Analysis of the Application of Virtual Reality Technology in News Reporting - Postprint

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Abstract

Virtual Reality (VR) technology refers to the three-dimensional simulation of real-world scenes through computers, enabling users to be immersed in simulated environments. In recent years, VR technology has gradually matured and been widely applied across various industries. The application of VR technology in news reporting, abbreviated as VR news, can be defined as "immersive journalism." VR news can provide audiences with a novel three-dimensional news experience, reconstruct news narrative methods, intuitively restore news scenes, construct an omniscient perspective for audiences, and plays an indispensable role in promoting the development of journalism and communication in China. However, there remain certain deficiencies in the current application of VR technology in news reporting, such as relatively fixed news formats, lack of professional talent, and high production costs. It is necessary to analyze the current situation and explore solutions, which may include upgrading technology, cultivating professional teams, and reducing technical costs. This paper will analyze and investigate the application of VR technology in news reporting, aiming to provide some reference opinions for the development of journalism and communication in China.

Full Text

Preamble

Title: An Analysis of Virtual Reality Technology Application in News Reporting

Abstract: Virtual Reality (VR) technology refers to the three-dimensional simulation of real-world scenes through computers, enabling users to immerse themselves in virtual environments. In recent years, VR technology has matured and been widely applied across various industries. Its application in news

reporting, abbreviated as VR news and defined as "immersive journalism," offers audiences a novel and three-dimensional news experience. VR news can reconstruct narrative approaches, visually restore news scenes, and construct an omniscient perspective for audiences, playing an indispensable role in advancing China' s journalism and communication industry. However, current applications of VR technology in news reporting face certain limitations, including relatively fixed news formats, a shortage of professional talent, and high production costs. This necessitates analyzing the current situation and exploring solutions through technological improvement, professional team cultivation, and cost reduction. This paper analyzes and investigates the application of VR technology in news reporting to provide reference points for the development of China' s journalism and communication industry.

Keywords: virtual reality technology; news reporting; news experience; news scene

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In recent years, Virtual Reality (VR) technology has become increasingly mature, with 2016 being hailed as the inaugural year of the VR industry. VR has been widely applied in gaming, e-commerce, film, and other sectors. Against the backdrop of the "Internet Plus" era, traditional news and information dissemination can no longer satisfy audience demands, as contemporary audiences prioritize experiential and interactive engagement with news. Consequently, mainstream media outlets both domestically and internationally have begun applying VR technology to news reporting, using it as a vehicle for information dissemination. By leveraging its unique advantages to enrich news reporting formats, VR technology makes news coverage more authentic and artistically expressive, enabling audiences to have immersive information-reading experiences while simultaneously promoting the further development of domestic journalism and communication.

1.1 Reconstructing News Narrative Methods

Virtual Reality technology generates simulated scenes through computers, integrating multi-source information with physical actions to create immersive and interactive environments. Applying VR technology to news reporting offers distinct advantages: compared to traditional news formats, VR news is more diversified, presenting novel news coverage by reconstructing narrative methods and enabling audiences to perceive news in fresh, three-dimensional ways.

Traditional news reporting employs linear narrative methods where journalists recount events through news figures, details, or dialogues, leaving audiences with

minimal sense of participation. In contrast, VR technology reconstructs news narrative methods by presenting content through interactive and multi-threaded narratives, allowing audiences to participate in and experience news perception [1]. Interactive narrative breaks traditional linear patterns by combining interactive technology with verbal narration and visual presentation in news reporting. This audience-centered approach enables users to integrate themselves into news scenes. Multi-threaded narrative refers to the organic integration of multiple media and storylines in news reporting through VR technology, immersing audiences in news scenes where they can independently perceive and contemplate news information and details. This approach grants news high degrees of freedom, enabling audiences to make autonomous choices during news consumption and obtain enhanced news experiences.

1.2 Visually Restoring News Scenes

The application of VR technology in news reporting can visually restore news scenes, helping audiences participate in authentic environments and generating immersive viewing experiences. Through VR technology, news sites can be restored in 360° panoramas, combining audio and video information into panoramic visuals that intuitively reproduce news event scenes. This makes news content richer, more diverse, and engaging, allowing audiences to participate in news from all directions and angles. 360° panoramic videos and images represent the most common manifestation of VR technology in current news reporting, welcomed by mainstream media both domestically and internationally. For instance, in 2015, the *People' s Daily* media platform combined VR technology with news reporting, using VR equipment to display the "September 3rd Military Parade" in 360° panoramic video. Audiences could watch the parade formations from various orientations and angles simply by moving their mouse or swiping the screen, thereby experiencing the grandeur of the parade as if they were present at the scene.

1.3 Constructing an Omniscient Audience Perspective

Applying VR technology in news reporting can construct an omniscient perspective for audiences, using first-person viewpoints to generate subjective feelings about news. This reduces audience dependence on journalists to some extent, allowing full play of individual thinking for autonomous understanding and research of news events. Audiences can comprehensively clarify details and contexts of news events from multiple angles, thereby generating emotional resonance and obtaining self-satisfaction and novel news experiences.

