



Research on the Application of Computer-Aided Virtual Reality Technology in News Media Communication

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Abstract. Reviewing the development history of the world media industry, whenever there is a technological change, new media will appear. This change brought about a revolution in information dissemination. Virtual technology is constantly developing, and initial attempts have been made in the field of communication. Communication studies explore the immersive journalism model. This new technology has a huge impact on the existing news dissemination model. From a technical point of view, virtual reality technology is a subversion of human perception and an expansion of the human body's comprehensive perception ability. From this point of view, virtual reality technology itself is an advanced media communication channel. The core of applying virtual reality technology to news dissemination is to create a sense of experience and immersion, and through the conversion of the first perspective, the audience can be changed from bystanders of news to participants. Through virtual reality technology, people are immersed in a virtual environment. Based on the combination of cases, this paper analyzes the narrative strategy of virtual reality news. Virtual reality news is a realistic recreation of news events and scenarios. Virtual reality technology has broad development prospects in the field of news communication. Cross-border integration promoted by virtual reality technology will be a new direction for the development of news communication. This paper first introduces the concept and characteristics of virtual reality technology, and then analyzes it from three aspects: media communication channels, news attention, and the integration of media communication and science and technology.

Keywords: virtual reality news; immersion; sense of scene; news narrative

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1 INTRODUCTION

Virtual reality technology has become a new communication medium and a new way of news reporting, which in turn has produced the communication form of virtual reality news. Synthesizing the communication characteristics of virtual reality, this paper focuses on the content characteristics and visualization design of virtual reality news. The current popular "virtual reality" is the so-called virtual reality technology. Liu and Pan [1] believed that, it is a technical method that is controlled by a computer and puts the experimenter in a virtual world through technical equipment such as helmets and glasses. This technology gives the experimenter an immersive feeling. The virtual reality technology allows the experimenter to contact various scenes through various forms such as picture, sound and physical contact, so that the user has a feeling of being there. The experimenter can experience various changes in the virtual world in the process. Xu and Wang [2] believed that the virtual reality technology is a new high-tech that integrates many technologies. This technology can have various application scenarios in the future, which will have a great impact on all aspects of people's lives. Tu et al. [3] believed that the application of media communication to virtual reality technology is one of them. Therefore, it is of great practical significance to study the process and application of virtual reality technology in media communication.

In the 1930s, psychology, sociology and science and technology developed rapidly. Chen and Wang [4] believed that there are many advanced ideas and practices for the future society in the technical field. In the novel *Brave New World*, the British writer Aldous Huxley described a new world controlled by technology 600 years later. This research is considered to be the earliest origin of the concept of virtual reality technology. It took many years from the conception to the subsequent practice. In 1935, American novelist Cha et al. [5] believed that the initial model of modern virtual technology equipment in his novel *"Pygmalion's Glasses"*. Wu et al. [6] believed that, the father of American virtual reality, founded VPL Research Ins. He put forward the technical concept of virtual reality and is recognized as the earliest proposer of virtual reality technology. Virtual reality technology is to use computer to simulate and restore the real world through three-dimensional dynamic visualization. This technology is more used in scientific research and military aerospace. Austin et al. [7] believed that the foundation base is not high for the contact and recognition of the general public. After a long period of development, virtual reality and related technologies have developed by leaps and bounds, and virtual reality technology has begun to be tried and applied in various fields.

The application of virtual reality technology in media communication has changed people's traditional way of experience. The technology promotes innovation in media communication by the media industry and drives the development of the entire industry. Virtual reality technology also has its limitations. Considering that virtual reality technology is an emerging technology, its production cost is high. Due to the immaturity of the technology, the technology may bring uncomfortable viewing effects to users when it is used in practice. We need to further study new methods, so that virtual reality technology can be better integrated into the media communication and reduce the cost of the technology. This is also the direction that technical researchers will adhere to in the future. From this point of view, virtual reality technology itself is an advanced media communication channel. Dong et al. [8] believed that the core of applying virtual reality technology to news dissemination is to create a sense of experience and immersion, and through the conversion of the first perspective, the audience can be changed from bystanders of news to participants. Through virtual reality technology, people are immersed in a virtual environment. Based on the combination of cases, this paper analyzes the narrative strategy of virtual reality news. Schilling et al. [9] believed that virtual reality news is a realistic recreation of news events and scenarios. Virtual reality technology has broad development prospects in the field of news communication. Hahn et al. [10] believed that cross-border integration promoted by virtual reality technology will be a new direction for the development of news communication. This paper first

introduces the concept and characteristics of virtual reality technology, and then analyzes it from three aspects: media communication channels, news attention, and the integration of media communication and science and technology. The research analyzes the impact of virtual reality technology on media communication, and finally expounds the application of virtual reality technology in media communication.

