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ORIGINAL

Virtual Reality-based Sports Viewing Experience and Economic Benefits Research

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Abstract

The rapid development of virtual reality technology has brought revolutionary technical means for the mode of watching sports competitions, which can bring immersive and immersive viewing experience for the audience of sports competitions. This paper introduces the application of virtual reality technology in sports competitions, as well as the realization of virtual reality sports competition viewing technology. Around the virtual reality technology in sports viewing brought about by many aspects of change, for the audience to bring the experience of watching the game is discussed. As well as the huge economic benefits that virtual reality technology may bring, all the sports related industries have shown a high degree of interest. Virtual reality technology is bound to bring profound changes in the field of sports viewing.

Keywords. Virtual Reality, Sports Viewing Experience, Economic Benefits

1. INTRODUCTION

Virtual Reality (VR) is a high-end human-computer interface information technology developed from theory to reality at the end of the twentieth century, which is a computer simulation system that can create and experience virtual worlds (Katona, 2021). VR system uses three-dimensional computer graphics technology, wide-angle stereoscopic display technology and other modern technologies to integrate abstract information, with 3D helmets, data suits and other forms of sensing equipment for simulation, and real-time interaction with the user, so that the user can get a realistic and exciting live experience through the computer virtual platform. Big data, mobile intelligence, cloud computing and other technologies are the basis for

the realization of virtual reality technology, at present, VR has been used in medicine, military aerospace, real estate development, games and other fields (Manju, Padmavathi, & Tamilselvi, 2018). VR can be widely used in many fields, its own characteristics are the decisive elements, the academic community is accustomed to call the 3 "I" characteristics, is the most significant three of its characteristics, manifested as Interactivity, Immersion and Imagination (Young, O'Dwyer, & Smolic, 2022). Virtual reality technology can create a "first-person immersion" by changing the user's senses with the help of a three-dimensional virtual environment, from the perspective of the experiencer, so that the user is immersed in it and interacts with the people and things in the virtual environment in real time. The combination of such immersive and interactive features with communication products will inevitably change the habits of users in acquiring communication information, and their subjective feelings and self-cognition of information will be stronger, while also providing a new guiding direction for media workers in their endless exploration and presentation of communication products.

In 2013, the Des Moines Chronicle's website utilized virtual reality technology and gaming elements to launch a large-scale interpretive story titled "Harvest Changes," which not only presented audiences with a three-dimensional, real-life story of Iowa's farms, but also partnered with Oculus to develop a virtual farm experience section that allowed users to observe and feel the changes on their farms in an immersive setting, while exploring through gameplay and experience farm work. The click-through rate for this story reached 15 times that of a regular story on the day it went live. Later, the New York Times launched its NYT VR application in 2015, and began to try to utilize virtual reality technology to conduct live news shooting around the world, and The Displaced is one of the representatives of this kind of news report launched by it. The application of VR in the field of news dissemination has not only changed the narrative thinking of traditional news reporting, but also subverted and updated the entire process of communication product production.

2. VR in sports viewing

For sports communication, no matter how the communication environment changes, sports events are the eternal core content of sports communication products, and the intense and intense scenes of sports competitions and sports communication audience's fervent pursuit of the sense of the scene, and constantly put forward higher requirements to the producers of communication products, and the emergence of virtual reality technology creates the possibility of realizing this demand (Hopkins, 2017). Virtual reality technology can bring users an immersive sense of scene is the biggest feature and advantage of virtual reality technology, but also the pursuit of sports communication product producers, the two coincide, sports events are also extremely natural and VR technology has a correlation. Sports events are a huge segment of the sports industry. At present, the number of regular sports event audiences in China has exceeded 160 million, and regular sports events around the world have been subdivided into more than 300 specific programs. Athletic sports are highly ornamental to users of sports

communication, and mass entertainment is its essential feature, which makes sports communication products with competitive sports as their content pay special attention to user experience, so VR has a huge market prospect in this field. Producers of sports communication products can use VR technology to show the three-dimensional scene of the field in real time in front of the user's eyes, and the user can choose to "live" according to their own interests to watch and experience the game of soccer, basketball, swimming and other types of sports. Virtual reality technology live broadcast can make watching sports matches on-site synchronization has been a good guarantee, but also let the game unforeseen sense of suspense and excitement greatly enhanced, the user for the suspense of the sense of anticipation in the VR race live broadcast can be fully satisfied.

