

Strategy analysis and effect research of pan-sports marketing in the context of interaction

Xiaohan Jiang^{1, a, †}, Mufan Wang^{2, b, †}, Xiaoying Wang^{3, c, †}

¹School of Journalism and Communication, Zhengzhou University, 450001, Zhengzhou, China

²College of Science, Minzu University of China, 100081, Beijing, China

³School of International Studies, University of International Business and Economics, 100000, Beijing

*Corresponding author: ^axiaohanjiang@stu.zzu.edu.cn, ^b18150014@muc.edu.cn, ^c201909018@uibe.edu.cn

[†]These authors contributed equally.

Keywords: Neural Network, Prediction Model, Big Data.

Abstract: Power load forecasting is very important for power dispatching. Accurate load forecasting is of great significance for saving energy, reducing generating cost and improving social and economic benefits. In order to accurately predict the power load, based on BP neural network theory, combined with the advantages of Clementine in dealing with big data and preventing overfitting, a neural network prediction model for large data is constructed.

1. Introduction

The outbreak of COVID-19 in 2020 caused a strong impact on the sports industry: the anticipated Tokyo Olympic Games, the European Cup, and the Australian Open were postponed, and mass sports activities and training were forced to suspend. Sports tourism based on offline scenes also encounters a cold winter... At the same time, those sports brands which are closely related to sports activities have also come to a standstill: Taking Adidas, the third largest sporting goods group in the world by market value, as an example, its net profit in the first quarter of 2020 decreased sharply by 95% year-on-year, and more than 70% of the global stores were closed [1]. However, in the atmosphere of silence, there is also the dawn of turning danger into opportunity: the concept of E-sports is bucking the trend, bringing new investment opportunities; the development of digital technology brings a new experience to the racing ground without an audience; the epidemic has made online national fitness a new normal... In addition, although the traditional sports marketing model has a significant business momentum, it is difficult to interact and establish connections with users. At present, traditional sports marketing still focuses on commodity advertising with a "partial negative" effect, which is easy to arouse the "third-party effect" of the audience, and the communication influence is greatly weakened.

With the effectiveness of epidemic prevention and control becoming more and more obvious, major sports events are gradually restarted, and the traditional marketing model is losing efficacy gradually. In the post-epidemic era, in the face of the consumption scenes and consumption patterns changed by the epidemic, how sports brands use the concept of the Pan sports marketing communication model to deeply tap the audience's scene needs and improve the scene experience has become an urgent task to revitalize sports consumption [2].

Based on the changes in consumer sports consumption media contact in the post-epidemic era, this paper deeply analyzes the breaking mode of Pan Sports marketing. At the same time, with the help of the sales or transaction data of original pan sports products available for inquiry and investigation on the network, this paper establishes multiple regression analysis models to study its marketing effect. Finally, combined with the current industry background, this paper attempts to explore the shortcomings of Pan Sport's marketing, pay attention to its prospects, and summarize some feasible development directions.

2. Background

2.1 Origin

Although sports marketing is relatively young and more practical, the development motivation and essence are closely connected with the theories of communication and sociology. Davison proposed the third-person effect theory in 1983 which introduced a phenomenon that the information receiver would unconsciously think that the information had a smaller influence on "you" and "me" while having a larger influence on others [3]. Based on this hypothesis, G. J. Golan and A. G. Day proposed the first-person effect theory. They believed that people would tend to think the passive information which against social morality had a smaller influence on themselves rather than other people. And this will go to the opposite when the people receive positive information [4].

Nowadays, these theories extend from communication to the marketing field. More and more scholars begin their studies on the relationship between advertisements to the third-person effect. R. M. Perloff once found that people tend to believe that other people were more likely to be persuaded by advertisements of tobacco while they were more likely to be influenced by PSAs [5]. However, most of the traditional sports marketing cases refer to commodity advertisements with passive effects. Therefore, they trigger the third-person effect mechanism which weakens the spreading effect. Meanwhile, we should notice the natural positive image of sports marketing which enables it to be potential enough to get rid of this dilemma. Therefore, along with analyzing the effect of pan-sports marketing cases, we combine them with the third-person effect to study further with the help of a questionnaire. We take the third-person effect model [6] from R. M. Perloff as the reference. We conduct our research by setting factors such as demography variable, social-economic status, and predetermined position into our questionnaire.

In a mediated world, people will have a sense of dependence on media. Para-social interaction, which was raised by D. Horton and R. Richard Wohl, pointed out an illusory relationship between spectators and performers caused by spectators' dependence and love on their idols [7]. And this dependence leads to the idol economy today. Sports stars and key opinion leaders generally join this group and finally become an important part of pan-sports marketing. The large-scale home quarantine caused by COVID-19 reinforced this phenomenon even further. People leave away from their regular life, weaken their interpersonal communication, and release the individual's requirement of social interaction to the Internet space [8]. Therefore, along with the new Olympic period, the "Internet plus" pan-sports marketing which developed from Internet communities reaches its peak. And it is our main research object.

2.2 Concept and definition

Academia has studied sports marketing for a long time. The early definition of sports marketing was relatively narrow and limited. J. R. Shannon paid a lot of attention only to tickets of popular matches and gamble projects related to sports in his book about sports marketing [9]. With the development of the sports industry, scholars began to jump out of the structure of sports and thought about a generalized sports marketing mode. It is imperative that the task of marketing through sports also be accepted as an integral component of the whole sports industry [10].

Compared with traditional sports marketing, pan-sports marketing is a fresh concept. There is a little clear definition of pan-sports marketing. Just as its name implies, it refers to generalized sports marketing which can be embodied in many ways. We put it into three categories. (1) Generalization of sports events, the marketing depends on those young and burgeoning pan-sports industries such as e-sports rather than traditional sports. (2) Generalization of marketing modes, no longer stick to old marketing methods, for instance, selling tickets, jerseys, and shoes, TV live. Instead, build a bridge between sports industries and the Internet economy. Membership system of sports events platform, short videos, live, e-commerce can be excellent ways of pan-sports marketing. (3) Generalization of industry practitioners, those who engage in pan-sports marketing are not limited to traditional sports stars. In the context of the Internet, key opinion leaders who are not pro but love sports, even entertainment stars can join this new industry.

2.3 Development background

The rapid growth of pan-sports marketing is the result of various factors in which the most obvious one is the increase of sports popularizing rate. The Nation Fitness Program issued by the State Council of People's Republic of China mentioned that around 37.1% of Chinese people regularly participated in physical exercises during the thirteenth Five-Year period (2016~2020) and this number would reach 38.5% by 2025. According to the 249 samples collected by our research group, the proportion of those who seldom take part in physical activities is only 16.06%. With the sports for all boom, the sports marketing industry gets a nice soil to grow.

