

STUDY ON THE EVOLUTION MECHANISMS OF THE NETWORK PUBLIC OPINION

Honglu Liu and Zhihong Tian
Beijing Jiaotong University, Beijing, China

Keywords: Network public opinion, Public opinion evolution, Formation mechanism.

Abstract: Research on the formation and evolution mechanisms of network public opinion has become a very meaningful field. Network public opinion and traditional public opinion have some similarities, but network public opinion also has its own independent "will" and evolution which are rooted in its technical specificity. Based on the life cycle theory, we analyze the formation path of network public opinion, and discuss its formation mechanism. After that, we analyze the evolution mechanisms of network public opinion, including the evolution direction mechanism of topics and mutation mechanism of network public opinion.

1 INTRODUCTION

At present, people express their views and exchange ideas through the network, and the network media is increasingly becoming an important social phenomenon in China. Research on the formation and evolution mechanisms of network public opinion has become a very meaningful field. From a technical perspective, the ways of human communication are five: spoken communication, written communication, print communication, electronic communication and network communication. Especially because of the network communication, the human society has entered the "network free communication era" from the "original free communication era" and "gatekeeper communication". The main features of the communication technology are as follows: digital transmission, network structure, multimedia communication, interactive communication, multi communication and global communication, and so on. Characteristics of the interpersonal communication are based on the technical features of the communication. The characteristics are free, equal, interactive, real-time, anonymous, and so on. These features lead directly to the formation and evolution mechanisms which are different from network media and traditional media. Therefore, when we are studying the network public opinion, it is necessary to inherit the experience in the field of traditional communication, and analyze carefully

new changes which are brought by new technologies and new models.

2 THE FORMATION MECHANISM OF NETWORK PUBLIC OPINION

Public opinion is the common view of people on recent incidents and social issues. Network public opinion can be simply understood as the common opinion of groups on a particular event on the Internet. Network public opinion includes two parts. The first one is "network news media" which is the tendency of public opinion in the network news media. The second one is "netizens' views of public opinion" which can be presented at the platform BBS, blog, a variety of websites and online communities.

The prerequisites for the formation of network public opinion consist of two factors: the emergence and the survival of topics. There are very flexible ways for the emergence of topics, including the original post and paste post. The original post is published to reflect the social phenomenon or event by forum members. However, for various reasons, the first original post might be ignored or drowned in the other competitive issues. Some popular topics are rewritten, enrich, modify and recommend by other forum users which may be called a secondary or even multi-level communication process. A paste

post generally includes an event or social phenomenon from other original post or online news reports. In such posts, the authors often express their attitudes and emotions.

The survival of topics means that the relative event is attended by people. In order to be attended continually, the topic must accumulate sufficient posts. We can view the issues as fire, and the survival of the fire needs combustion-supporting agent. In practice, because there are too many posts on the forum, the vast majority of posts become so-called "sinking the posts ". The fire extinguishes after burning for a short time. The fire that may sweep through the whole network is very little.

The life cycle of network public opinion generally includes three stages-incubation period, active period and decay period, which is shown in Table 1 and Figure 1. When a large-scale discussion of an event of individuals or groups formats, the incubation period is over. The life cycle enters active phase, which also marks that the public opinion will gradually form in the specific environment.

Table 1: The life cycle of network public opinion.

The life cycle	Status
Incubation period	Attention slowly increases, the views slowly gather
Active period	Attention sharply increases, All kinds of opinions emerge After evolution, the mainstream opinion has formatted
Decay period	Attention reduces

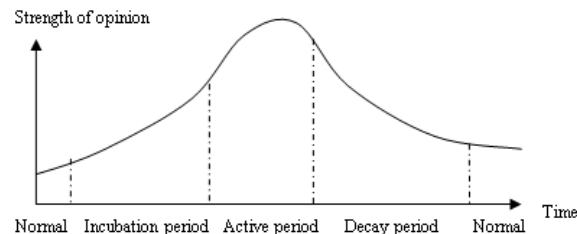


Figure 1: The life cycle of network public opinion.

The formation path of network public opinion passes through three phases—individual expression, the collision of community views and formation of the network public opinion, which is shown in Figure 2. When topics appear and constant attention of the individuals and the comments and attitudes gradually accumulate in frequent interaction, one or more opinion leaders. Several camps representing different views emerge. There is polarization in the camps. When the camp's size reaches a certain level, it can be said that a network public opinion has

formed. We can see that, in the formation of network public opinion, the opinion leaders, group pressure and group polarization play very important roles.