The NBA was the first major sports league to try its hand at virtual reality live streaming of sporting events, and the first time the NBA offered VR live streaming to viewers was during an NBA regular-season game in October 2015, when the New Orleans Pelicans faced off against the defending champions, the Golden State Warriors (Hopkins, 2017). Next VR, a U.S.-based tech company, technically helped make this broadcast possible. In this VR broadcast, a Samsung virtual reality headset named "Gear VR" could instantly bring users to the Oracle Arena, where the athletes' performance on the court was shown in the form of "live" in front of the users' eyes. The VR live broadcast of the race received a strong response, and the technology industry and sports media industry have crowded around and follow suit. Founded in 2009, Next VR has been exploring and innovating, and now owns 26 patented VR technologies including filming, compression, and transmission. In recent years, the content and scope of its live broadcasts have been gradually expanding. Figure 1 shows the application of VR technology in NBA viewing

Figure 1. VR Technology in NBA Viewing

The four-yearly Olympic Games is the testing ground for the most cutting-edge media technology and the birthplace of the most high-end communication products in the world. During the 2016 Rio Olympics, major TV stations around the world such as NBC of the United States, CCTV of

China, BBC of the United Kingdom, and CBC of Canada launched special programs such as "VR Watching the Olympics" (Dempsey, 2016). Take NBC (National Broadcasting Company) as an example, it cooperated with Olympic Broadcasting Service (OBS) during the Olympic Games to create and broadcast 85 hours of special VR programs for the Olympic Games, as shown in Figure 2 (Feng, Swaminathan, & Wei, 2019). In this partnership, OBC was responsible for recording the VR videos, while NBC provided the U.S. version of its app as the broadcasting platform. The VR programs they created and broadcast included the opening and closing ceremonies of the Olympics, live streaming of diving, gymnastics, track and field events, and highlights of the competitions, among other content. These VR programs allow users to experience the charm of sports without having to leave their homes, so they can "experience" the South American Olympic Games. The "immersive" viewing experience of VR video brings users a sense of reality and ultimate sensory enjoyment, which is also the biggest eye-catching point of VR communication products in the market.

Figure 2. NBC Broadcasts VR Events at Rio Olympics

Although VR made a big splash at the Rio Olympics, it also exposed a lot of problems in the process of Olympic coverage, mainly in the following points:

First, according to the reaction of a considerable portion of experiencers, in the process of watching VR programs, dizziness, lack of clarity and other prominent problems seriously weakened the sense of shock brought by VR technology (Slater & Sanchez-Vives, 2016).

Second, the current VR technology must be equipped with professional equipment (such as VR glasses, etc.) to realize the experience, the growth of viewing costs has raised the threshold of use, VR hardware has not yet been popularized on a large scale, so that users of sports communication products who can not go to Rio still tend to choose to watch the event video live on TV and the Internet (Hilfert & König, 2016).

Third, the current network communication technology and VR technology is still difficult to support the live broadcast, VR video compared to ordinary video requires longer production time and more investment, generally using the production and broadcasting separation of the production mode of production, resulting in VR video is currently only most of the form of playback to watch, which makes it for the avid sports fans lost a large part of the appeal (Konrad, Dansereau, Masood, & Wetzstein, 2017).

In general, the reason for these problems is that VR technology is still in the exploratory stage and is not yet mature, but with the rapid development of science and technology, VR technology will gradually progress and improve, and will also be more widely used (Kwon, 2019).

In addition to breaking through its own technical problems, VR can also be deeply integrated with other technologies to bring users more different and exciting experiences. For example, with the deep integration of social media, VR technology can further create a lively atmosphere for users to share and interact with the game, further enhancing the interactive experience of users (Torous et al., 2021). The "Virtual Stadium" app developed by US startup Livelike VR creates a network-wide virtual reality platform for users, allowing them to watch the same game together in the virtual world, with the option to change the view of the stadium at any time. They also help users realize their desire to interact with each other and make guesses during the game by importing their Facebook relationship chain. In addition, the company also combines VR technology with big data and cloud computing, and implanted real-time data and replay of highlights for users to choose from while broadcasting live VR matches (Xie & Cheng, 2020). It is no exaggeration to say that the use of VR technology can provide infinite possibilities for the transformation and upgrading of sports communication products.