2 VIRTUAL REALITY TECHNOLOGY AND ITS CHARACTERISTICS

2.1 Concept Definition of Virtual Reality Technology

Virtual reality technology originated from the West. Virtual reality technology was first proposed by a company in the United States, who gave the definition of the technology. It usually refers to the user modeling and expressing the real world through technical equipment such as three-dimensional glasses case sensing gloves, combined with the environment simulation method of computer software. Through the rotation and movement of the user's body, various instructions are sent to the computer, and then the computer gives the user's different sensory feedback, and corresponds to the user's different action feedback. The virtual reality we understand can generally be divided into two types: narrow and broad. In a narrow sense, virtual reality technology provides an experience with the help of computers, stereo glasses, sensing gloves and other equipment. Through various activities of users, their visual, auditory and tactile information is transmitted to the computer. And further get feedback from the computer to realize the real feeling of users in the virtual world. In a broad sense, the concept of virtual reality technology has expanded to the scope of "artificial reality", "virtual environment", and "cyber space" and so on. This paper mainly studies virtual reality technology in a narrow sense. The overall framework of the application of virtual reality technology in news communication is shown in Figure 1.

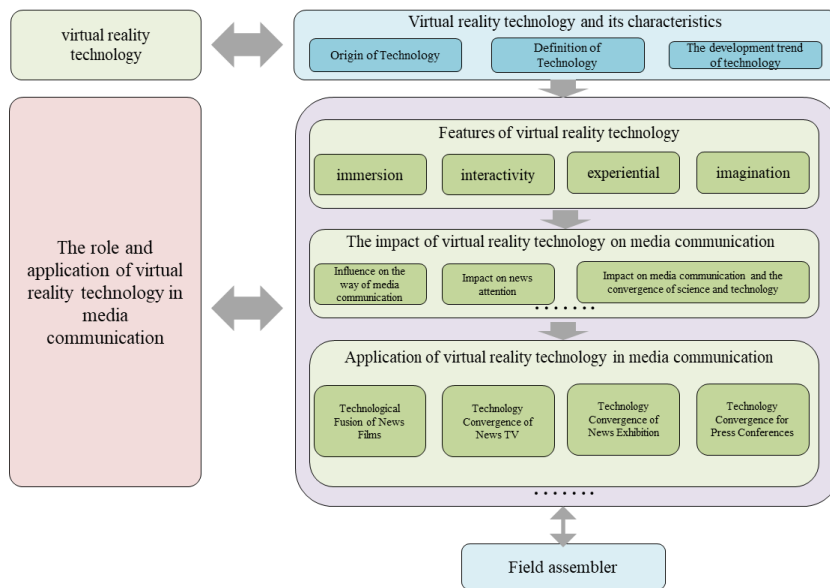


Figure 1: The overall framework of the application of virtual reality technology in news communication.

2.2 Characteristics of Virtual Reality Technology

The first is immersion. Virtual reality technology can enable users to have an immersive feeling, making it difficult for users to distinguish between the virtual world and the real world. This technology can achieve the user's physical and mental transition, and the user can devote his full attention to the virtual world. This situation can be called the immersion of virtual reality technology. The second is to bring interactivity. The traditional 3D animation needs to transmit information first, and then the user will give feedback through the received information. The interactive way in virtual reality technology allows users to actively guide or receive information. The user actively participates in the interaction of the virtual world. Specifically, through the use of equipment such as stereo glasses and sensing gloves, the user can feel the existence of the scene. In the virtual environment simulated by the computer, the user can have the same tactile and taste experience as in the real environment. Through computer network interaction, the user's feedback is more natural and fast. The real-time interaction can deepen the user's sense of immersion, making the user change from a bystander to a participant. Finally, bring the imagination. Virtual reality technology, on the one hand, allows users to perform activities according to the scenes and patterns programmed by the computer; on the other hand, this technology also allows users to participate in the creation of virtual environments through their own imagination and creativity. Virtual reality technology can give full play to people's subjective initiative and improve users' cognitive ability and processing ability to problems.

