

Construction of Dynamic Propagation Model of Yunnan-related Online Public Opinion under the Background of Media Convergence

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Abstract: In the new network environment, the network public opinion related to Yunnan has undergone great changes in the characteristics of its data quantity, complexity, generation speed and other characteristics. In view of the trend of repeated dissemination of many hot public opinions in Yunnan Province, and the role of users' emotions and emotions in the process of information dissemination, this paper establishes an E-SILR dynamic communication model in line with the characteristics of public opinions in Yunnan Province based on the systematic study of the whole process of public opinion circulation dissemination in Yunnan Province. The study found that the transition from infectious to latent was greater on social media.

Keywords: Semantic emotion of network public opinion; Dynamic transmission of "E-SILR" model

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At present, under the background of media convergence, the research on online public opinion mainly focuses on the empirical application of new technology means, the language and behavior analysis of social platform users, the dissemination of new public opinion information (content), and the application research of big data, artificial intelligence and other related innovative technologies in the management of online public opinion.

1. Research status of public opinion related to Yunnan under the background of media convergence

In the new network environment, the expression form of network public opinion is constantly updated, and the content of user-centered public opinion is also enriched. The Internet public opinion has undergone great changes in its data volume, complexity, generation speed and other characteristics^[1].

1.1 Current status and characteristics of public opinion content in Yunnan Province

Due to the unique landform features and rich resources of Yunnan Province, the contradictions arising in the process of environmental protection and resource development have become the focus of public opinion in Yunnan Province. Then, the ethnic-related public opinion content is also an important part of the public opinion in Yunnan Province^[2]. Next, in Yunnan Province, as a major tourism province, with the continuous development of the tourism industry in Yunnan Province, the public opinion related to tourist resorts and tourism events has also become the frequent public opinion content in Yunnan Province. Finally, in the national strategic development opportunities, dealing with the issues related to social and economic development and stabilizing social relations has also become an important part of the current public opinion concern in Yunnan Province. Based on the current situation of the content of the public opinion in Yunnan Province, the public opinion in Yunnan Province presents regional characteristics such as free interaction, pluralism, sudden and deviation.

1.2 Current situation of the dissemination of public opinion content related to Yunnan

Among the network information involving “Yunnan”, mobile client, wechat and Weibo are the most important communication camp of Internet public opinion. Among them, Toutiao, Tencent News and other clients push relevant content related to Yunnan, improve the frequency of information dissemination, and improve the spread surface and diffusion degree of public opinion information. The second is the wechat public account, because of its strong flexibility, wide communication, and high user stickiness, has become an important platform for the public to obtain information. The third is microblog, with the characteristics of high content freedom and large spatial attributes of public discourse, becoming the highest Internet interaction. Recently, short video platforms have also become the main channel for public opinion dissemination. With the iterative development of ICT technology, the transmission characteristics of the dissemination of online public opinions related to Yunnan are constantly changing, showing a new trend of ultra-territoriality, concealment and complexity.

2. Research on the application of innovative technology in network public opinion management

With the maturity of big data technology, the use of big data to process mass events should be able to ensure the objective quantitative analysis of massive data^[3]. Big data technology can accurately filter and screen the data, so as to realize the effective monitoring of public opinion. The application of innovative technology significantly reduces the amount of data calculation, greatly improves the operation efficiency, so as to ensure timely, reliable and accurate monitoring information.

In terms of artificial intelligence, the innovation and analysis of public opinion content has been fully expanded from cognitive dimension to emotional dimension. The results of the study confirm that deep learning methods have outperformed machine learning methods in emotion recognition tasks. In the study of semantic emotion of online public opinion, with the advantages of Transformer model algorithm, the in-depth analysis of situational word embedding, can more effectively deal with the data and information^[4] of semantic emotion of online public opinion. Emerging public opinion monitoring tools created by using artificial intelligence, big data analysis, public opinion sentiment analysis and other means have been effectively applied in the process of network public opinion management.

3. Construction of the dynamic communication model of public opinion in Yunnan

On the basis of the whole process of public opinion circulation communication, this study establishes a dynamic communication model in line with the characteristics of public opinion in Yunnan Province.