3. VR environment construction

3.1 Modeling tools

3.1.1 VR scene construction

Unity3D is a comprehensive and powerful integrated professional game development engine, which can be used to produce and develop all kinds of 3D animation, real-time games and large-scale architecture, with no special requirements and restrictions on the system environment, and the works produced by it can be released on multiple platforms, so it is loved by the majority of game and animation manufacturers. NET, etc. The most commonly used is C#, which is also the language used in this system, and the compatibility with all kinds of 3D modeling software such as Maya, 3Dmax, blender, etc. is also relatively high (Glover & Linowes, 2019). In April 2020, Unity3D released an official report predicting that in the next two years, more than half of the companies will use real-time 3D technology. Not only limited to the gaming industry, in recent years, real-time 3D technology has been involved in more industrial fields such as automotive, transportation, and manufacturing, so it is quite convincing to use Unity3D as a software to promote virtual reality viewing.

Unity3D is a cross-platform, multi-functional developer IDE that supports all major platforms such as Windows, Mac OS, etc. The scripting languages include Java Script, C# and Boo. Untiy3D's programming scripting languages include Java Script, C#, and Boo, and its language environment is dynamically compiled, so its faster parsing speed lays the foundation for subsequent deployment to web-based cloud platforms. As a widely used game engine, Unity3D has the following features:

(1)Powerful rendering capability, support Windows Direct X 11 graphics API, use Shader Model5.0 for high-precision model restoration during the running process, and show the texture details of the model in multiple ways without affecting the smoothness of running.

(2)Simple and powerful editor, with a high level maintenance team maintaining the project.

(3)Visual manipulation function, which is able to carry out testing work while coding, and also able to operate the scene window while playing the game window, which improves the development efficiency of the developers.

(4) Cross-platform functionality, Unity3D allows developers to publish the code for Windows, Mac, i Phone, Andorid, etc. The operating interface of Unity3D is shown in Figure 3.

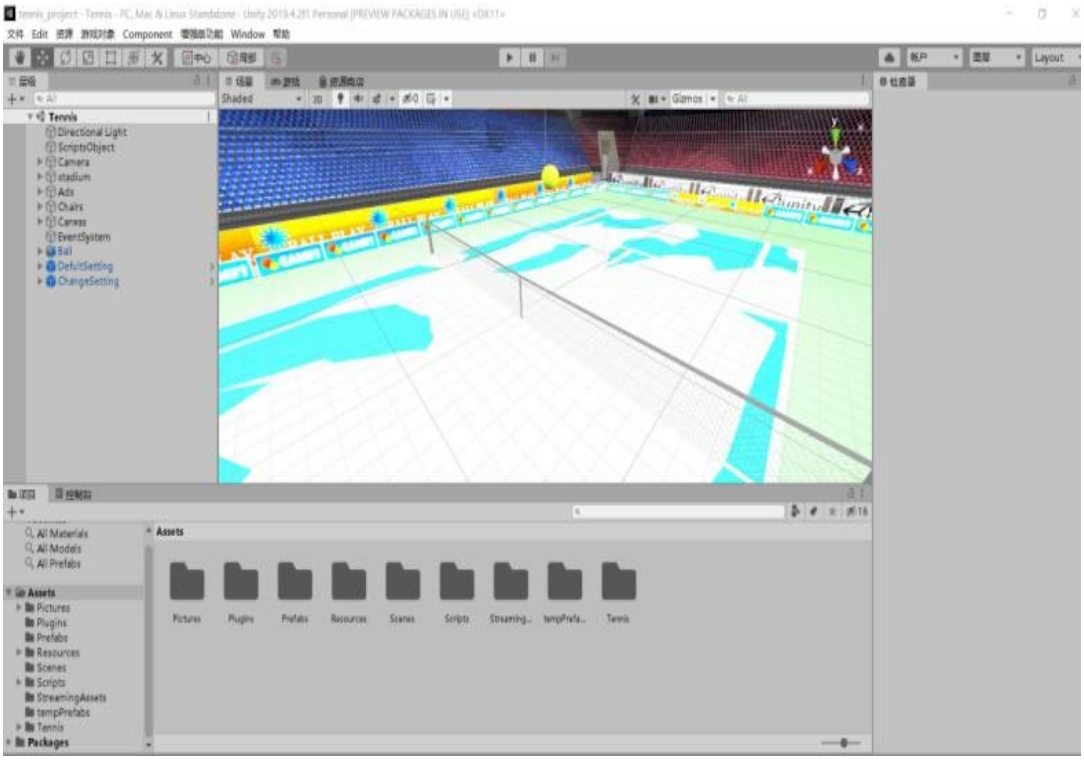

Figure 3. Unity3D User Interface

3.1.2 3DMax modeling

3D Max is an animation editing and 3D modeling platform that is used in a variety of industries. Developed on a DOS-based system, 3D Max has

