Scholar Publishing Group
International Journal of Neural Network
https://doi.org/10.38007/NN.2021.020101
ISSN 2790-2692 Vol. 2, Issue 1: 1-9

The Analysis Method of Network Public Opinion Based on Big Data in University Information Ecological Theory

Jia Zhou and Huan Wu

Nanchang Institute of Science and Technology, Nanchang 330108, China

517098832@qq.com

Keywords: Big Data, Information Ecology, University Network Public Opinion, Public Opinion Management

Abstract: Big data is more and more widely used in social life. As an effective method, network public opinion (PO) analysis method has the advantages of high efficiency and speed. This article mainly starts from the theory of university information ecology and analyzes the current university Internet PO with big data as the research background. We first sorted out and summarized relevant domestic and foreign literature and research results; secondly, we analyzed the information ecological characteristics of university network PO and the characteristics of campus network PO in the context of big data through analysis of existing literature and data, and found that the current The quality of the data researched by the network PO management institutes in Chinese universities is uneven, and the network PO management mechanism in universities is not sound. In addition, the campus network PO management lacks professional talents. In this paper, we also investigated the attitudes of students in a certain university to hot events through experiments. Among the 680 questionnaires we collected, 670 questionnaires expressed the most concern about campus safety-related PO. At the same time, we also found that most of the students in this school often use Weibo to participate in the discussion of a hot event.

1. Introduction

Contemporary young students are active in their thinking and have high overall quality, and are often full of great interest in things that happen around them. Therefore, they often arouse thinking and inquiry about similar issues in social contradictions. However, young students lack social experience and are not capable of distinguishing authenticity. They are often misunderstood by people with ulterior motives. In the face of a complex network environment, the issues they discuss often arouse controversy. With the fermentation of the incident, social conflicts will be triggered, which will have a great impact on the school and society.

Yu Hong, Hong Ruxia, Shi Wenjin and others pointed out that with the progress and development of modern network information technology, especially the widespread and popularization of mobile phone and mobile Internet network information applications, the general public can use the Internet to understand the hot news in society. Incidents pay more attention, comments and supervision, which makes the Internet a main channel for the dissemination of PO information. At the same time, the massive increase in PO information and large-scale data on the Internet every day also poses challenges to the relevant departments of PO governance. In particular, if important PO information of some companies cannot be controlled in time, it is very easy to cause major problems to the development of the company[1]. Chen Fuji and Zhang Yan found that the definition of the PO phases of the Internet PO cycle theory is vague. Based on this, they proposed a quantitative model for dividing the evolution stage of online PO events through the E-Divisive algorithm, and took hot events in real life as examples. Study the life cycle of the event, and finally summarize the laws reflected in the evolution of PO events [2]. Gao Haitao, Xu Kaiying, Zhang Qi studied the topic of "smiley wall welcoming freshmen", and observed the relevant remarks of college students on this, and through relevant data analysis, summarized the characteristics and laws of Weibo PO in the process of dissemination [3].

The rapid development of big data has had a wide-ranging impact on all areas of society, and network PO management is no exception. In view of the above-mentioned theories, this paper studies and discusses the management of PO in colleges and universities under the conditions of the Internet and informatization big data based on the theory of university information ecology.After in-depth analysis of the basic characteristics of university network PO,It points out how to use big data technology to manage the online PO of colleges and universities, and create a healthy environment for the online PO of colleges and universities.

2. Method

2.1. Decomposition of the University's Network Public Opinion Information Ecosystem

(1) The information ecological elements of university network PO.

The information ecology of university network PO is mainly composed of network information resources, the main body of network PO and the ecological environment of network PO information. There are internal connections between the elements and realize a certain function after they work together [4]. The main body of online PO generally refers to the producer, disseminator, consumer, disintegrator, and regulator of online PO information. The main bodies can be converted. For example, producers can also become disseminators and disintegrators. Internet PO subjects generally do not rely on the geographical boundaries of physical space. They form a regional circle through some of the same attributes, which include the same hobbies, professional knowledge, and network behavior habits [5].

(2) The characteristics of the network PO information ecosystem in colleges and universities

One is that the main structure of online social PO is diversified. The development of Internet information technology has broken the limitations of information time and space. Information subjects can freely express their opinions and opinions under the condition of anonymity, which makes the structure of information subjects more diversified. Any user can freely comment, and they are anonymous. This phenomenon is very unfavorable to the educational administration of colleges and universities. According to the theory of network social ecology, the PO subjects of multiple networks can be roughly refined into key populations, management populations, supporting populations and parasitic populations according to their different functions [6].

