

## Research on the Influence of VR Technology on the Marketing Effect of Sports Tourism Destination

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### Abstract

With the development of national economy and the improvement of people's living standards, sports tourism has attracted the attention of the state. Relevant departments have formulated a series of plans for the development of sports tourism, and the scale of sports tourism market has been expanding. In response to the national call, marathon tourism destinations such as Guilin carry out marketing by holding international marathon events and shooting promotional videos, and attract people to participate in the marathon. However, in terms of Marathon tourism marketing, traditional media such as promotional films can not produce enough attraction, and potential tourists are difficult to experience the environment and scene of Marathon tourism destination in advance. Therefore, they can not form a comprehensive perception and stimulate the desire of tourism. Virtual reality (VR) is an advanced human-computer interaction technology that comprehensively applies computer graphics, man-machine interface technology, sensor technology and artificial intelligence to create a realistic artificial simulation environment and effectively simulate people's various perceptions in the natural environment. VR has the characteristics of multi perception, interaction and immersion experience. It has been applied to many fields such as medical treatment, education, real estate, games and so on. This paper will rely on Guilin International Tourist Resort, take the construction of Guilin International Marathon as a brand event as the research object, apply VR technology as a media method to the marketing of Marathon tourism destination, and explore the marketing effect and mechanism of VR technology on potential tourists' tourism intention.

### Keywords

Marathon; VR Technology; Tourism Destination Marketing; Guilin.

### 1. Research Background

With the development of national economy and the improvement of people's living standards, sports tourism has attracted the attention of the state. Relevant departments have formulated a series of plans for the development of sports tourism, and the scale of sports tourism market has been expanding. According to the sports tourism development report jointly issued by the Ministry of culture and tourism and the State Administration of sports in 2018, marathon tourism has become an important engine to promote the development of destination tourism. In 2017, the number of various marathon events in China reached 1102, covering 234 cities in 31 provinces, districts and cities. In 2018, the marathon industry development plan jointly issued by 11 departments including the General Administration of sports and the tourism administration predicts that by 2020, the number of national marathon events (with a scale of more than 800 people) will reach 1900. Under this background, how to better develop marathon tourism has become a top priority.



**Fig 1.** The Marathon

In response to the national call, marathon tourism destinations such as Guilin carry out marketing by holding international marathon events and shooting promotional videos, and attract people to participate in the marathon. However, many marathon tourism destinations still lack strong enough brands, which is far from the marathon tourism industry in North America, Europe and some cities in East Asia. In terms of Marathon tourism marketing, traditional media such as promotional films can not produce enough attraction, and potential tourists are difficult to experience the environment and scene of Marathon tourism destination in advance. Therefore, they can not form a comprehensive perception and stimulate the desire of tourism.

Virtual reality (VR) is an advanced human-computer interaction technology that comprehensively applies computer graphics, man-machine interface technology, sensor technology and artificial intelligence to create a realistic artificial simulation environment and effectively simulate people's various perceptions in the natural environment. VR has the characteristics of multi perception, interaction, immersion experience and imagination. It has been applied to many fields such as medical treatment, education, real estate, aviation, games and so on. In the sports tourism industry, although VR has received preliminary attention, it still lacks comprehensive and in-depth application.

## 2. Research Significance

This topic mainly relies on Guilin International Tourist Resort, takes the construction of Guilin International Marathon as a brand event as the research object, applies VR technology as a media method to the marketing of Marathon tourism destination, and discusses the marketing effect and action mechanism of VR technology on potential tourists' tourism intention. Its significance lies in:

Theoretical significance:

- (1) Combine virtual reality technology (VR) with marathon tourism industry marketing, enrich and improve the research content of sports tourism, and enrich and refine the marketing theory of sports tourism industry;
- (2) This paper compares VR technology with traditional media (promotional films), deeply discusses the characteristics and marketing effects of different media methods, and theoretically reveals the mechanism of VR on the tourism intention of potential tourists.

