Weibo Public Opinion Guidance Strategy Under Dual Vision of Sentiment Analysis and Image Restoration Theory

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ABSTRACT

The grievance subject coping strategies often affect the public's emotional changes, thus affecting the direction of lyrics. Therefore, it is of practical significance to study the public opinion guiding strategy from the emotional aspect. This paper establishes a research model combining emotion analysis and image restoration theory. Firstly, it uses text analysis to deal with Weibo public opinion, and initially understands the public's concern about the microblogging public opinion. Then, using sentiment analysis as the technical basis, it explores public microblogging public opinion. The emotional trend, and finally combined with the image restoration theory, the tactical choice of the lyrical subject to guide the lyrics. Through the combination of empirical analysis and analysis, the feasibility of the relevant theory is proved, and the coping strategies are proposed for the main body of the public opinion to guide the public opinion.

1. INTRODUCTION

With the advent of the new media era, the platform for lyric communication has gradually shifted from traditional media such as newspapers, radio and television to digital media in cyberspace. Among them, Weibo, as an important communication platform for new media, has important significance for the spread of public opinion. According to Weibo's first quarter earnings report for 2019, as of March 2019, Weibo's monthly active users (MAUs) reached 465 million, and the average number of daily active users (DAUs) reached 203 million. It can be seen that Weibo is the
activity center of most media users, and Weibo text as a carrier of public opinion communication can accurately reflect the public's concern and sentiment towards lyrics. Therefore, how to effectively extract and accurately grasp the public's attention and emotional tendency from a large amount of information in Weibo, so as to guide the public opinion, is of great significance to the development of public opinion and the subject of public opinion.

2. LITERATURE REVIEW

Text sentiment analysis, also known as opinion mining and orientation analysis, refers to the process of analyzing, processing, summarizing and reasoning subjective texts with emotional color. The mainstream methods of judging text emotions fall into two categories: one is the traditional method based on emotional dictionary construction, and the other is based on machine learning. Zhang Peng, Cui Yanqi and others (2019) combined with grounded theory, using point mutual information algorithm, TF-IDF, statistics and other methods to compile microblog emergency sentiment dictionary, the public opinion coping strategies selected at different stages of microblogging public opinion development A reference is provided [1]. Liu Qiuhui et al. (2018) extended the word vector training model CBOW and proposed the sentiment analysis model SR-CBOW. In the subsequent microblog emotional orientation analysis, good results were obtained [2].

The image restoration theory was proposed by William Benoit in 1997. The theory regards image as an important asset, emphasizing the adoption of five major strategies, namely, denying, avoiding responsibility, reducing hostility, correcting behavior and expressing apologies. Angle to manage and maintain the image to maximize the value of this asset [3]. Tian Weidong (2015) combed and analyzed the theory and proposed a four-step strategy: expressing apologies, investigating the truth, telling the truth, and correcting behavior [4]. Yao Yuan (2018) combined with the image restoration theory to analyze and analyze some of the recent corporate crisis communication events, and deepened the specific understanding of image restoration theory [5].

3. CONSTRUCTION OF WEIBO PUBLIC OPINION ANALYSIS MODEL BASED ON SENTIMENT ANALYSIS AND RESTORATION THEORY

This paper selects Sina Weibo as the research platform and proposes a microblog public opinion analysis model based on sentiment analysis and image restoration theory. Through word frequency analysis and emotional curve drawing, and introducing image restoration theory to draw different strategies, which should be used in different situations, this model mainly includes the following four parts.
3.1 Microblog data acquisition and preprocessing

Sina Weibo is selected as the research platform, and the data collected by Weibo is collected by the post-collector. The collected data includes the following: 1. The information and release time of the content published by Weibo. 2. Relevant Weibo comment text and release time. The data is stored in the database, the data is preprocessed, the duplicate data, the error data, the advertisement data, etc. are deleted, and the data cleaning work is completed to obtain valid data.