Second, online PO topics are open and rich in content. With the in-depth popularization of the mobile Internet, the full sharing of information has already become a reality, which is also a prerequisite for the openness of online PO issues. On university campuses, teachers and students can arbitrarily publish the subject matter of PO through Weibo, Zhihu, Douban and other media, and enrich the content of online PO through two-way interaction such as likes, comments, and forwarding. In addition, due to the lack of knowledge of information policies and regulations and information ethics, under the condition of anonymity, the way they express their views will be more direct, their positions will be clearer, and the content will be rich and diverse, and they will promote them unintentionally. The development of online PO in colleges and universities. From this point of view, the openness of online PO issues has also led to more complicated and unpredictable risks in the information flow of online public opinions.

The third is that online PO information is fluid and interactive. Every online user has become a key role in online PO. They can play a vital role in the entire life cycle of online PO. Every online user can become an information source or an information dissemination circle. Modern college students have a more comprehensive understanding of self-media. Coupled with a large group of college students, a lot of free time, and a strong sense of social presence, their spread of PO through various media and networks can often cause more heated discussions. This also provides inexhaustible momentum for the development of colleges and universities' network PO information ecosystem.

2.2. Big Data

Big data does not simply refer to the huge amount of data, it refers to the diverse, valuable, and high-growth massive data. The vigorous development of big data technology also advertises the birth of a new mode of thinking and new information processing technology. In the management of network PO, data collection technology is usually used to obtain massive amounts of data. Generally, a crawler program is written to capture web information in a targeted manner. The collected PO data is processed through data integration technology, including filtering, de-duplication, cluster analysis and classification analysis. The Bagging model and Boosting model are commonly used in the data integration stage, and their formulas are as follows:

$$\text{Bagging:} f(x) = {}^{1}/_{M} \sum_{m=1}^{M} f_m(x) \tag{1}$$

$$\text{Boosting:} F_m(x) = F_{m-1}(x) + argmin_h \sum_{i=1}^{n} L\left(y_i, F_{m-1}(x_i) + h(x_i)\right) \tag{2}$$

2.3. The Characteristics of Online Public Opinion Colleges and Universities under Big Data

(1) Quantification of online public opinion data in colleges and universities

The high-level development of self-media and social networks has made the people's democratic awareness continuously improved, and they express their opinions through different channels. These insights have been recorded in the era of big data and have become key elements for describing a person's behavior habits and personality characteristics. In this era when the Internet is fully popularized, human social activities can be recorded as data. It is conceivable that the data generated by just a university every day is also massive. Coupled with the high circulation of today's network data, the degree of sharing is also high, and the time cost of information dissemination is reduced, which makes the network PO data become bigger and bigger like a snowball [7].

(2) Fragmentation of online PO data in colleges and universities

Although the current network environment has achieved a high degree of openness, the current network platforms have different forms, and the information exchange between various network platforms has not been realized, which makes it difficult to extract data from different network information platforms at the same time. Therefore, the data obtained is severely fragmented and has low value density. In addition, the emergence of various forms of online PO dissemination such as live webcasts, bullet screens, and follow-ups has made data extraction more and more difficult, and the extracted data has become more and more fragmented [8].

(3) Diversified value orientation of students

In the era of big data, the content of information acquired by college students is intricate and diverse, and the value of college students is also affected to varying degrees, and the value orientation is gradually diversified. Individual diversification often leads to group diversification. Different value orientations make it difficult to satisfy the balance and consistency between individuals and groups, and cause conflicts between groups or individuals with different concepts. When the individual values of students are diversified, it will trigger campus network violence, which will bring a lot of inconvenience to the management of the school and the development of students [9].

2.4. Difficulties Faced by College Students' Online PO Management in the Context of Big Data

(1) The quality of big data is uneven

The current PO information collected by data comes from a wide range of sources, not only social media data, but also non-uniform data from other sources such as video software, browsers, and instrumental software, which may be videos, texts, pictures, emoticons, or URLs. These data contain deeper PO information, but due to the collection technology and algorithm problems often collect invalid information, such data lacks representativeness and authenticity. At the same time, the professional background of data analysts is generally computer science or other science and engineering majors. They are not familiar with social science methods, such as content analysis, which leads to situations where the screening of similar keywords and hot words does not meet PO[10].

(2) The PO management mechanism is not sound, and the concept of big data technology urgently needs to be strengthened

Although many colleges and universities have realized the importance of campus network PO management, their modern PO management mechanism is not sound, let alone the use of big data technology for campus network PO management. College students have left a large amount of data on QQ, WeChat, forums and other network platforms, but colleges and universities have not used it effectively, and the management of PO is only at the stage of manual retrieval. This shows that colleges and universities still lack the awareness of using big data technology for campus PO management.