What makes sports marketing develop towards generalization is the spread of the Internet and the improvement of digital media. Up to June 2021, the availability of the Internet in China reached 71.6%, the size of mobile netizens reached 1.007 billion which made China the largest digital Internet society throughout the world [11]. The "Internet plus" economy rose under the condition of such a huge netizen base. And sports marketing can be expanded through different interactive channels such as short videos and live streams with the help of the Internet and emerging digital media.

3. Basic strategy

3.1 Emotional mastery

3.1.1 Value social communication and cultivate user experience, thereby forming two-way interaction with consumers

With the digital marketing trend, the emergence of a series of social media has spawned new marketing methods. In the field of sports, the industry took the initiative in plunging into the one-to-one precision marketing brought by technological change and added socialized sports marketing into the process of corporate marketing. With the support of video, streaming media, especially high-quality content, and other elements, social media has gradually become one of the most effective means to increase the value of sports content and establish direct contact channels between brands and audiences [12]. Therefore, in the pan sports marketing activities, it is particularly important to insight into consumer psychology and utilizes the value of social communication.

Take Nike, the world's largest sporting goods company by market value, for example. During the pandemic, Nike launched The Living Room Cup, a fitness competition aimed at the masses, on social networks. Each week, a top athlete issues a sports challenge on the social platform to the public, who have a week to respond. In a week after the record was posted, Cristiano Ronaldo challenged his Instagram followers to complete 142 straight leg crunches in 45 seconds. The video of Cristiano Ronaldo has been played more than 30 million times [13]. At the same time, Nike is leveraging its NTC (Nike Training Club) app as a social platform that matches young people's desire of sharing and inspires them to continue delivering value to the brand. In NTC, users can interact with their friends and the entire NTC community, share their challenge results in real-time, and receive NTC's dedicated exercise programs to maintain a competitive edge in the weekly challenge.

As for Nike's social communication, it makes full use of the role of social media, focuses on young people and communities, meets the emotional demand of its users with more interaction, brings high social participation, and eventually expands the corresponding target audience group.

3.1.2 Stimulate sports experience and promote mass sports, thereby shortening the psychological distance with consumers

The COVID-19 crisis has triggered people's rational thinking about the value of exercise and enhanced people's health awareness, thus setting off a wave of mass fitness in society. As a result, many brands shift most of their marketing activities to mass sports, facilitating direct communication with consumers by leading the fitness craze for all.

Xtep, as a sports brand committed to becoming the first choice of Chinese runners for a long time, participated in the Beijing International Long-distance Running Festival as a sports equipment partner in 2021. In the pre-race equipment, Xtep has implanted Beijing culture into the professional race

clothes for more than 20,000 runners, making the core and exterior of "I Run for Beijing" echo each other with the race. In the post-race service area, XPT also provides each runner with number book sealing, medal carving, stretch recovery, and other services to help them have a better race experience. From 2007 to now, Xtep has been deeply engaged in marathon marketing for more than 10 years, becoming the most sponsored brand of the marathon in China and winning the title of king of the marathon in China. Different brands have their labels and definitions in the hearts of consumers. Now Xtep sticks the label of running on its brand image, focusing on conveying the concept of sports and health to the public, to firmly grasp the offline scene of runners and quickly shorten the distance with consumers [14].

In terms of Xtep's mass sports marketing, through professional equipment and thoughtful and comprehensive service, it followed the pulse of the time and focused on the wave of national fitness, thereby creating the running ecosystem which features customer-demand orientation and technology centrality.

3.2 Market opportunities

3.2.1 Generalized audience

The target audiences of traditional sports marketing refer to the high sports-related group. They are either participants of physical exercises or loyal audiences of sports matches. However, pan-sports marketing generalized the audiences by taking the special groups who were given up by traditional sports marketing into consideration.

Entertainment audiences, as a typical group of the large base number, high user viscosity, strong purchasing power, are considered to be potential audiences of pan-sports marketing. Therefore, we can see more and more sports elements on reality shows featuring movie and television stars, including setting physical competitive items, inviting sports stars as the guests, and so on. Since sports elements are constantly thrust in the limelight, they are generally accepted and loved by entertainment audiences. As a result, celebrities from the sports field started to accumulate fans and streams just like entertainment stars.

In such a context, brand new sports variety shows came out. Unlike the early sports reality shows such as Men and Women Go Forward from Anhui Satellite TV and Just Go from Hunan Satellite TV. From the perspective of pan-sports in the new time, sports variety shows combine the entertainment stars and sports stars to establish an Internet flow economy.

In 2016, Zhejiang Satellite TV published Come on Champions which set a specific sport as the main theme in each episode and invited champion athletes of this sport to compete with the entertainment stars. The champion athletes were required to use special arms and tools as a kind of unfair rule to reach the balance meanwhile adding enjoyment.

The prosperity of online video platforms pushed the pan-sports marketing move from local satellite TV to the Internet and spread more widely. SuperNova Games, which was unitedly created by Tencent Video, Tencent Sports, and Jingdong, is a typical case. Based on "sports + entertainment stars", it paid more attention to professionalism by using professional sports matches style in item setting, site arrangement, camera lens so that audiences could understand sports further from a professional perspective. These completely new sports variety shows carried with entertainment elements gained a lot of attention. The accumulated views of the first SuperNova Games reached 426 million, the number of audiences of online lives reached 62 million.

Besides entertainment audiences, pan-sports marketing is trying other fields. For instance, to advertise PUMA RS 9.8 series running shoes which took the universe as the theme, PUMA decided to cooperate with Zhihu and asked questions in the platform in the name of the brand, discussed the mystery and charm of the universe with those excellent answerers in astronomy, and created an interactive dynamic page about the universe.

3.2.2 Idol economy

In addition to entertainment stars who already have their own fans base, more marketing practitioners come to realize that athletes themselves can also be the top stream who can drive the flux economy effect. With the commercialization process of popular sports events and the booming development of the Internet, athletes of football, basketball, and other highly commercialized events have accumulated a flux base equal to that of entertainment stars. Their peripheral products compose another racing track of sports marketing.

