

# ***The Impact of Social Rumor-Based Short Videos on Prosocial Tendencies: Viewing Duration, Social Recognition, and Risk Warnings***

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**Abstract:** With the rapid development of mobile communication media, internet platforms have become important channels for audiences to acquire information. Among the wide variety of short videos, social rumor-based short videos are relatively more attention-grabbing due to their close relation to daily life. As a result, when such videos contain rumors or misleading information, they inevitably affect the audience's cognition. Whether these videos impact the prosocial tendencies of audiences is a crucial issue. Based on the audience's cognitive process, this paper uses experimental methods to explore whether social rumor-based short videos have a direct impact on prosocial tendencies. The study also examines whether the mediating variables of trust and deliberative thinking influence prosocial tendencies. This research has theoretical and practical significance for addressing the challenges posed by "human-machine collaboration" in content production, AIGC deepfake technologies, and the network governance and influence of AI-generated content on the prosocial tendencies of audiences in the intelligent communication era.

## **1. Introduction**

With the rapid development of mobile communication devices, short video platforms such as Douyin and Kuaishou have become important channels for people to obtain information. According to the 2023 China Network Audiovisual Development Research Report, by March 2023, the number of short video users in China exceeded 1 billion, accounting for 94.8% of the total number of internet users[1]. While these platforms have become a major source of information, they have also given rise to numerous negative and inflammatory social rumors that harm social stability. Social rumors in short videos refer to false or misleading information about social events, public interests, or social groups spread on short video platforms. These rumors are often provocative, emotional, and viral in nature, easily attracting public attention and reactions. For example, in May 2023, a certain individual named Yu in Anhui, seeking attention, fabricated and posted a rumor on a social media platform, claiming "no shame, eating barbecue can even kill someone" after a dispute occurred between neighboring tables at an open-air barbecue stall in Mingguang Central Square, where a police officer had already intervened and resolved the situation without any injuries. This rumor disturbed social

public order[2]. Another example occurred in April 2023, when a video claiming “three black men sexually assaulted a female student at Yunnan Business College” spread widely online, sparking anger and panic among netizens and even leading to public calls for a boycott of black people. However, after investigation by Yunnan police, it was revealed that the video was a false rumor fabricated by internet users seeking attention, disrupting social public order[3]. In particular, in the AIGC era, while the production capacity of false information has increased, older and younger groups find it difficult to distinguish social rumor-based false short videos. These groups, affected by the cognitive model of information, struggle to effectively discern the information they receive within the “information cocoon”. Once the audience cognitively accepts the content spread by social rumor-based false short videos, the public opinion guidance role of official media reports is greatly weakened. Therefore, this study examines social rumor-based false short videos in terms of viewing duration, social recognition, and risk warnings, aiming to effectively address the cognitive impact such videos have on audiences.

## 2. Literature Review

In the Chinese context, rumors are information fabricated with subjective malice[4]. According to the United Nations report *Countering Disinformation, Promoting and Protecting Human Rights and Fundamental Freedoms* published in 2022, misinformation refers to incorrect information shared unintentionally, while disinformation is deliberately inaccurate, is intended to deceive, and is shared with the purpose of causing significant harm.[5]. In the domestic governance context, disinformation and rumors can be considered similar concepts[6]. Rumors, as a common social phenomenon, are typically spread through oral communication[7]. However, with the rapid development of mobile communication devices, short video platforms have become important channels for people to access and spread information. The proliferation of social rumor-based short videos on these platforms may influence viewers’ prosocial tendencies.

