Research on the Impact of VR Technology on the News Media Industry: Postprint

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Abstract

Since its inception, VR technology has been widely applied in the journalism industry. Following years of development, the disseminators of VR news have become increasingly diversified, communication channels have gradually diversified, communication content has gradually become typified, and communication effects exhibit distinct stratified characteristics. The emergence of VR technology has significantly enhanced the authenticity of news communication, met the demands of media technology transformation, enabled interactive communication between media and audiences, and compelled mainstream media to adjust their communication "voice" . However, in the process of promoting the development of the journalism industry, VR technology has also engendered a series of negative impacts, such as "technological mediation" becoming a new control center, empathy effects triggering false needs, reinforcing the important role of technology, and causing certain resource waste, among others. This article analyzes the current development status of VR news and the positive and negative impacts brought by VR technology, explores its future development directions, with the aim of providing reference for future related research.

Full Text

Preamble

VR technology, or virtual reality technology, refers to the presentation of real-world environments through technical means. Users can view technologically reconstructed scenes through specialized headsets and interact with them. The emergence of VR technology was not an overnight phenomenon but rather the result of a lengthy developmental process. Beginning with American New Journalism in the 1960s and 1970s, which is considered the precursor to VR news reporting, VR journalism has since continued the tradition of narrative storytelling while emphasizing first-person perspective reporting—an approach crucial for enhancing reporting effectiveness. The development of VR technology has

significantly advanced the journalism industry and improved media credibility among audiences. However, this technology-driven progress still faces substantial challenges, making it critically important to explore VR technology's impact on the news media landscape in this new era.

Keywords: VR technology; news media landscape; technology intermediary; VR news; media convergence

1.1 Diversification of Communication Subjects

First, traditional media have actively developed their own VR news offerings. Represented by broadcast, television, and newspaper outlets, traditional media possess extensive experience in news content production and can provide substantial high-quality material for VR news, making them one of the primary forces in this domain. For instance, *People' s Daily*, one of China' s most influential traditional media outlets, applied VR technology to its coverage of the September 3rd military parade in 2015, sparking widespread audience interest in VR news. Second, online media have opened new frontiers for VR news. Compared with traditional media, online media features massive storage capacity and strong interactivity—characteristics that align perfectly with VR news. Consequently, VR news has become a major development direction for online media in recent years, as exemplified by Sina.com's creation of the "VR Singularity" column. Additionally, VR news content primarily focuses on social hotspot events and major disasters. Social hotspot events, which closely concern people' s interests, were previously reported through flat formats such as text, images, and video. While informative, these formats struggled to evoke emotional resonance. VR news can present events authentically and comprehensively, as seen in NetEase News' s *Spring Festival Travel Rush Panorama*, which introduced users to the real scenes of the annual migration, bridging the gap between news reporting and audiences while enhancing emotional engagement. Similarly, disaster events, given their significant impact and brief duration, are difficult to capture accurately through conventional reporting. VR news can reconstruct these situations through technical means, helping people obtain more authentic and comprehensive information.

1.2 Diversification of Communication Channels

Major media websites have become primary channels for VR news distribution. These platforms represent the convergence of traditional and new media, combining the content professionalism of traditional outlets with the timeliness advantages of digital platforms, giving them strong influence among users. In recent years, major media websites have leveraged their "media" identity to compete for discourse power in the internet age, making VR news dissemination a key competitive strategy. Mainstream media websites such as Xinhua Net, CCTV.com, and Guangming Net have all established dedicated VR sections to distribute hot VR news and attract user attention. Furthermore, mobile clients

and social media have become the main battlegrounds for VR news. In 2016, iQiyi became the first to announce its VR news initiative, launching a VR news section on its app, while social platforms like Weibo and WeChat utilized their dissemination advantages to forward VR news and guide users toward engagement.

1.4 Stratification of Communication Effects

First, VR news readership varies significantly. As a novel news presentation format, VR news can capture attention, but its dissemination process has limitations and is not suitable for all news content, with different topics yielding different effects. Big data analysis reveals that disaster VR news generates the highest engagement, followed by social hotspot news, with current affairs and political news ranking lowest. Second, user groups show strong interest in specific content categories. Although major media and video platforms are developing VR news that is becoming increasingly routine, only "special customized" formats such as VR panoramic video and VR panoramic images have gained particular favor among users.