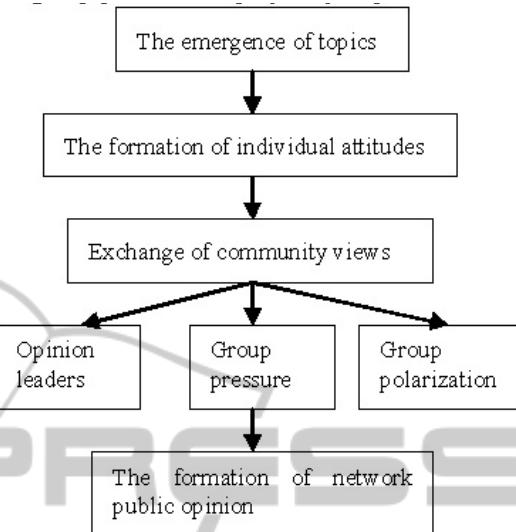


Figure 2: The formation path of network public opinion.

2.1 The Mechanism of "Opinion Leaders"

In the communication, the persons who are active in the interpersonal communication networks, who often provide information, opinions or suggestions for others, and influent others are known as the "opinion leaders ". In the traditional media era, mass media takes of (or monopolies) the role of "opinion leader". They guide and control the activities of public opinion. In the Internet Age, due to the digital communication network and star network communication, and other special communication technology, there is more freedom, equality and interaction in network communication. Any Internet users could become "opinion leaders ".

Internet opinion leaders emerge gradually from participants in the process of exchange of views. The basic properties of Internet opinion leaders are the frequency of the debate, ability of debate, and self-adhere.

2.2 The Role of Network Group Pressure

There is a lot of previous research on how does groups pressure influent on mood and attitude. In 1972, in the study of the relationship between public opinion and mass communication, the German scholar Neumann proposed a "spiral of silence"

hypothesis. She believes that the strength of public opinion is from the nature of our society, from draconian laws for the prohibited views and behaviors, and from the individual fear of isolation from others. People express favor when the voice of favor is rising, and are silent when the voice is falling.

Group norms can lead to the generation of group pressure, thereby change the direction of network public opinions. Group norms refer to considered behavior expectations in specific group activities for members, which is a standardized concept established by a group. In Internet, there are also norms to follow by net groups. These specifications and guidelines have invisible binding for members of groups. Only complying with group norms, people can communicate smoothly with each other, and people can be accepted and recognized. Otherwise, people may be suppressed, marginalized or even expulsed. Appropriate normative guidelines can influence and control members, and can effectively change their attitudes.

2.3 Group Polarization Mechanism

In 1961, the earliest group polarization is proposed by Stoner who is from MIT. Through empirical researches, he discovered as follows: In the group decision-making situations, opinions or decisions of individuals, are often influenced by inter-group discussion, and consistent results produce which are usually more adventure than the earlier ones of individual. Stoner calls it risk shift. Risk shift was eventually called group polarization by other scholars, because they found that after a group discussion the views or a decision of individuals sometimes tend to one end of adventure, and in some cases tend to the conservative end. Therefore, group polarization is defined as: at the beginning, there has been some bias of views in the team. After discussion, views continue to move toward the direction of bias, and finally an extreme view format.

The phenomenon of group polarization is more vulnerable for network public opinion. Internet users who have the same interests will form virtual groups on the network, and will have a strong group identity, so it is prone to the polarization of views. Compared to the face to face groups, the polarization of network groups are more pronounced.

The factors that promote group polarization of network public opinion include a number of aspects, both the direct stimulation of public events, but also the filtering effect of network media, but also from

the nature of coherence within groups. The process of group polarization is shown as figure 3.

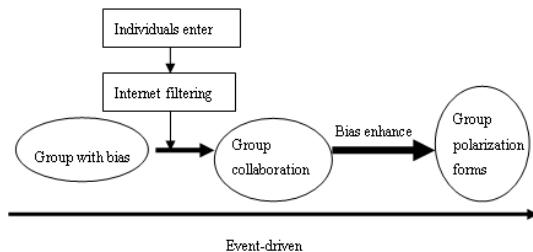


Figure 3: The process of group polarization.

- 1) Event-driven. In essence, events are the basis and momentum of group polarization of network public opinion.
 - 2) Internet Filtering. Compared with the real world, the network provides a systematic filtering natural environment of information, which makes the network easy to form homogeneous members within groups and heterogeneity members intergroup. The network Helps and strengthens the gathering of people who have similar interests but are at different place. Meanwhile, the information on the network is unlimited, but the information accepted by users is limited. Internet users have to choose the information that is valuable and interesting for them. The network technologies, such as hyperlinks, help them filter their seen, read and hear things, and enhance the select ability of information, so they can selectively access and continually strengthen the same information. Therefore, the seemingly personalized information filtering eventually leads to a "narrowing of information". More and more Internet users can only hear their own echo, and the network interaction becomes a "whispering gallery". The speed of polarization of network public opinion greatly accelerates.
 - 3) Group Collaboration. The nature and characteristics of network groups determine the emergence of group polarization of network public opinion. The research on social psychology shows as follows: because of the role of mechanisms in the collective unconscious, when individuals access to groups, their psychology will produce a change of which can not help but lose self-consciousness. Individuals' personalities are under varying degrees of repression, so, even without any external compulsion, individuals will instead their own spirits of the groups' spirits.