3.1 Theoretical basis for the construction of the dynamic communication model of public opinion related to Yunnan

At present, the application of infectious disease model in the spread of public opinion is widely studied. Such as: SEIR model; SIR model; SIS model; SIRS model, etc.^[5]. In the field of information communication, there are few studies integrating user emotions into dynamic models. We note that in 2019, relevant researchers proposed an emotion-based SIR model (E-SIR), which concluded that different emotions affect the scope of information dissemination, and it is important to understand how to effectively communicate information to the public in the desired emotional state on social media. Relevant researchers proposed the dynamic model of sensitive forwarding immunity (E-SFI) based on emotion based on the amount of tweets based on the public. The model verification results showed that the amount of tweets consistent with the original information was larger than that of other emotions. In order to optimize the intervention measures, relevant scholars designed the SDILR model, which is closer to the trend of public opinion communication. A “latent person” state is introduced in the model to more accurately describe the repeated rumor dissemination, but the model does not consider the mutual influence in the process of public opinion dissemination.

3.2 Description of the construction of the Yunnan-related public opinion communication management model

The cultural background of netizens in different regions in Yunnan province varies greatly. Therefore, it is very important to study the public opinion communication under incomplete information to master the law of public opinion communication on the social network in Yunnan Province. It is too rough to directly apply the mainstream SIR model to test the dissemination of public opinions related to Yunnan. Especially in view of the trend of repeated transmission of many hot public opinions in Yunnan Province in recent years, it is not reasonable to use the previous infectious disease model to assume that susceptible nodes are immediately transformed into infected nodes. In the design of public opinion dynamic transmission management model in Yunnan province before the research results, added a new state —— latency (Latent), considering the similar public opinion, historical public opinion has the possibility

of recurrence, the population in the model is divided into four groups: susceptible (S), infectious (I), latent (L), recovery (R), a more intuitive analysis of repeated public opinion transmission effect, based on the SILR model network public opinion dynamic transmission model. The recurrent occurrence of network public opinion means that after the original public opinion discussion stops, the new trend of the original event. The propagation law of network public opinion is similar to the transmission law of the original event public opinion discussion.

3.3 The emotional part in the circular public opinion communication management model

Considering in the process of information dissemination, the user emotion and emotion plays a decisive role, the model design process into the view of human psychology, considering the public opinion spread in the process of different emotions is how by forwarding and user emotional processing information, and cause repeated public opinion on the influence of public opinion transmission process. We propose a mood-based dynamic model, —— “E-SILR”, which can describe the pattern of recurrent transmission during public opinion communication, while focusing on changes in the distribution of public emotion associations during communication. In the “E-SILR” model, the susceptible population may be directly converted to an infection state. As the infected transmitter learns more about the full event over time and as the event develops, they become latent people. The infected person will carry their own clear emotions when spreading information, and the latent will also feel such emotions, but the emotions may be the same as those of the infected person, or may be different from those of the affected person. We need to take into account how in the dynamic development of public opinion, how the breeding of different emotions changes through information dissemination and the processing of users’ emotions, leading to the outbreak or disappearance of public opinion, and finally converging into a specific emotional state.

3.4 Factors influencing the repeated emergence of network public opinion related to Yunnan

The influencing factors of the recurrence of online public opinion are related to netizens’ behavior, government response, media reports and the event itself. In the research, relevant scholars made an accurate and detailed investigation of the behaviors related to netizens, the government and events, analyzed and selected three repeated influencing factors of online public opinion: public opinion heat, public opinion control effect, and relevance of event theme. Based on the above statement, Figure 1 shows the structure of our E-SILR dynamic model, which is used to investigate different public emotions triggered by specific public opinion events and repeated public opinion events. The emotions set by the model are positive, neutral or negative.

Model Verification Results:

The study found that the transition from infectious to latent was greater on social media. In addition, authoritative information reduces the possibility of new interest in repeated rumors, reducing the probability of transition from latent to infection. Therefore, in order to correct misinformation in time and effectively combat repeated rumors, we should improve the quality and quantity of authoritative reports on social media. The overall versus local stability of the model is analyzed based on the hypothesis of determining whether repeated rumors disappear. But during the study, we did not consider the interaction of rumors. This may have effects on the model parameters. Find the corresponding solutions in the future work.

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