2.1 Enhanced Authenticity of News Communication

VR technology can substantially enhance the authenticity of news communication. First, VR news can use technology to reconstruct real news scenes. News events, especially disasters, occur instantaneously, making them difficult for journalists or witnesses to record accurately, which introduces lag and subjectivity into reporting. Even dynamic graphics produced by news media struggle to achieve optimal dissemination effects. VR technology can authentically reconstruct event scenes and processes while enabling user interaction, helping users gain more realistic experiences during engagement. Second, VR technology can deliver "immersive experiences." An immersive experience occurs when users enter a news scene and experience the actual sensations—visual, tactile, and even gustatory—of the event as it unfolds. When reconstructing news scenes, VR technology can provide users with authentic environments and subjective feelings, effectively creating this immersive experience.

2.2 Meeting Media Technology Transformation Needs

A review of communication media history reveals that technological development has been a crucial factor in advancing media progress. The invention of papermaking facilitated the emergence and growth of newspapers, while digital and network transmission technologies significantly promoted the development of television and live streaming. The advent of VR technology has brought new transformations to the media industry. According to the *China Media Industry Development Report*, new media' s market share surpassed that of traditional media in 2011, after which traditional media experienced a continuous decline in market proportion. This shift occurred partly because internet users prefer

the accessible language of new media over the formal prose of traditional outlets, and partly because traditional media lagged far behind new media in communication technology. With the emergence of VR technology, traditional media have discovered new development opportunities and have launched VR news operations to regain market share and audiences, as demonstrated by CCTV' s establishment of a VR section on its app platform.

2.3 Innovating News Presentation Forms

In the mass media era, news was primarily disseminated through text, audio, and combinations of text, video, and simultaneous broadcasting. While these methods achieved the goal of information dissemination, their presentation formats were relatively limited. In the early convergence media era, network technology enabled both users and professional news media to disseminate information through text, video, audio, and images, substantially enriching communication methods. However, these formats still could not achieve interaction with users. With the emergence and development of VR technology, users can enter news scenes through specialized headsets, interact with content within these environments, and thereby obtain authentic experiences. This breakthrough has largely moved beyond static news presentation, enabling not only dynamic display and dissemination but also significant interactivity with users, thereby innovating news reporting formats.

2.4 Prompting Mainstream Media to Adjust Communication "Register"

"Register" refers to modes of language expression. In the mass media era, mainstream media often enhanced the professionalism and literary quality of news language through classical allusions and formal references. However, this reporting style diverged from audience preferences, creating a situation where news media and audiences operated in separate camps, which hindered efforts to elevate media status among audiences and achieve effective communication. VR news represents a special type of reporting that adopts a storytelling tone, transmitting complex and obscure news events in visual form and explaining backgrounds and causes through narrative expression. Consequently, VR news has won user acclaim since its inception. As VR news' s influence has gradually expanded, traditional media have recognized their own shortcomings and have adjusted their "register" to align with user preferences and demands, thereby facilitating their transformation and development.

3. VR Technology' s Negative Impacts on the News Media Landscape

3.1 "Technology Intermediary" as New Control Center

In media communication, "technology intermediary" refers to individuals or organizations with advanced technology who can significantly influence media development. Regarding technology' s impact, three distinct theories exist: "technology evil theory," which views technology as the root of all evil that will eliminate jobs, reduce life security, and increase social instability; "technology good theory," which believes technology will inevitably lead humanity to a highly developed and civilized utopian society; and "technology neutral theory," which holds that technology itself is neither good nor evil, and that its direction depends on those who possess it—the "technology intermediaries." As VR technology continues to develop and play an increasingly important role in people' s lives, the power of these intermediaries has grown substantially, establishing them as new control centers.

