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The Influence of the Phenomenon of the "Information Cocoons" on the Weibo Sports Field

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Abstract: The new media industry is developing rapidly in today's society, and the "information cocoons" phenomenon is getting more attention. At the same time, with the popularity of sports worldwide, sports events are frequently held, leading to sports news receiving much attention, and its dissemination is also significantly increasing. However, there have been few studies on the information cocoon phenomenon of sports news in past research. This paper focuses on Weibo, the most used new media platform in China in the past ten years, as the main study object. Data analysis will show the current situation of the "information cocoons" in the Weibo basketball circle and provide insights for future research.

Keywords: new media, information cocoons, Weibo sports field, community detection

1. Introduction

"Information Cocoons" comes from the book "Information Utopia" by Sunstein. In the book, Sunstein notes that at the dawn of the Internet, Users were also willing to integrate into their network circle, focus on the fields they want to know and have interests in, screen out the information they do not like or think is not essential, meet their expectations to the greatest extent, discuss in the same circle of interests, and constantly strengthen the values instilled, and finally form a (user-algorithm-user) circular propagation cocoon [1]. If individual users do not identify and think dialectically, they will identify with certain concepts indiscriminately. Massachusetts Institute of Technology's Media and Technology expert Nicholas Negroponte predicted the emergence of "The Daily Me," a completely personal newspaper. On Daily Me, everyone can choose his favorite topics and opinions. For someone in the public society, this is a real opportunity and risk, and sometimes, it would bring unfortunate results for business and democracy. When individuals are confined in a self-constructed information environment, life is bound to become programmed and stereotyped. The information cocoons mainly manifests in two aspects: narrowing the audience's information exposure and selective information exposure [2]. Nowadays, the frequent holding of various sports events in various countries has intensified the production and dissemination of sports news. Moreover, the new media platform has accelerated the dissemination of sports news in real-time, and people's attention to sports news has increased. In the new media environment, China's sports industry is developing rapidly. The Chinese government is actively developing sports in China, putting forward the call to "develop a strong sports nation." The discussion and attention to sports news on Weibo, China's most popular new media platform in the past decade, is increasing. Different types of people are also interested in different

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kinds of sports. However, under this situation, the public's preference for sports news affects the interactive transmission of sports news, i.e., the "Information Cocoons" phenomenon arises. Several recent studies have found similar results, such as the sports mimicry environment facing challenges. People only pay attention to the sports information they identify with, forming an echo chamber effect for sports audiences [3]. The "Information Cocoons" phenomenon leads to the polarization of network groups and makes the masses lose social stickiness [4]. In the routine usage of digital media, information cocoonsare widespread [5]. So there is no specific research on sports news and "Information Cocoons" for the industry in China. Although some references have suggested a link between the two, systematic research investigations of such phenomena still need to be conducted.

This study explores the influence of the information cocoons phenomenon on sports in China. First, this paper should be sure that it is inevitable that each user has individual differences, and the "attention" mechanism of Weibo can help users screen out more exciting content from complex information. In using Weibo, users should pay attention to their favorite stars, bloggers, and some official accounts to ensure that their favorite content can appear on the screen the first time they open the APP. The weak relationship attribute of Weibo can reduce the possibility of an "Information Cocoons" to some extent. However, under microblogs' seemingly free information exchange appearance, there is also a crisis of forming an "Information Cocoons." When the polarization phenomenon occurs in a specific group, the individual's differentiation is blurred, and the group has a strong sense of identity. The group members will have a crisis of trust in the outside world, but there will be extreme tolerance inside. The light is not conducive to the long-term development of the individual, the heavy is detrimental to the credibility of the mainstream media, and even can be deliberately guided, seriously affecting social stability. From the perspective of the whole society, topics between different circles are different and challenging to change, which leads to multiple information barriers in society. With the increase of information barriers, the levels of society increase and are mutually exclusive. The scattered circles reduce the cohesion of the whole society, and it is increasingly difficult to form social consensus and enhance social cohesion.

Firstly, this paper analyzed the basketball community on Weibo (three categories: famous athletes, famous sports commentators, and private sports fans), then analyzed their tendency to follow and comment on Weibo and their likes. Secondly, the research is based on the tendency of official accounts, and basketball self-media accounts to post or retweet. This paper hopes to find contradictions and solutions before the "Cocoon" is fully formed by exploring the similarities and differences in the concerns of people in basketball circles. This paper also hopes that this study can mitigate the phenomenon of online group polarization, enhance group-to-group social adhesion, improve the interactivity of sports news, and provide data and theoretical support for subsequent in-depth studies.