evolved into the industry's leading 3D modeling software by combining the unique graphics components of Windows with groundbreaking features (Tang & Ho, 2020). It is also widely used by independent developers for its ease of use and efficient development capabilities. After Autodesk acquired the company in 1999 and improved 3D Max, extending the existing rendering technology to make it faster and more accurate, Autodesk merged Kinetix with 3DMax and renamed it Auto 3D Max. Auto 3D Max offered major advances in texture detailing and animation, as well as redesigned interface components for the UV tools and software editors, which are the basis for the wide range of modeling applications it is used for today.

The new release of Autodesk 3DS Max also includes a toolset as well as a graphics module that dramatically improves baking and rendering speeds, and adds coordinate decomposition and editing capabilities that enable developers to quickly decompose complex models, increasing development speed. Applications for 3Dmax include video games, mechanical engineering, special effects, architectural design, and many other industries. In the machinery manufacturing industry, 3D Max is often used in the model design of vehicles and airplanes, saying goodbye to the traditional drawing design, and can be more intuitive to these prototypes for three-dimensional display. In the film and television special effects industry, such as the famous movie "Avatar", most of its scenes are modeled using 3D Max. In China's booming real estate industry, most of the building models and promotional videos are done in 3D Max. In the game industry, 3D Max is also widely used, large-scale 3D game scenes and character models can be created using 3D Max.

3.2 VR viewing terminal

In recent years, virtual reality technology is getting hotter and hotter, and the price of virtual reality hardware devices has also had a great civilian transformation, and more and more virtual reality hardware devices can be seen in ordinary people's homes, and in the field of sports viewing is the same, ordinary people as long as there are head-mounted displays and other devices, they are able to watch sports matches in the first-person perspective, and to enter the restored and immersive game scene (De la Peña et al., 2010). For example, in recent years the rapid rise of Oculus, which was acquired by Facebook in 2014, has successfully brought the distance between ordinary people and the virtual reality environment closer, and its technology has opened up a new virtual reality experience, and is also still continuing to improve this experience, and the physiological discomforts, such as headache, vertigo, and nausea, which were widely criticized in previous years, have been greatly reduced. And the virtual reality environment in this article was realized using Google's inexpensive headset, Cardboard, See Figure 4. Cardboard is initially an experimental product that took two engineers six months to build, with the intention of enabling smartphones to be directly transformed into a virtual reality carrier. The actual structure of the Cardboard carton is relatively simple, with visible parts including cardboard, biconvex lenses, magnets, magic stickers, and other components, so that a relatively simple toy virtual reality glasses can be handmade in a few minutes

according to the official instructions provided. But also because of its simple structure, make the degree of virtual reality of the people once again have a leap. 2015 released the first quarter, Cardboard users reached 1 million people, based on this application is also more numerous, a wide range of fields, including interactive games, 360-degree virtual reality panoramic video, simulation of education and so on. To build a virtual reality environment, you need to download the Cardboard SDK for Unity from Google's website to get the necessary components.

Figure 4. Paper Box Prototype Developed by Google

The Cardboard SDK consists of a number of components, including the Cardboard Main, which can be dragged and dropped into the scene to create a dual-split-screen virtual reality simulation for editing and testing on the computer. This is a component that can be directly used to replace the main camera. It is more suitable for scenarios where the camera is relatively simple and clean, and not full of your own scripts, so it is more appropriate to use it to replace the Main Camera when you first create this Unity3D project. The Cardboard Main structure is not too complicated. It has a Cardboard script hanging on it, which is used to control some basic settings in VR mode. Underneath it is a Head object, which holds the Cardboard head script, which is used to track changes in the user's head posture and control head movements. In this paper, when using the Cardboard SDK components, due to compatibility and aesthetic considerations, the new version of the Cardboard Demo Room was finally adopted as the background of some of the environments, and the old version of the Demo retained the Cardboard Main camera as the basic camera of the entire virtual reality environment (Wang, Li, & Kho, 2018). After debugging, a virtual reality environment is initially established, and only need to build all kinds of 3D models and UI systems within the camera range to realize the virtual reality viewing application.

