Analysis of Internet Public Opinion Situation

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Keywords: Internet public opinion, Situation analysis, Model.

Abstract. The development of the Internet provides a platform for the majority of Internet users to publish public opinion, but it also encourages the outbreak of a crisis situation of emergencies. The study of the public opinion situation plays a very crucial role in the government's control of public opinion, guidance and the formulation of plans. In recent years, many scholars have made a great deal of researches on the situation of public opinions. This paper summarizes and analyzes the related researches on public opinion and the situation in recent years. From three perspectives - based on the establishment of the index system, based on the factors influencing the dissemination and model building, algorithm, this paper summarizes the research methods, and points out the existing methods.

Introduction

Internet as a new channel of people communicating in new age, has become the main platform to reflect the social public opinion. However, while providing convenience to people, the Internet offers opportunities for the propagation of false or even horrible information, especially emergencies, which can easily lead to harmful and destructive public opinions. If you cannot control and guide the development of public opinion in time, it will make the rumors wreak havoc, people’s panic, emotional instability and other worse consequences. In the long run, people's world outlook, outlook on life, values and moral values will also be biased, and it will finally cause social unrest and destabilization. It will also threaten the national security and economic development. Therefore, the public opinion of the timely detection and early warning has become crucial. The study of public opinion situation is the most mainstream research method at present. Through the analysis of the situation that the network public opinion has made in the process of communication and the possible influence of public opinion, it is possible to monitor the public opinion on the Internet and provide decision support for timely and effective guidance.

This article summarizes and analyzes the related researches on the public opinion situation in recent years and summarizes the research methods.

Internet Public Opinion and the Situation

Public opinion on the Internet is a collection of comments and attitudes that have a social impact, and has a profound social impact in the process of communication. Before describing the related research and the method of this article, we first give the concept of public opinion, internet public opinion, internet public opinion situation.

Public Opinion

Public opinion refers to the social and political attitude of the public to the social managers around the occurrence, development and changes of intervening social events in a certain social space. It is the sum of the masses' performance on various phenomena in society, the beliefs, attitudes, opinions and emotions expressed by the issues [1].
Internet Public Opinion

Internet public opinion, as the name implies, refers to the attitude public held or remarks public published to the occurrence, development and change of an event or topic with the network as a carrier. It is an important manifestation of public opinion at present.

"Internet public opinion is based on the network as a carrier, the event as the core, the majority of Internet users’ expression, communication and interaction of emotion, attitude, opinion, as well as the follow-up influence of the collection." [2]

Network Public Opinion Situation

The concept of the situation first appeared in the field of aviation and military [3], and later gradually applied in the field of network security. It mainly includes the two aspects, the status and trends. "Status" is a static concept and refers to the current state; "trends" is a dynamic concept, that means dynamic change means the possible development [4]. As the network of public opinion will develop and evolve continuously over time, which makes the network public opinion is not just a static concept, but also a dynamic concept.

Situation, as the name suggests, that status and trends. Internet public opinion situation refers to some topics (or public opinion events) associated with the public in the certain time and space formed network environment, these topics (or public opinion events) exists with a certain nature and Status in the network environment. These properties and states, as well as some changes in the nature and status of the properties, can be understood as the Internet public opinion situation. In other words, the topics (or public opinion events) and public that exist in the network environment are linked according to a certain relationship to form a combination that may take some actions, such as the public reaction to the topic, the topic and the public relations, the production, development, demise of the public, etc., can be regarded as the Internet public opinion situation.

Internet Public Opinion Situation Characteristics

The research on public opinion has drawn the attention of researchers in this field. Xiaoyu Ding pointed out that there are three major trends in the future of public opinion research: the research of public opinion based on big data is becoming more and more popular; the analysis of emotion becomes the new pulse in the research of public opinion [5].

Biao Li[6] also pointed out that social public opinion is a social sub-field, subject to political, economic and cultural influence of a larger field. Public opinion management evolves in two directions: subdivision and legalization. The subject of social public opinion is more diverse; WeChat and other social interpersonal relationship makes "cocoon room" phenomenon prominent.

Xiaolan Guo [7] also analyzed the public opinion situation characteristics of emergencies under new media: diversification of media, popularization of civilians involved in the main body, sensitization of media focus, extreme public opinion, and lack of rationality of groups.

Research Methods of Public Opinion Situation Analysis

In recent years, there have been many research methods on the analysis of public opinion situation. In this paper, we use the "public opinion situation" as the key word retrieved CNKI related literature, from its published annual trend (Figure 1), it can be seen that the public opinion situation analysis has become a hot issue in recent years. This article summarizes the research methods of public opinion situation in recent years, and divides the current research methods of public opinion situation into three categories: based on the establishment of index system, based on the factors influencing the dissemination and model construction, and based on the data mining algorithm.
Research Based on the Establishment of Index System

Shaozhong Wu and Shuhua Li [8] designed early warning indicator system by setting up the early warning level of internet public opinion. Using the Delphi method to determine the weight of the indicator system, and following the network early warning workflow, we can find online public opinion, control its development and change process, mine and analyze in-depth, so as to accurately make early warnings and take pre-control measures promptly to guide them, in order to safeguard social security and stability.