2.3 Application of Virtual Reality Technology in News Media

From oral communication to Internet communication, media development has experienced four significant changes. The public has completed the transition of media experience from hearing to vision and then to comprehensive perception. The traditional news broadcast mode cannot meet the new needs of the public, and virtual reality technology provides a wealth of information for communication. Through immersive reporting, the model of virtual reality news will become the direction of the transformation and development of news media.

At present, domestic and foreign news media have begun to explore the combination of virtual reality and news, and the news industry has entered the era of immersive reporting. Users are brought into the news scene, breaking through the time and space constraints in traditional scenarios. News reports break through the limitations of flattening, and maximize users' intuitive needs for news content. In 2015, The New York Times launched a virtual reality news client. Virtual reality technology was used for the first time in the world to try to use it to broadcast news information with the help of virtual reality technology. In China, in the 2016 National Two Sessions news reports, the People's Daily mobile phone client, the "Southern+" client and other media also launched virtual reality reports on the Two Sessions. Virtual reality technology is constantly used in the broadcast process of news media. In addition to national media using virtual reality technology for broadcast, local media are also actively trying to use virtual reality technology. In June 2016, the upstream news client launched a virtual reality news channel, becoming the first professional news client in China to create a virtual reality news channel. According to existing data reports, the virtual reality channel can quickly collect news information; restore the news scene with high quality and high standards, and bring users to the scene intuitively. It gives users an immersive feeling, breaks the limitations existing in the original communication, and subverts the reading experience of traditional news. After a long period of development, the news broadcast form of virtual reality has been widely used in the field of news broadcast. The application of this broadcast mode in the field of news has advanced significance. This kind of exploration can be considered as the forerunner of the use of virtual technology in the national news media. However, there will be various problems and unavoidable shortcomings in the practice of news broadcasting through virtual reality technology, which requires the media to make adjustments and responses in the future development process. The platform system of virtual reality technology applied to the field of news communication is shown in Figure 2.

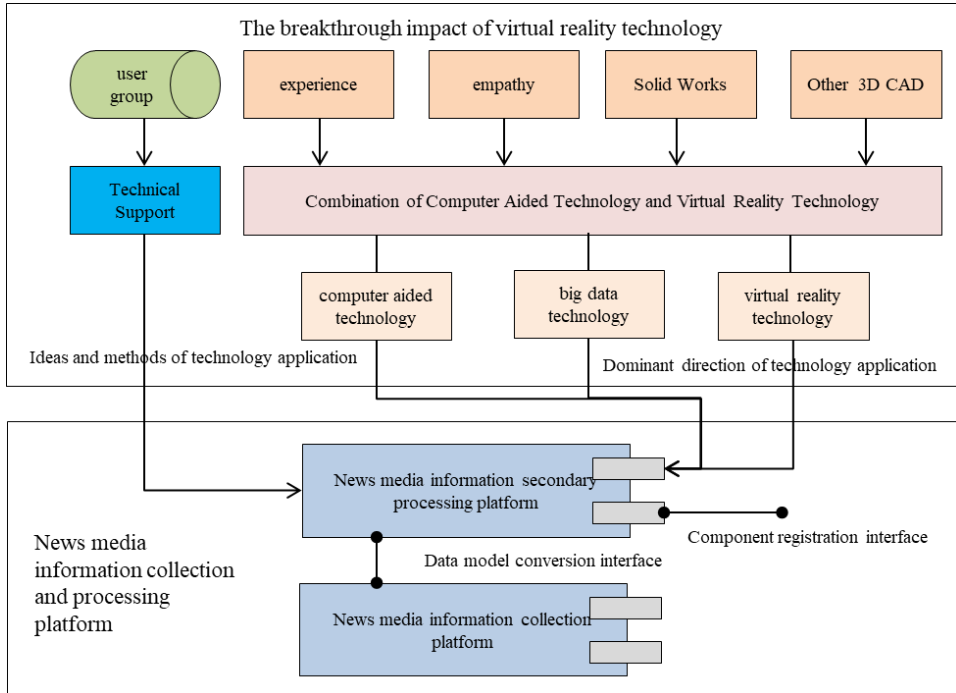


Figure 2: The platform system of virtual reality technology applied to the field of news communication.