3.2 Microblog text frequency analysis

Firstly, the pre-processed text is processed by word segmentation, and the pre-processed text is processed by word segmentation using the Chinese word segmentation system, which is currently widely recognized. Considering the particularity of Weibo text, we chose BosonNLP sentiment dictionary as a custom dictionary, which is automatically constructed from millions of emotional annotation data sources such as Weibo, news, forums and other data sources. Many network terms and informal abbreviations have a high coverage rate for non-normative texts and have unique advantages. The word frequency statistics are performed on the words after the word segmentation, and the word frequency is processed by using the visualization tool to obtain the word frequency map.

3.3 Text emotional intensity calculation

This paper chooses an emotional dictionary based method for sentiment analysis. A major difficulty in sentiment analysis based on sentiment lexicon is the construction of emotional lexicon. The currently widely used dictionaries in the study include the HowNet Emotional Dictionary, the NTUSD of Taiwan University, and the Chinese Emotional Vocabulary Ontology Library of Dalian University of Technology. The ontology library of Dalian University of Technology is more comprehensive and detailed than the other two dictionaries, including the manual annotation of the emotional strength of the words. This dictionary is convenient for calculation.

In addition, whether the degree of adverbs and negative adverbs in the emotional text have a great influence on the analysis of the text, so we add the HowNet degree adverb dictionary and the negative adverb dictionary to the constructed emotional dictionary, using the manual annotation method. Degree adverbs and negative adverbs are used for intensity labeling and grading.

Since each microblog has a length of no more than 140 words, when it is emotionally calculated, it can be regarded as emotional calculation of the sentence. The emotional value of an event is the sum of the emotional values of all the microblog texts. This paper quotes the emotional calculation formula of the common combination rules proposed by Chen Guolan (2016) to calculate the emotional value.
of the sentence [6]. First, the emotional intensity V of the emotional word is determined by the selected dictionary, and then whether there is a negative word before the emotional word, -1 As the weight and determine the positive and negative of the emotion according to the number N of the negative words, in order to obtain the emotional value more accurately, according to the degree adverb M before the emotional word, the sentence is judged to reflect the strength of the emotion, and the calculation formula is summarized. As shown in the table below.

| Serial number | Level             | Words                                      | Weight |
|---------------|-------------------|--------------------------------------------|--------|
| 1             | Top level         | extreme, extraordinary, absolute, excessive, over-fired, etc. | 2      |
| 2             | Higher level      | however, many, more, extraordinarily, etc.  | 1.5    |
| 3             | Comparative level | more and more, also, then, big deal, etc.   | 1      |
| 4             | Lower level       | a little, mild, more or less, etc.         | 0.8    |

| Serial number | Combination                                           | Formula                      |
|---------------|-------------------------------------------------------|------------------------------|
| 1             | Emotional word                                        | $S = V$                      |
| 2             | Negative word + Emotional word                        | $S = V 	imes M$              |
| 3             | Negative word + degree adverb + emotional word        | $S = M 	imes V 	imes 0.5$   |
| 4             | Degree adverb + negative word + emotional word        | $S = M 	imes V 	imes 2$     |

3.4 Guide strategy based on image restoration theory

According to the emotional curve drawn in the previous part, we analyze the time nodes of the responses made by the lyrical subjects in the lyric events. In the evolution of lyricism, the lyric subjects adopt different attitudes and responses will affect the public's emotional trend and Lyric development trends. In this part, we divide the five strategies based on image restoration theory, namely, denial, avoid responsibility, reduce hostility, correct behavior and express apology to classify the response of the lyrical subject, and analyze the influence of the lyric subject on the trend of public opinion when adopting different strategies. Finally, an effective strategy for the lyric subject to correctly guide the direction of public opinion is obtained.

4. EMPIRICAL COMPARATIVE ANALYSIS

Event 1 CXW Incident of a University in Beijing: On January 1, 2018, a female doctor who claimed to be LQQ and now lives in the United States reported a
professor of a university in Beijing and a CXW sexual harassment female student of the Yangtze River Scholar. After investigations by various departments, the school decided to revoke the CXW teacher position, and the Ministry of Education decided to revoke the CXW “Changjiang Scholar” title, stop and recover the bonuses that have been issued.

Event 2 A school in Wuxi moved to the dormitory: On July 9, 2018, a student on Weibo who claimed to be a school in Wuxi broke the news: “A school in Wuxi disregards the interests of students, in order to allow foreign students to live in a dormitory, graduating to threaten students, forced the dormitory students to move out of the dormitory.” The school's late perfunctory response and re-exposure control caused public outrage.

