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Study on Network Public Opinion Dissemination and Coping Strategies in Large Fire Disasters

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Abstract

Large fire disasters have the characteristics of unpredictability, great harmfulness and high profile, and they are easy to become a hot topic on the Internet and develop into public opinion in a short time. If not handled properly, the event may cause adverse public sentiment or even lead to mass incidents. So it is very meaningful to study the network public opinion in large fire disasters. Firstly, the paper introduces the acquisition method of network public opinion information in large fire disasters. Then, an in-depth research on large fire disasters is made from two aspects, which are dissemination of power source and the dissemination law. The dissemination of power source is divided into five types, containing netizens, media, parties, opinion leaders and the government. Several dissemination law curves are also presented. Finally, some coping strategies from the perspective of information release and power sources are put forward. The study provides references and basis for the government to understand the network public opinion in large fire disasters and make corresponding measures.

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Keywords: Large fire disaster, Network public opinion, Power source, Coping strategies

1. Introduction

In recent years, with the rapid development of economy in China, all kinds of emergencies have emerged endlessly. They have posed great threat to national security, social stability and people life. Especially the large fire disaster, it has aroused more media and public attention because of its unexpectedness and great harmfulness. It is an era of information explosion today. The rapid development of Internet technology speeds up information dissemination. The large fire disaster is easy to become a hot topic on Internet and rapidly develop into public opinion in a short time. If not handled properly, the event is likely to cause adverse public sentiment or even lead to mass incidents. Therefore, it is significant to study the network public opinion of large fire disasters, analyse its dissemination and propose appropriate coping strategies.

2. Acquisition of network public opinion information in large fire disasters

In order to analyse the public opinion of large fire disasters, the information should be obtained firstly. Based on the emergencies network public opinion monitoring and pre-warning system of Institute of Public Safety Research of Tsinghua University, numerous data of network public opinion on large fire disasters are extracted and analysed. With commercial software Locomotive Acquisition and programming, the monitoring and pre-warning system extracts data of emergencies

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from 60 websites, 126 channels, such as Baidu, and Microblog. Fig. 1. shows the system interfaces. The system has grasped about 2 million pieces of news, more than 3 million pieces of posts over the past year, which contain a lot of fire event data. Emergencies can be classified into four categories, which are natural disasters, accidents disasters, social security events and public health events, and 53 sub-types. In the network public opinion monitoring and pre-warning system, the extracted news texts are classified according to 53 sub-types of emergencies, and essential factors of news are extracted, which are composed of time, place, fatalities, economic loss and impacts and so on. According to the key words and essential factors of news, the information of large fire disasters can be extracted.

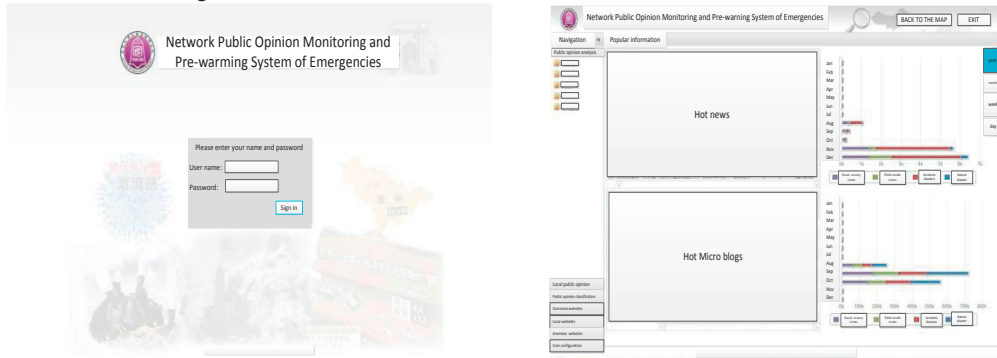


Fig. 1. Interfaces of emergencies' network public opinion monitoring and pre-warning system.