The characteristic of this marketing method is to attach the value of the product completely to the sports star rather than the product itself. Star card is supposed to be a classic example. Star cards were used as the premiums of cigarettes by American cigarette makers in the late 19th century. They accidentally got a good reaction and became a unique collection in the USA. After a hundred year's development, companies that specifically produced star cards appeared as well as companies that offered evaluation services according to player form, rarity, and other factors. Also, the field of players was expanded from MLB (baseball), the initial one, to NBA (basketball), and to nowadays, F1 (racing). The card itself doesn't contain any value while the fame of players makes it a precious collection and forms a huge industry with annual turnover reaching hundreds of millions of dollars.

In the new context of the Internet, the value of sports stars themselves has a more direct way to represent, the live webcast. Since they have gained enough fame and reputation, they share the same management mode of network traffic with entertainment stars. They don't need to care too much about the content and form of their live broadcast. Their faces are the guarantee of popularity. Therefore, more and more network broadcast platforms invite sports athletes from all walks of life to sign up as broadcasters. The coronavirus pandemic has accelerated the growth of the sports idol economic mode, as athletes have more free time to participate in such live broadcasts due to fewer games and limited training. For audiences, the closures and banning of spectators meant they had less access to the athletes and flocked to live streaming platforms to watch their idols chat.

3.2.3 Hot topics and audience psychology

The ultimate goal of marketing is to increase turnover, and the way to achieve that is to expand network traffic and attention. Therefore, any kind of marketing will try to establish a connection with the current hot topic and then bring the huge masses gathered under this topic into the scope of its users. For sports marketing, world-class sports events such as World Cup and Olympic Games are the most traditional hot spots, while pan-sports marketing focuses on some virgin lands. For example, in 2017, the League of Legends World Championship, as one of the most famous e-sports events, came to China for the first time. Mercedes-Benz seized the opportunity to become the sponsoring partner of the Chinese mainland region, League of Legends Pro League (henceforth referred to as LPL). Compared with BMW, which sponsored 5 teams from Europe, South Korea, and Chinese mainland in 2019, and Audi, which sponsored the first seed of LPL in 2020, Mercedes is the first to sponsor League of Legends, accurately catching the hot spot that the World Championship is launched in China for the first time, and expanding its influence among players. In addition, compared to sponsoring several teams, Mercedes chose the whole LPL. The fact proved that the choice is sensible, e-sports teams didn't have a long history or loyal team fans like clubs from Europe's big five football leagues. Teams with good records tend to be more popular. Non-professional gamers generally prefer to appreciate high-level games and ignore the team itself. Therefore, investment in the whole regional league has higher stability of income.

In addition, pan-sports marketing sometimes tends to emphasize "newer" rather than "popular". In 2018, FIFA World Cup was the best-known event in the sports world. However, Zhejiang Satellite TV and Youku have jointly created a basketball variety show called Dunk of China, which was corresponding to the announcement that 3V3 basketball officially entered the Asian Games and Olympic Games. Most of the audience was not familiar with the 3V3 basketball game. Dunk of China noticed and successfully attracted a lot of attention by setting the mechanism of three-player basketball game along with "active athletes + entertainment stars", the pan-sports marketing variety show mode.

3.3 Online business

3.3.1 Expand direct retail network and accelerate digital transformation

Nowadays, the network has become an indispensable part of people's life. According to the data of China Business Industry Research Institute, under the background of the blooming of major e-commerce network platforms, the purchasing power of the masses has taken a huge leap forward, and online retail sales have increased year by year. What follows is the popularization, diversification, and digitization of Internet marketing. By accelerating the digital transformation, relevant enterprises can reshape the sales channels directly facing consumers, so as to increase the corresponding turnover.

Table 1. Network sales in different years.

Year	Online retail sales (trillion yuan)
2014	2.79
2015	3.88
2016	5.02
2017	6.41
2018	7.98
2019	9.72
2020	11.63

Among them, Nike, a world-famous sports brand, is representative. As a brand with world influence and reputation, Nike is constantly keeping pace with the times. Based on the real situation of the Chinese market, Nike saw the rapid development of e-commerce business and the continuous flow of customer demand, so it began to frequently launch discount promotions on Tmall, jd.com, and other platforms. The emergence of these activities will also be closely related to the sports background at the corresponding time: for example, during this year's European Cup, the performance of some teams has become the focus of the world, and Nike will constantly adjust the price of the corresponding team's jerseys with the ongoing situation of the team, so as to maximize its own interests in a way of advancing with the times.

Compared with offline stores, the supply of goods on the e-commerce platform is relatively sufficient, and the discounts and corresponding discounts are more diversified, which can better promote consumers to complete consumption. Based on the background that the world epidemic is still severe, online has become a very important consumption channel. This is also consistent with the concept of "facing consumers" put forward by them in 2017, and objectively accelerated the process of digital transformation.

In addition, Nike also has a relatively mature online channel, namely NTC (Nike training club). In the context of the international epidemic, Nike has canceled the subscription fee for advanced services and is committed to providing customers with free sports guidance, which fully caters to the needs of the audience for maintaining healthy living habits, so as to realize the sustainable cultivation of loyal users.

3.3.2 Unlock e-commerce live broadcast and innovate consumption scenarios

Under the background of the epidemic, many physical retail stores of sports products have suffered severe hits, and many fitness institutions have closed down. In this regard, many businesses will focus on the online market. The number of new broadcasts in the online live broadcasting room of Taobao and other platforms once increased by more than 100%.