### 2.1 What is the Core of Prosocial Behavior?

Prosocial behavior refers to actions that benefit others, groups, and society as a whole[8]. Such behaviors include actions like politeness, helping, sharing, comforting, donating, and cooperating[9]. It also refers to any self-sacrificing actions taken by individuals for the benefit of others, which contribute to social harmony[10]. Prosocial behavior is not only an essential foundation for maintaining good relationships among social members but also a crucial guarantee for upholding social justice and harmony[11]. Since the 1980s, the formation and development of human prosocial behavior has been a key focus in the field of moral development psychology[12]. Related studies mainly focus on the use of behavioral experiments to examine how individual personality factors and external social factors, such as moral values[13], personality traits[14], parenting styles[15], and social contexts[16] affect prosocial behavior. Additionally, some studies have explored how cognitive factors, such as psychological theories and perspective-taking, influence individual prosocial behavior from a developmental perspective[17].

According to social learning theory, media information such as films and videos can have an impact on individuals[18]. This also includes prosocial behavior. Some scholars have explored the positive effects of new media on prosocial behavior. For example, the virtuality and anonymity of the online environment increase individuals’ self-disclosure, which is beneficial for the extension of their self-concept.

## 2.2 The Role of Trust and Thoughtfulness Levels

Previous studies have shown that viewing duration reflects the extent to which the brain interprets information from the viewing area[19]. It also indicates the depth of cognitive processing by the reader[20]. This suggests that longer video viewing times may increase users' trust in short videos. Similarly, high social recognition, such as high likes, shares, and the bandwagon effect created by information released by official accounts, can also lead to an increase in users' trust in the information. Moreover, the presence of directional warning labels in short videos can, to some extent, reduce users' trust in social rumor-based short videos, thereby mitigating the impact of rumors on users. Based on this, the second research hypothesis is proposed: Trust plays a mediating role between viewing social rumor-based false short videos and prosocial tendencies.

Users are not equally susceptible to deception[21]. Individuals who are inclined or motivated to engage in thoughtful consideration may more effectively utilize their “defensive system”. Therefore, in this study, we investigate the potential relationship between deliberative tendencies and video trust. Based on the dual-process framework, the Cognitive Reflection Test (CRT) [22] has been widely used to assess individual differences in conscious and deliberative thinking tendencies. People who perform well on the CRT tend to engage in analytical and thoughtful thinking, are more likely to reach logically sound solutions, and reject intuitively appealing but logically flawed solutions. There is substantial evidence that stronger deliberative thinking is associated with higher trust and greater accuracy in judgments of authenticity. Therefore, this study proposes the third research hypothesis: The level of deliberative thinking moderates the relationship between viewing social rumor-based false short videos and trust. (Figure 1)

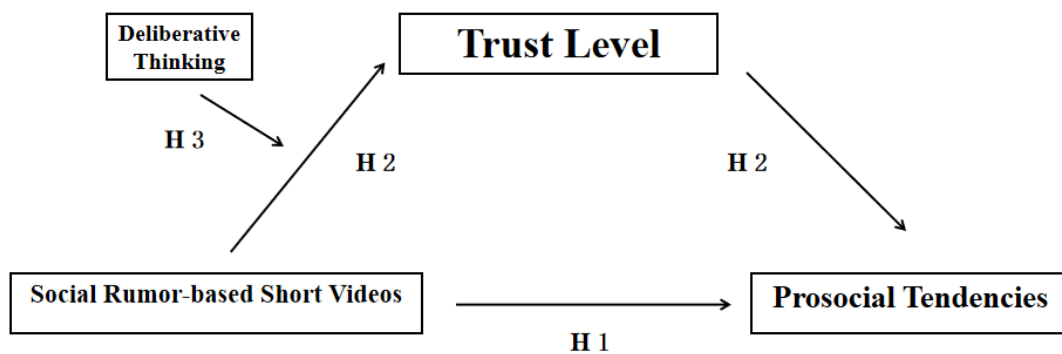


Figure 1: Research Hypothesis Diagram

## 3. Research Method

The study recruited and included 73 valid participants, consisting of 6 males and 67 females, with ages ranging from 18 to 47 years ( $M = 22.384$ ,  $SD = 5.198$ ). The participants were randomly divided into two groups: an experimental group (30 participants) and a control group (43 participants). All participants voluntarily participated in the experiment and signed an informed consent form. Upon completion of the experiment, participants were compensated with appropriate experimental rewards.