To this end, the method of complex network analysis is used to draw a graph of the relationship between groups, explore the causes of formation, conceive solutions, and reduce the danger of "Information Cocoons" to the public. It is designed to improve communication between circles and explore the development of sports journalism. The domestic research on this topic needs to be more profound, and there are a few related topics. This study could fill the current technology gap.

This paper focuses on Weibo, China's most used new media platform in the past ten years and asks the following questions. Question 1: Is there a groupuscule phenomenon in the Weibo sports circle? Question 2: If the groupuscule phenomenon already exists, what is the extent to which the current "Information Cocoons" phenomenon affects different types of groups? Through the research, this paper finds that there is indeed the phenomenon of an "Information Cocoons" in the Chinese basketball circle on the microblogging platform. It also affects people in the sports circle.

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2. Data Analysis

2.1. The Groupuscule Phenomenon in Weibo Sports Circle

For the first question, this paper followed Jianlian Yi's Weibo through computer crawler technology, namely, Jianlian Yi's "first-order neighbor," then we followed the Weibo of Jianlian Yi's followers, namely, Jianlian Yi's "second-order neighbor."

First, this paper crawled through Weibo and found 206 "first-order neighbors" and 23,787 "second-order neighbors" of Jianlian Yi, bringing "first-order neighbors" into "second-order neighbors" to retrieve their mutual concerns. The resulting data represents how many first-order neighbors are paying attention to this second-order neighbor, and the data is sorted in descending order. Finally, take a second-order neighbor population with ten or more cross-correlation annotations between first-order neighbors and second-order neighbors, with 41 people. Obtain the histogram of Figure 1 through population type classification.

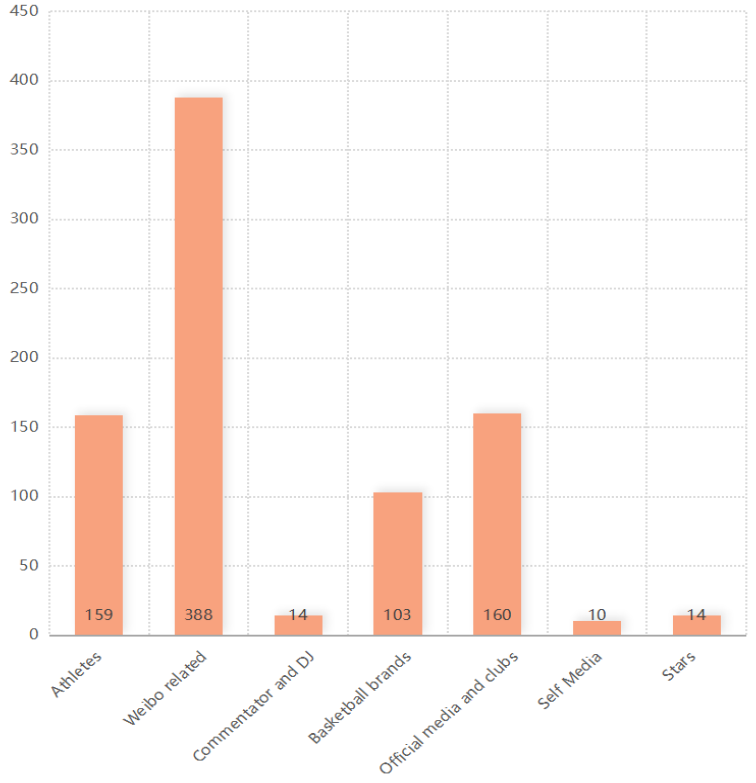

Figure 1: Bar chart of Yi Jianlian's followers.

As shown in Figure 1, it can be concluded that accounts related to Weibo have the most mutual followers, including Weibo members and fan groups. When a Weibo account is registered, the system automatically follows some Weibo accounts. However, the people who are followed by Weibo official accounts are celebrities, and such people have a certain amount of fan base. Secondly, accounts with many mutual followers are athlete accounts, official media and club accounts, and basketball brand accounts. Compared with commentators, DJs, and celebrities, these three data sets have a data cliff phenomenon. Yi Jianlian's first-order and second-order neighbors follow each other in the basketball circle, the official media, clubs, and brands. It can be concluded that there are indeed small groups in the Weibo basketball circle. Such small groups are concentrated among athletes, official media, club accounts, and basketball brands.