Practical significance:

- (1) This topic will contribute to the publicity and marketing of Marathon tourism destination, strengthen the application of VR technology in marathon tourism destination, and promote the planning, design, management and service practice of Marathon tourism base;

(2) This topic will increase the experience of potential marathon tourists on VR technology, improve the perceived fun of Marathon tourists, stimulate the tourism intention to marathon base, and promote the sustainable development of Marathon tourism destination.

### 3. Research Status at Home and Abroad

#### 3.1. Domestic Research Status

Compared with some developed countries, there is still a certain gap in VR technology in China, but it has attracted great attention of relevant government departments and scientists. According to China's national conditions, the research on VR technology has been formulated. For example, VR has been included in the research projects in the ninth five year plan, the national nature foundation, the national high technology research and development plan, etc. While keeping up with international new technologies, some key domestic colleges and universities have actively engaged in research in this field.



Fig 2. VR technology

#### 3.2. Research Status Abroad

VR technology has developed relatively rapidly abroad, and a lot of research has been carried out in academia. Although VR technology has been applied in the field of sports research at home and abroad, the development model of "VR + sports" is still in the development stage. Generally speaking, the existing research on "VR + sports" mainly includes the following three aspects:

##### (1) VR + sports media

In the field of sports media, as a new event viewing mode generated by VR + sports integration, the event is broadcast live through virtual reality technology to bring an on-the-spot experience to the fans who cannot reach the scene. The basic process of combining the live broadcast effect is roughly divided into three parts. Firstly, the panoramic camera is used to collect the on-site data of sports events, secondly, the data is compressed and encoded through the system software, and finally the content platform presents the sports events to users through the display equipment. The audience are exposed to the competition in a new way through VR live media, which greatly enriches the audience's viewing experience.

##### (2) VR + sports training

The second application direction of VR + sports is the combination with sports training. By providing customized training and personalized health management services, virtual technology is used to program and input the team's tactical arrangement, opponent's tactical style and other information into the system software, and then 3D reconstruct the training scene to restore the real competition environment to help athletes carry out targeted training.

Objectively speaking, the advantage of VR + sports training is to use the virtual reality system to carry out a variety of targeted competition training, to replace training with competition and improve the quality of athletes' technical and tactical training. Figure 1 shows the virtual environment architecture of VR + sports training, mainly through the environmental simulation of athletes' sensory organs to achieve the effect of real training.

### (3) VR + sports entertainment

VR + sports entertainment can enhance players' sensory experience, bring more intense stimulation to players, and provide more three-dimensional and rich real effects. In addition, another aspect of VR + sports entertainment is the interaction with fans. Taking the interaction with tennis fans as an example, the shape of tennis players is reconstructed through VR technology to simulate the technical and tactical characteristics of athletes, so as to create a real experience of fighting with idol stars for fans.

To sum up, although the existing studies have done a lot of research on VR technology in sports media, sports training and sports entertainment, there is a lack of discussion on "VR + sports marketing", especially how to effectively use VR technology to market marathon base and marathon, increase the interest of potential marathon athletes and enhance the desire to participate in marathon, Promoting the sustainable development of Marathon industry is a topic worthy of in-depth thinking and research. Based on the above theoretical and practical background, Taking Guilin marathon base as an example, combined with VR technology, this project uses the methods of experiment and structural equation model to explore the application of VR technology in marathon industrial marketing and the impact mechanism of different media modes (VR vs. promotional films) on tourists' tourism intention.

## 4. Current Developments

As early as January 7-8, 2017, China Basketball annual feast CBA all star game introduced 180° three-dimensional VR live broadcasting technology to present a perfect visual feast to the audience, which is also the first time to introduce 180° three-dimensional VR live broadcasting technology in the live broadcasting of domestic sports events. After years of technological development, what changes and new development opportunities can VR technology bring to sports besides being applied to live broadcasting?

