viewing experience can be greatly enhanced from an auditory, tactile and visual point of view, in order to get a true sense of simulation effectiveness. Currently, immersive journalism brings audiences an immersive and immersive experience, mainly through panoramic video filming, 3D engines and AR application images. In addition to this, immersive journalism uses VR and AR technologies to develop a first-perspective narrative, which incorporates a virtual environment that brings the audience into the scene, submerges them in the news story, and then interacts with the news narrative to continuously enhance their knowledge and understanding of the news event.

2.2. Application Form of VR Technology in News

VR technology can give what would otherwise be an ordinary news story a unique perspective that can be interpreted in two ways: the shock and impact on the viewer, and the power to express clear ideas of value. While allowing users to interact with entities in a virtual environment using a variety of interactive devices, it can create a sense of immersion in the communication of information. The basic characteristics of a virtual reality system can be characterized by three “I’s”: immersion, interactivity and imagination [6].

The concept of immersion is that the user can experience a realistic 3D image in virtual reality, thus achieving a sense of reality as seen or touched by the user. Most news stories tend to be edited in a linear way, specifically by describing an event in order from space to time, or by having a conversation between the people involved. Some news reports have used immersive features to recreate scenes from major events, such as the Chernobyl nuclear meltdown, without the need to go to a very dangerous, uninhabitable quarantine zone.

With sufficient technical support, users can interact within the virtual world, where interaction means substantial interaction with the virtual scene in front of them. As an example, within a specific virtual environment, a virtual entity is programmed in advance so that the user can see it. If the user then uses a specific machine to manipulate the virtual entity, the user should feel that the manipulation is easy, real time and that the scene provides a natural level of feedback to the user. If the virtual entity is a cup, and the interaction is carried out using a joystick, the convenience and real time nature of the operation will be greatly linked to the operation of the joystick. For example, whether the responsiveness of the joystick matches the movements of the real user, or whether the joystick is too difficult to operate. When interactivity is lost in a virtual reality world, it has essentially become a panoramic video, so meeting the interactivity of the device in immersive journalism is now one of the most difficult problems to solve. In practical terms, users can interact with the events in the pages of the news through physical actions and taps, for example in the technology and automotive sectors, where users can actually experience the latest products and technologies for a short time through VR. Imagination means that the virtual environment allows people to immerse themselves in it and gain new knowledge from the news while increasing their perceptual and rational understanding, thus

deepening their knowledge and generating new ideas. This is somewhat subjective, but there is no denying that virtual reality does offer a wide range of imaginable possibilities, such as ideas that are outside the realm of common human perception [7].

In general, immersion and interactivity are the two features that mainly form virtual reality news, and the audience does not play the role of spectator in receiving information as traditional news usually does but feels and interacts with the information in the role of a participant. These features of VR news provide new ideas for media communication methods, with specific applications as follows:

VR technology is applied so that news reports use 360-degree panoramic lenses instead of cameras, and subsequently, through certain processing, differ from traditional news reports that are expressed and disseminated in the form of text, pictures, audio and video, and presented in two dimensions, VR news presents a three-dimensional scene. It thus changes the production mode and presentation of traditional news and the relationship between transmission and reception, allowing audiences to have the gratification of an immersive and interactive experience while accessing news information.

The use of VR scenes during large scale events or news broadcasts with strong visual effects enhances the visual impact with the immediacy of the full range of three-dimensional images, and presents the same images as live performances, allowing the audience to experience the shock of the scenes without having to leave home [8]. The 11-minute story, which showed three children in a war-torn region living a life of displacement, became a trailblazer in VR journalism upon its release. Viewers were shocked by the immersive experience brought by the panoramic VR and experienced the harshness of the battlefield and the desperation of the children in a more in-depth way.

In traditional news reporting, the only channel through which the public can access information is from the media. This means that most of the information chosen and presented must depend on the mainstream media. In VR news, the three-dimensional presentation allows the user to witness the news as a first-hand spectator, which strengthens the viewer's position compared to their previous vulnerable position, allowing them to understand the news on their own and gain a more realistic experience based on the material. "imagination", this type of immersive experience helps the public to take control of the depth and breadth of information they access according to their own preferences and needs and helps to subconsciously improve the problem of difficulty in conveying information containing cultural values in previous communications.