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2.2. The Information Cocoon on Different Types of Groups

Moreover, for the second question, this paper can study by selecting typical characters for comparative analysis and the visual pie chart provided by Weibo. For the second question, this paper selected four categories of people: ketball players, basketball commentators or journalists, basketball self-media, and general sports fans. The Weibo authentication function defines these four types of people. The Weibo authentication feature can accurately authenticate the type of bloggers they belong to, while ordinary users will not have microblog authentication. Through Weibo's statistical pie chart, this paper can visually see the bloggers' interest points and the top 5 areas of interest they follow. And make pie chart statistics Figure 2, Figure 3, Figure 4 and Figure 5 corresponding to athletes, commentators, self-media and sports fans.

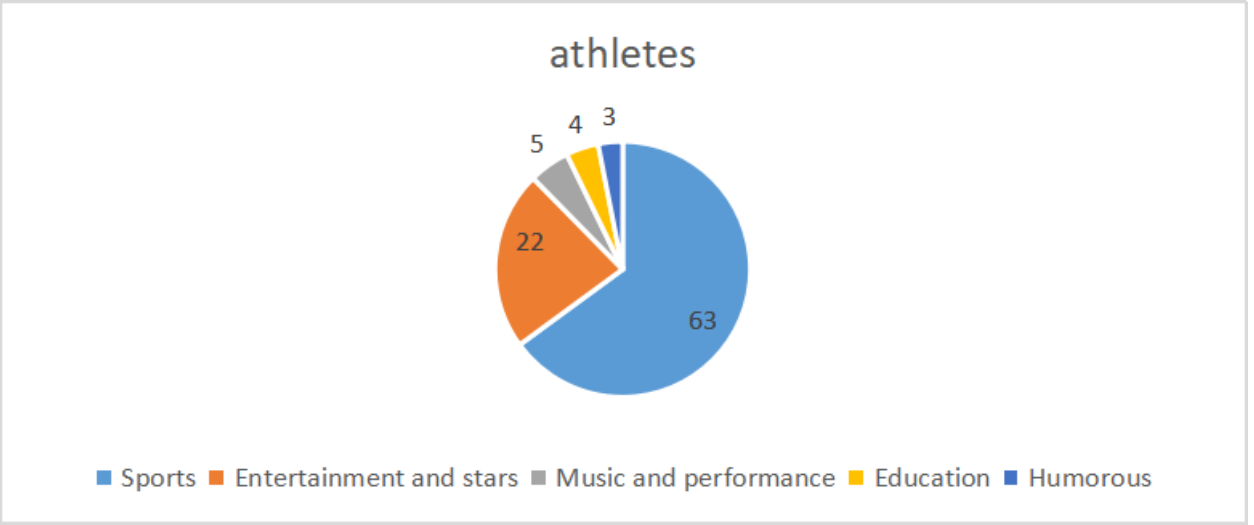

Figure 2: The 206 focus was distributed in 16 areas of interest.

