

Summer 7-26-2022

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### Recommended Citation

Wu, Qiuyao; Yin, Jun; and Ge, Shilun, "Research on the Influence of Social Media Emotion on Information Behavior in Information Security Events" (2022). *WHICEB 2022 Proceedings*. 21.  
<https://aisel.aisnet.org/whiceb2022/21>

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Extended Abstract

## Research on the Influence of Social Media Emotion on Information Behavior in Information Security Events

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**Abstract** The popularity of the Internet leads to frequent information security events, and emotional differences under different information security events lead to behavioral differences. In order to study the influence of social media emotions on information behavior under different event types, this study selected emotion-related behavioral data of microblog users based on two types of information security events. The results show that negative emotions negatively affect information adoption behavior and positively affect information interaction behavior. Positive emotions are the opposite; Low arousal positively affects information interaction behavior. High arousal positively affects information adoption behavior. Hacking events positively moderated the relationship between negative emotion and information interaction behavior, low arousal emotion and information adoption behavior. Data disclosure negatively moderates the relationship between positive emotion and information adoption behavior, low arousal emotion and information interaction behavior, and positively moderates the relationship between positive emotion and information interaction behavior. It provides the basis for enterprises to "take appropriate medicine" in the face of different information security events, and has certain reference value.

Keywords: Microblog users, social media sentiment, information behavior, information security incidents

### 1. INTRODUCTION

With the rapid development of Internet technology, the neglect of many system loopholes and security issues leads to frequent information security events. According to the social impact theory <sup>[1]</sup>, frequent information security events generate a large number of public opinion information, aggravate the emotional evolution, and easily lead to a strong rebound in information behavior, which brings heavy damage to enterprises. How to make the Internet "clear and clear" through reasonable emotions is of great significance. It is of great significance to strengthen network security and provide guidance to prevent emotional explosion on social platforms at the same time. Previous studies have focused on emotional valence dimensions, but from awakens the emotional dimension analysis, and research on the classification of information security incidents, is rarely, if ever, only a few appeared on the emergency research, but different from the real world of disaster events <sup>[2]</sup>, completely relies on the network information security events, mood and behavior more strongly. This study classifies emotions from the dimension of emotion valence and emotion arousal to explore the influence of two kinds of emotions on information behavior under different types of information security events.

### 2. THEORETICAL FOUNDATION AND HYPOTHESES

Emotional cognition theory <sup>[3]</sup> proposed that information behavior is generated under strong emotional stimulation of internal and external environment. Information adoption behavior refers to users' acceptance and use of other users' information, namely, forwarding behavior. Information interaction behavior refers to users' strong personal motivation and expression to show and interact with other users, namely forwarding and comment behavior. The two-dimension theory <sup>[4]</sup> defines emotions from the valence dimension and the arousal dimension by means of coordinate axes. The valence dimension is divided into positive and negative emotions

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based on users' judgment on the value of information security events, and the arousal dimension is divided into low arousal and high arousal emotions based on users' judgment on the urgency of information security events. This study extends it to the field of information security, divides emotion into valence dimension and arousal dimension, and studies its influence on information behavior under information security events respectively.

### 3. RESEARCH METHODOLOGY AND RESULTS

By obtaining data from Weibo, the incidence list of CNCERT information security events and the number of Weibo topics are comprehensively analyzed. According to the manifestations of information security events, the two types of information security events with the highest incidence from December 2018 to December 2021 are selected: hacker attack (37.9%) and data leakage (25.3%). Among hacker attacks and data leaks, 15,847 entries said baidu's web disk was cracked, and 20,614 entries said information of 216 million Facebook users was leaked. Based on the length of each time window and text volume, the data were processed in four stages according to the development process of the event: incubation period, outbreak period, spread period and decline period. Using the emotion dictionary of Lin Hongfei's team at Dalian University of Technology, the emotion values in two dimensions were obtained from the seven emotions of joy, good, sorrow, anger, surprise, evil and fear.

Negative emotions ( $\beta=-0.079$ ,  $p<0.001$ ) negative influence on information adoption behavior, positive emotion (comment:  $\beta=-0.004$ , release:  $\beta=-0.001$ ) negative influence on information interaction behavior ( $p<0.05$ ), except for low arousal emotion and high arousal emotion, there was no significant influence on information adoption behavior and information interaction behavior ( $p>0.05$ ) had positive influence on information behavior ( $\beta>0$ ,  $p<0.05$ ), that is,  $H_{1a}$ ,  $H_{1b}$ ,  $H_{2a}$  and  $H_{2b}$  have been verified. Hacker attack events positively moderated the relationship between negative emotions and information interaction (comment:  $\beta=0.164$ , release:  $\beta=0.026$ ,  $p<0.05$ ), data disclosure events negatively moderated the relationship between positive emotion and information adoption behavior ( $\beta=-0.024$ ,  $p<0.05$ ), positively moderated the relationship between positive emotion and information interaction (comment:  $\beta=0.024$ , release:  $\beta=0.166$ ,  $p<0.05$ ); Hacking positively moderated the relationship between low arousal and information adoption behavior ( $\beta=0.113$ ,  $p<0.05$ ); Data disclosure negatively moderated the relationship between low arousal and information comment behavior (comment:  $\beta=-0.218$ , post:  $\beta=-0.142$ ,  $p<0.05$ ). That is,  $H_{3a}$ ,  $H_{3b}$ ,  $H_{3c}$  and  $H_{3d}$  are all partially verified.

### 4. CONCLUSION AND DISCUSSIONS

The results are of great significance both theoretically and practically. Theoretically, based on two dimensional theory to distinguish the mood, broaden the sentiment classification, potency dimension under the user through perception, memory, analysis, evaluation, meditation, different emotions produce different titer evaluation results, and choose different behavior patterns, wake up the dimensions confirmed that influenced by the importance, emergency atmosphere to promote the individual active information behavior. In practice, sentiment analysis is promoted to be extended to more fine-grained information security events. Compared with the capture progress of emergencies, transparency and virtual information security events tend to make people ignore differences in types and more complex comparisons in emotions. When studying the influence of emotion on information behavior, information security events can be divided into more precise granularity to study the †influence of different types of information security events on information behavior.

### REFERENCES

- [1] Kelman H C. (1974). Social influence and linkages between the individual and the social system: urther thoughts on the processes of compliance, identification, and internalization[J]. Tedeschi perspectives on social power. 66-79.

- [2] Dailey D, Robinson J, Starbird K. (2016). Sharing food, gathering information: the context and visibility of community information work in a crisis event[C]. Iconference.
- [3] Schachter S, Singer J. (1962). Cognitive, social, and physiological determinants of emotional state[J]. Psychological review. 69(5): 379-399.
- [4] Russell J A. (1980). 'A Circumplex Model of Effect' [J]. Journal of Personality & Social Psychology. 39(6): 1611-1178.