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Text-image Congruence and Its Impact on Online Rumor Dissemination

Research-in-Progress

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Extended Abstract

In the digital era, text-image messages have gained significant traction on social media. Besides enhancing the efficiency of information exchange on social media (Aydin 2020), such vivid form of messages also facilitates online rumor dissemination. Dissemination of rumors can have serious consequences. Rumors may mislead well-intentioned individuals who seek help, causing psychological distress and distorted perceptions (DiFonzo et al. 1994). Moreover, when spreading on a large scale, they have the potential to disturb police investigations, create chaos and panic, and seduce stigma and polarization (Huang et al. 2015). In the context of online rumors spreading, text-image rumors stand out as they effectively convey information through a synergistic combination of textual and visual elements as images possess the advantages of capturing individuals' attention and enhancing their memory retention. While the prevalence of this form of rumor on social media is increasing, researchers and platform administrators have limited knowledge regarding the underlying mechanisms that drive their viral dissemination, including how text and images synergistically lead to the dissemination of online rumors.

The existing body of research has examined text-image congruence, aiming to understand how text and images work together in a variety of contexts. Text-image congruence is a fundamental characteristic that determines how effectively a multimodal message conveys its intended meaning. Text-image congruence is a subjective concept without a universal conceptual definition, and its interpretation varies depending on the consideration of different aspects. Therefore, it remains a matter of contention whether online rumors with lower or higher text-image congruence will facilitate their dissemination more effectively on social media platforms. On the one hand, perceived credibility has been identified as an important antecedent for the dissemination of online rumors. This research stream underscores the significance of rationality and objectivity in information processing, which mainly relies on factual evidence, and logical reasoning (Baptista and Gradim 2020). On the other hand, social media users are more likely to engage with content that resonates with their pre-existing identities, beliefs, and emotions. This phenomenon, as highlighted by Buchanan (2020) underscores the critical role of creative thinking and free association in fostering an environment conducive to exploring novel ideas and possibilities. Considering the recent theoretical account of the imagination effect, which is considered a higher mental process enabling individuals to comprehend and manage uncertainty effectively (Leahy and Sweller 2008). In the context of text-image online rumors, the power of images coupled with the inherent uncertainty of context can stimulate individuals' imaginative faculties. Consequently, this can activate individuals' imaginations and make rumors more intriguing and shareable. However, there is still a lack of understanding regarding the impact of text-image congruence on the dissemination of rumors on social media.

To fill this gap and elucidate the details regarding the impact of text-image congruence on online rumor dissemination, we identify the dimensions of text-image congruence into content object congruence, semantic meaning congruence, and emotional appeal congruence based on existing literature. Specifically, to explore the relationships between the three dimensions and online rumor dissemination, we build our research framework (shown in Figure 1) upon the combined consideration of the above theoretical accounts.

Accordingly, we propose novel conceptualizations wherein both content object congruence and semantic meaning congruence are predicted to exhibit an inverted U-shaped association with the dissemination of online rumors considering the intricate mixed effects of perceived credibility and imagination. Moreover, we propose a U-shaped association between emotional appeal congruence and the dissemination of online rumors based on the existing evidence from the literature.