3. The Interplay Between VR Technology and the News Industry

3.1. The Impact of VR Technology on the News Industry

VR technology has been used to stunning effect, and if VR news gradually becomes popular at a later stage, then the news industry will enter a technology-driven era. This change will overturn the traditional form of news media communication, with a broader audience, and a smart media ecosystem in which the mainstream media's own technological development and application upgrades will step by step facilitate the evolution of users, stimulating their curiosity while providing a more innovative audio-visual experience that will appeal to a younger audience. The information dissemination system in the technology-driven era will change the audience from a mere listener to an individual (the most basic end unit of human society, i.e., the "person"), and as people's ability to process and disseminate information continues to grow - in terms of clicks and retweets - the impact of information dissemination can already far exceed that of institutional media in the smart media era [9]. This is especially the case when it comes to the dissemination of specific public opinion events. Today, the communication space is not only limited to institutional media, but as independent statements also made by individuals can be found everywhere on major software, which shows that the openness of the space has greatly facilitated individualized communication. In addition to this, VR technology can also lead to innovation in the form of news products, i.e. the packaging of news products through editing and processing procedures that enrich the personality of the news in general.

3.2. The Impact of the News Industry on the VR Industry

Immersive journalism will not only create a stir within the news industry, but will also have an impact on the VR industry, accelerating its development in the following ways.

(1) The content production chain will be gradually improved, for example by replacing the filming of 360-degree panoramic videos with specialist technology that will allow the viewer to experience a more complete experience. The current technology will only provide visual and auditory effects, but if it continues to develop, the future of truly immersive journalism will be complete with the senses of touch, taste, smell and so on. These will also be the development space and future of VR technology. With demand, the hardware requirements of the VR industry will also become higher and higher, resulting in a gradual increase in development potential and a steady rise in efficiency.

(2) Media business models will gradually change, and some content may require specific additional equipment, which gives rise to the need for additional purchases or additional paid content. The dividends of this type of business model could drive major players in this direction, with VR news content and models becoming more and more widespread.

4. The Limitations of VR Technology in the Application of News

4.1. Applicability of Immersive Journalism

VR news is not suitable for all topics of news, because immersive news is not different from video, text, images, sound, which are four forms of content that are more widely applicable. For example, news like current affairs, or urban social issues are not suitable for immersive journalism, for which viewers are more interested in the actual events that the news is specifically about, and getting information quickly, rather than restoring scenes of events. In fact, news topics that are merely visually tired are more suitable for immersive journalism, the role of which is to give the user a sense of presence.

4.2. Technical Issues

Virtual Reality has a number of consistent object elements: computer technology, 3D scenes, input/output devices, sensory interaction experiences and final presentation effects. Among them, computer technology as the core, the integration of artificial intelligence, sensors and other related technologies, and ultimately with the help of head displays (or naked eye 3D to achieve VR effect) and other output devices to simulate the generation of three-dimensional sensory virtual simulation world [10], providing real-time interactive dynamic experience, this will be the reality of what originally happened to reconstruct in the data and performance to produce a sense of presence. In today's society, the immersive journalism that has been introduced is still at a relatively rudimentary level, to the extent that most VR content does not require specialist VR consumer equipment but can be viewed using only a designated app installed on a mobile phone, but such VR is essentially not much different in nature from panoramic video, which is already used in various mapping software and is relatively technically mature. As you can see, the three "I's" of immersive journalism (immersion, interactivity and conceptualization) require more specialised equipment to be popularized, and with the current level of technology it will take some time to accumulate and settle down.

The New York Times, currently the leader in this field, found that they lacked a distribution channel for VR content once they had mastered the technology. They had to choose between putting VR content on the Times website or using other apps to distribute the Times' VR content. In the end, The New York Times chose to develop its own distribution channel for VR content, eventually launching "NYT VR" [11].

5. Conclusion

Mainstream media should develop diversified audiovisual media independently based on the combined development of 5G technology and VR technology, etc., so that they have certain dissemination capacity and immersion power. This will result in richer video content in full UHD and better integrated processing technology for multiple information such as text, images, sound and video. Through the use of VR technology, news can be brought to a higher level of communication. In addition to this, the VR industry and the journalism industry will influence each other's role in order to reach a mutually giving each other a more complete industry chain and product innovation. Finally, there are many aspects of the applicability and technical aspects of VR technology in journalism that are still waiting to be updated and improved. In the future, with the ongoing research process of Metaverse technology and journalism communication, as well as the exploration and practice of the academic community, more discussions can continue to be given to the construction and reinvention of the developable journalism genre.

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