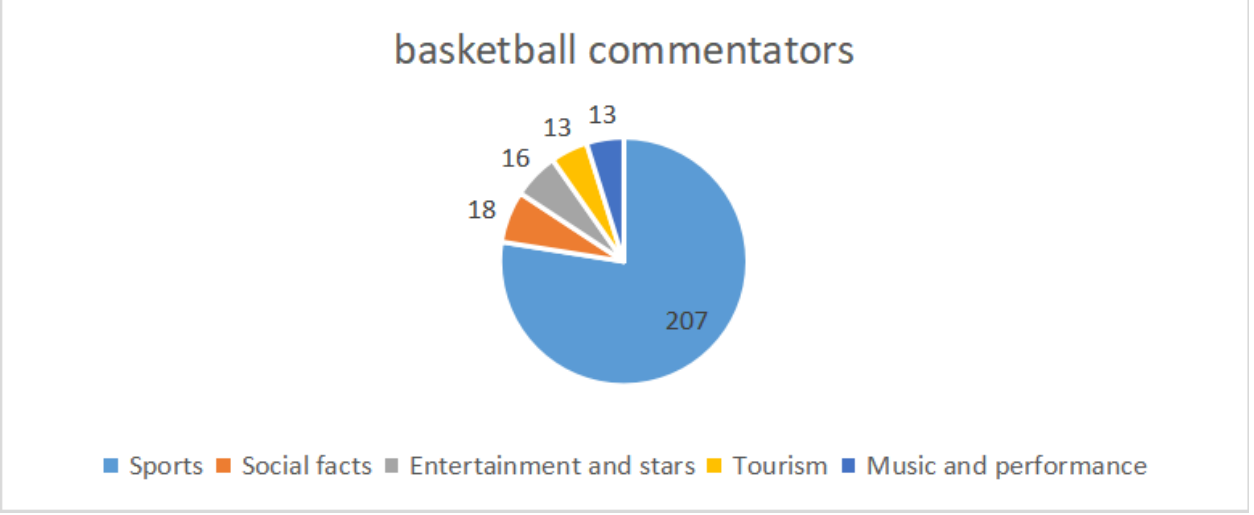

Figure 3: The 565 focus was distributed in 28 areas of interest.

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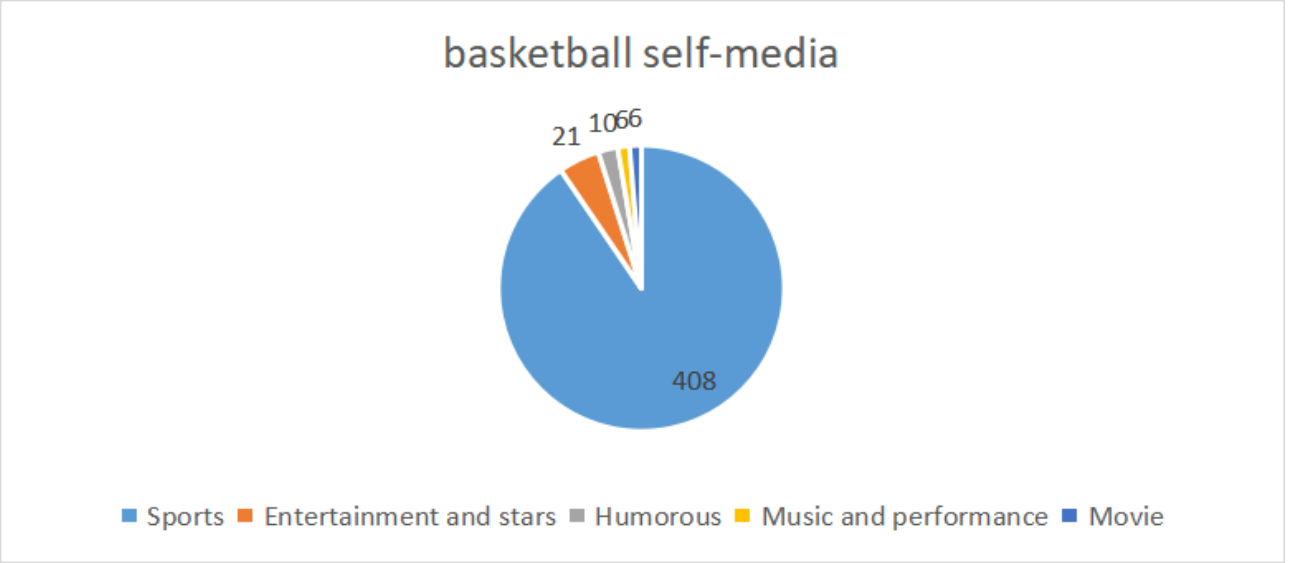

Figure 4: The 832 focus was distributed in 25 areas of interest.