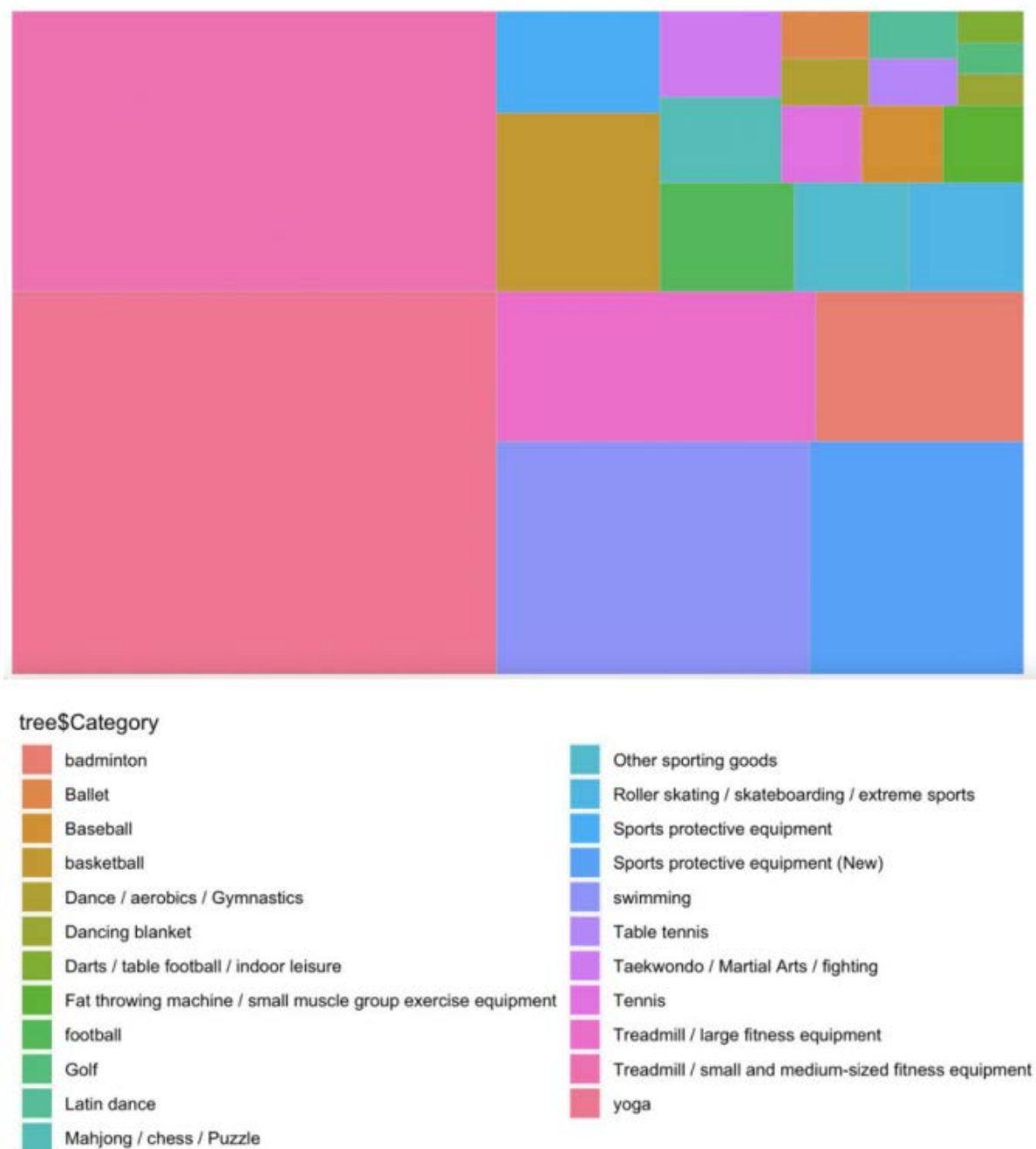


Figure 1. Tree diagram of the outdoor live broadcast of Taobao sports on August 26.

We obtained the data of one-day live broadcast of outdoor sports products (August 26) through the online data platform, which is presented in the form of a tree chart as follows:

It can be observed that people's demand for yoga products and fitness equipment is quite significant, so the corresponding live broadcast of products accounts for a large proportion of outdoor sports products.

As an online store of the brand, e-commerce live broadcasting has the characteristics of flexibility and variability compared with offline stores. One of the representative sports brands is Li Ning: as the earliest brand to resume live broadcasting under the epidemic, its live broadcasting form is unique, that is, it is carried out in the form of the anchor taking you to do sports at home. The anchor is of Li Ning's brand from head to toe. In the whole process of sports, they only provide corresponding sports guidance rather than marketing. The recommended sales products in the product list have also changed from the previous outdoor fashion sports shoes and clothes to elastic sports pants, yoga products, and

other clothes suitable for home sports. This form of cooperation between fitness experts and sports brands is novel enough and has brought good results.

At the same time, in the process of e-commerce live broadcasting, building a private-domain flow matrix is also a very important strategy, which can help the brand achieve sustainable revenue. Private flow is built by the WeChat ecosystem in many cases, and it can operate autonomously and directly touch users. A common private-domain flow is composed of a WeChat group, personal number, and WeChat official account. Each WeChat group is managed by a corresponding assistant, and the latest promotional activities can be publicized in the group. Personal numbers are also managed by assistants. Each assistant is a personal number, which can add a large number of friends for publicity and marketing; the official account of WeChat will also push information and widen audiences.

By creating a private-domain flow matrix of personal IP for fine operation, it can quickly bring flow to relevant brands and realize cash realization, and the popularity and influence of enterprises can be improved accordingly, so as to consolidate customer loyalty.

4. Marketing effect

Our research group collected netizens' opinions on pan-sports marketing through an online questionnaire, which mainly focused on the popularity of sports, the effect of traditional sports marketing, and the effect of pan-sports marketing, in an attempt to get netizens' subjective feelings and attitudes towards pan-sports marketing.

In the end, we collected 249 valid answers, of which 121 were male and 128 were female, with a balanced gender ratio. In order to ensure the validity and breadth of the answers, most of the interviewees were over 18 years old at different ages, from different provinces across China, and engaged in different industries.

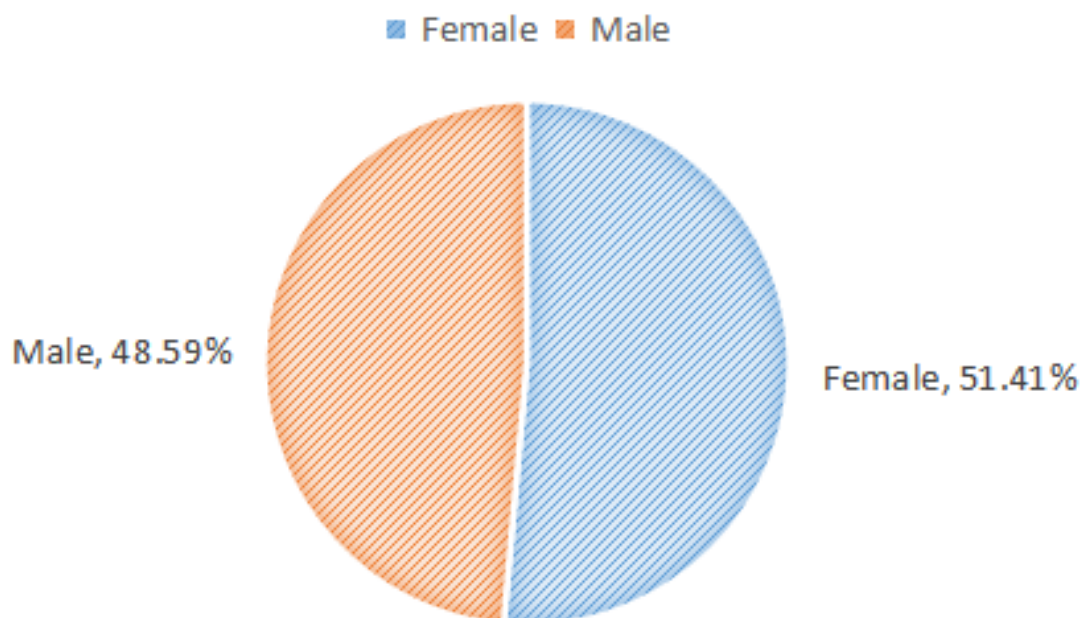


Fig 2. Gender distribution of interviewees.