3 THE EVOLUTION MECHANISM OF NETWORK PUBLIC OPINION

3.1 The Evolution Direction Mechanism of Topics and the Change of Network Public Opinion Direction

An original topic may be just a post or a news report. While the attention is increasing to the topic, the topic will show as a collection concluding series of news reports, website reviews, forum posts, blog and others. This change may be due to the emergence of new developments of the events discussed or the addition of new ideas. At this time, the topic will change and sub-topics and new issues center will format. Because of the lack of network communicators, network public opinion may move in any one direction in the dissemination process, which led to new topics that are even unrelated with the original public opinion. There are two situations about this change. First, with the development of events, the concerns of public opinion are changing. Second, only for an event, the network public opinion disperses from the point to the surface. The evolution of topics and the evolution of network public opinion are complementary and inseparable processes.

Once the issue survives, the subsequent development will depend on a number of factors and balances. On the one hand, the characteristics of turbulence are from the publicity and release of Internet users. On the other hand, when the topic survive and become the "Climate "of public opinion that is attended by many users and even mass media, social ethics and even laws and regulations will be involved in the process, and become important constraint factors of network public opinion.

Since then, the forum posts that reflect the reaction to the events and practices of the relevant people, including users and the media are significantly more and more. This phenomenon reflects that the network of the forum itself is not a closed system, and it connects with social system and the Internet. On the other hand, the phenomenon reflects that the forum itself has a self-purification mechanism or "quasi-life body function". In other words, whether the pressure is from the outside or inside, in a relatively mature, rational forum space, with the event gradually reflecting actual situation, people's views and comments on the event will become objective, fair and rational. The mechanism

of topics evolution direction and the change of network public opinion direction are shown as figure 4.

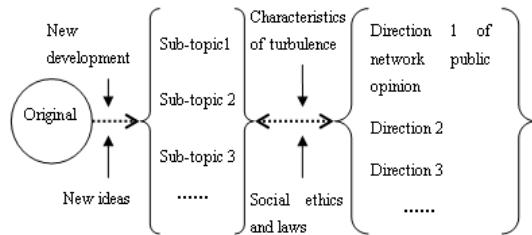


Figure 4: The mechanism of topics evolution direction and the change of network public opinion direction.

3.2 Mutation Mechanism of Network Public Opinion

Mutation of network public opinion of public crisis is a system evolution. Specifically, the basic mutation modes in the dissemination of network public opinion are three types: assimilation, that is, Internet users interpret and disseminate information of events using their knowledge and experience; alienation, that is, understanding of the information appears different versions; simplification, that is, a lot of details which are helpful for understanding the truth are omitted.

In the network environment, the modes of dissemination of information are different from the common "one on one" or "one to many" in real life, but "many to many" or "mesh" form. Therefore, taking into account the different interests of the communication actors, the network public opinion will assimilate and alienate which is an inevitable situation. These variations may include disaster panic, political rumors, and economic profit and so on.

Disaster panic is common in panic and public health events. As the incident instantly destroys the life and production order, people are shrouded by a sudden and inexplicable fear, and they will intentionally or unintentionally disseminate information of panic. In fact, Internet users are expressing moods or attitudes in the transmission of information, which is a kind of subconscious release. As a result of this kind of subconscious, the composition of event information is continually changing. In the development process of the public opinion, users will forward their own explanation to the fuzzy part of the event information which leads to enhance the variance of the information.

Thus, the network public opinion and the interests of the participants of dissemination have

closely relationship. The power of mutation is the different interests of different Internet participants. These differences led to mutation or twist of the event information and make network public opinion deviate from the truth.

4 CONCLUSIONS

Network public opinion and traditional public opinion have some similarities, but network public opinion also has its own independent "will" and evolution which are rooted in its technical specificity. In this paper, based on the life cycle theory, we analyze the formation path of network public opinion, and then, we discuss its formation mechanism. After that, we study the evolution mechanisms of network public opinion, including the evolution direction mechanism of topics and mutation mechanism of network public opinion.

REFERENCES

- Tippins M J, R SSohi. *IT Competency and Firm Performance: Is Organizational Learning a Missing link*[J]. Strategic Management Journal, 2003, 24(8): 745-761.
- Qin Y, Rao J N K, Ren Q. *Confidence interval for marginal parameters under fractional linear regression imputation for missing data*[J] . J Multivariate Anal, 2008, 99: 1232-1259.
- Fortunato S. *Damage spreading and opinion dynamics on scale free networks*[J]. Physic A, 2004, 348: 683-690.
- S. P. Borgatti, A. J. Mehra, D. J. Brass, G. Labianca. *Network Analysis in the Social Sciences*. Science 323 (2009) 892.
- L.-N. Wang, J.-L. Guo, H.-X. Yang, T. Zhou. *Local preferential attachment model for hierarchical networks*. Physica A 388 (2009)
- Gao G, Gu B, Lin M. *The dynamics of online consumer reviews*[C]. WISE 2006, Evanston, Illinois, USA, 2006.