(3) Lack of big data professionals

Nowadays, many colleges and universities spend a lot of money to purchase related equipment to build a smart campus management platform. From this point of view, it should not be difficult to conduct 24-hour uninterrupted monitoring of online PO in colleges and universities, and conduct multi-dimensional real-time PO analysis to issue PO warnings. However, only professionals who have mastered big data technology can skillfully use big data for network PO management.

Colleges and universities are the country's talent training base, many of whom are proficient in information technology, but there is still a lack of talents who use big data technology to make scientific decisions for campus network PO management. This has become a bottleneck for the development of network PO management in colleges and universities. Among the ideological and political education management teams, there are very few people who are proficient in big data technology. The lack of professional technical personnel leads to the backward PO management mechanism, and many important PO information cannot be captured. The campus network PO forecast lacks accuracy.

2.5. Specific Measures to Deal with the Dilemma of College Students' Online Public Opinion Management under Big Data

Big data technology provides a new way for the development of network PO management in colleges and universities. In response to the dilemma of network PO management faced by colleges and universities, countermeasures are proposed..

(1) Improve the network PO management mechanism based on big data in colleges and universities

In the big data environment, the network PO management mechanism of colleges and universities needs to be iterated and updated continuously. Some schools lack a standardized management system for PO management, and PO analysis techniques and methods are relatively backward, and they cannot make scientific decisions when faced with a crisis of PO. In order to promote the professionalization, scientification and integration of campus network PO management, it is urgent to accelerate the construction of a big data-based network PO management mechanism.

(2) Strengthen the training of big data talent team

The current network data is complex and changeable, and only data talents with excellent insight, data decision-making ability and process optimization ability can be competent for network PO management. Colleges and universities can hire qualified professionals with high salaries or rely on big data professional institutions to train network PO management talents in a targeted manner.

3. Experiment

3.1. The Purpose of the Experiment

In order to understand the specific situation of the university’s online PO under the big data, analyze and discuss the situation, explain the positive and negative impacts of the university’s hot network events, and what measures should be taken by the university to control the negative impact and expand the hotspot. The positive impact of the event. And further think based on the problems caused by these hot events, and guide students to treat the Internet hot events correctly. Create a green, safe and harmonious campus network environment.

3.2. Experimental Content

We take all teachers and students of a university as the survey subjects, and conduct surveys through questionnaire surveys and street interviews. We first learned about the main ways of obtaining hot internet events of the school’s students, and then we investigated the hot internet events of the school and students’ attitudes towards the hot internet events. During the experiment, we sent out 700 questionnaires and recovered 680 valid questionnaires, The questionnaire response

rate was 97%.

4. Discussion

4.1. Ways to Obtain Network Hotspot Events

Through the neighbourhood, we learned about the main ways that the students of this school obtain hot internet events. The statistical results are as follows:

Table 1. Ways to obtain network hotspot events

Way	Number
Wechat	100
QQ	85
Weibo	245
Douyin	150
Headlines	50
Know almost	120
Douban	75
Post it	25