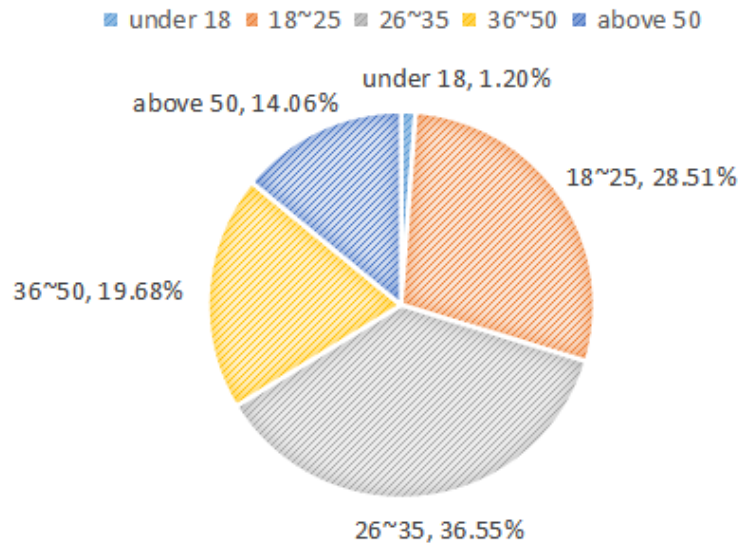


Fig 3. Age distribution of interviewees.

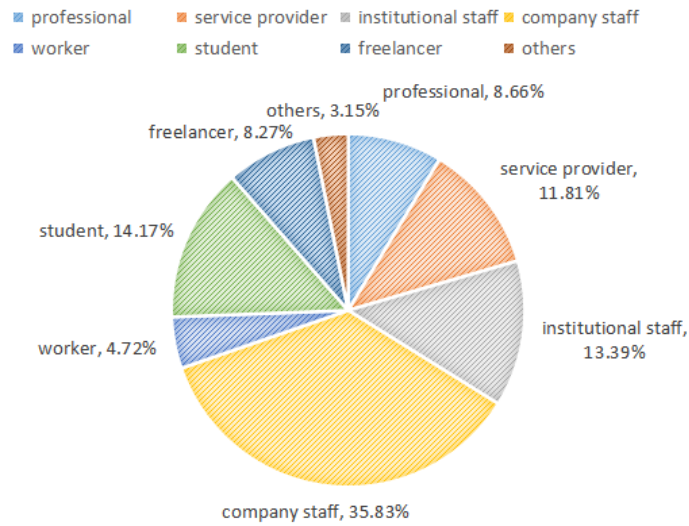


Fig 4. Job distribution of interviewees.

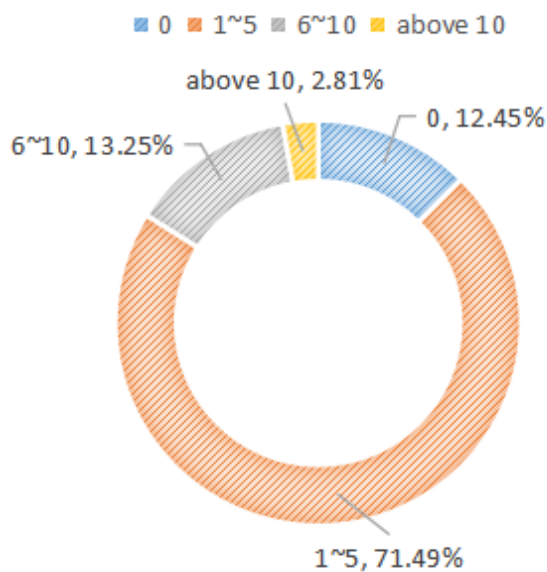


Fig 5. Interviewees' understanding of advertising endorsement.

Advertising endorsement, as one of the most traditional ways of sports marketing, is gradually losing its influence. More than eighty percent of interviewees said they couldn't name more than five products endorsed by sports stars. These traditional sports marketing advertisements failed to leave the image in the audience's mind but were submerged in the digital waves.

However, even though the vast majority of interviewees are not the audience of traditional sports marketing advertisements, nearly sixty percent of interviewees said they had purchased products endorsed by sports stars. This seemingly unreasonable result just confirms the success of today's pan-sports marketing mode. As a marketing method with extensive and huge network traffic, live broadcasting has also penetrated the sports industry, with many sports stars acting as broadcasters to sell goods. When we do a cross-over analysis to data collected from the question, "Have you ever bought products endorsed by a sports star?", and data collected from the question, "Have you ever watched sports star's live broadcasting?", we can find that the data of double "yes" have a very high degree of consistency, which can prove to a certain extent that this generalized sports marketing method has achieved a good effect.

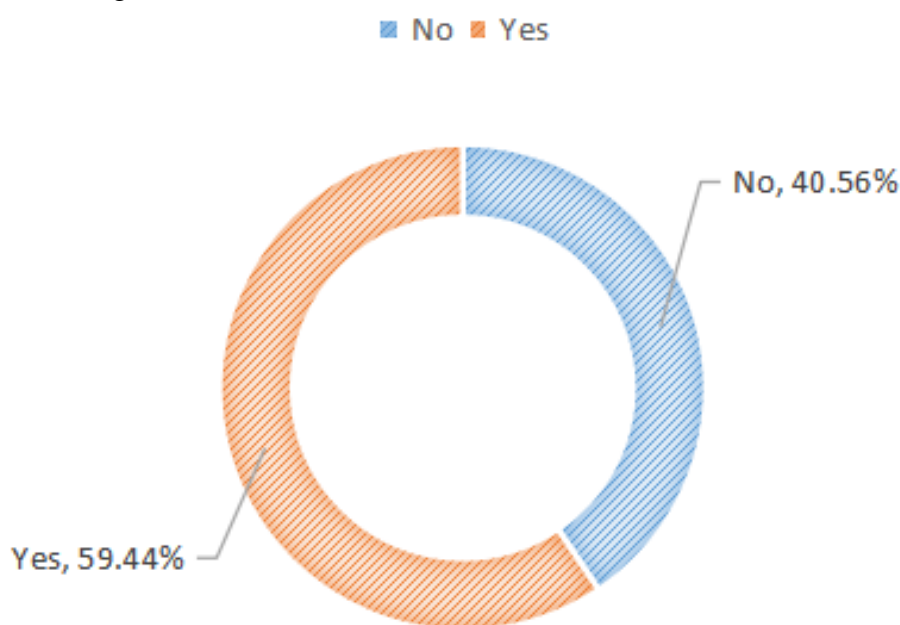


Fig 6. Live broadcasting viewing.