3. Analysis of network public opinion dissemination in large fire disasters

3.1. Analysis for power source of network public opinion dissemination in large fire disasters

Any change of events requires certain power sources as same as the evolution of network public opinion. Dissemination of power source of network public opinion is the factor which promotes or impedes public opinion dissemination[1]. With analysing dissemination of power source of network public opinion, it is helpful for relevant departments to understand network public opinion in large fire disasters, and this can block the development of network public opinion fundamentally. In this paper, dissemination of power source is divided into five types, which are netizens, media, parties, opinion leaders and the government, in the perspective of different roles in the development process of network public opinion based on the predecessors' researches[1-3]. Among them, netizens, media, parties and opinion leaders play main roles in producing and promoting network public opinion of large fire disasters as unofficial actor, while the government make a great difference to the dissemination of large fire disasters network public opinion. The detailed analysis for each factor are below.

(1) Netizens

A large number of facts show that netizens play an important role in network public opinion dissemination of large fire disasters. According to statistics, when a great fire disaster outbreaks, fire information is reported firstly by netizens and spread rapidly by netizens' posts. Once the great fire disaster is reported by media and the government, netizens may bring force questions to the authenticity of news and measures the departments take. And they will express their views and expand public opinion positively. Finally, with the effective treatments of government and time lapse, netizens' interests in large fire disaster decrease, the network public opinion gradually disappear.

(2) Media

Media make positive or negative impacts on the dissemination of network public opinion in large fire disasters. In positive ways, the news published by media may show personal emotion and views of reporters or editors, it can affect the attitudes of people. Moreover, media often hold first-hand information about large fire disasters, so it is helpful to trigger and promote network public opinion of large fire disasters. Lastly, different media complete each other in the market, so they will consciously discover explosive information about great fire accidents and publish it. In negative aspects, media may take the initiative to delete some bad information under the government's pressure or for their own benefit, and thus impeding the development of network public opinion in large fire disaster.

(3) Parties

The parties include witnesses and victims. Witnesses breed network public opinion in large fire disasters. At the same time, in order to increase more attention of their comments, witnesses always publish posts continuously and even exaggerate to accelerate the spread of network public opinion. For victims, some make positive comments for getting

enough compensation. And some hinder the dissemination of public opinion, such as the victims in CCTV hotel fire disaster. They tend to prevent the dissemination of network public opinion in order to face to less outside pressure.

(4) Opinion leaders

Opinion leaders always condition people's mind to a large extent. For example, in Shanghai Jing'an fire disaster, the writer Han Han, as an opinion leader in the spreading progress of its public opinion, played an important role. His comments got a lot of netizens reproduced and obtained a wide range of references by media. In addition, some opinion leaders will be a positive commentator because of the need for self-expression, and this further affects the attitudes of internet users and triggers a new network public opinion.

(5) The government

The government doesn't create network public opinion, but has influences on network public opinion dissemination in large fire disasters. The government can restrain the development of network public opinion to some degree. For example, after the CCTV hotel fire outbreaked, the government gave orders to make less in-depth reports and delete posts on a large scale, which impeded the development of network public opinion compared to Shanghai Jing'an fire disaster. In addition, the government can publish the latest information about fire disasters by various channels to prevent rumours and guide public opinion correctly. However, once public opinion of large fire disasters is not dealt with by the government effectively, it is likely to incur the netizens' comments and criticism, and this easily bring huge pressure of public opinion.

3.2. Analysis of public opinion dissemination law in large fire disasters based on news release

It's useful for the preliminary understanding of network public opinion in a large fire disaster to analyze the dissemination of power source. But the study about the dissemination law of public opinion in large fire disaster is deeper and essential. In this paper, according to the news texts about large fire disasters grasped by the system, with public attention as a measurable indicator of network public opinion and the Baidu Index attention as the reference of public attention, which means the data of millions of Internet users search in Baidu[4-5], plot attention curves of large fire disasters in China over recent years, shown in Fig. 2 to Fig. 5.

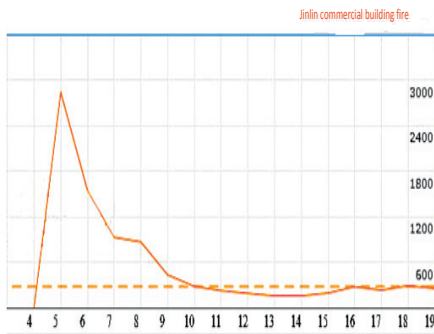


Fig. 2. Baidu users' attention curve of Jinlin commercial building fire disaster.