3.2 Empathy Effect Stimulating False Needs

The empathy effect refers to users experiencing emotional responses consistent with the scenes or content during VR news consumption. For example, when users enter a disaster news virtual world created by VR technology through specialized headsets, they witness the real scene of the disaster and can personally experience its impact on victims. However, news disseminated through VR technology does not necessarily align with mainstream socialist values; some content involves dazzling arrays of commodities and reflects luxury consumption tendencies. Under the functions of media agenda-setting and the pseudo-environment, people may perceive these value orientations and consumption trends presented in VR news as reflections of real life, which can significantly stimulate false needs.

3.3 VR Technology' s Privacy Leakage Risks

As VR technology further develops, the boundaries between private and public spheres have become increasingly blurred, substantially increasing privacy leakage risks. VR technology development relies primarily on wearable devices. When users enter the virtual world provided by VR technology through these devices, their head movements, facial expressions, and brainwave data are recorded and stored. VR technology owners can accurately determine people' s preferences by analyzing this information and subsequently create virtual worlds that better meet user needs. While this facilitates "precision communication" to some extent, the data can also be exploited by commercial companies, resulting in user privacy violations.

3.4 Causing Resource Waste

VR technology-induced resource waste is primarily manifested in its high costs and enormous capital requirements. As VR technology rapidly develops and VR news emerges, major mainstream media have rushed to create their own "VR worlds" to gain dominance in the new round of competition. However, many local mainstream media outlets suffer from poor economic conditions and limited social influence. Blindly developing VR technology and VR news would increase financial pressure. Moreover, many county-level mainstream media currently face significant talent shortages, lacking personnel proficient in VR technology. If they ignore these realities and follow trends blindly, even with professional VR production facilities, the lack of specialized operation teams would leave these resources idle, resulting in substantial waste.

4.1 Deepening Integration of Media Technology

First, deepen the integration of VR technology with 5G technology. The commercial launch of 5G technology in China in 2019 marked the country' s official entry into the 5G era. 5G development provides faster transmission speeds and expanded storage capacity, creating new development opportunities for numerous industries. Although VR technology was widely used during the 4G era, slow network transmission speeds caused user dizziness during experiences. Therefore, VR technology should actively integrate with 5G technology, leveraging high-speed transmission to enhance user experience. Second, deepen the integration of VR technology with big data technology. VR technology development relies on big data technology support because creating each virtual world requires massive data resources. Consequently, VR technology should strengthen its integration with big data technology to create VR news that better meets user demands.

4.2 Strengthening Integration of Communication Content

First, VR technology should focus on integrating news resources. Both traditional and new media emphasize 挖掘 content closely related to people' s daily lives, which not only satisfies journalistic requirements but also fulfills their role as society's "eyes, ears, and voice."However, this reporting tendency causes many "niche" news stories to be overlooked by the masses. Therefore, VR technology development should emphasize news resource integration, strengthen content innovation, and fully leverage the "long-tail effect." Second, VR technology should strengthen cooperation with traditional media. VR news represents the product of collaboration between VR technology and traditional media, having attracted public enthusiasm since its inception. From this perspective, strengthening cooperation between VR technology and traditional media constitutes a win-win strategy, and VR technology should enhance integration with traditional media in both content and form.

4.3 Enhancing User Experience Effects

First, improve users' interactive experience effects. A key characteristic of VR technology is its provision of interactive experiences for users, transforming previously abstract content that required user interpretation into intuitive sensory experiences. While this strengthens user understanding of news content, it also increases behavioral inertia, causing users to lose rational thinking abilities while indulging in sensory experiences. Therefore, VR technology should improve its interactive experiences by creating question-and-answer activities in virtual worlds to stimulate users' thinking. Second, VR technology development should emphasize guiding users toward rational thinking. VR technology should fully demonstrate the value of rational thinking and encourage users to appreciate its importance.

Canadian scholar Marshall McLuhan once noted that the birth of any new medium creates new ways for humans to perceive and understand the world, and that communication revolutions transform people' s senses, behaviors, and consequently create new social behavior patterns. The development of VR news confirms McLuhan' s perspective. VR technology has brought users "immersive experiences" —a behavioral mode unattainable by traditional media. While VR technology' s emergence and development have significantly advanced the media industry, its inherent "technological" characteristics have generated a series of social problems. However, we can currently promote VR technology' s further development in the news media landscape through deepening integration of media technology, strengthening integration of communication content, and enhancing user experience effects.

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