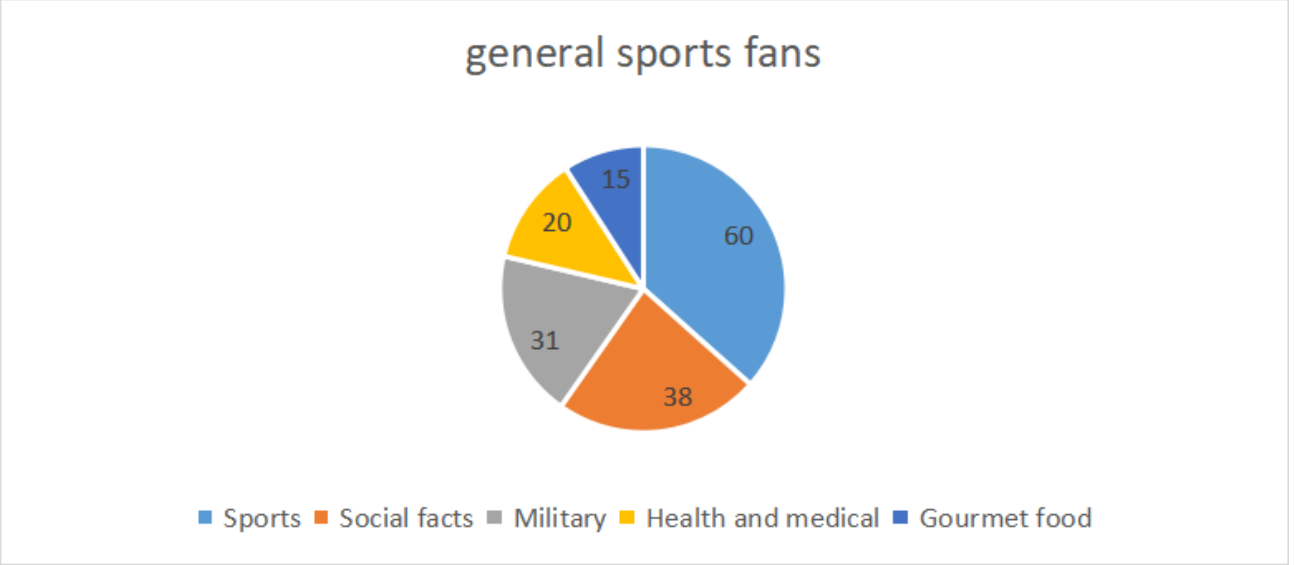

Figure 5: The 497 focus was distributed in 27 areas of interest.

By the proportion of the four typical people following the sports field and the total number of followers, it can be concluded that athletes following the sports field are 30.5%, 36.6% for basketball commentators, 49% for basketball self-media, and 12% for general sports fans.

3. Network Analysis

In this section, this paper further analyzes Yi Jianlian's first order and second-order neighbors, respectively. The Figure 6 shows that the top5 interest areas of Yi Jianlian's " first-class neighbors" are divided into 32 categories. The total number of people who follow sports is 19,129, accounting for 50%, followed by entertainment stars, music, fashion & beauty, and humor, with 7,863, 2,353, 1,667, and 1,034, respectively.

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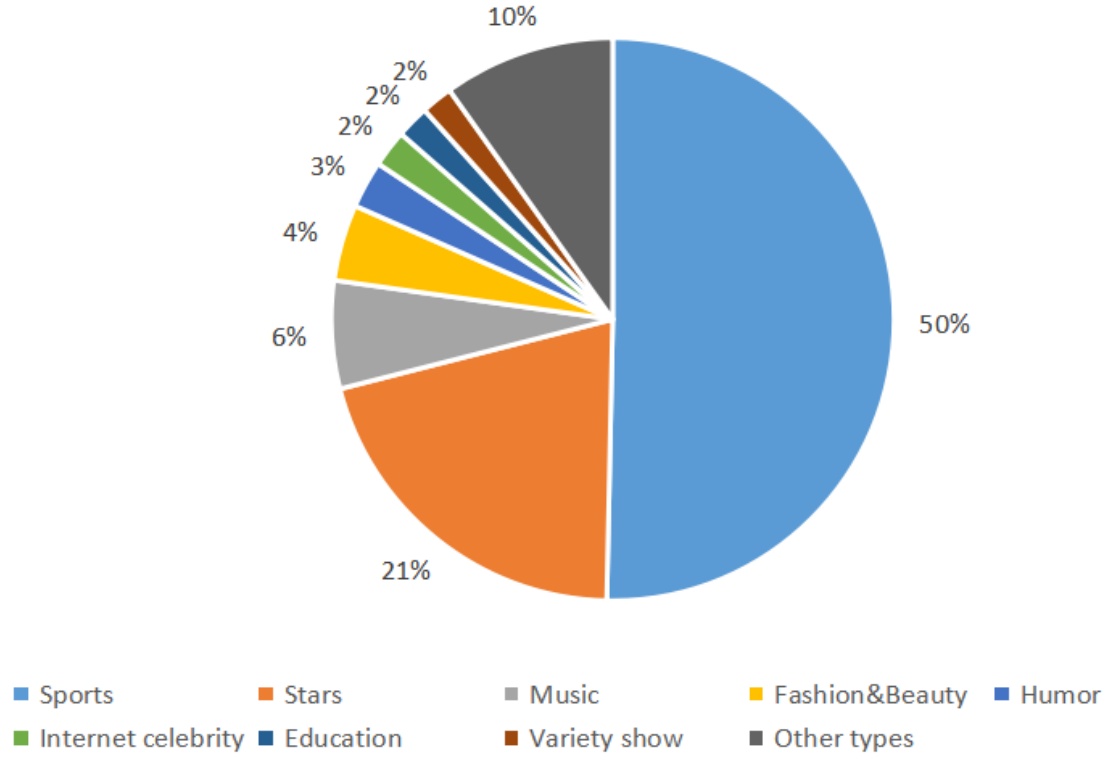