3.3 Scene construction

3.3.1 Overall programmatic design

The overall program of virtual reality scene construction can be divided into the following steps:

1) According to the existing information of the sports ground, use 3D Max to build a model of the sports ground. 2) Import the relevant model data

into Unity3D engine to build the sports scene. 3) Import the C# script into Unity3D engine. 4) Build the virtual reality scene with the multi-camera view function of Unity3D platform. 5) Finally, package and release the client version.The development flow of the system is shown in Figure 5

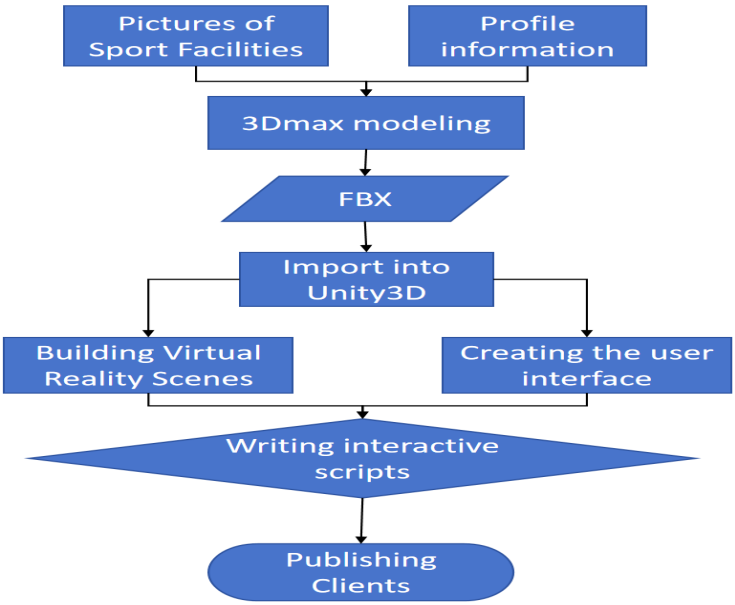

Figure 5. Overall flowchart

3.3.2 Developing platforms

According to the functional requirements of the system, this system requires unified management of models and information files. It is necessary to choose a suitable server, a good server architecture design can not only make the whole system development efficiency is improved, but also can have a profound impact on the later application of the system expansion, etc. This system through the demand analysis, the server and database used as follows:

(1) Apache server

Apache server is mainly the following characteristics:

a) Apache server as an open source server, allowing users to target secondary development according to the characteristics of their own application scenarios, so that its application scenarios are more diverse. b) Apache server runs fast and stable. c) Apache server can be deployed cross-platform, can be applied to most of the mainstream server platforms currently on the market.

(2) My SQL database

According to the system requirements analysis, the following conditions should be met in the selection of database software:

a) Relatively small software size and low memory consumption. b)

Excellent operation speed and fast execution of query commands.c) Safe and reliable relational database.

3.3.3 3D visualization

The visualization of the sports field scene is obtained from the database and visualized with the help of Unity3D platform. That is to say, we connect to the database through the C# script component, get the spatial 3D coordinates calculated by the above method, and pass these coordinate data to the virtual scene object in real time, and finally restore the real motion scene. The restored motion scene is shown in Figure 6.

Figure 6. Stadium scene in Unity3D (with tennis as an example)

Add a C# script component that sets the IP address and open port where the database is located and establishes a connection to the database.

3D visualization Core codes

```
string Connect Str = "server=(Server Address);port=(Server-enabled ports);
database=world; user=root; password=******; Ssl Mode = none;"
My Sql Connection conn = new My Sql Connection(connet Str);
My Sql Command cmd = new My Sql Command("select * from city", conn);
My Sql Data Reader reader = null;
conn.Open()   ;//Open channel, establish connection
reader = cmd.Execute Reader();
while (reader.Read())
{
print("ID=" + reader[0].To String() + " ,TITLE=" + reader[1].To String() +
" ,KEYWORD=" +
reader[2].To String() + " ,CONTENT=" + reader[3].To String() + ".");
}
```