Table 2. Percentage.

	Have purchased goods	Never purchase goods
Have watched live broadcasting	108 (72.97%)	40 (27.03%)
Never watch live broadcasting	40 (39.60%)	61 (60.40%)

According to the Likert scale, we investigated the acceptance of two pan-sports marketing modes, namely sports stars' live broadcasting and sports variety show. Among the scores from 1 to 7, sports stars' live broadcasting received an average of 4.72 points, and sports variety shows received an average of 4.97 points, both of which were well accepted.

After further correlation analysis of the data, we found that the Person correlation coefficient between age and views on live broadcast is -0.169, showing a significant negative correlation. The correlation coefficient between educational background and live broadcasting is 0.169, showing a significant positive correlation. In other words, young people are more likely to accept the mode of live broadcasting than the elderly. Meanwhile, with the improvement of educational background, the audience is more likely to accept pan-sports marketing.

Table 3. Correlation.

		Gender	Age	Job	Education	Attitude towards live broadcasting	Attitude towards sports variety show
Gender	Pearson Correlation	1	-.285**	.003	.039	.187**	.146*
	Sig.(2-tailed)		.000	.959	.541	.003	.022
	N	249	249	249	249	249	249
Age	Pearson Correlation	-.285**	1	.008	-.233**	-.169**	.087
	Sig.(2-tailed)	.000		.901	.000	.007	.173
	N	249	249	249	249	249	249
Job	Pearson Correlation	.003	.008	1	-.221**	-.044	.058
	Sig.(2-tailed)	.959	.901		.000	.493	.366
	N	249	249	249	249	249	249
Education	Pearson Correlation	.039	-.233**	-.221**	1	.169**	.067
	Sig.(2-tailed)	.541	.000	.000		.008	.290
	N	249	249	249	249	249	249
Attitude towards live broadcasting	Pearson Correlation	.187**	-.169	-.044	.169**	1	.551**
	Sig.(2-tailed)	.003	.007	.493	.008		.000
	N	249	249	249	249	249	249
Attitude towards sports variety show	Pearson Correlation	.146*	.087	.058	.067	.551**	1
	Sig.(2-tailed)	.022	.173	.366	.290	.000	
	N	249	249	249	249	249	249

We use the corresponding violin plot to show the views of different genders on Sports variety, in which 1 represents men and 2 represents women, which is, women's evaluation of sports variety is relatively concentrated, while men's views are relatively scattered.

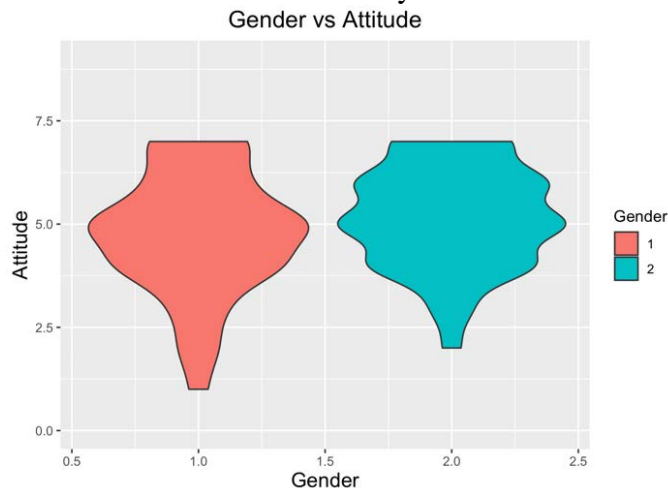


Fig 7. Distribution of respondents' evaluation of sports variety shown by gender.

At the same time, we can see that gender and education are not significantly related to the views on Sports variety. The high evaluation score of 4.97 shows that this is a more widely recognized track than live broadcasting. Therefore, our research team conducted a further survey on this. The results showed that more than half of the respondents believed that sports variety shows would contribute to sports popularization, and such variety shows would be more interesting and real. Most of the respondents who gave negative comments were dissatisfied with their low professionalism, and only 13.25% of the respondents were pessimistic about the prospect of this industry model. This further proves that Pan Sports marketing has a relatively high reputation in the audience, and is a track full of vitality and possibility.

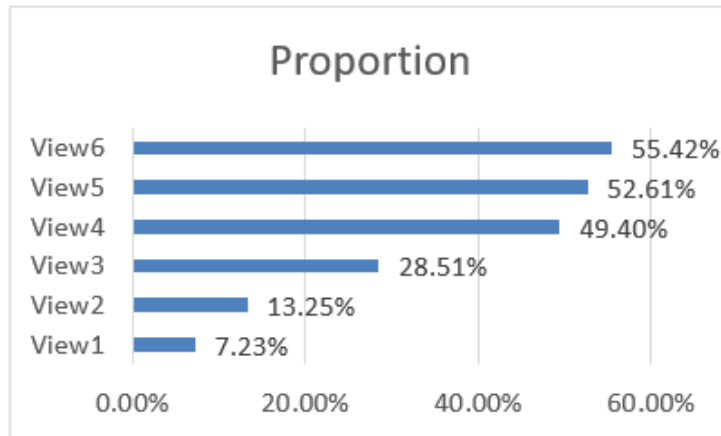


Fig 8. Bar chart of respondents' Evaluation on Sports variety.

Table 4. Detailed Views.

Views	Detailed view
1	Other views
2	The cross-border fan flow of sports variety will harm the sports industry
3	Sports variety shows are lack professionalism
4	Compared with other reality shows, sports variety shows have a stronger sense of reality
5	Sports variety shows are very interesting and attractive
6	Sports variety is conducive to the popularization of sports

For the original questionnaire data, we filtered the independent variables, so as to better research the respondents. We chose the K-means cluster analysis method to cluster the types of respondents.