Figure 6: Pie chart of Yi Jianlian's "first-order neighbor" interest field type.

One of the most relevant and widely studied structural characteristics of networks is their community structure. Detection communities are very important in social networks, where systems are often represented as graphs. With the advent of web-based social networks such as Twitter, Facebook, and LinkedIn. Community detection becomes more difficult due to the sheer size of the network, which can scale up to hundreds of millions of vertices and edges. Such large graphically structured data cannot be processed without the use of distributed algorithms due to the memory limitations of one machine and the need to achieve high performance [6]. The Community Detection Algorithm is used to observe the community clustering characteristics of Yi's "second-class neighbors". In the network demonstration, such intervals are displayed as node sets with high density of internal links, while links between intervals have a relatively low density. These sub-diagrams are called communities or modules [7], and in Figures 7, 8, and 9, people in the same neighborhood are marked with the same color, and the marginal gray areas represent smaller, smaller internal clusters of communities. As shown in Figure 7, resulting in 16535 nodes (excluding the overlapping people) and 23786 edges between nodes and nodes. It can be concluded that Yi Jianlian's 16535 "second-class neighbors" have 23786 connections. The different colors in the relationship network diagram represent a user "community cluster", with 47 "community clusters" in Yi's "second-class neighbors." Beyond this study, this paper has also collected data on the second-class neighbors of Lin Shuhao, a world-renowned Chinese American male basketball player, and applied the same community discovery algorithm as Yi Jianlian. Then this paper found that Lin has a total of 13,393 "second-class neighbors" (excluding those who overlap) with 21,702 ties and a total of 30 "community clusters" and obtain Figure 8. Figure 9 shows combining their "second-class neighbors" yields 25,492 nodes and 43,740 edges, forming a cluster of 41 "communities."

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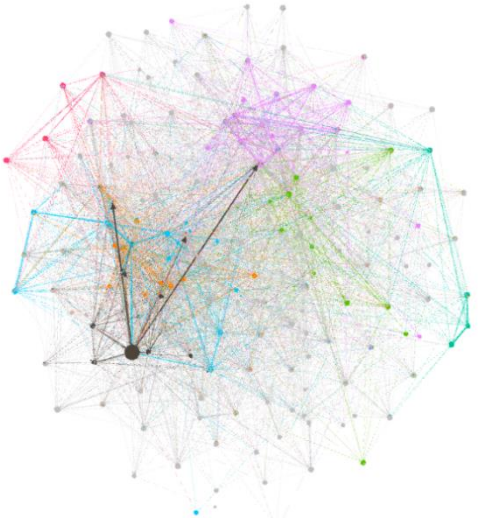

Figure 7: Yi Jianlian's "Second Order Neighbor" Community Cluster.

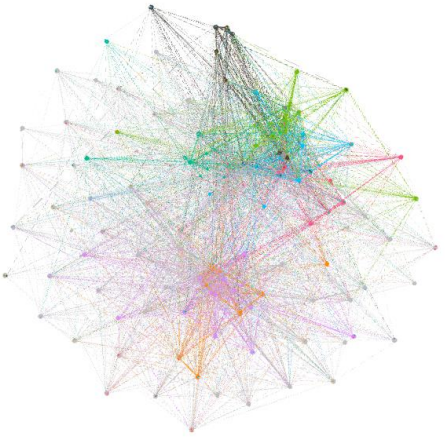

Figure 8: Lin Shuhao's "Second Order Neighbor" Community Cluster.