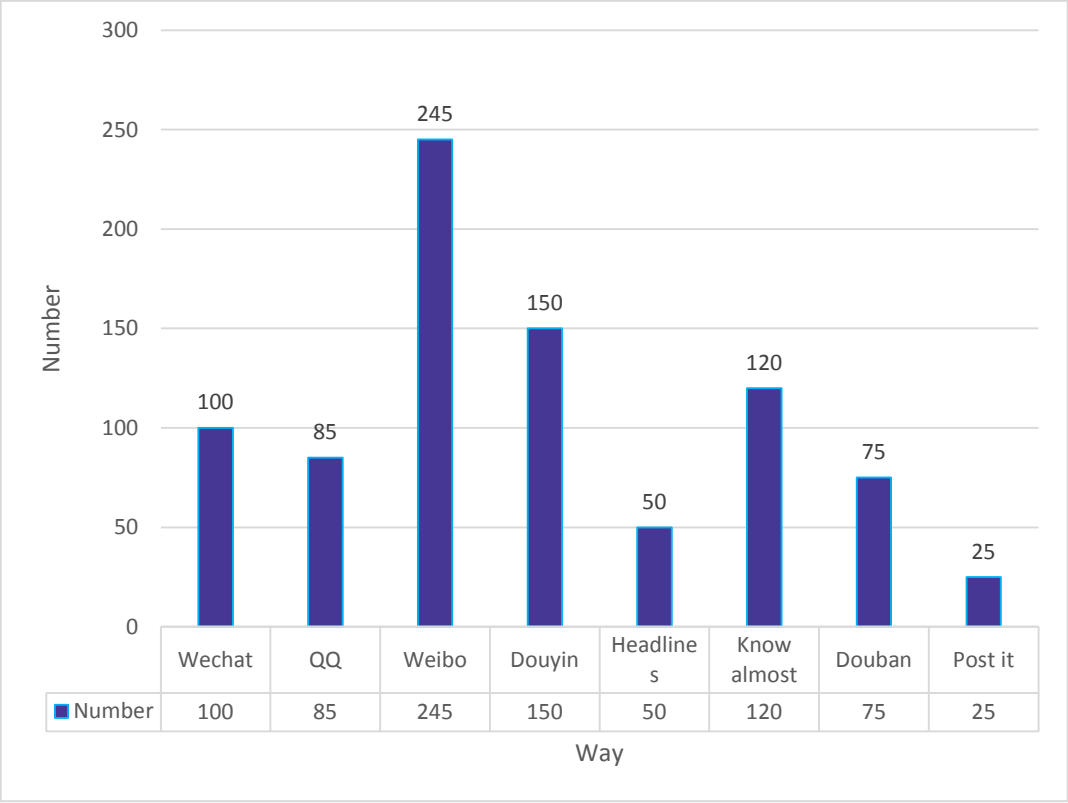

Figure 1. Ways to obtain network hotspot events

From Table 1 and Figure 1, we can see that most of the students in this school usually learn about hot events through Weibo. After understanding, many students see related events in Moments or QQ space and then go to Weibo to view details. Weibo is a gathering of people from different identities

and circles. Everyone has the right to express their opinions. Among them are some extreme or low-level ideological and moral people. In such an environment, many college students lack their own judgment. , People also say things. It is recommended that schools carry out ideological and political teaching activities in response to current hot events, guide students to establish correct values, and learn to think independently and be responsible for their own opinions.

4.2. Investigation of Campus Network Hotspot Incidents

We categorized the school's recent events that have received a lot of response from students, and issued a questionnaire to investigate the specific actions that the school's students have taken in the dissemination of PO on the hot events.

Table 2. Investigation of campus network hotspot incidents

	Social Current Affairs	Entertainment gossip	Eco-friendly	Sporting event	ESports	Travel	Science & Technology	Vocational Certificate	grade test	Campus safety	Entrance Examination
Forward	185	460	135	200	176	135	150	225	350	265	400
Comment	80	365	87	240	350	75	187	110	230	528	154
like	245	145	167	357	476	95	200	120	198	670	78
Favorite	75	169	56	150	176	180	100	230	245	160	354