3 THE PROBLEMS THAT VIRTUAL REALITY TECHNOLOGY MAY FACE IN NEWS BROADCASTING.

3.1 The Performance of News Value is Weak

As a report of valuable facts in the fields of politics, economy, society, and people's livelihood, news should pay attention to various requirements such as timeliness, importance, conspicuousness, proximity, and interest. On the virtual reality news reporting platform, news information is reported and produced. The content in the field of news information mainly covers conferences, engineering construction, sports events, social events, event sites, local scenery, tourism, star events and other aspects. Among the many reported content, news stories that meet the definition of news or are newsworthy account for only half of the content produced. On the other hand, meaningless and repeated reports also account for a certain proportion. The content of news reports on virtual reality channels has become paradoxical, and the content of the reports deviates from the value of news facts. At the same time, news coverage lacks attention to major events, breaking events, and in-depth news. The characteristics of information reporting speed, efficiency and convenience, panoramic presentation, etc., have not really brought the effect of virtual reality technology into full play. The user's demand for news information has not been truly met, and the value and validity of news reports are decreasing. The comparative analysis result of the scale of carrier enterprises of different news media is shown in Figure 3.

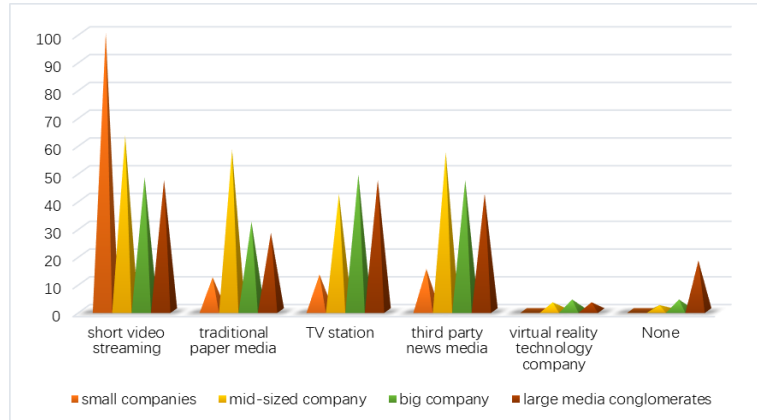


Figure 3: The comparative analysis of the scale of carrier enterprises of different news media.

3.2 The Stability of Virtual Reality Content Production is Weak

The current news client virtual reality channel can produce an average of 249 pieces of content per year, and an average of about 25 pieces per month. In different time periods, due to the instability of news information providers, the output efficiency of virtual reality news broadcasts is also unstable. According to the statistical analysis of the system, for nearly half of the year, the content generated by the virtual reality platform is less than 50%, which is the peak period of production at the beginning of the year, and will become the trough period of virtual reality content production after the year and even at the end of the year. Especially in recent years, with the rapid iteration of information technology, the speed and quality of virtual content production have shown a downward trend. News reports produced by virtual reality, on the one hand, cannot meet the market's requirements for news timeliness, convenience, and accuracy, and cannot be directly applied to the field of factual and hot news reporting; on the other hand, virtual reality technology is also not applicable. It shows the development process and causal system of an event in a global and panoramic manner. In order to adapt to the changes in these market demands, the panoramic news reporting model came into being, which is not only a new technical form, but also a new conceptual model. At the same time, this way of broadcasting is also a brand-new thinking system. The relationship model between virtual reality technology service providers, news information providers and news information receivers is shown in Figure 4.

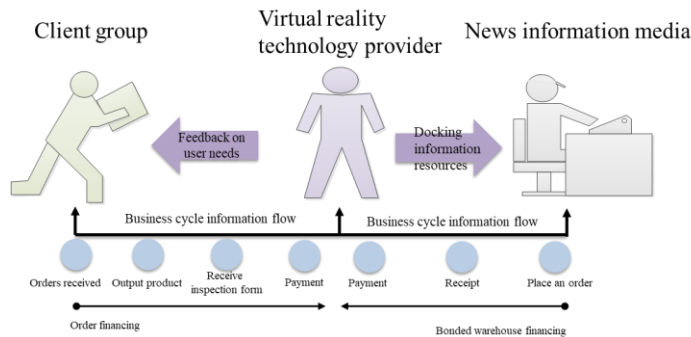


Figure 4: The relationship between virtual reality technology service providers, news information providers and news information receivers.

Reasonable and effective news reporting planning is the key to producing high-quality news content. At present, the content production of virtual reality technology lacks stability, and the reporting process lacks regular planning. In this way, effective news organization and report planning have not yet formed a comprehensive system. This mode of content production will directly affect the production and distribution of news content. Virtual reality technology does not help news production effectively, and the technical value is reduced to a certain extent.