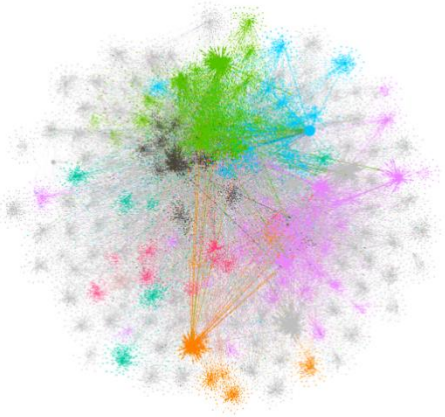

Figure 9: Combining Yi Jianlian and Lin Shuhao's "Second Order Neighbor" Community Cluster.

In the three "community cluster" diagrams, it is easy to find that the number of color-rich clusters is more significant in Weibo's sports circle. In contrast, the number of clusters in gray areas is

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relatively small, and the connection between clusters is more difficult. Inter-cluster linkages also become more difficult, and the efficiency of information dissemination from large to remote clusters gradually decreases. However, it is difficult to see the central figure of each circle in the graph of the "community cluster", and further data analysis is required.

4. Discussion

This paper focuses on the "community clusters" phenomenon to explore the "Information Cocoons" in the Weibo sports circle. In the research process, based on the general conclusion that the "Information Cocoons" effect is widely present on Weibo platforms, further exploration of the "clustering phenomenon" of the Weibo sports circle population [8] can be made. Through the analysis of Weibo's user types and community discovery algorithms, there is indeed user preference and a "community clustering" phenomenon among the dispersed population based on Yi Jianlian. In summary, there has been a trend of "community clustering" in the Weibo sports circle, and there is indeed a weakening of information transmission between communities.

The development of communication technologies is altering how people live. The extent to which social media satisfies people's communication demands keeps everyone glued to their screens [9]. People can get news and political information from a wide range of media and sources thanks to the Internet, which fosters a high-choice media environment [10]. However, the narrowing of audience exposure to information and the tribalization of the Internet caused by the "Information Cocoons" also require attention. Users' selective acceptance mentality naturally filters out important information in the new media era. The concepts guided by the media are sometimes false, meaning that users have the right to know and reject real information. This greatly enhances the effectiveness of information and accelerates the formation of the "Information Cocoons" [11]. Therefore, analyzing the connection between users through a network graph composed of nodes and edges provides a more intuitive understanding of the user's mentality of choosing to contact under new media conditions, resulting in a "community cluster." Under this influence, the emergence of the "Information Cocoons" has led to the fragmentation of online information into multiple layers, which is not conducive to the free flow of content [12]. As a comprehensive and open social media, Weibo has a huge influence on information dissemination and social interaction. Therefore, the "Information Cocoons" effect of microblogs can easily lead to group polarization, which hinders individual development and is not conducive to social harmony and stability [13]. It is particularly important to seek ways to break the cocoon.

5. Conclusion

In the current era of information explosion, the widespread use of big data and algorithms in new media platforms has accelerated the impact of the "Information Cocoons" phenomenon on people, and people in the microblog sports circle have fallen into the "community clusters" phenomenon. Even though the impact of this phenomenon on people varies in magnitude. However, the authors can still foresee that the phenomenon of "Information Cocoons" has widely existed in people's daily new media usage behavior, and the positive or negative effects of this phenomenon on the current development of Weibo sports field still need to be further explored. However, from the community discovery algorithm studied in this article, the issue of information interaction and exchange between "clusters" and "clusters" needs to be taken seriously, which indicates that the audience's exposure to information has become narrow.

It is also necessary to note the limitations of this study. Although this paper have used various data analysis methods to measure the "Information Cocoons" phenomenon, our empirical observation is limited to Weibo users in China. Future research should examine the existence of information cocoons

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and their phenomena in other cultural backgrounds. Moreover, it is difficult to identify the central figure of each circle in the community cluster diagram, and further detailed data analysis is needed.

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