The idea and method of K-means clustering analysis are relatively simple, that is, the given sample set is classified according to the distance between samples, so as to reduce the distance between points in clusters and expand the distance between points in clusters.

First, we standardize the data to determine the best number of clusters:

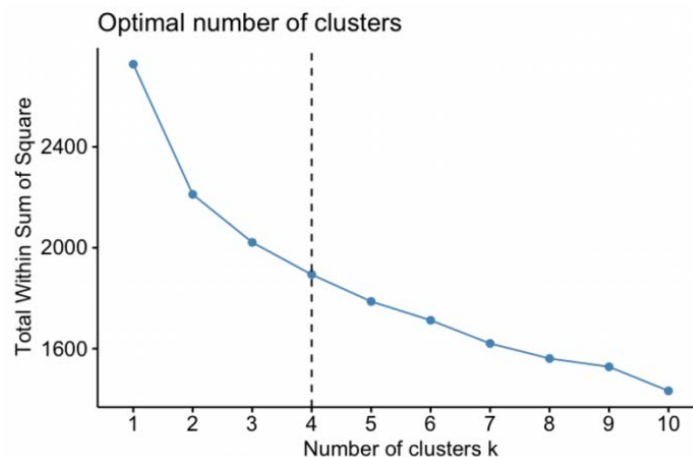


Fig 9. K-means gravel diagram.

By drawing the corresponding gravel map, it can be concluded that it is more suitable to cluster into four categories.

We present the cluster analysis results as follows:

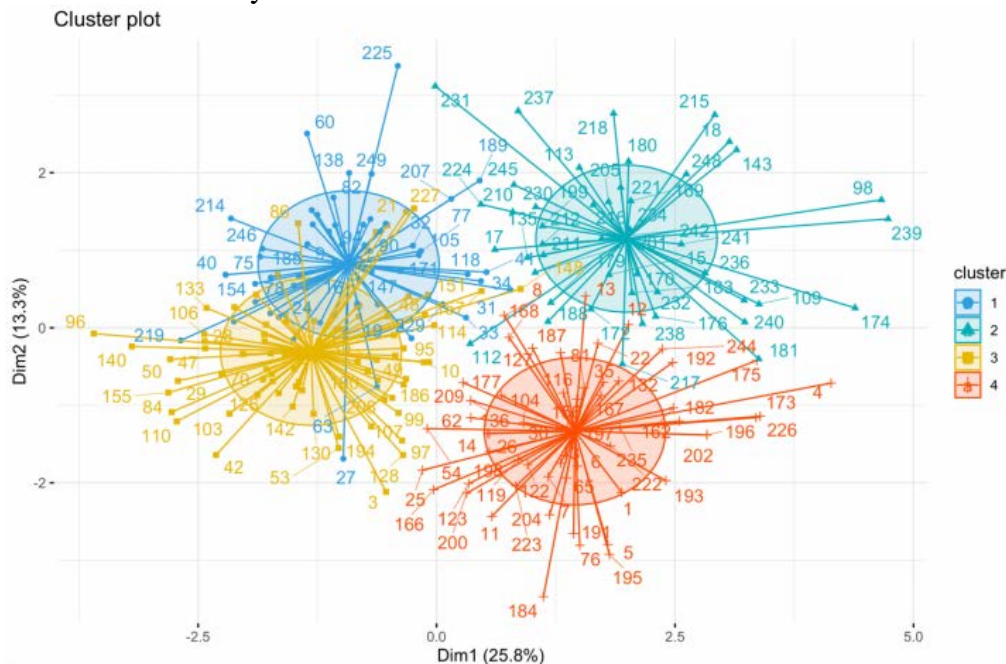


Fig 10. K-means clustering of respondents.

It can be seen that K-means cluster analysis can roughly divide the audience into four categories, and the corresponding respondent numbers and types are also shown in the figure.

5. Development Suggestion

Based on the above analysis of the basic strategy of pan-sports and its marketing effect, we put forward corresponding suggestions for the future development of pan-sports marketing in three phases: the preliminary planning, the midterm operation, and finally the late-stage evaluation. To achieve the desired results, these three steps are indispensable in a company's marketing strategy. Specifically speaking, in the early selection, companies should establish a customized sports resource evaluation system and clarify the matching points of their brand. After identifying its pan-sports marketing resources, to fully activate the resources, the mid-term operation should be carried out through all-channel operation. The final period witnesses the scientific effect evaluation and real-time feedback, which ensures the achievement of future optimization in the overall strategy.

5.1 Preliminary planning: Establish the resource value evaluation system and identify the matching point of brands

Despite the stagnation of traditional sports events, the demand for people's participation in sports has increased. This accelerated the development of pan sports to a certain extent, affected the pattern of the whole sports marketing communication industry so that the scope of sports marketing communication is correspondingly extended to pan-sports. With the rise of sports for all, the increment of the sports marketing market will continue to expand and discover huge commercial value. However, sports marketing cannot be generalized, carrying out sports marketing is not equal to blindly sponsoring sports events.

In the post-epidemic era, manufacturers should select brand evaluation indicators based on their own needs, and establish a customized sports resource evaluation system with the help of a multidimensional data evaluation score measurement model. In addition, enterprises should also clarify the changes in consumers' media contact and inner psychology in the post-epidemic era, pay

attention to the needs of target audiences, consider the spirit of corporate culture, and find a multi-dimensional brand alignment point.

5.2 Mid-term operation: Innovate the media integration communication means and activate the user value

Transformation and integration are the staples of contemporary development in media [15]. And the ultimate goal of media convergence is to achieve a higher level of diversification through convergence. In the current trend of media convergence development, brand marketing territory has expanded from the traditional sports field to the integrated media environment.

In order to adapt to the integrated media communication environment, brands should fully mobilize the integrated communication function of media, activate the sports consumption scene of users, so as to accelerate the speed of sports marketing communication and realize the validity of sports marketing communication. Icon live brand should embrace, audio, data, and other forms of media and introduce the participation method ranging from the barrage to quizzes. At the same time, according to different groups of the target audience, sports marketing should be combined with other associated scenarios, affecting the differentiation in the scene segmentation.

5.3 Late-stage evaluation: Coordinate online and offline comprehensive measurement and achieve future optimization

In recent years, pan sports marketing has developed rapidly, and its value to brand development and marketing has attracted much attention. To realize the connection between the value of sports marketing and the brand of customers, businesses should carry out the scientific and effective standardized evaluation of the marketing effect of sports marketing activities in the later period.