Current audience demands for receiving news information have changed, becoming more subjective and personalized. The application of VR technology in news reporting can satisfy these contemporary audience needs [2]. The omniscient perspective changes previous fixed narrative angles, enabling news narrators to freely recount news figures, scenes, and events without any fixed viewpoint. This effectively reduces audience dependence on news narrators, allowing au-

diences to more freely and flexibly experience news from multiple angles and panoramic views while independently clarifying the ins and outs of news stories. For example, in 2017, the *Legal Evening News* utilized VR technology to construct an omniscient audience perspective in its reporting of the Jiuzhaigou earthquake. Audiences could directly participate in the news scene through panoramic video, freely choosing viewing angles to observe the post-earthquake site as eyewitnesses.

2.1 Relatively Fixed News Formats

Current applications of VR technology in news reporting face several challenges. Although VR news can bring audiences entirely new audio-visual experiences, theoretical research on new media reveals that technological limitations result in relatively fixed news formats. Most mainstream news media both domestically and internationally predominantly adopt 360° panoramic videos and images for news reporting. Due to limited production technology that is difficult to upgrade, news formats remain fixed, making it challenging to further stimulate audience sensory systems. Additionally, VR news production requires long timeframes, resulting in weak timeliness and limited topic selection. Typically, VR technology is applied to news with weaker timeliness requirements, such as documentaries and in-depth reports, while it remains difficult to apply VR technology to timely news like social or financial journalism.

2.2 Lack of Professional Talent

Currently, applying VR technology to news reporting suffers from a shortage of professional talent. Media organizations need to cultivate thinking-oriented and composite talent to enhance the depth and breadth of VR news and improve the quality of news products. Thinking-oriented talent refers to professionals who must master relevant media technologies while possessing innovation capabilities. However, traditional news media have not yet widely adopted VR technology and still employ traditional news production workflows. Even when professional VR technical talent is introduced, ineffective integration between traditional media technology and VR technology makes it difficult for VR professionals to adapt. Furthermore, media organizations' talent cultivation remains at the basic level of mastering VR operational skills, without deeper development in areas such as aesthetic consciousness and value judgment regarding VR news, which affects news product quality to a certain extent [3].

2.3 High Production Costs

At present, applying VR technology to news reporting involves high production costs, requiring substantial financial investment and time, along with certain profit risks. For example, Caixin' s first VR documentary *Kindergarten in a Mountain Village* cost millions of yuan. Beyond production costs, extensive production time is also required. Constrained by these factors, traditional media institutions face limitations in news production scale and can only produce

VR news periodically based on news topics. Additionally, audiences need to purchase VR equipment to watch VR news, and many audiences rarely access VR news works due to the high cost of VR devices. With unpredictable audience numbers, media institutions must assume certain profit risks when producing VR news, unable to balance input and output. Temporarily, it remains difficult to find sound profit models, which has prevented VR technology from being widely applied to news reporting.

3.1 Improving Technology

As discussed above, current applications of VR technology in news reporting suffer from technological shortcomings that result in relatively fixed news formats, necessitating technological improvement. VR technology can be combined with live streaming technology to provide audiences with different and fresh sensory experiences. VR technology can also be organically integrated with AR or aerial photography technology to present more novel perspectives. For instance, combining VR technology with drone aerial photography allows audiences to view aerial scenes from an omniscient perspective [4]. Secondly, advanced technologies can be introduced to establish public VR technology service platforms aimed at serving VR companies and users, promoting VR technology popularization and advancing journalism development. Finally, VR news content can be enriched. Although current technology faces limitations, shifting thinking patterns and enhancing VR news appeal through optimized news content can strengthen audience news experiences.

3.2 Cultivating Professional Teams

In response to the current shortage of VR news professional talent, domestic media organizations should cultivate professional teams to improve VR news quality. First, they should cultivate talent teams possessing both VR technology and editing capabilities, who can not only produce news but also proficiently master VR technology and H5 production techniques. Through VR technology, they can more accurately grasp news narrative methods, thereby enhancing news product quality. Second, media organizations can cooperate with technology production companies to introduce professional VR technical talent for specialized VR production. Finally, media organizations can collaborate with universities. Currently, many universities have launched VR technology courses and established relevant laboratories, such as Tsinghua University and Xi' an Jiaotong University. By partnering with universities, media organizations can cultivate comprehensive talent with professional qualities, injecting fresh vitality into VR news development.

3.3 Reducing Technical Costs

Since VR technology has not yet been widely popularized in the journalism industry, its integration with news production processes remains incomplete, resulting in high production costs and profit risks that lead to intermittent VR

news distribution. Therefore, media organizations can reduce technical costs by innovating and establishing distribution mechanisms. For example, to reduce blind and excessive use of VR technology, media organizations can integrate news resources and select VR technology as an auxiliary production tool based on news topics, which can save costs to a certain extent [5]. Additionally, providing distribution channels for VR news and establishing relevant news platforms where audiences can independently choose news viewing methods can satisfy audience needs while expanding VR news scale.

In summary, applying VR technology to news reporting offers significant advantages: it can reconstruct narrative methods, comprehensively display news scenes in 360°, and provide audiences with immersive news experiences. Simultaneously, audiences can independently analyze and contemplate news details and structures from self-selected perspectives, fully participating in news events. However, because current VR technology remains immature, news formats are relatively fixed, and factors such as high costs and talent shortages prevent comprehensive application in journalism. To address these existing problems, we should improve production technology, cultivate professional talent teams, and reduce technical costs to enable widespread VR technology application and promote innovation and development in journalism.

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Note: Figure translations are in progress. See original paper for figures.