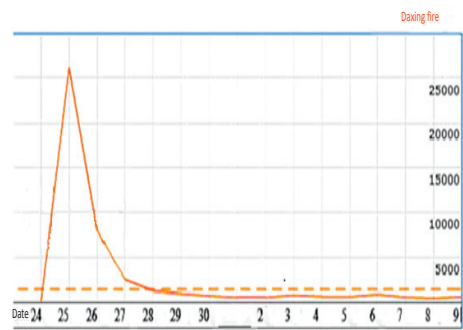


Fig. 3. Baidu users' attention curve of Beijing Daxing fire disaster.

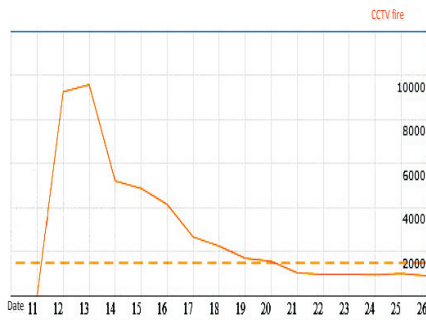


Fig. 4. Baidu users' attention curve of CCTV hotel fire disaster.

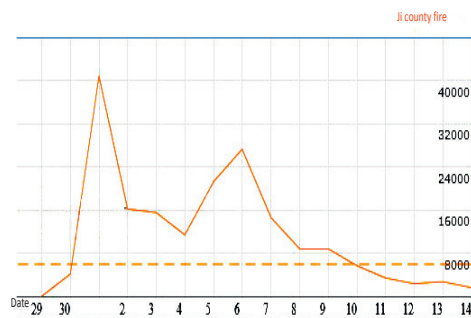


Fig. 5. Baidu users' attention curve of Tianjing Ji county fire disaster.

Concluding from the four attention curves above, there are two kinds of cases about public opinion dissemination. One is relatively smooth, which means more stable public opinion, shown in Fig. 2 and Fig. 3. The other is more complex, which means that the public opinion is more complex, shown in Fig. 4. and Fig. 5.

For the case of comparatively stable public opinion, the curves have such law as follows:

(1) Similar shape. The attention curves of two large fire disasters are similar, which present an approximate orientation and change.

(2) Grow exponentially and reach the highest point quickly. When a large fire disaster occurs, the information spread quickly, and reach the highest point of the curve within 24 hours.

(3) The attenuation speed is relatively fast. When public opinion reach the hottest spots, it will decay and fall below the average search volume quickly within 6 days(the dotted line stands for the average research volume).

(4) There is only one peak, which means that public opinion of the large fire event have only one hot spot, and it develops smoothly. With the time passing by, the public attention decline gradually.

For the cases of more complex public opinion, the curves have law as follows:

(1) The shapes are complex, and there is no specific law. The two attention curves above present different orientations and variation law.

(2) Grow quickly, but have time delay. In CCTV hotel fire disaster, public attention rapidly grew within 24 hours, but grew slowly from 24 hours to 48 hours, and it didn't reach the peak until it lasted 48 hours.

(3) Attenuation is relatively slow. Compared with the former kind of fire event, such kind of public attention drop below the average search volume after 10 days. The attenuation is relatively slow.

(4) There are several peaks, which means that such large fire disasters lead to multiple hot public opinion spots. The first peak is the highest by analysis, it is caused by the public attention to the fire accident itself, while the other peaks are about other aspects of public opinions caused by the event.

Concluding from the above comprehensive analysis, public opinion dissemination of large fire disasters have the characteristics of rapid growth, fast attenuation and fluctuation dissemination. The government and related departments must make corresponding strategies in the corresponding stages and time to guide public opinion. If mishandled, new public opinion may occur.

4. Coping strategies of network public opinion in large fire disasters

The network public opinion of large fire disasters is analyzed above, thus knowing its dissemination of power source and dissemination law. Next the paper will discuss its coping strategies of network public opinion in large fire disasters from the prospective of information release and source power, which can prevent public opinion dissemination in time and reduce the adverse consequences.