3.3.4 Publishing clients

Building the network cloud platform needs to upload the model to the server database. This system takes SQL Server database as an example, and the specific implementation of building SQL Server database is as follows:

(1) Create a database named Tennis_database in SQL Server data. (2) Open Tennis_database, find the export option in the menu, and establish the database connection through ODBC. (3) Create a new data source and set the corresponding parameters, so that you can manage the data source directly in the subsequent management. (4) Select the driver that matches the data source and install it. (5) Connect to the SQL Server database and establish an ODBC data source to connect to the database. It should be noted that, in the process of importing the model into SQL Server, since the model is built as an independent file and the relationship between the files is hierarchical, it is necessary to import the model's data files into SQL Server according to the hierarchical relationship. Here, all models are linked to the same module, which is equivalent to automatic hierarchy when addressing the corresponding files through URLs, avoiding the problem of naming duplication. (6) Publishing to multi-platform clients.

4. VR Match Viewing Experience

4.1 VR viewing delivers an immersive on-field experience

The development of virtual reality technology has provided sports fans with a "view" of the big game, giving sports fans away from home a chance to experience the excitement and passion on the field. VR technology has redefined people's perceptions of the past, breaking through the time and distance of high-speed information dissemination in a further layer to break through the physical limitations, across the physical world of space and time. Virtual reality users can interact with the virtual environment in a natural way, changing the mode of the past human beings can only understand the environment indirectly in addition to personal experience, thus effectively expanding their own cognitive means and fields (Shuguang & Lin, 2020), which is the immersive experience brought by VR technology. In sports viewing, people's perspective is mostly 40°, while VR expands the perspective to 120°. This is basically close to the effect of the audience personally placed in the scene of the feeling, this feature in the live broadcast of sports matches play a huge role, it allows people to be immersed in the virtual scene, along with the scene of the sports fans cheering or regret, forming a boundless time and space of the carnival.

Under this carnival, the media has turned the interaction between the audience and the information into a complete fusion, forming the media, the environment and the sports fans of the three in one, the sports fans from the audience in front of the screen became part of the scene, visual and auditory are further stimulated, which greatly touched the outbreak of the emotional experience of the sports fans, and the game to enhance the sense of view just to meet the audience's needs for watching sports games.

4.2 VR brings more sophisticated motion capture and data analysis

The founding editor-in-chief of Wired Magazine once proposed on the tracking technology of VR: the tracking ability of VR requires us to collect additional big data information, the value of these big data information can play an immeasurable role under the screening of technology, and the combination of them will bring about a brand-new VR analytics technology. When a player is under the observation of VR equipment, his body language changes, movement changes, and expression changes will be collected by VR tracking technology, which allows users to understand the target's state more accurately, so as to better analyze and predict his behavior and demeanor. When sports fans watch the game in the VR environment, the system then helps to capture information changes in collaboration with big data analysis technology, so as to push the game data in a timely manner, in order to improve the information mastery of sports fans for the process of sports competitions.

And the role of this database will become even more useful in the future. Experts suggest that in the future, when target users are observed by VR devices, changes in their body expressions will be saved in the form of data streams, and these targets themselves will become a virtual database. The background can then analyze the information collected from VR instantaneous tracking according to the system's big data, and make projections based on the previously saved content in the database.

In this way, VR technology can help the media platform on the field of play in advance to predict the possible changes in the situation, calculating the wind and clouds on the sports field, and even based on these data to calculate the probability of each attack and goal scoring, in advance to inform the answer to this technology once the research is completed, will have a far-reaching impact on live broadcasting of sports events.

4.3 VR brings a panoramic view and user-centeredness to the experience

McLuhan in the "media is the message" theory has put forward: a new environment is created, the content of this new environment, is the old mechanized environment of the industrial age, this new environment is the result of the old environment for thorough processing. The media content created under VR technology is precisely the re-creation and processing of the scene, that is, the content products for the secondary narrative, although this mode of viewing is still not free from the limitations of audio and video, but it restores the live information in 360° through the panoramic technology, which changes the way of information acquisition of the audience in this new media environment.