According to the analysis model constructed above, the word frequency map is first obtained. For the event 1, it can be seen that in the whole process of the public opinion, the public opinion is focused on sexual harassment, the real name report of the party and the teacher qualification, education work, Responses, investigations and verifications, etc., can be seen that the public's attention to the public opinion is more objective, basically based on the nature of the incident and the concern about the response of the public opinion. For the event 2, the public's focus is on colleges and universities, education, response, exposure, and evaluation of the school's actions, such as worshipping foreigners, disgusting, garbage, etc.

![Figure 1. Lyric event word frequency comparison chart.](image)

Based on the unit time, the emotional value calculation rules of the two events are calculated according to the constructed emotional value calculation rules, and the emotional curve is drawn. The trend of the drawn emotional curve is obviously easy to judge the transition, and we unify it to \([-0.5, 0.5]\) within the interval.
According to the graph, the public’s emotions at different stages of lyrics are very different. This kind of difference is often related to the coping strategies adopted by the main body of the public opinion incident. By combining the image restoration theory, the results of the following pictures can be analyzed.

**TABLE III. EVENT 1 STRATEGY ANALYSIS TABLE.**

| Time            | Public opinion measures         | Strategy type          | Emotional trend                  |
|-----------------|---------------------------------|------------------------|----------------------------------|
| January 1       | Set up a work investigation team| Reduce hostility       | Negative emotion reduction       |
| January 11      | Official micro release bulletin | Corrective action      | Negative emotion turns positive  |
| January 14      | Ministry of Education revoked title | Corrective action         | Negative emotion reduction       |

**TABLE IV. EVENT 2 STRATEGY ANALYSIS TABLE.**

| Time            | Public opinion measures         | Strategy type          | Emotional trend                  |
|-----------------|---------------------------------|------------------------|----------------------------------|
| July 10 9:00 on July 11 | No response                     | Avoid responsibility   | Negative emotion                 |
| 11:00 on July 11  | Exposed to report students      | Avoid responsibility   | Negative emotions increase       |
|                  | Official micro release           | Avoid responsibility   | Reach negative                   |
|                  | announcement statement           |                        | emotional maximum                |

In the beginning and the outbreak of the public opinion event, the lyric subject did not evade or push, and first expressed the determination to take responsibility to the public, and at the same time quickly launched related investigations around the lyric incident and established The good image of fairness, impartiality and openness of the lyrics has played a role in appeasing public sentiment and has reduced the negative sentiment of the public. Ten days after the grievance occurred, the lyrical
subject completed the relevant investigation work and informed the public in a timely manner of the true situation and treatment results of the grievance incident, which minimized the negative impact of the incident and not only established a good image of the university itself. Moreover, the attitude of actively responding to the incident has been well received by the public. In the lyrical dissolution period, the public's emotions have turned from negative to positive, mostly due to the good feelings that the lyrical subject brings to the public.

In the event 2, when the public sentiment was at the beginning, the lyrical subject took the evasion and ignorance of the lyrics, attempting to fish in troubled waters, repeatedly challenging the public's patience, leading to the outbreak of grievances, and also causing the emotions of the event to go negative, when the public sentiment developed into the outbreak period. The lyrical subject adopted a coping strategy of escaping and denying here. The announcement of the matter was considered to be perfunctory and vague, and the public's emotions continued to move toward negative and reached a maximum, which greatly caused the image of the lyrical subject. Damage.

5. CONCLUSIONS

This paper combines sentiment analysis and image restoration theory to study the public opinion coping strategy. Through empirical comparison and analysis, it is found that adopting different strategies in different periods of public opinion will affect the public's emotional trend to a large extent, thus affecting the development of public opinion. In the process of dealing with public opinion, the lyrical subject needs to pay attention to coping strategies. First, we must grasp the best opportunity to respond to public sentiment, adopt a strategy of actively facing and responding appropriately to reduce public hostility, and release authoritative information in a timely manner to seize the opportunity of guiding public opinion. Second, timely publicize the progress of the incident, adopt a strategy to correct the behavior, and assume corresponding responsibilities through declarations and notifications, and obtain public support and understanding.

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