4.1. Make information release well and guide public opinion effectively

(1) Time of information release

Publishing information openly and transparently in the first time is the key measure to guide network public opinion. Fig. 6 is the first report time of happened 23 large fire disasters from 2008 to 2011. It can be seen that the average first reported time is about 4 hours. So for a large fire disaster, the first time of information release should be within 4 hours. From the section 3.2, the social public attention of the large fire disaster reaches the peak within 24 hours and drops down to the average research volume about the tenth days. So the first information release time within 24 hours and information release continuous within 10 days can respond to the public opinion of large fire disasters effectively.

The First Report Time of Happened 23 Large Fire Disasters From 2008 to 2011

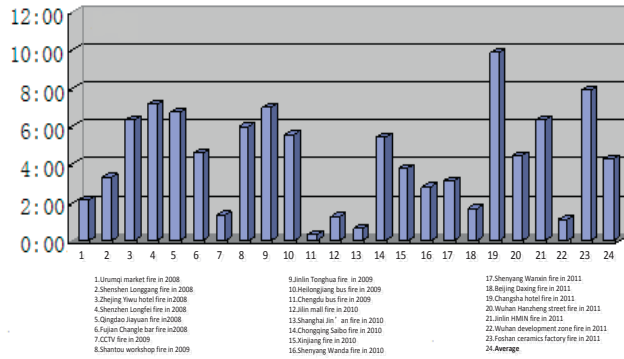


Fig. 6. The first report time of happened 23 large fire disasters from 2008 to 2011.

(2) Contents of information release

The information release should be targeted. Different information need be published in different stages to guide public opinion. In this article, with analysing the evolution law of large fire disasters, large fire disasters are divided into four stages, which are fire-fighting, investigation, responsibility investigation and mourning stage. The emphases of information release at these four stages are confirmed as shown in Table 1[4,6-7]. The government should collect information, release first-hand information, and broadcast live entirely at those four stages. This can satisfy the public's right to know and prevent the spread of rumors.

Table 1. The emphases of information release at these four stages

Time stages	The information focus
Fire-fighting stage	Fire situation; Casualty loss; Rescue and disposal; Fire safety knowledge; Respond to the public's doubts.
Investigation stage	Fire causes; Exact fire loss; Post-event disposal; A news conference to answer the public's questions.
Responsibility investigation stage	Responsibility investigation; Remedial measures; Follow-fighting measures; Post-event disposal; Answer public queries
Mourning and reflection stage	Bad mood guide; Reflection and conclusions; Responsibility investigation; Answer the public's doubts

4.2. Hold public opinion trends and respond to public doubts actively

When a large fire disaster happens, the government and relevant departments should pay attention to network public opinion orientation. When the public make doubts of the information released by the government, such as fire casualties, cause and accountability, the government and relevant departments should stand out and response one by one in time. The information must be accurate and authoritative in case of adverse public sentiment and a greater pressure of public opinion.

4.3. Rally supports from the media and refute rumours timely

From the above analysis, the media play an important role in the process of public opinion dissemination in large fire disasters. So when the network public opinion crisis of a fire disaster emerge, the government and relevant departments should strive to gain the support of a variety of media and make use of their credibility and authority to spread true information and eliminate rumors timely.

4.4. Train opinion leaders and guide the public positively

In the dissemination process of network public opinion, opinion leaders even have a greater influence than traditional media. So the government should attach importance to the effects of opinion leaders and communicate with the opinion leaders timely to convey the facts of events. In addition, the government also should train its own opinion leaders to form the positive strength in network public opinion, who can eliminate rumors actively and expose the truth.

5. Conclusion

This paper conducts a study on large fire disasters in three aspects, which are the acquisition of public opinion information, public opinion dissemination and coping strategies. The acquisition method of network public opinion information in large fire disasters is firstly presented. Then an in-depth research on large fire disasters is made from two aspects, composed of dissemination of power source and the dissemination law. Power source is divided into five types, which consist of Internet, media, parties, opinion leaders and the government. And each type is introduced in detail. Public opinion dissemination curves of large fire disasters also are showed to analyze the dissemination law. Finally, some coping strategies from the perspective of information release and power supply are put forward based on the research above. The paper provides references and basis for the government to understand large fire disaster network public opinion and make corresponding measures.

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