In the traditional live broadcast, the audience can not get the best visual experience due to the limitation of the lens shift and camera angle, but now, the audience is no longer unidirectional according to the media guide to watch the game. They have the power to actively search for perspectives and discover live information in the created 360° panoramic virtual reality

environment, which is a user experience-centered approach to live broadcasting. The decentralization of the media and the suspension of the role of the gatekeeper make the audience an active participant in the media event. They can mobilize their senses to experience the game through eye-tracking technology in the VR environment, choose the location and seats according to their interests, and actively select the information about the game according to their needs. In this process, the audience has actually completed their own selection of a game and information screening process, but also allows sports fans to watch the game at the same time to obtain the satisfaction of curiosity.

4.4 VR Enhances the Realism of Live Event Broadcasting

VR live broadcasting can omit many cumbersome aspects of program production and broadcasting, presenting the original form of the event to the audience, including uncorrectable errors, more favorably presenting the full picture of the game process, and ensuring the authenticity of the live information.

VR viewing maximizes the authenticity of a sporting event by presenting everything to the audience, and opens up the possibility for individuals to be present with others in the virtual reality space, as it makes the viewer feel that they are in the story in a "physical presence". Understood in this way, the traditional linear narrative is broken, which means that VR viewing can further solidify the empathy between viewers and athletes, and increase the user's bond with the sporting event.

5. The Economic Benefits of Live Streaming VR Sports Events

5.1 Audience acceptance of VR technology in live sports events

The results of the BBC statistics show that the number of downloads of VR 2018 world cup has reached 320,000 at the halfway point of the sports competition schedule, although this figure is not conspicuous in the total proportion of the audience of the sports competition. But in another questionnaire survey, 67% of sports fans have expressed interest in VR live broadcasts and are willing to use VR helmets to watch sports matches when available, which to some extent shows the initial acceptance of VR technology by the masses.

VR viewing is not just a "sports game", strictly speaking, it is an innovation in the way of live broadcasting and dissemination of sports events. Sports viewing to sports competition as the main live content, has a certain fixed nature, under the premise that only the immersion of the event and interesting to improve, the audience will be known or familiar with the event to receive.

The innovation of VR technology in the form of watching the game will give relatively stable audience groups a refreshing feeling, in order to promote the audience to actively receive the game, to meet their own needs, and the unique ornamental value of the sports activity itself and entertainment can

also strongly promote the combination of sports news and VR technology.

5.2 Investment and utilization of VR technology in sports industry and event platforms

Since 2015, the sports industry has shown a blowout development trend, and with the rise of the sports industry as a whole, all kinds of events are surging. The advantages of VR technology have attracted more and more event organizers to start trying to use it for filming and live broadcasting in large-scale sports events, and its potential business opportunities and profits have attracted the attention of media and sports industry giants. In China, companies in the field of sports are also actively exploring, and many companies have taken the lead in the layout of VR + sports.

Storm Sports, which has now completed 204 million yuan of Series A financing, launched the Storm Sports VR content platform at the time of its establishment, and launched a sports VR content production solution, combining the VR immersive experience, as well as the traditional sports content broadcast information experience, multi-camera, multi-angle VR perspective switching to provide the audience with a VR viewing experience. It is reported that Storm Sports has launched an in-depth cooperation with CBA to explore VR content recording and broadcasting.

In addition, VR signals are provided in live broadcasts of sporting events such as the Chinese Super League, pushing for the use of VR technology to broadcast live broadcasts of almost all important domestic soccer leagues, including national team matches and Chinese Super League matches. Ali Sports announced in 2016 that it had become the exclusive global Internet commerce development partner of the Ping Super League. With the development of the VR industry, this technology will continue to penetrate into all aspects of the sports industry chain, more and more companies are beginning to penetrate into all aspects of the VR industry chain, and the combination of the sports industry and VR will become increasingly close.

6. Conclusion

Although VR is not mature at this stage of its development, its future is still full of vitality. As Jess-Yu, director of visual news at the Wall Street Journal, said, "VR still has a long way to go if it wants to become a mainstream medium, but it is certain that it does represent an important direction for live news broadcasting in the future."

The emergence of VR has enriched the form of live news broadcasting of traditional sports news, changed the feelings of those who experience the event, and also provided new ideas and development direction for the development of future live event broadcasting. VR technology is leading the sports media industry in the content, industry, style of multiple transformations, and in the immersive news experience, data capture, audience interaction and other aspects of the unique advantages shown, it meets the audience viewing experience needs, the need to know the

information, in line with the development trend of the ornamental sports media, with the strong vitality of the newborn as well as the vision.

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