Through online and offline global monitoring and follow-up effect analysis, brands can optimize and upgrade the content of marketing activities. From the perspective of exposure evaluation, brands can quantitatively calculate the overall influence of the event and the benefits brought by the sponsorship of the event according to the dimensions of online live viewing, offline arena exposure, and activity exposure. After long-term data precipitation, the operation of the later stage of the event can be optimized. In terms of public opinion evaluation, the communication quality of the event content can be evaluated from the two perspectives of public opinion heat and content to promote effective interaction. As to star evaluation, the communication volume, communication level, and influence index are mainly used to evaluate the communication ability of sports spokespersons in marketing activities. Finally in effect evaluation, by quantifying the audience response effect of different marketing activities, brands can evaluate the quality of the target audience, optimize the propaganda target, and spread the sponsorship value.

6. Conclusion

In the context of interaction, the transformation of sports communication marketing theory and practice lies in the new consumer demand field. By introducing the concept of pan sports, the scene demand of consumers is deeply explored and the scene experience is meanwhile improved. Pan-sports marketing found an excellent environment for growth with the development of the Internet and digitization and gained a wide range of compliments. With the rapid development of the sports industry and continuous improvement of people's attention to health, the pan sports population is increasing day by day. In this context, more businesses will pay attention to the advantages of pan-sports marketing, and then join the practice team of pan sports marketing. Therefore, the future of continuous derivative pan-sports marketing has a great space for development.

6.1 Sports covers a wide range of people and have a strong marketing touch power

In today's global market, sports has long become a universal "marketing language" for brands. As the mainstream culture, sports marketing has a certain vertical attribute, and its audience is distributed

in various project fields, which enables sports marketing to achieve overall high coverage and accurate reach.

At the present stage, China's sports industry is in a rising stage of policy incentives and a better development of the industry. With the continuous expansion of the scope of sports marketing, online public opinion of sports marketing will continue to increase in the future, and sports marketing reach will also steadily improve. In addition, pan sports is also looking for opportunities to reach new areas. The emergence of sports social media to meet the needs of communication deeply gathers a large number of sports fans. More and more sports stars active screen, forming a new marketing touch; sports e-commerce platform with sports commodities as the core brings new investment opportunities.

6.2 Sports have a strong spiritual influence on the audience and have a strong marketing culture

Compared with entertainment programs, sports are highly competitive, confrontational, and emotional. Through the competition of athletes on the field, the audience will be nourished by the spirit of never giving up and perseverance, which will have a strong spiritual influence on the target audience.

The sports power, sports culture, and the creative industry are becoming a new outlet, a new track. In the future, as a way of cultural output, pan sports marketing should also endow its own brand culture with sports spirit, deepen the brand cultural assets from the spiritual level. In addition to competitive sports, the brand can also establish a sports culture with high participation, high interest, and close to people's lives through folk events and celebrities.

6.3 Sports gain derivative benefits in various ways and have strong marketing diffusion

Compared with other marketing means, sports marketing has a wide range of overall scope and accurate segmentation. Meanwhile, sports events have their diffusion power and naturally meet the demand for interactive sharing. These characteristics enable the brand to combine the focus of sports events, activate the diffusion force through multiple channels, and realize the self-communication of the majority of users.

At present, sports entertainment has become the main trend of sports marketing diffusion. In the future, more and more sports and entertainment projects will enter the market, and sports and entertainment will bring more commercial value to the brand. Brands can also make use of social media to stimulate users' awareness of self-sharing and create a secondary communication force for interaction and sharing. In addition, senior sports fans are active in major sports media platforms from interactive sports social and sports consumption circles, which are gradually becoming the driving force to promote the diffusion of sports consumption and marketing.

7. Conclusion

In the process of exploration, due to the lack of some ways to obtain data, some in-depth analysis is difficult to carry out. For example, in the e-commerce sales analysis of sports outdoor products, some sales data are difficult to obtain, and long-term sales changes are difficult to find, so the corresponding analysis can only be speculated and analyzed based on interactive data such as live broadcasts. For the use of questionnaire data, limited by time and ability, it failed to dig the deep meaning behind the questionnaire, and the cluster analysis also had the problem of insufficient dimensionality reduction.

References

- [1] Coronavirus Pandemic Weighs on Adidas' First Quarter Results, <https://www.adidas-group.com/en/investors/financial-reports/>, 27 Apr. 2020
- [2] Wang Mingjie: Scene Transformation of Sports communication marketing in the post-epidemic era, *Modern Communication*, 9, 2020, pp. 132

- [3] Davison, W. P. (1983). The third-person effect in communication. *Public opinion quarterly*, 47(1), 1-15.
- [4] Golan, G. J., & Day, A. G. (2008). The first-person effect and its behavioral consequences: A new trend in the twenty-five year history of third-person effect research. *Mass Communication and Society*, 11(4), 539-556.
- [5] Perloff, R. M. (2002). The third-person effect. In *Media effects* (pp. 499-516). Routledge.
- [6] Perloff, R. M. (1999). The third person effect: A critical review and synthesis. *Media psychology*, 1(4), 353-378.
- [7] Horton, D., & Richard Wohl, R. (1956). Mass communication and para-social interaction: Observations on intimacy at a distance. *Psychiatry*, 19(3), 215-229.
- [8] Sui Yan, & Zhou Qiong. (2016). Network language and quasi-social communication in the Era of Internet group Communication. *Social Science Front*, 000(011), 144-153.
- [9] Shannon, J. R. (1999). Sports marketing: an examination of academic marketing publication. *Journal of services marketing*.
- [10] Fullerton, S., & Merz, G. R. (2008). The four domains of sports marketing: A conceptual framework. *Sport marketing*
- [11] China Internet Network Information Center (CNNIC). The 48th Statistical Report on China's Internet Development [R]. August, 2021.
- [12] How can sports IP and sponsors leverage social media in the face of digital marketing? [EB/OL]. <https://www.spo5.com/NBA//m/37037.html>
- [13] Xie Xiran. (2021) new thinking of equipment brand epidemic marketing from the perspective of integrated marketing communication [J]. *China Market*, 2021(1):128-130
- [14] reak out! How does Xtep become the king of marathon marketing of domestic sports brands? [EB/OL]. https://www.sohu.com/a/288816900_586093
- [15] Peng Lan, Professor of Journalism and Communication School of Renmin University of China: Dual Challenges of Social Media and Media Integration, Speech at Cultural Development and Media Innovation Forum, People's Daily Online Media channel, <http://media.people.com.cn /GB/40606/16401050.html>, November 26, 2011