3.3 The Content Presentation Method is Relatively Simple

Currently, virtual reality aids are not widely available. The virtual reality news reporting platform uses 720° three-dimensional pictures and text, sound and video to present news. Restricted by the maturity of technology, the presentation effect of news information content is much lower than expected. First of all, most of the content uses a fixed position to take a 720° three-dimensional rotated picture of the scene as the main content of the news information. The effect of multi-dimensional and panoramic presentation still needs to be improved. Secondly, most of the content simply lists the headlines, and only a few news reports extend the content and do not explain the details of the news. Finally, audio and video have poor correlation with content and a low sense of substitution. The Changes in registration of virtual reality technology integration application companies in China is shown in Figure 5.

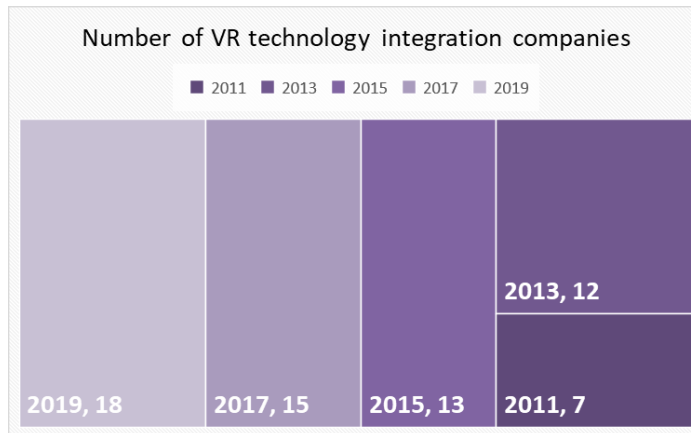


Figure 5: The Changes in registration of virtual reality technology integration application companies in China.

3.4 The User Loyalty is Generally Low

Affected by the above factors, the effect of immersive reporting is far from being achieved in the field of virtual reality technology. When users are exposed to the news content of the virtual reality news reporting platform, their loyalty to the platform is low. The total number of user views of the sample content is about 6,427,058 times, and users' cognition of virtual reality technology still stays on the curiosity experience of new technology. The title of "Open June" is open! "was viewed 247,000 times; however, the report titled "Sun Yang's Life Hundred Gold Celebrations" received only 8,109 views. Most page views remain in the relatively low number range. Users have poor stability in the browsing volume of these contents, and users have not formed a fixed usage habit. This will directly reduce user loyalty to virtual reality channels. Pro/Engineer is a 3D software integrated CAD/CAM/CAE under the American Parametric Technology Corporation (PTC). It is famous for parameterization and is the earliest application of parameterization technology. The share of different media formats in the field of news broadcasting is shown in Figure 6.

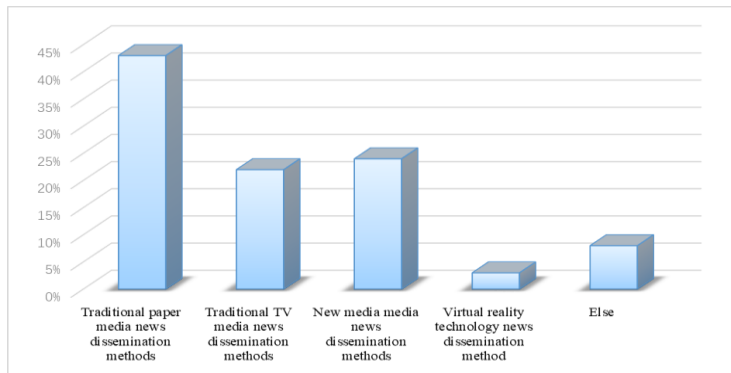


Figure 6: The share of different media formats in the field of news broadcasting.

4 THE IMPACT OF VIRTUAL REALITY TECHNOLOGY ON MEDIA COMMUNICATION

4.1 The Impact of Virtual Reality Technology on Media Communication

The use of virtual reality technology enables readers to experience an immersive virtual environment when the media spreads. This technology can help users fully feel the occurrence of the event and experience the real situation. Users no longer passively receive information from newspapers and TV news reports. For example, the national government work conference in 2016 used virtual reality technology to broadcast the scene. On the Internet platform, netizens can visit the venue in person with the help of stereo glasses and other equipment. This technology has been used in-depth in the conference, and the application scenarios and usage of this technical method in the conference broadcast process have been continuously tested. The results of the use have been supported and praised by the majority of netizens. The usage and growth rate of virtual reality technology in the field of news communication is shown in Figure 7.