### 3.1 Research Design

A one-factor between-subjects experimental design was used. The independent variable was the video type (social rumor-based false short videos / unrelated videos), and the dependent variable was prosocial tendencies.

### 3.2 Research Materials

-Trust: The Perceived Authenticity Scale used by Liu Chunian and Chen Mengqiu (2023) was adopted. This scale includes three items, such as “I believe the information expressed in this video is true”. A Likert five-point scale was used, with scores ranging from 1 to 5, where 1 indicates strong disagreement and 5 indicates strong agreement. The Cronbach’s  $\alpha$  coefficient for this scale was  $\alpha = 0.954$ .

- Deliberative Thinking: The CRT-7 scale proposed by Toplak et al. (2014) was used. This scale includes seven items, such as “A racket and ball together cost 110 yuan. It is known that the racket costs 100 yuan more than the ball. How much does the ball cost?”

- Prosocial Tendencies: The Prosocial Tendencies Scale used by Wu Lizhao (2023) was adopted. This scale includes 26 items, such as “When others are present, I will do my best to help others”. The scale uses a Likert five-point scale, with scores ranging from 1 to 5, where 1 indicates disagreement and 5 indicates strong agreement. The Cronbach’s  $\alpha$  coefficient for this scale was  $\alpha = 0.964$ .

### 3.3 Research Procedure

Before the formal experiment began, participants filled out basic information forms. Then, the official experiment commenced. First, participants completed the deliberative thinking level scale. Next, participants watched the videos. The experimental group watched three social rumor-based false short videos, while the control group watched a science popularization video explaining wave-particle duality. After watching the videos, participants rated the trustworthiness of the videos. Finally, participants completed the deliberative thinking level scale again. Upon completion of the experiment, participants received the corresponding experimental compensation.

## 4. Research Results

### 4.1 Descriptive Statistical Analysis

As shown in Table 1, there is a significant negative correlation between social rumor-based short videos and trust ( $r = -0.434$ ,  $p < 0.001$ ), and a significant positive correlation with deliberative thinking ( $r = 0.360$ ,  $p < 0.01$ ). However, no significant correlation was found between social rumor-based short videos and prosocial tendencies ( $p > 0.05$ ). There is a significant positive correlation between trust and prosocial tendencies ( $r = 0.367$ ,  $p < 0.01$ ).

Table 1: Descriptive Statistical Analysis Results

Descriptive Statistics			
	Mean	Standard Deviation	Sample Size
Age	22.38	5.198	73
Gender	1.92	0.277	73
Education Level	3.07	0.509	73
X	0.59	0.495	73
W	1.97065	2.801133	73
M	3.20091	1.09536	73
Y	3.66702	0.751675	73

Note: \* $p < 0.05$ , \*\* $p < 0.01$ , and similar hereafter.

## 4.2 Trust and Prosocial Behavior Difference Test

An independent samples t-test on trust revealed that the trust level in the experimental group ( $M = 2.801$ ,  $SD = 1.087$ ) was significantly lower than that in the control group ( $M = 3.767$ ,  $SD = 0.840$ ),  $t(71) = 4.064$ ,  $p < 0.001$ , as shown in Figure 2. An independent samples t-test on prosocial tendencies showed that the experimental group ( $M = 3.619$ ,  $SD = 0.680$ ) had lower prosocial tendencies than the control group ( $M = 3.736$ ,  $SD = 0.851$ ), but no significant difference was found, as shown in Figure 3.