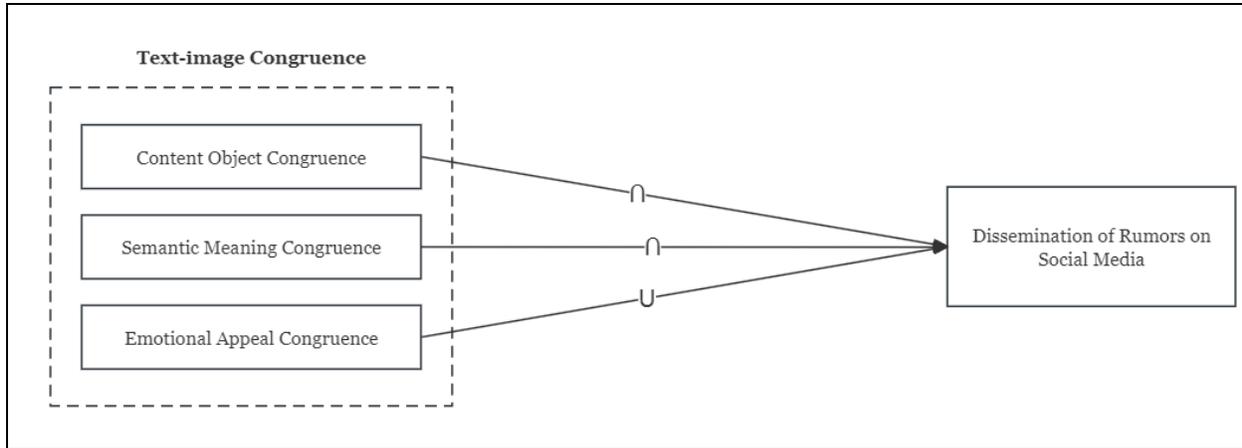


Figure 1. Research Framework

To validate our framework with the observational data, first, we required detailed information regarding rumor dissemination and rumor post messages. Some of these data are limited historical availability (e.g., invalid images), potentially influenced by post-manipulation from the rumormongers (e.g., deleted posts), and do not perfectly identify the veracity of rumor (i.e., whether the rumor is the true statement of false information). To circumvent these challenges, we resort to collecting data from the official rumor-refuting platform provided by Sina Weibo focused on debunking online rumors. The rumors that were debunked on this platform vary in modality, ranging from plain text rumors, and text-image rumors to multimodal rumors (e.g., manipulated videos, deepfakes). The collected dataset underpinning this study encompasses 1246 text-image rumors between 2017 and 2023 culled from the rumor-refuting platform compilation, representing a diverse array of rumors that have been officially identified as false information by the authoritative channel, thereby rendering them as misinformation or disinformation. The rumor topics span various categories such as social events, medical information, and business campaigns, guaranteeing a representative sample that mirrors the diverse range of categories frequently promoted on social media. In our investigation into these officially verified rumors, we tracked the total reshare count of each rumor during its period. This involved monitoring the number of times each rumor was shared from the moment it was initially published and made public, until the date we collected the data for our study. Furthermore, we collected not only both textual and visual content but also diligently compiled corresponding information about the rumormongers themselves for each of these verified rumors. This exhaustive approach was undertaken to ensure utmost data integrity, thereby facilitating a thorough and accurate analysis of each rumor's dissemination. Second, we aim to develop the measurements with the aid of machine learning-based approaches to examine the effect of text-image congruence on the dissemination of online rumors. Moreover, we intend to employ a multi-method approach incorporating a focus group, secondary data analysis, and experimental design to analyze data that we collected from the leading Chinese network, Sina Weibo.

Our work intends to contribute to Information Systems (IS) research and practices in several ways. Theoretically, first of all, this research is an important attempt to extend the effect of text-image congruence to the field of social media rumor dissemination. Secondly, this research can extend the literature on the drivers of social media rumor dissemination from the perspective of text-image congruence. Thirdly, we clarified the conceptual understanding of text-image congruence by identifying the dimensions of text-image congruence in terms of content object congruence, semantic meaning congruence, and emotional appeal congruence. Finally, we aim to provide a theoretical explanation regarding the impact of text-image congruence in social media rumor dissemination by incorporating accounts of perceived credibility, imagination, and emotions. Practically, by investigating the correlation between text-image congruence and the dissemination of rumors, this research can contribute to a broader understanding of how multimedia

content influences the formation of public opinion and human behavior. Consequently, the insights derived from this research hold valuable lessons for professionals in communication, marketing, IS, and policymaking fields alike, enabling them to effectively employ multimedia content to engage and influence their target audiences.

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