Yuan Dai and Fei Yao [9] put forward new ideas on the channels and links of online public opinion information mining, and the important "six points" to the content mining and mining methods, Constructed the network public opinion security evaluation index system to evaluate the development of public opinion situation quantitatively. Based on the questionnaire survey conducted by experts, Runxi Zeng [10] used the Analytic Hierarchy Process to establish the early-warning index system of the public opinion, which is composed of the three elements of alarm source, warning signs and police intelligence. System factors and phenomena were ranked to determine the impact of weight. Guoxin Tan, Yi Fang [11] made use of the I-space (information space) model to analyze the process of network public opinion dissemination and its root causes, and put forward the network public opinion monitoring index system. It is composed of five indicators including public issuer index, public opinion factor index, public opinion audience indicators, public opinion communication index and regional harmony index, which respectively show the geographical distribution of public opinion, sources, channels of communication, and the nature of public opinion content and audience response. Yiwen Zhang and Jiayin Qi [12] made clear the concept of network public opinion on unconventional emergencies and set up an index system for the evaluation of network public opinion on unconventional emergencies, clarified the meaning of indicators at all levels, and provided the method of obtaining the final index and method of calculation.

Based on the study of the mechanism and evolution of public opinion on emergencies, Yuexin Lan [13] established an index system of public security evaluation on public opinion of emergencies based on the three dimensions, netizen response, information characteristics of emergencies and incident spread. And added the indicators of content Intuitive and refining Internet users’ tendencies and geographic diffusion. Meng Zhao and Jiayin Qi [14] put forward the concept of internet public opinion situation, and set up the evaluation index system of public opinion situation of business crisis network from the three dimensions of creation subject, content and social influence. At the same time, fuzzy comprehensive evaluation model is constructed by combining AHP and fuzzy mathematics method, and preliminary exploration is made on the evaluation of network public opinion situation of enterprise crisis events. According to the development process and mechanism of network public
opinion, Li-xuan Li and Teng-fei Yang [15] established the index system of network public opinion situation evaluation from the three dimensions, network information release, information content and information dissemination, by defining and distinguishing concepts related to network public opinion situation. And put forward the specific quantification method of three indicators in the evaluation index system of the government negative public opinion situation. Yang Fan [16] based on the network of public opinion dissemination theory and decision-making on the basis of the situation, constructed a fuzzy multi-indicator group decision-making method based on the foreground theory of network public opinion situation. From the public opinion information, the media, public opinion audiences and the emergency department to establish nine indicators of network public opinion situation decision index system.

Research Based on the Factors Influencing Propagation and Model Building

Kim J.W. et al. studied the number of users' fans and the influence of Weibo, and concluded that they have correlations [17]. Lia R studied the factors that affect the credibility of social media information and pointed out that the media and content have a direct impact on the credibility of the information [18]. Yue Zhang and so on based on the characteristics of source and the form of information, built a model to study the microblogging public opinion dissemination, the study found that the source characteristics are the main influencing factors, the number of fans has an intermediary role, information-related factors had no significant effect [19]. Jing Fang conducted an empirical study on the influencing factors of the popularity of WeChat's public information. The results show that there is a certain correlation between the article's popularity and its theme, push time and title features [20]. Papetti et al. [21] proposed an early-warning model based on multiple factors and multiple sources of public opinion, which was verified through multiple cases. The new early-warning model can still guarantee the accuracy of early warning information under the condition of reducing the warning time and source data. Oliveira MJ D [22] constructed the model of public opinion communication, uses the facebook data of Brazilian netizens as an example to carry on the empirical research and draws the conclusion that using facebook users participate in the public opinion communication are influenced by subjective standard, social identity, entertainment value and interpersonal communication. Li Butei and Lin Chen [23] made use of the battle field situation analysis and threat estimation theory in the military field to study the basic principle of network public opinion situation analysis and early warning and constructed a computer-implemented network public opinion situation analysis model, and gave the corresponding pattern extraction techniques. Li [24] et al. predicted product safety with artificial neural network.

Summary

In general, public opinion scholars pay more and more attention to the research methods of public opinion situation. The methods based on the establishment of index system, based on the factors affecting propagation and model construction, data mining algorithms and sentiment analysis are well used in the research of internet public opinions. Scholars pay attention to using various methods, and with the deepening of research and methods, tools mature, the proportion of research literature continues to increase. Some research institutions and scholars have mastered the use of relevant models, methods and software in the study of internet public opinions more adeptly, which is conducive to the development of quantitative research. At present, scholars have transplanted or constructed corresponding theoretical or mathematical models on the identification and analysis of network public opinion, monitoring and early warning, communication and evolution, influence and response, and explored corresponding research methods and software’s around specific fields. Under the explorations of scholars, the model of internet public opinion research is increasing, the methods are continuously broadened and the tools are continuously enriched.

Public opinion research aims to distinguish false or negative events (rumors) and real events, timely warning and stop the occurrence of emergencies. There are some differences between false or
negative information (rumors) and real information in dissemination situation. Discrimination and forecasting of false or negative information (rumor) through the dissemination of information will help the public opinion emergency department grasp the current situation of public opinion and take emergency plans early. And assist the design of the corresponding decision-making mechanism to effectively improve the efficiency and ability to respond to emergencies.

Acknowledgement
This work was supported in part by the National Natural Science Foundation of China (No. 61170038, 61472231, 71701115), the National Social Science Foundation of China (No. 14BTQ049), the Shandong Natural Science Foundation (ZR2017MF058), and Special Project for Internet Development of Social Science Planning Special Program of Shandong Province (17CHLJ23).

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