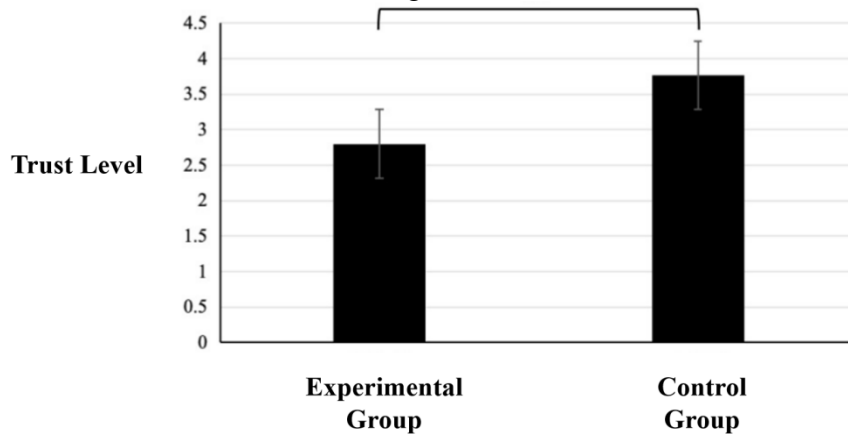


Figure 2: Trust Level

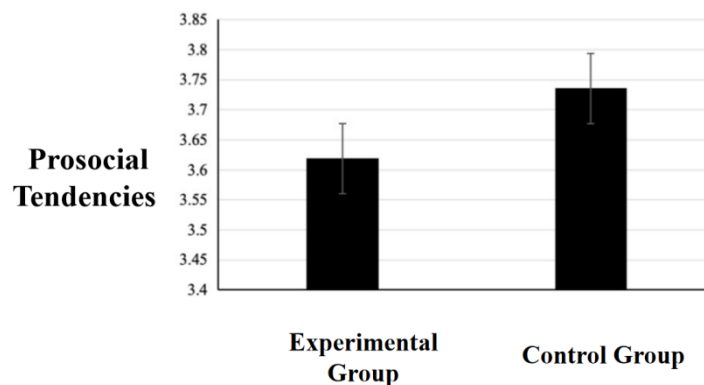


Figure 3: Prosocial Tendencies

## 4.3 Mediation Effect of Trust

A regression analysis between trust and prosocial tendencies revealed that the regression coefficient of social rumor-based short videos on trust was  $-0.955$  ( $t = -3.605$ ,  $p < 0.001$ ). The impact of social rumor-based short videos on prosocial tendencies was not significant ( $p > 0.05$ ), while the regression coefficient of trust on prosocial tendencies was  $0.283$  ( $t = 3.294$ ,  $p < 0.01$ ). The regression results for each variable are detailed in Table 2.

To further clarify the psychological mechanism by which social rumor-based short videos influence prosocial tendencies, a bias-corrected bootstrapping test (with 5000 resamples) was conducted using PROCESS model 4 in SPSS 27. The results showed that the direct effect of social rumor-based short videos on prosocial tendencies was  $0.158$ , with a 95% confidence interval (CI) of  $[-0.240, 0.567]$ . The total effect of social rumor-based short videos on prosocial tendencies through trust was  $-0.112$ , with a 95% CI of  $[-0.513, 0.289]$ , indicating that the mediation effect of trust was not significant.

Table 2: Mediation Effect Test Results

Variable	Trust Level			Prosocial Tendencies		
	$\beta$	<i>SE</i>	<i>t</i>	$\beta$	<i>SE</i>	<i>t</i>
Age	0.007	0.028	0.257	0.007	0.02	0.342
Gender	-0.043	0.444	-0.097	0.285	0.314	0.907
Education Level	0.168	0.256	0.657	0.003	0.182	0.015
Social Rumor-based Short Videos	-0.955***	0.265	-3.605	0.158	0.205	0.774
Trust Level				0.283**	0.086	3.294
$R^2$	0.194 0.17 0.19			0.154		
Adjusted $R^2$	0.147 0.16 0.17			0.091		
<i>F</i>	4.093** 9.44** 10.18***			2.436*		

#### 4.4 Moderating Effect of Deliberative Thinking

To explore the moderating effect of deliberative thinking between social rumor-based short videos and trust, a regression analysis was conducted on trust. The results, as shown in Table 3, revealed that the interaction term between social rumor-based short videos and deliberative thinking did not significantly affect trust ( $p > 0.05$ ).