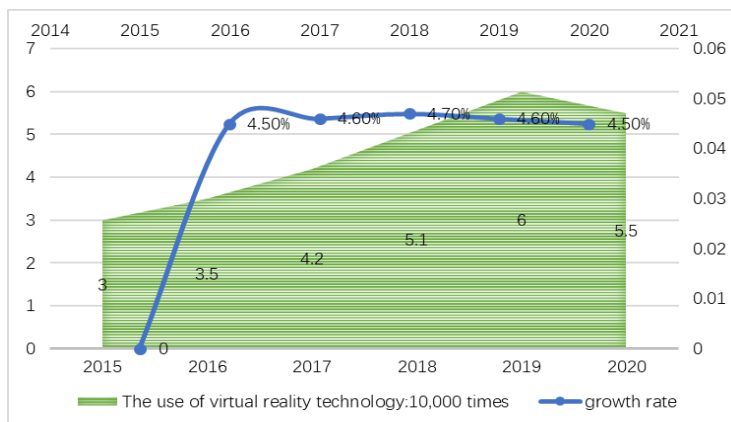


Figure 7: The usage and growth rate of virtual reality technology in the field of news communication.

4.2 The Impact of Virtual Reality Technology on News Attention

The virtual reality technology allows users to experience various changes in the virtual environment in an all-round way. When we apply virtual reality technology to the reporting of news events, the audience can experience the process of the occurrence and development of news events. The user can have a comprehensive understanding of the current situation at the time, and the user's interest in news events can also be continuously manipulated in the process of using virtual reality technology. Virtual reality technology has been continuously evolved and optimized in actual scene applications, and the effect of virtual reality technology has been continuously tested. The application of this new technology can gradually increase the society's attention to news events. In the process of specific meetings, the introduction of virtual reality technology increases people's participation and strengthens people's sense of experience, acquisition and participation. The broadcast form and broadcast process of such news events will help the people of the whole country reach a consensus during the meeting, and play a positive role in the effective implementation of national policies.

4.3 The Influence of Virtual Reality Technology on Media Communication and Integration of Science and Technology

Virtual reality technology belongs to a kind of science and technology, and the development of this type of technology is also constantly evolving with the progress of science and technology. Supported by multidisciplinary research results, virtual reality technology has also been widely used in the development of today's society. During the application of virtual reality technology in news broadcasting, it has made great progress in specific technology combination methods, technology use scenarios, and technology combination fields. The continuous updating of social needs can drive the progress and development of related technologies, and the continuous development of science and technology can improve the speed and efficiency of media communication, thus gradually forming the integration of media communication and science and technology.

5 CONCLUSION

In general, immersive news and experiential reading are the development directions of the future news field. It is worth affirming that the virtual reality news reporting platform, as an active exploration of local media, is the combination and innovation of Internet technology and production entities. The application of this new technology has become an important support for local media to develop virtual reality technology. The public must allow time for this technology to develop. The development of virtual reality technology is also of great significance to the communication of news media. With the continuous development of Internet technology and media ecology, virtual reality news reporting platforms will also rise rapidly. In the future, virtual reality technology will make breakthroughs in building brands and exploring profit models. In addition, the application of virtual reality technology in media communication has changed people's traditional way of experience and promoted the innovation of media industry in media communication. The application of virtual reality technology has promoted the development of the entire industry.

Virtual reality technology also has its limitations. Since virtual reality technology is an emerging technology, its production cost is high, the maturity of technology development is not high, the promotion rate of technology is not high, and the public's acceptance is not high. The application of this new technology will cause uncomfortable viewing effects to the public in some occasions. When a virtual reality news reporting platform produces news, it must respect news value and return to the source of news. According to the production of news value elements, we should choose topics that are meaningful and valuable in line with the local news environment. For local news users in China, the local meaningful and valuable news content is decomposed. Promote

the application during the operation of the virtual reality news channel. At the same time, it is necessary to enrich the news value of information content and enhance the professionalism and professionalism of news information. Focus on the reconstruction of virtual reality channels, do a good job in the organization and planning of news reports, and build a virtual reality news channel in the true sense.

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