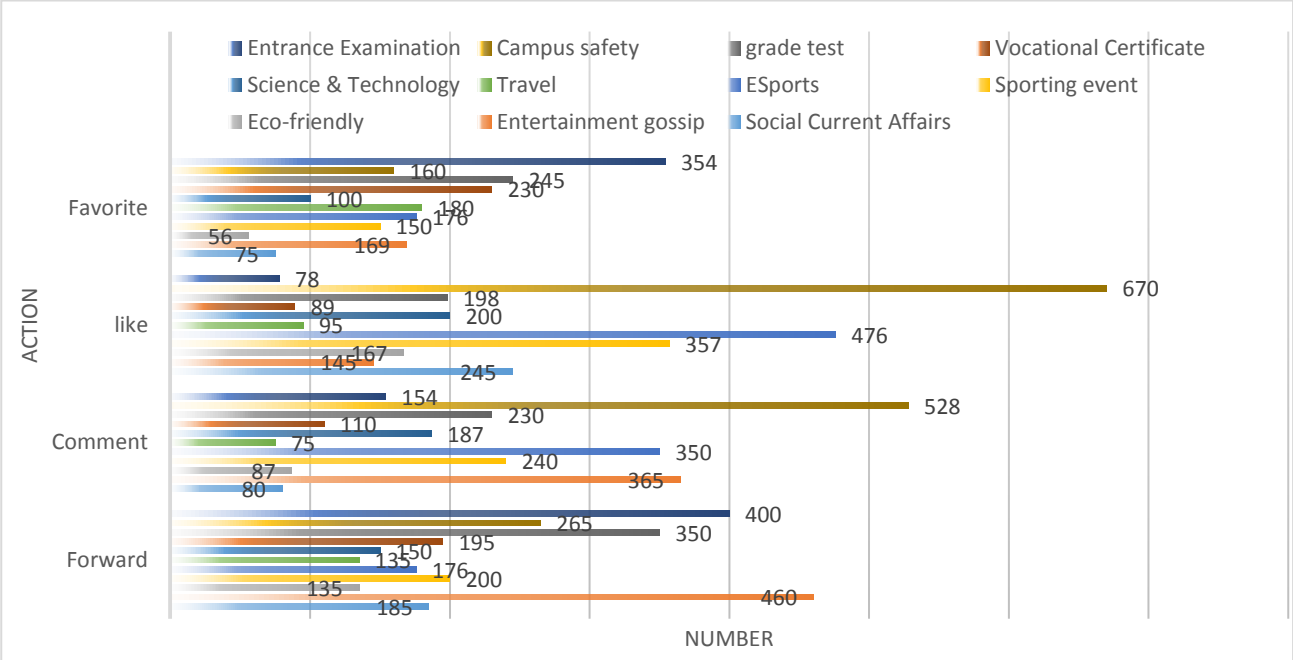

Figure 2. Investigation of campus network hotspot incidents

From Table 2 and Figure 2, we can see that the students of this school have a relatively high

degree of participation in events related to campus safety, grade examinations and postgraduate entrance examinations, which shows that the students of this school are most concerned about events that are most closely related to them. As far as students' participation in hot internet events is concerned, schools can often hold lectures related to grade exams, vocational certificate exams and postgraduate entrance examinations to help students fully understand the relevant policies of the event and urge students to prepare for relevant exams as soon as possible. In addition, students are particularly concerned about campus safety incidents. In recent years, too many campus safety incidents have occurred. Incidents such as sudden deaths, suicides, disappearances, etc. of college students frequently appear on hot searches, and colleges and universities are concerned about campuses triggered by similar incidents. Safety education should be carried out for safety issues, and students' psychological counseling should be done well and the guidance of campus PO should be controlled to maintain the stability of the campus.

5. Conclusion

Colleges and universities shoulder the important task of cultivating high-quality talents for the society and the country. In order to cultivate students' correct views on speech, it is necessary for colleges and universities to strengthen the management of PO on campus networks.At the same time, the rapid development of big data technology means that network PO management also faces new opportunities and challenges. Colleges and universities should recognize the network PO environment that students face, keep pace with the times, establish a campus network PO management system based on big data as soon as possible, and attach importance to big data. The cultivation of talents creates a comfortable network PO environment for students.

Funding

Science and Technology General Project of Jiangxi Provincial Department of Education (No. GJJ202520).

Data Availability

Data sharing is not applicable to this article as no new data were created or analysed in this study.

Conflict of Interest

The author states that this article has no conflict of interest.

References

[1] Yu Hong, Hong Ruxia, Shi Wenjin. Research on Enterprise Network Public Opinion Analysis System Model Based on Big Data. Modern Computer (Professional Edition), 2018, 000(013):71-75.

[2] Chen Fuji, Zhang Yan. Quantitative Analysis Method for Long-Term Network Public Opinion Events% E-Divisive-based network public opinion evolution analysis. Information Magazine, 2016, 035(004):75-79.

[3] Gao Haitao, Xu Kaiying, Zhang Qi. Research on Public Opinion Propagation Mode and

Regulatory Strategy in the Perspective of Social Network Analysis%. Research on Public Opinion Propagation Mode and Regulatory Strategy in the Perspective of Social Network Analysis%. Information Science, 2018, 036(005):144-148.

[4] Shi Yali. Research on the Construction of Makerspace for University Libraryr in the View of Information Ecology Theory. Modern Information, 2017, 037(007): 30-34.

[5] Aduse-Poku, Molleman, Oduro, et al. Relative contribution of neutral and deterministic processes in shaping fruit-feeding butterfly assemblages in Afrotropical forests. ECOL EVOL, 2018, 2018,8(1)(-):296-308. https://doi.org/10.1002/ece3.3618

[6] Liu Lei, Hu Xiwei, Ni Feng. The Policy Construction of Demand-based Library Digital Resources Construction in U-biquitous Information Ecology. Library Theory and Practice, 2016, 000(008):1-6.

[7] Wu Peng, Liu Hengwang, Shen Si. Sentiment Analysis of Network Public Opinion Based on Deep Learning and OCC. Journal of Information, 2017, 036(009):972-980.

[8] Yu C . A Method of Public Opinion Analysis in Big Data Environments. International Journal of Simulation: Systems, 2016, 17(10):16.1-16.6.

[9] Ma Chunying. Research on Network Public Opinion Management Mechanism of Universities under the Background of Big Data Ages. Journal of Tongling University, 2018, 017(003):70-72,100.

[10] Xie Bin. Classification Method of Public Opinion Information Based on Semantic Network. Computer Engineering, 2018, 044(003):226-232.