Table 3: Moderating Effect Test Results

Variable	Trust Level		
	$\beta$	<i>SE</i>	<i>t</i>
Age	0.001	0.029	0.053
Gender	-0.061	0.450	-0.136
Education Level	0.128	0.261	0.490
Social Rumor-based Short Videos	-1.562	0.997	-1.567
Deliberative Thinking	0.216	0.322	0.671
Social Rumor-based Short Videos $\times$ Deliberative Thinking	-0.412	0.782	-0.535
Trust Level			
$R^2$	0.457 0.17 0.19		
<i>F</i>	2.908* 9.44** 10.18***		

To explore the moderating effect of deliberative thinking between social rumor-based short videos and trust, a bias-corrected bootstrapping test (with 5000 resamples) was conducted using PROCESS model 7 in SPSS 27. The results, as shown in Table 4, indicated that in both the high deliberative thinking group (95% CI = [-0.522, 0.078]) and the low deliberative thinking group (95% CI = [-2.350, 0.362]), the effect of social rumor-based short videos on prosocial tendencies through trust was not significant.

Table 4: Moderated Mediation Effect Test Results

Path		<i>Effect</i>	<i>SE</i>	<i>LLCI</i>	<i>ULCI</i>
Social Rumor-based Short Videos → Trust → Prosocial Tendencies	High Deliberative Thinking (-1 SD)	-0.201	0.151	-0.522	0.078
	Low Deliberative Thinking (+1 SD)	-0.773	0.04	-2.350	0.362

## 5. Conclusion and Discussion

With the arrival of the intelligent communication era, the influence of short videos on individual audiences is expected to continue to grow in the future. Influenced by the media information dissemination characteristics of smartphones, social rumor-based short videos can rapidly spread in an explosive manner. Meanwhile, mainstream media are no longer able to verify such information in a short period of time, leading to the rapid formation of a public opinion field. Once this field is established, subsequent reporting by official media often falls into the “Tacitus Effect”, where their public opinion guidance is significantly weakened. Therefore, the impact of social rumor-based short videos on prosocial behavior is an important issue in the field of internet governance.

Based on experimental methods for comparative research, this study offers some insightful implications for exploring the potential relationship between social rumor-based short videos and prosocial tendencies. We found that social rumor-based short videos may influence prosocial behavior, which significantly hinders mainstream media in their efforts to guide public opinion. Such videos have a certain negative impact on internet governance.

In this study, a significant negative correlation was found between rumors and trust, indicating that media credibility is an important factor in whether audiences choose to believe social rumor-based short videos. Therefore, building a strong media brand and enhancing the media’s own credibility become effective ways to address the “Tacitus Effect” in public opinion guidance.

This study also has certain limitations. First, the sample we selected primarily consists of university students from the northwest region of China. While this group represents a major internet user demographic, the data collection is somewhat limited in scope, as the sample is concentrated in terms of age, geographic distribution, and educational level. As a result, it cannot fully represent the entire population of social rumor-based short video viewers across different regions, age groups, and education levels. Second, although the participants are a major internet-using group, they were not randomly selected, which means the sample does not follow a probability sampling method. Third, this study focuses on audience information processing abilities and cognitive limitations, especially in relation to how people handle and discern social rumor-based short videos. However, it does not take into account the role of emotions in information processing and dissemination. Specifically, the impact of emotional anxiety caused by news proximity factors and how individuals’ perceptions of unknown risks influence their cognitive judgments and behavior in spreading information was not addressed. These limitations were not resolved or fully considered in this study. In future research, the investigators will continue to explore how smart algorithm recommendations and AI-driven content production affect individual audience members’ processing, discernment, and behavior regarding social rumor-based short videos.

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