At present, what we can hear and see most is the combination of VR and games, education, tourism, real estate and other aspects, and there is not much combination of VR and sports.

On September 14, 2015, guided and supported by the Information Office of the State Council, the National Tourism Administration and the Chinese Consulate General in New York, and hosted by the five continents communication center, the "beautiful China experience day" was successfully held in the United States for the first time. After wearing 3glasses helmets, the participants of the "beautiful China" experience day expressed incredible for the immersive experience of this virtual tourism. With the continuous research on VR sports by all parties, we will jointly explore new trends in the field of sports VR.

## 5. Existing Problems

### (1) The marketing publicity of VR technology in sports events is not enough

According to relevant surveys, most Chinese consumers still have a very vague understanding of VR and believe that VR technology has a certain sense of mystery. Sports event fans still need to patiently cultivate VR technology publicity habits together with VR technology service manufacturers and sports event organizers, which has also contributed to a new business model. Content providers cooperate with sports event organizers to establish revenue sharing

agreements. Both sides reach a consensus on advertising, subscription and sponsorship revenue and jointly cultivate the market.

#### (2) High cost, difficult to support the pace of development

As a new technology product, VR equipment has high production cost behind its high technology. Taking the helmet of the existing VR output equipment as an example, the oculus rift system which can provide better experience in the market is about 1500 US dollars. Although Samsung has a cheap VR equipment of 99 US dollars, if the equipment is arranged on the sports field, if you want to cover the shooting of a complete football field, A 4-minute VR video costs at least 600000 yuan. The demand for venues and equipment is too high, and few consumers watch VR live broadcast. Its high cost and an immature market make its market-oriented development prospect difficult.

#### (3) VR should not be worn for a long time

Wearing VR for a long time may lead to "VR vertigo". The exact name of this phenomenon should be virtual reality motion sickness, also known as VR motion sickness. According to the actual use, it can be subdivided into two different symptoms, namely simulated motion sickness and visual motion sickness. Simulated motion sickness, also known as simulated motion sickness, is somewhat similar to seasickness and carsickness, but the main reason for its formation is to stare at the screen for a long time. Visual vertigo is relatively simple. It is not caused by our body, but by the problems of the device itself, such as screen refresh rate, delay and so on. Of course, there is also a delay time from the eyes to the brain itself, but our human body has adapted to this situation. In addition, the biological signal transmission speed is quite fast, so there is no discomfort.

## 6. Suggestion

#### (1) Strengthen the production of VR video content of high-quality sports events

The current era is an era in which content is the king and traffic is the king. In the process of sports event marketing, as one of the preconditions for sports event organizers to apply VR technology publicity, it is to produce high-quality VR viewing videos, stimulate the desire of sports event fans, and strive to make sports event fans feel immersive and irresistible, so as to achieve the maximum publicity effect.

#### (2) Strengthen the popularization and demonstration of VR technology in the public domain

We should be good at using various new media publicity channels such as tiktok, short videos, little red book notes, live broadcast, etc. to popularize the VR technology in the sports marketing field, and to expose the mystery of VR. It can organize sports fans to experience in sports events with great influence, form word-of-mouth effect and expand the marketing influence of VR.

## 7. Summary

Under the background that the marathon event has become a mass sports event, how to carry out precision marketing in the marathon tourism destination, so as to attract more people to participate in the marathon, stimulate potential audiences to travel to the marathon tourism destination, and promote the sustainable development of the marathon tourism destination is an important practical problem to be explored.

On the basis of the above research contents, by summarizing and comparing the marketing effect differences between VR and traditional media, this paper analyzes the impact mechanism of VR on the audience's tourism intention, and puts forward corresponding marketing strategies and policy suggestions for the sustainable development of Marathon tourism destination, in order to promote the development of "VR + running + tourism" industry, which is the ultimate goal of our project.

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